



INDUSTRY LEADING NANOFORMULATED
SUPPLEMENTS AND ADVANCED PROTOCOLS

— **CATALOG** —
VOLUME III



QUICKSILVER
SCIENTIFIC®



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Welcome

TO OUR QUICKSILVER PRACTITIONERS,

I believe that natural, radiant, and robust health is our birthright.

Of course, good nutrition is essential for this, but in today's toxic, depleted, and stress-filled world, it's hard to get enough support from food alone. Supplementation seems an obvious solution, but despite the claims, many supplements on the market fail to deliver on their promise. That's why I founded Quicksilver Scientific.

It all started with my quest to solve my own health problem of mercury toxicity. I needed a way to increase absorption and bioavailability of certain nutrients – in my case, glutathione. Typical delivery methods of glutathione rendered it ineffective as it was easily broken down in the GI tract. In looking for a way to bypass this issue, I came upon a promising delivery form – the liposome.

Unfortunately, the quality of existing liposomal products was low and variable. So, I made them myself. After months of trials and obsession, I figured out the core principles and chemistry needed for nutraceutical liposomes, which evolved into our flagship product, Liposomal Glutathione. It continues to be widely recognized as the gold standard for all liposomal glutathione products on the market today.

Our delivery technology, also known as Quicksilver Delivery Systems®, is what sets us apart and supports the bioavailability of many difficult-to-absorb ingredients. But it isn't the only thing. We also make it our passion to develop ingredient decks for complex targeted formulations, and we have incorporated many of these products into highly sophisticated detoxification and cardiometabolic protocols that have been adopted and praised by healthcare practitioners worldwide. And as Quicksilver's technology continues to evolve, taking us into the arenas of immune health, longevity and hormones, there seems to be no end to what can be imagined and formulated.

It is my vision to continue pushing the supplementation innovation-boundaries to bring you the highest quality, efficacious products possible for human optimization.

~ Dr. Chris Shade, Founder and CEO



SCAN THIS CODE TO
LEARN MORE ABOUT
DR. CHRIS SHADE



Our Philosophy

OUR PHILOSOPHY IS THREE-FOLD:

1. DETOXIFICATION FOR LONGEVITY

Founded on the principle that we must first “remove” barriers to wellness before we can “build and optimize”, Quicksilver Scientific has achieved an industry leading reputation for developing and manufacturing advanced detoxification products and comprehensive detoxification systems backed by science.

2. BIOAVAILABILITY MATTERS

We are committed to delivering on the promise of natural health with highly bioavailable products. Quicksilver uses proprietary nanoparticle delivery, more commonly referred to as liposomal delivery for cellular absorption of ingredients - bypassing digestion and first-pass metabolism. Learn more about the Quicksilver Delivery System® (QDS) difference on the next page.

3. BIOSYNCHRONOUS-ACTIVATION® SETS US APART

Products using traditional delivery methods are unable to cohesively activate pathways due to the slow and variable metabolism of ingredients. Our proprietary nanoparticle delivery technology enhances the bioavailability, absorption, and timely delivery of ingredients. This delivery + timing creates a cohesive activation of pathways for consistent and measurable results.

OUR MISSION

To deliver on the promise of natural medicine to optimize quality of life.

OUR NORTHSTAR VALUES

- **Craftsmanship + Integrity:** Manufacturing highly bioavailable, science-backed, products with premium ingredients.
- **Agility, Audacity + Innovation:** Leading the way in natural health through risk-taking and adaptation.
- **Continuous Improvement + Learning:** Constant iteration and improvement is our hallmark.
- **Self-Awareness:** We strive for self-reflection and authenticity.
- **Mutual Respect, Openness + Exchange:** Working cross-functionally with collaboration and reciprocity.

OUR PHILOSOPHY IS ALSO OUR VISION

We break barriers in the quest to support healthier, more vibrant lives.

QUICKSILVER DELIVERY SYSTEMS® DIFFERENCE

Quicksilver Delivery Systems® (QDS) is a signature trademark and has set the standard for lipid nanoparticle delivery technology within the dietary supplement industry. QDS technology enables high bioavailability and absorption of difficult-to-absorb ingredients to support better, more consistent outcomes for your patients.

Each formulation we develop is accompanied by the highest quality ingredients and its own unique delivery tech chemistry creating stable and efficacious products. Tight quality controls are employed with every batch to ensure the smallest particle sizes for optimal bioavailability.

| QUICKSILVER PROPRIETARY TECHNOLOGY FORMATS | |
|--|---|
| TECHNOLOGY | INGREDIENT EXAMPLES |
| LIPOSOMES | WATER SOLUBLES • Glutathione • Vitamin C • B Vitamins |
| NANOEMULSIONS | FAT SOLUBLES • Vitamin D • Vitamin A • CBD |
| NANOFORMULATIONS | FAT/WATER SOLUBLE BLENDS |
| SELF-EMULSIFYING DELIVERY SYSTEM ("SEDS") | FAT SOLUBLES • Quercetin • Curcumin |
| NANO GUMMIES | FAT/WATER SOLUBLE BLENDS |

When formulating a Quicksilver product, the delivery system is chosen based on the ingredients.

THE QDS DIFFERENCE: COMPOSITION AND SIZING

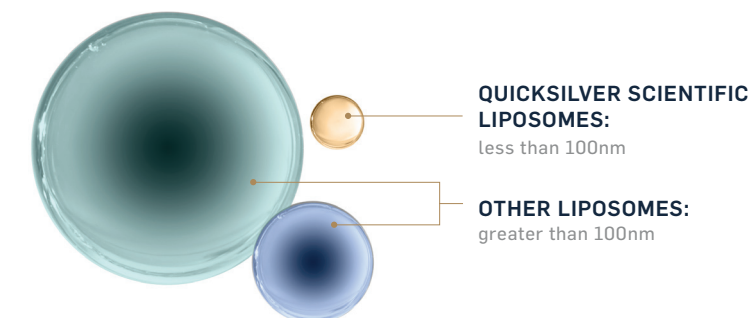
There are two critical factors that need to be addressed when manufacturing our products to achieve optimal bioavailability: ingredient composition and particle size.

NANOPARTICLE COMPOSITION

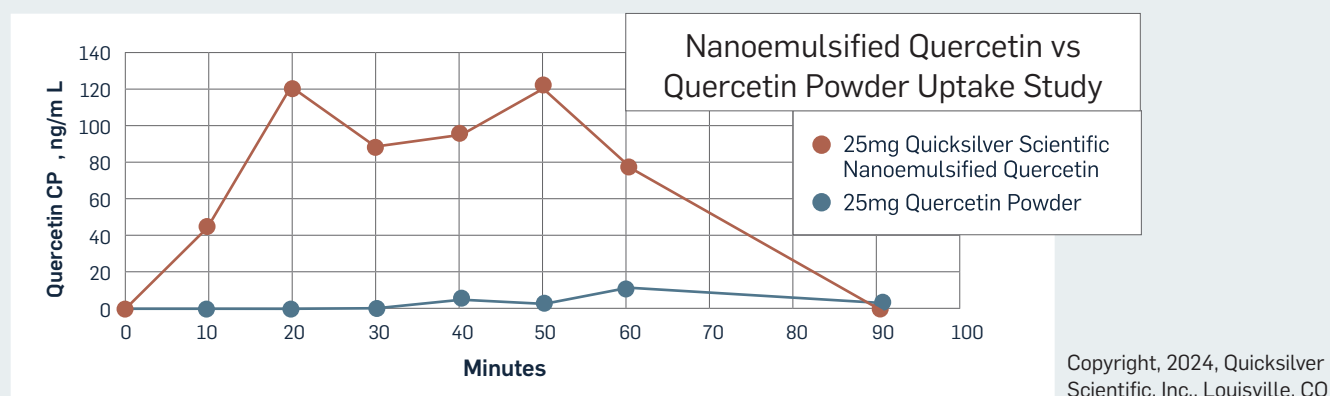
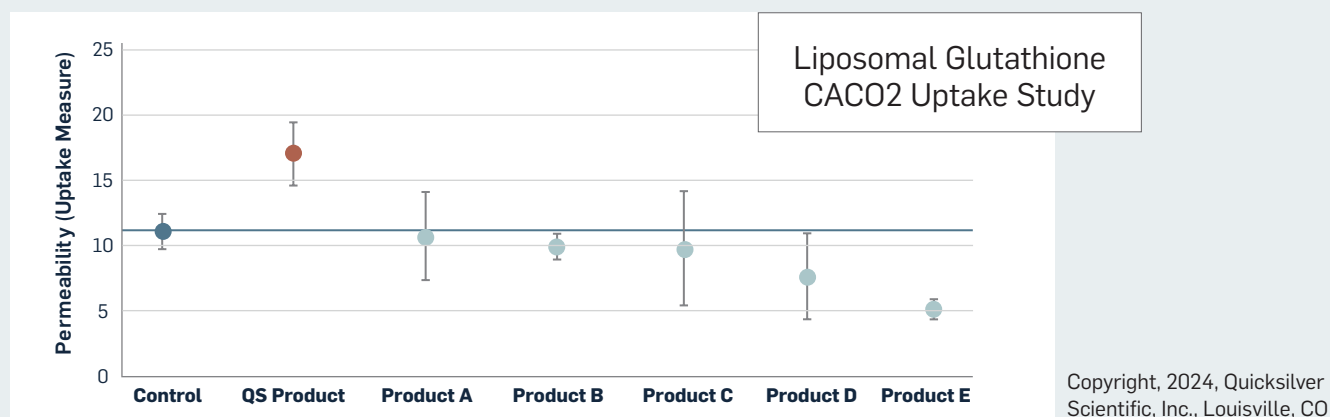
Quicksilver uses the highest quality ingredients when creating lipid nanoparticles using specific ratios for each formulation to ensure stability. In manufacturing our delivery technology, we utilize the same lipid molecules that make up the structure of human cells creating the highest uptake potential possible.

NANOPARTICLE SIZING

The second part of the bioavailability equation is size. When it comes to nanoparticles, the smaller the better for systematic and cellular delivery. We make our nanoparticles to measure between 20-100 nanometers using high shear homogenization and employ iterative quality and size testing using light scattering technology. The small size and quality of our products can also be recognized by a clear and clean looking solution as our nanoparticles are smaller than wavelengths of light and thus transparent.

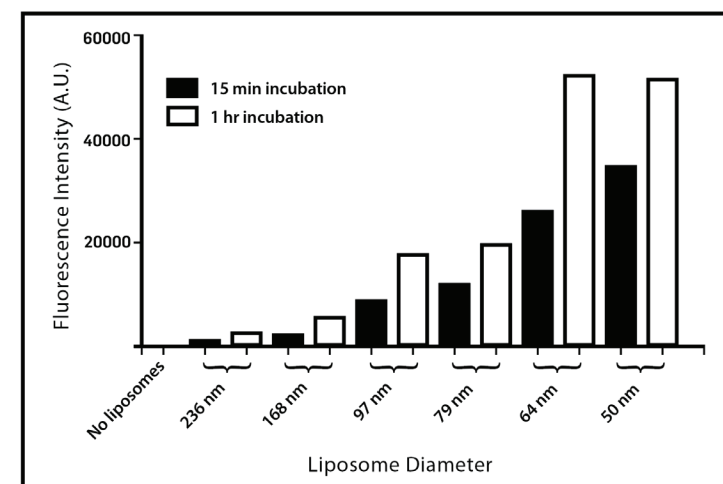


RESULTS YOU CAN TEST AND PATIENTS CAN FEEL



PHARMACY-ON-A-CHIP: MICROFLUIDIC SYNTHESIS OF PEGYLATED & FOLATE RECEPTOR-TARGETED LIPOSOMES FOR DRUG DELIVERY

Renee R. Hood¹, Abhay Andar², Donna M. Omiatek³, Wyatt N. Vreeland³, Peter W. Swaan², and Don L. DeVoe¹



Nanoparticle delivery has been well-tested and proven. In this independent study from the National Institutes of Standard and Technology we see that cellular uptake markedly increases as liposome size decreases. There is a rapid and dramatic almost 9-fold increase in absorption going from 236nm to just 97nm. At the smallest size, 64 nm, we can see that uptake is about 34 times higher, compared to the larger particle size. You can see that the uptake begins to rise significantly once the size falls below 100 nanometers.

THE DIFFERENCE IS CLEAR



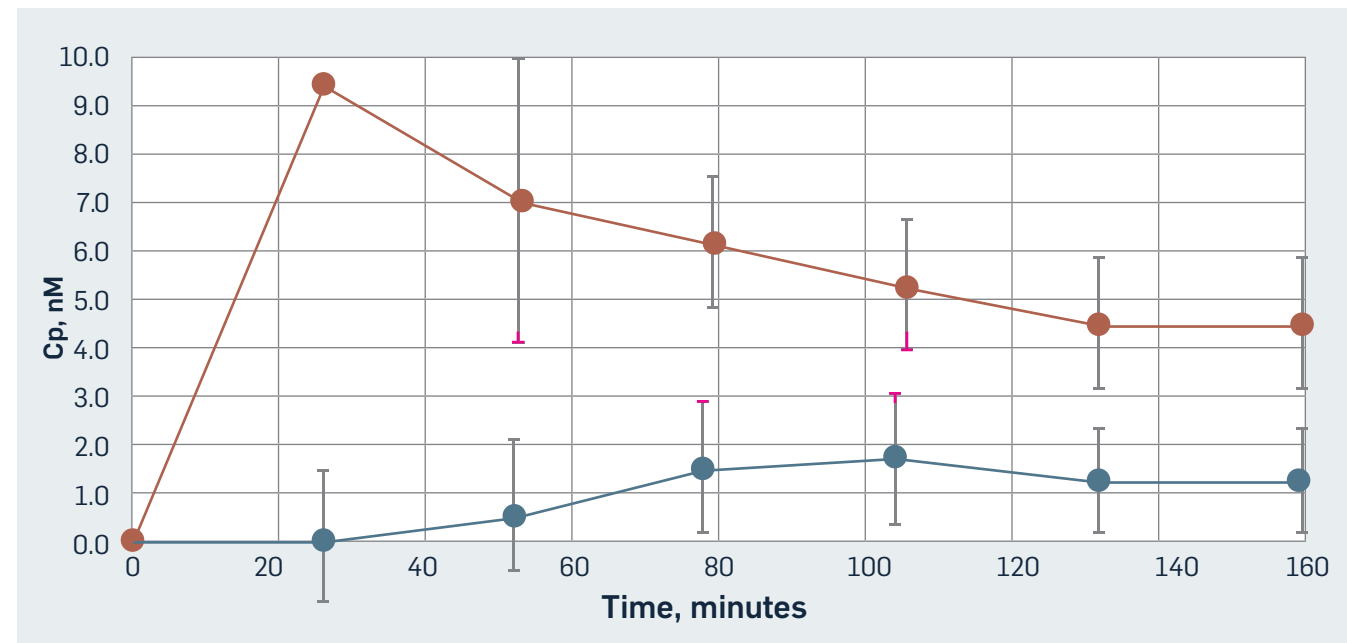
Quicksilver Scientific Vitamin C vs competitor brand.

Absorption Studies

NANOEMULSIFIED FULL SPECTRUM HEMP EXTRACT

10 PERSON INTRA ABSORPTION COMPARISON OF NANOEMULSIFIED & NON-NANOEMULSIFIED CANNABIDIOL

Quicksilver Scientific Nanoemulsified Full Spectrum Hemp Extract delivers a 6X increase in bioavailability over non-nanoemulsified CBD.



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- 12mg Quicksilver Scientific Nanoemulsified CBD
- 12mg Non-Nanoemulsified CBD



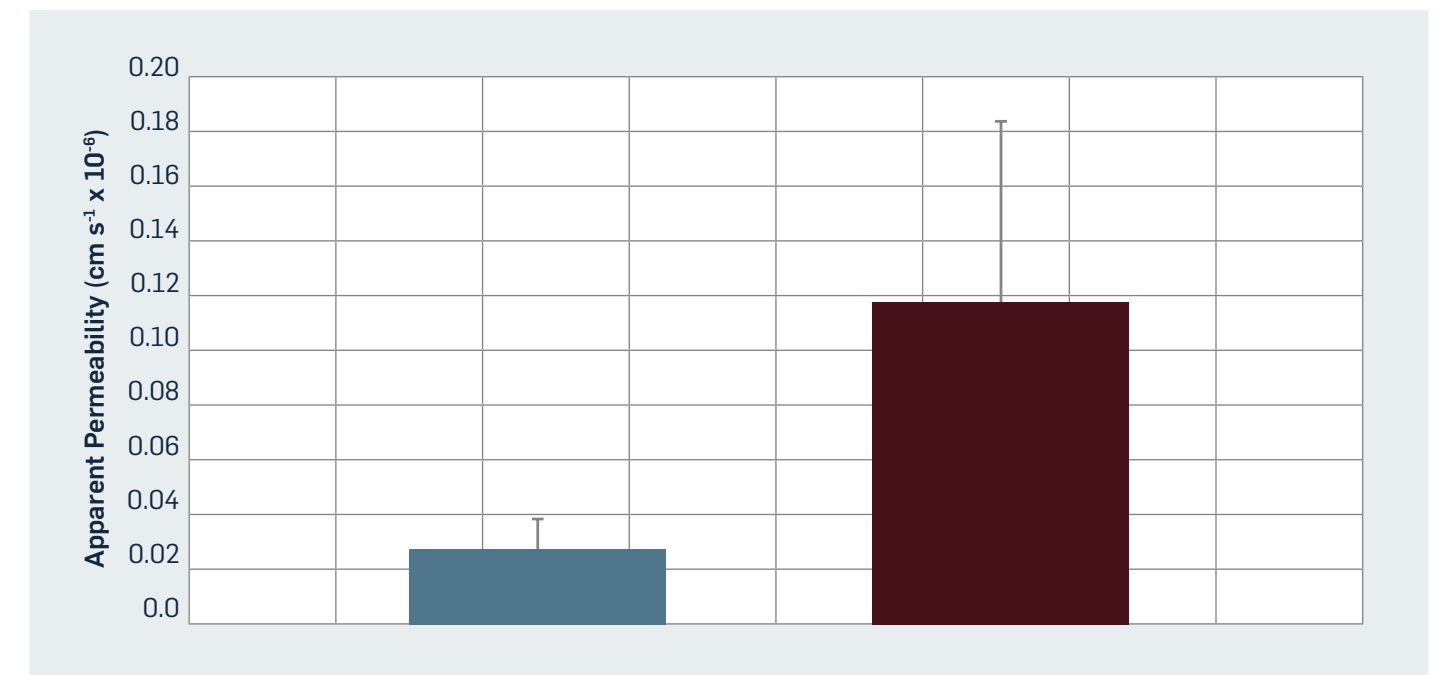
FULL SPECTRUM HEMP EXTRACT IS AN INGREDIENT IN:

- Full Spectrum Hemp Extract
- CBD Synergies-SP+
- Full Spectrum Bliss

LIPOSOMAL NICOTINAMIDE MONONUCLEOTIDE (NMN)

NMN CACO2 BIOAVAILABILITY ASSAY

Quicksilver Scientific liposomal NMN delivers a 4.25X increase in bioavailability over dissolved NMN powder (capsule).



Copyright, 2024, Quicksilver Scientific, Inc., Louisville, CO

- Quicksilver Scientific liposomal NMN
- Dissolved Powder NMN

NMN IS AN INGREDIENT IN:

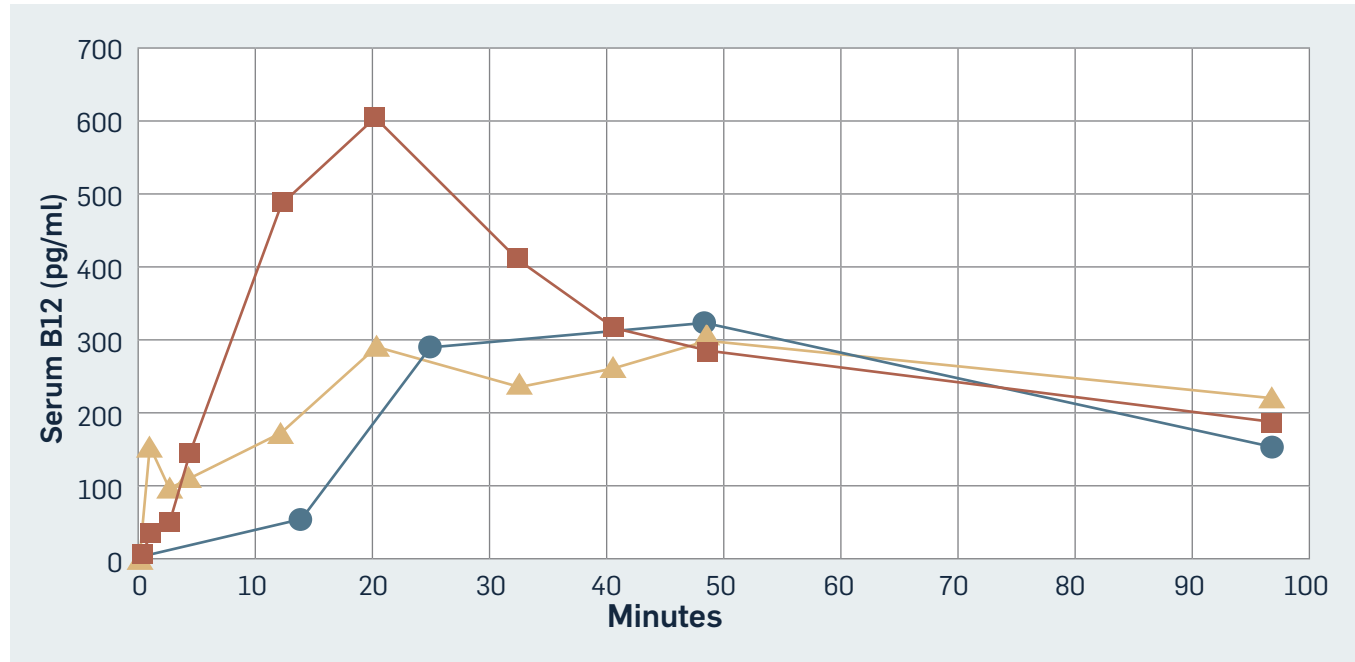
- NAD+ Gold®
- NAD+ Platinum®



LIPOSOMAL METHYL B-12

COMPARISON OF LIPOSOMAL AND NON-LIPOSOMAL B-12

Quicksilver Scientific Liposomal Methyl B-12 delivers a 2X increase in bioavailability over both liposomal, with no proprietary surface modification, and non-liposomal B-12.



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- 53 nm Quicksilver liposomal B-12, with Quicksilver Delivery Systems® proprietary surface modification
- 55 nm liposomal B-12, with no surface modification
- Non-liposomal B-12 in water

LIPOSOMAL B-12 IS AN INGREDIENT IN:

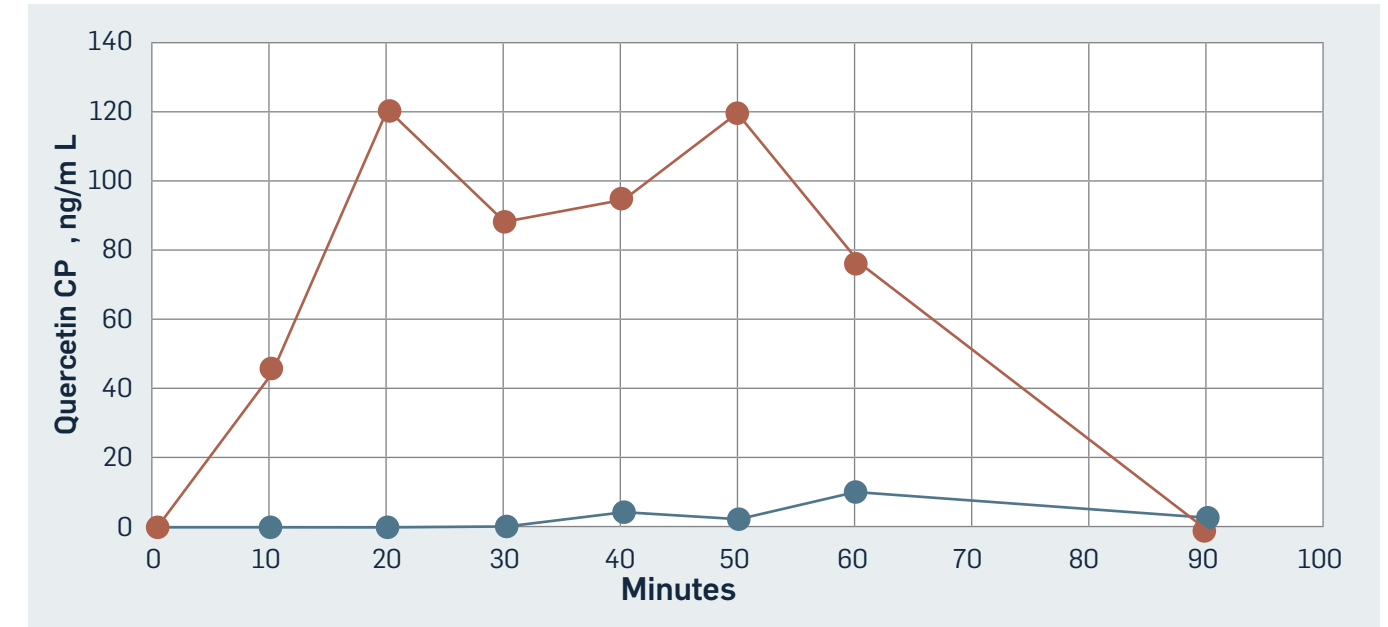
- NAD+ Platinum®
- Glutathione Complex
- Ultra Vitamin®
- Methyl B Complex
- Methyl Charge+®
- Methyl B-12



NANOEMULSIFIED QUERCETIN

NANOEMULSIFIED QUERCETIN VS QUERCETIN POWDER UPTAKE STUDY

Quicksilver Scientific Nanomulsified Quercetin delivers fast + sustained uptake with a 25X increase in bioavailability over Quercetin powder.



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- 25mg Quicksilver Scientific Nanoemulsified Quercetin
- 25mg Quercetin Powder

NANOEMULSIFIED QUERCETIN IS AN INGREDIENT IN:

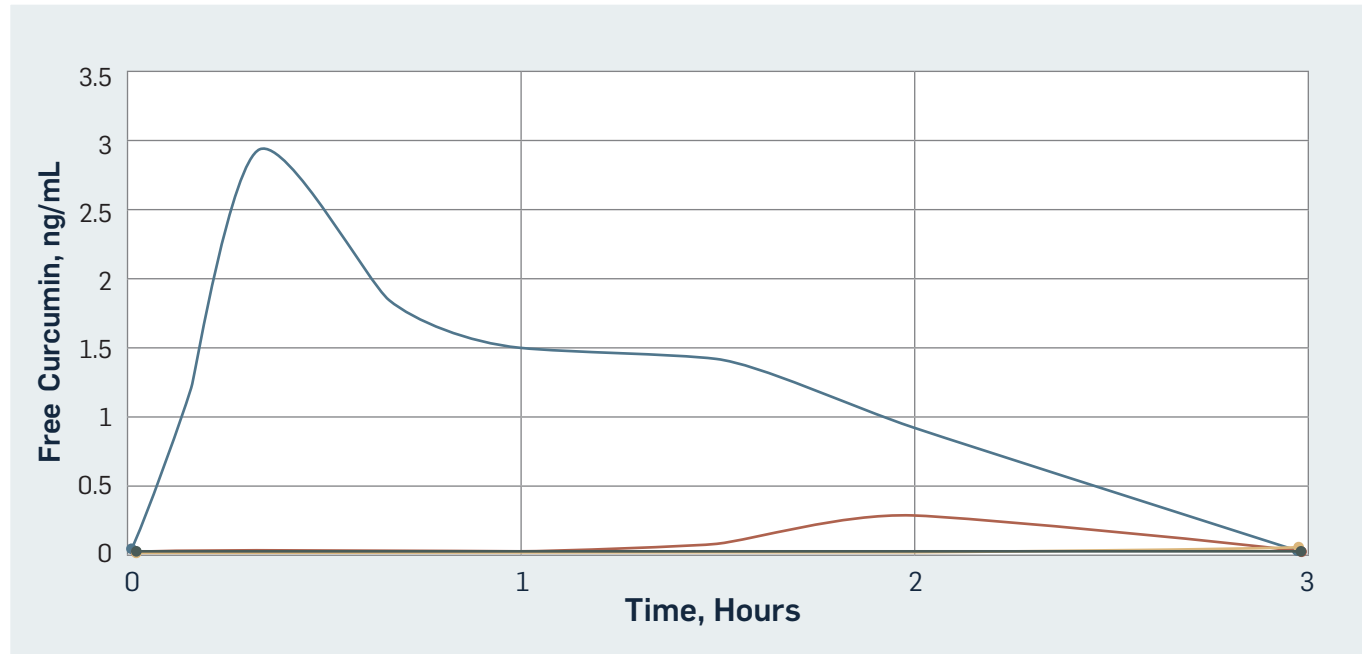
- AMPK Charge+®
- NAD+ Platinum®
- Liver Sauce®
- Keto Before 6®
- Hista-Aid®
- Immune Charge+® Throat Spray



SELF-EMULSIFYING DELIVERY SYSTEM (SEDS) CURCUMIN

SEDS CURCUMIN GLUCURONIDE VS RAW CURCUMIN POWDERS UPTAKE STUDY

Quicksilver Scientific Nanoemulsified SEDS Curcumin delivers a massive increase in curcumin bioavailability over raw powder (per mg), and other "high-bioavailability" curcumin formulas.



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- QS Curcumin
- Curcumin Powder
- Competitor #1
- Competitor #2
- Competitor #3
- Competitor #4
- Competitor #5

SEDS CURCUMIN IS AN INGREDIENT IN:

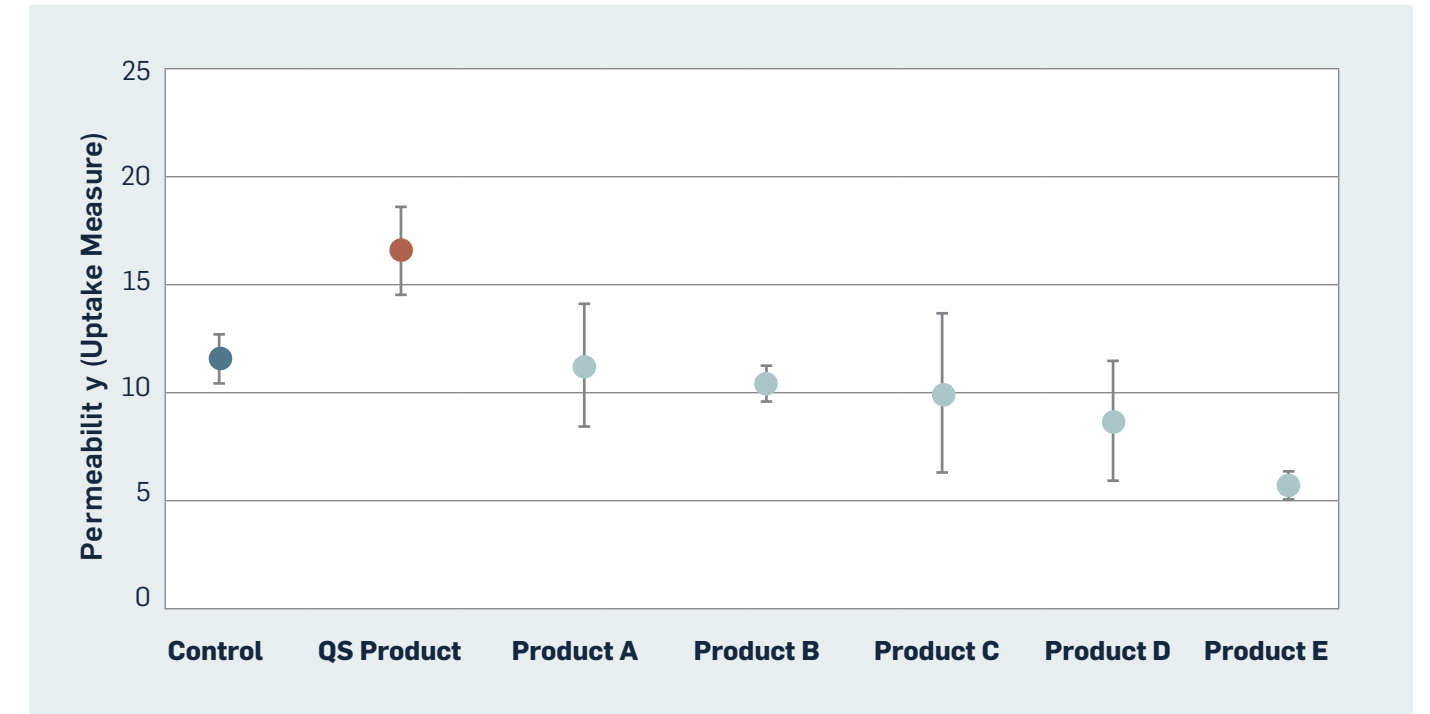
- CBD Synergies-PN
- Longevity Phyto Caps



LIPOSOMAL GLUTATHIONE

GLUTATHIONE CACO2 UPTAKE STUDY

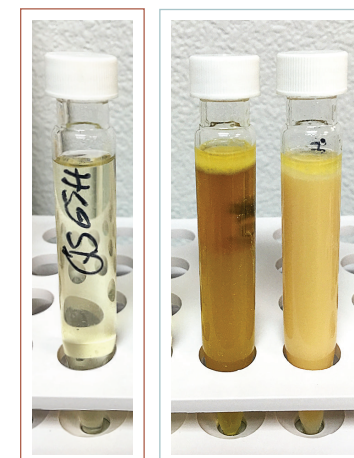
Caco2 is a bioavailability model using intestinal cells as a barrier in a diffusion cell. Here are the results of our Liposomal Glutathione (GSH) versus control (powder glutathione) and five competitor liposomal glutathione brands.



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GSH% of Label Claim

- 104% QS-Commercial
- 30% Product A
- 47% Product B
- 2% Product C
- 65% Product D
- 12% Product E



Quicksilver Scientific Liposomal Glutathione

Competitor Brands

GSH IS AN INGREDIENT IN:

- Liposomal Glutathione
- Glutathione Complex



The Man Behind The Science



CHRISTOPHER SHADE, PhD, founder and CEO of Quicksilver Scientific®, specializes in the biological, environmental, and analytical chemistry of mercury in all its forms and their interactions with sulfur compounds, particularly glutathione and its enzyme system.

He has patented a mercury speciation diagnostic process to analyze human toxicity, founded the only clinical lab in the world offering mercury speciation analysis, and has designed cutting edge systems of nutraceuticals for detoxification and antioxidant protection, including advanced phospholipid delivery systems for both water- and fat-soluble compounds. His Quicksilver Delivery Systems® nanoparticle technology increases the bioavailability of ingredients, supporting high bioavailability products.

Dr. Shade is regularly sought out to speak as an educator on the topics of mercury, environmental toxicities, the human detoxification system, and longevity in the United States and internationally. He has helped corporate executives, professional athletes, celebrities, children with autism, patients with chronic immune disorders and more. He strives to evolve the way the medical industry delivers care, and he is perpetually broadening the way the world understands health.

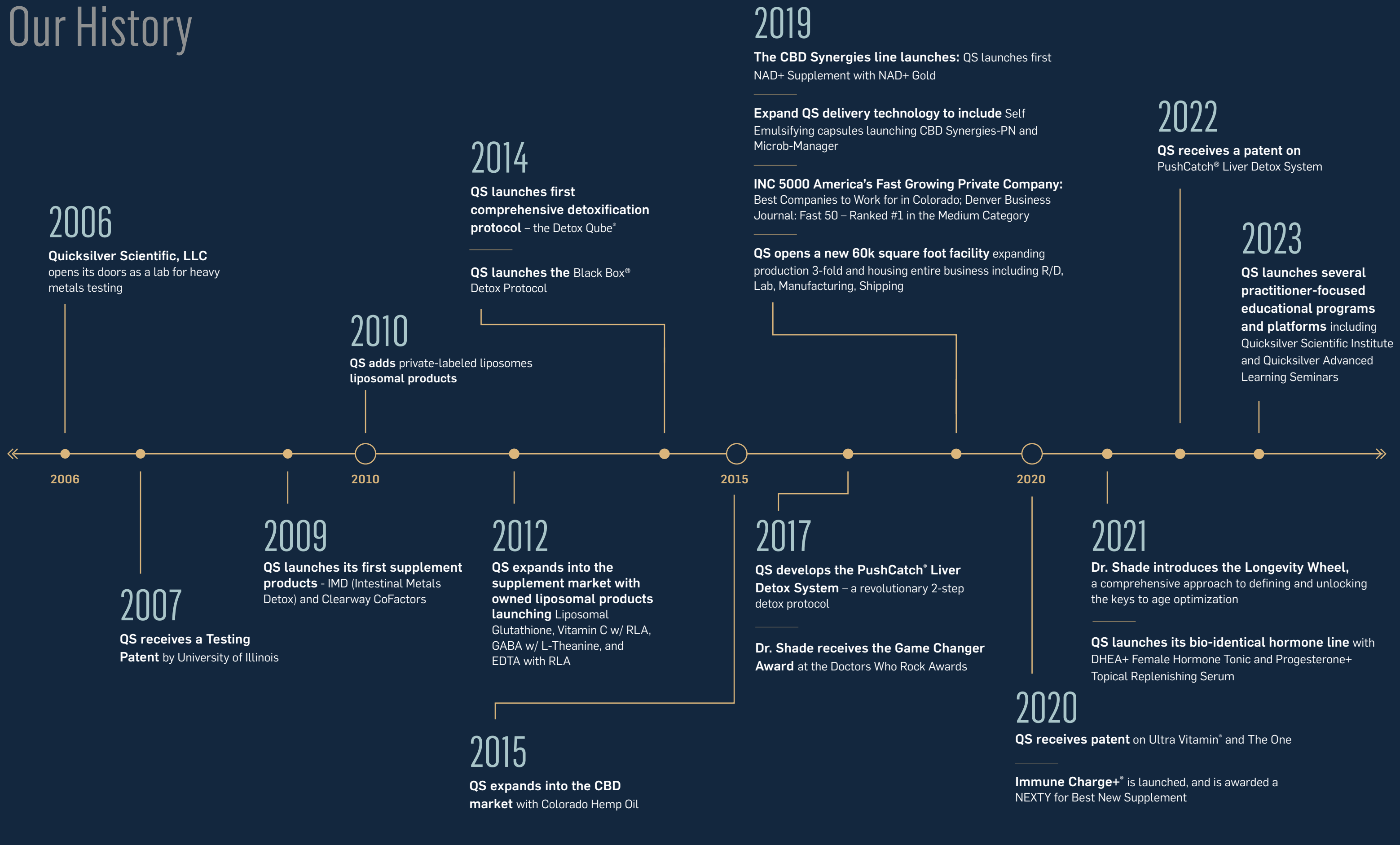
EDUCATION

- 2005 Ph.D. Environmental Science/Aquatic Chemistry, University of Illinois at Urbana-Champaign
- 2000 M.S. Environmental Sciences, Lehigh University, Bethlehem, PA
- 1993 B.S. Environmental Sciences, Lehigh University, Bethlehem, PA



SCAN THIS CODE TO
LEARN MORE ABOUT
DR. CHRIS SHADE

Our History



2006

Quicksilver Scientific, LLC opens its doors as a lab for heavy metals testing

2007

QS receives a Testing Patent by University of Illinois

2009

QS launches its first supplement products - IMD (Intestinal Metals Detox) and Clearway CoFactors

2010

QS adds private-labeled liposomes liposomal products

2014

QS launches first comprehensive detoxification protocol – the Detox Qube®

QS launches the Black Box® Detox Protocol

2012

QS expands into the supplement market with owned liposomal products launching Liposomal Glutathione, Vitamin C w/ RLA, GABA w/ L-Theanine, and EDTA with RLA

2015

QS expands into the CBD market with Colorado Hemp Oil

2019

The CBD Synergies line launches: QS launches first NAD+ Supplement with NAD+ Gold

Expand QS delivery technology to include Self Emulsifying capsules launching CBD Synergies-PN and Microb-Manager

INC 5000 America's Fast Growing Private Company: Best Companies to Work for in Colorado; Denver Business Journal: Fast 50 – Ranked #1 in the Medium Category

QS opens a new 60k square foot facility expanding production 3-fold and housing entire business including R/D, Lab, Manufacturing, Shipping

2017

QS develops the PushCatch® Liver Detox System – a revolutionary 2-step detox protocol

Dr. Shade receives the Game Changer Award at the Doctors Who Rock Awards

2020

QS receives patent on Ultra Vitamin® and The One

Immune Charge+® is launched, and is awarded a NEXTY for Best New Supplement

2022

QS receives a patent on PushCatch® Liver Detox System

2023

QS launches several practitioner-focused educational programs and platforms including Quicksilver Scientific Institute and Quicksilver Advanced Learning Seminars

We Stand By Quality



Manufacturing our own products is core to our business and success. It is imperative that our R&D team is hands-on through every step of product development. We iterate and test as we develop, marrying the right ingredient combinations with a stable delivery system chemistry, which is slightly different for every product. We would never leave these details to someone else.

WE'RE PROUD TO BE:

- SGS Certified cGMP Manufacturer
- PJLA Certified cGMP Quality Testing Laboratory
- CLIA Certified Clinical Laboratory
- An allergen-free facility
- Designed, developed and manufactured in the USA

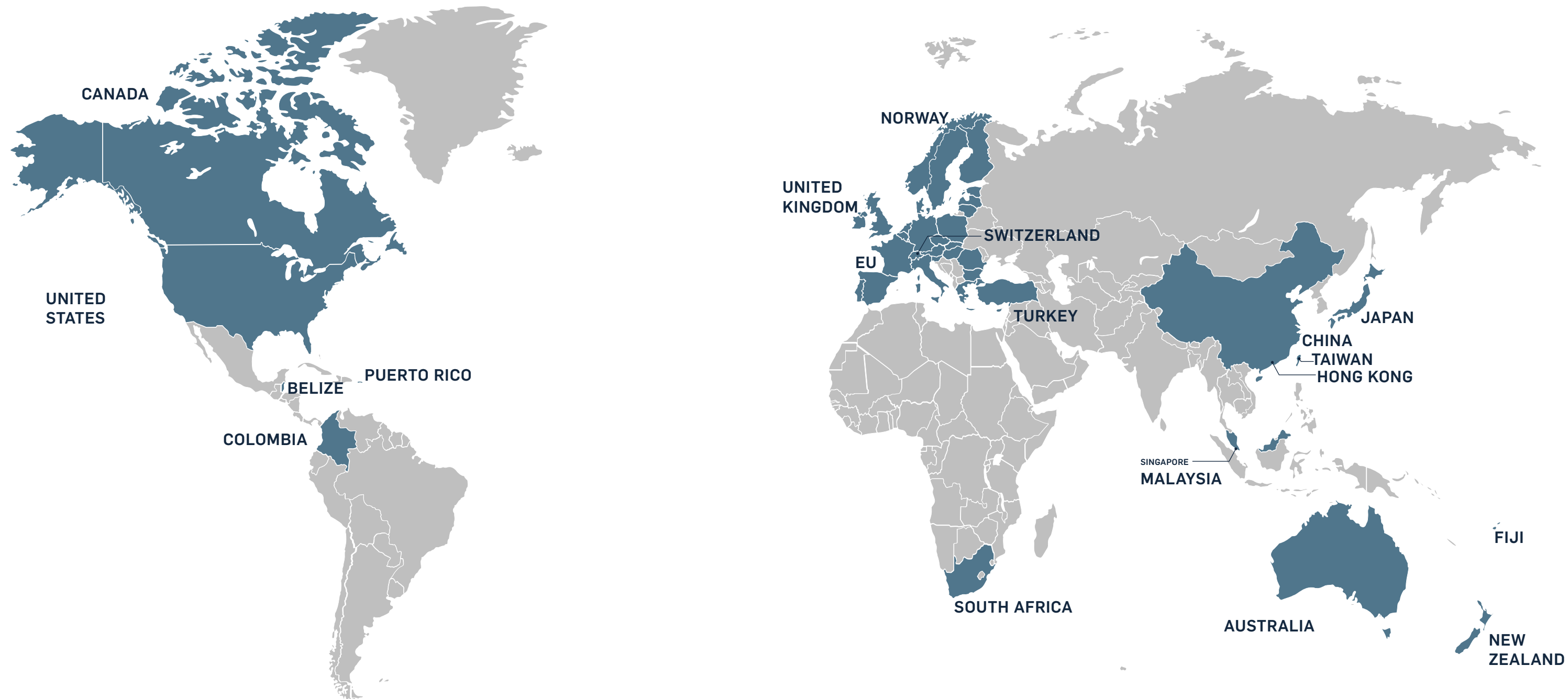
CERTIFIED CGMP MANUFACTURING

As a cGMP-certified facility we ensure that our products are designed, monitored, and controlled at every stage of the manufacturing process according to FDA requirements.


RIGOROUS IN-HOUSE AND THIRD-PARTY TESTING

All batches we produce undergo rigorous in-house and third-party testing to ensure that the safety, quality, and potency of our products uphold our company standards.

Trusted by Over 30,000 Practitioners & Counting



LEGEND

 Countries where Quicksilver is sold

Our Product Categories

CALMING + SLEEP

| | |
|---------------------------------------|-----|
| Broad Spectrum CBD Gummies | 42 |
| Broad Spectrum Hemp Extract | 44 |
| CBD Synergies-AX+ | 52 |
| CBD Synergies-AX Gummies | 54 |
| CBD Synergies-PN | 56 |
| CBD Synergies-SP+ | 58 |
| Full Spectrum Bliss | 80 |
| Full Spectrum Hemp Extract | 82 |
| GABA with L-Theanine | 84 |
| LipoCalm® | 108 |
| Melatonin | 120 |
| Melatonin Professional Dose | 122 |
| Progesterone+ | 150 |
| Quinton® Isotonic/QuintEssential® 0.9 | 160 |

CARDIOMETABOLIC

| | |
|-------------------------|-----|
| AMPK Charge+® | 26 |
| Cardio Elite | 46 |
| CoQ10 | 62 |
| EDTA with R-Lipoic Acid | 74 |
| H2 Elite® | 90 |
| Keto Before 6® | 104 |
| Methyl B-12 | 126 |
| Methyl B-Complex | 128 |
| Methyl Charge+® | 130 |
| NAD+ Gold® | 136 |
| NAD+ Platinum® | 140 |
| NanoFuel® | 144 |
| NanoMojo® | 146 |
| Performance Cardio+ | 148 |
| The One | 162 |
| Thrivagen | 164 |
| Ultra Energy® | 172 |
| Ultra Vitamin® | 174 |

CBD / HEMP

| | |
|-----------------------------|----|
| Broad Spectrum CBD Gummies | 42 |
| Broad Spectrum Hemp Extract | 44 |

| | |
|----------------------------|-----|
| CBD Synergies-AX+ | 52 |
| CBD Synergies-AX Gummies | 54 |
| CBD Synergies-PN | 56 |
| CBD Synergies-SP+ | 58 |
| Full Spectrum Bliss | 80 |
| Full Spectrum Hemp Extract | 82 |
| Microb-Manager® | 132 |

COGNITIVE SUPPORT

| | |
|----------------------|-----|
| Cardio Elite | 46 |
| DHEA+ | 70 |
| GABA with L-Theanine | 84 |
| Membrane Mend® | 124 |
| NanoFuel® | 144 |
| Performance Cardio+ | 148 |
| Pure PC® | 154 |

DETOX

| | |
|-------------------------|-----|
| AmalgaClear® | 24 |
| AMPK Charge+® | 26 |
| Artemisinin Emulsion | 30 |
| Biocidin® LSF | 34 |
| Bitter X | 38 |
| Bitters® No. 9 | 40 |
| Cat's Claw Elite® | 50 |
| Clear Way Cofactors® | 60 |
| DIM | 72 |
| EDTA with R-Lipoic Acid | 74 |
| Glutathione | 86 |
| Glutathione Complex | 88 |
| H2 Elite® | 90 |
| Hista-Aid® | 92 |
| IMD® | 94 |
| Keto Before 6® | 104 |
| Kidney Care | 106 |
| Liver Sauce® | 110 |
| Magnesium Hydroxide | 118 |
| Membrane Mend® | 124 |
| Milk Thistle | 134 |
| NAD+ Gold® | 136 |

| | |
|------------------------------------|-----|
| NAD+ Platinum® | 140 |
| Pure PC® | 154 |
| Ultra Binder® - Capsules | 168 |
| Ultra Binder® - Stick Packs/Powder | 166 |
| Ultra Binder® Sensitive Formula | 170 |
| Vitamin-C with R-Lipoic Acid | 180 |

GI

| | |
|---------------------------------------|-----|
| Artemisinin Emulsion | 30 |
| Biocidin® LSF | 34 |
| Bitter X | 38 |
| Bitters No. 9 | 40 |
| Clear Way Cofactors® | 60 |
| Immune Charge+® Zinc Ionophore | 100 |
| Magnesium Hydroxide | 118 |
| Microb-Manager® | 132 |
| Milk Thistle | 134 |
| Quinton® Isotonic/QuintEssential® 0.9 | 160 |
| Ultra Binder® - Capsules | 168 |
| Ultra Binder® - Stick Packs/Powder | 166 |
| Ultra Binder® Sensitive Formula | 170 |

HORMONES & ADAPTOGENS

| | |
|-----------------------------|-----|
| BI-EST+ | 32 |
| D3K2 | 64 |
| DHEA+ | 70 |
| DIM | 72 |
| Estradiol+ | 76 |
| Estriol+ | 78 |
| Longevity Elite® | 112 |
| Melatonin | 120 |
| Melatonin Professional Dose | 122 |
| NanoMojo® | 146 |
| Progesterone+ | 150 |
| Pure DHEA | 152 |
| Thrivagen | 164 |

IMMUNE HEALTH

| | |
|----------------------|----|
| Artemisinin Emulsion | 30 |
| Biocidin® LSF | 34 |
| Cat's Claw Elite® | 50 |
| D3K2 | 64 |
| Daily Immune Gummies | 66 |

| | |
|--------------------------------|-----|
| Daily Vitamin Gummies | 68 |
| DIM | 72 |
| Glutathione | 86 |
| Glutathione Complex | 88 |
| Hista-Aid® | 92 |
| Immune Charge+® | 96 |
| Immune Charge+® Throat Spray | 98 |
| Immune Charge+® Zinc Ionophore | 100 |
| Microb-Manager® | 132 |
| Quinton® Nasal Sprays | 156 |
| Ultra Vitamin® | 174 |
| Vitamin C | 176 |
| Vitamin C+ Elderberry | 178 |
| Vitamin C with R-Lipoic Acid | 180 |

LONGEVITY

| | |
|----------------------|-----|
| AMPK Charge+® | 26 |
| BI-EST+ | 32 |
| Cardio Elite | 46 |
| CoQ10 | 62 |
| DHEA+ | 70 |
| Estradiol+ | 76 |
| Estriol+ | 78 |
| Glutathione | 86 |
| Keto Before 6® | 104 |
| Kidney Care | 106 |
| Longevity Elite® | 112 |
| Longevity Phyto Caps | 116 |
| Membrane Mend® | 124 |
| Methyl Charge+® | 126 |
| NAD+ Gold® | 136 |
| NAD+ Platinum® | 140 |
| NanoMojo® | 146 |
| Performance Cardio+ | 148 |
| Progesterone+ | 150 |
| Pure DHEA | 152 |
| Pure PC® | 154 |
| The One | 162 |
| Thrivagen | 164 |
| Ultra Energy® | 172 |

Our Product Categories Cont...

PERFORMANCE

| | |
|--|-----|
| AMPK Charge+® | 26 |
| Cardio Elite | 46 |
| CBD Synergies – PN | 56 |
| CoQ10 | 62 |
| H2 Elite® | 90 |
| Keto Before 6® | 104 |
| Longevity Elite® | 112 |
| NAD+ Gold® | 136 |
| NAD+ Platinum® | 140 |
| NanoFuel® | 144 |
| Performance Cardio+ | 148 |
| Quinton® Hypertonic/QuintEssentials® 3.3 | 158 |
| Quinton® Isotonic/QuintEssentials® 0.9 | 160 |
| The One | 162 |

VITAMINS + MINERALS

| | |
|---|-----|
| D3K2 | 64 |
| Daily Immune Gummies | 66 |
| Daily Vitamin Gummies | 68 |
| Immune Charge+® | 96 |
| Immune Charge+® Throat Spray | 98 |
| Immune Charge+® Zinc Ionophore | 100 |
| Magnesium Hydroxide | 118 |
| Methyl B-12 | 126 |
| Methyl B-Complex | 128 |
| Methyl Charge+® | 130 |
| Quinton® Hypertonic/QuintEssential® 3.3 | 158 |
| Quinton® Isotonic/QuintEssential® 0.9 | 160 |
| Ultra Vitamin® | 174 |
| Vitamin C | 176 |
| Vitamin C+ Elderberry | 178 |

QUICKSILVER SCIENTIFIC®

PRODUCTS

AMALGACLEAR®

Category: DETOX



Dental Revision Support

SKU: Q-1061

SIZE: 73 GRAMS

Amalgaclear® is a specialized binder containing IMD®, our proprietary thiol-functionalized silica metal binder, combined with acacia gum, modified citrus pectin, and Quali® C Vitamin C, designed to help the body detoxify mercury and other heavy metals during the removal of dental amalgams.

TESTED ALLERGEN FREE • TESTED DAIRY FREE • TESTED GLUTEN FREE • TESTED NON-GMO
TESTED SOY PROTEIN FREE • VEGAN

| Supplement Facts | | |
|---|--------------------|---------------|
| Serving Size: 1 tsp. (3.64 g) Servings Per Container: 20 | | |
| | Amount Per Serving | % Daily Value |
| Vitamin C (from European Sodium Ascorbate) | 784 mg | 871% |
| Sodium | 100 mg | 4% |
| Dietary Fiber | 1g | 4% |
| Proprietary Blend: | 1100 mg | ** |
| EfiStab™ AA (Acacia Gum), PectaSol-C® Modified Citrus Pectin | | |
| *Percent Daily Values are based on a 2,000 calorie diet. **Daily Value not established | | |
| Other Ingredients: Water, glycerin, ethanol, tocopherols, natural mixed tocopherols | | |

EDUCATION

HEAVY METAL TOXICANTS IN “SILVER” DENTAL AMALGAMS

For 150 years, “silver” dental amalgams have been used to fill cavities in teeth caused by tooth decay. Dental amalgam is silver in color but is not made of only silver; rather, it consists of a conglomeration of metals, including elemental mercury, tin, and copper. The elemental mercury in dental amalgam creates mercury vapor within the oral cavity, causing ongoing mercury exposure and potentially precipitating chronic conditions such as Alzheimer’s disease.^{1,2}

In September of 2020, the FDA released a statement advising against the use of dental amalgams in “high-risk” groups, including pregnant women, women planning to become pregnant, children, people with pre-existing neurological disease, people with impaired

kidney function, and those with a known sensitivity to mercury or the other metals in dental amalgam material.³ However, this statement overlooks the fundamental fact that elemental mercury is toxic to all humans with ongoing exposure.

Many adults choose to get their dental amalgams removed due to increased awareness of the health risks posed by exposure to the metals in dental amalgam. However, dental amalgam removal is not something to be taken lightly. Improper removal of dental amalgam and insufficient detoxification support before and after the procedure can cause a redistribution and reabsorption of mobilized metals in the body, potentially harming one’s health. Patients must choose a dentist qualified to perform amalgam removal and support their detoxification pathways before and after the dental amalgam removal procedure.

Thiol-functionalized silica, acacia gum, modified citrus pectin, and vitamin C support the binding and elimination of metals after the removal of dental amalgams, facilitating the safe detoxification of mercury and other toxic metals from the body.

FUNCTIONALIZED SILICA, ACACIA GUM, AND MODIFIED CITRUS PECTIN EFFICIENTLY BIND METALS IN THE GUT

Heavy metals, such as mercury, can have significant harmful effects on the kidneys. For this reason, the gastrointestinal tract is the preferred route of elimination for heavy metals. Thiol-functionalized silica, acacia gum, and modified citrus pectin intervene in the enterohepatic circulation of heavy metals,

efficiently mopping up these metals and safely ushering them out of the body in the stool.

Thiol-functionalized silica extract delivers sulfur-based thiol groups, which bind and eliminate heavy metals in the intestine while quenching free radicals.⁴ It also enhances phase III detoxification, a system of transporters that ushers mobilized toxins out of the body.

Thiol-functionalized silica does not enter the bloodstream and thus does not cause redistribution or surge of mobilized metals in the body that could potentially harm the liver or kidneys. It intercepts methylmercury and other metals trapped in enterohepatic circulation, binding them and escorting them out of the intestines. It thus allows organ and tissue-bound mercury to safely drain into the blood at a natural rate.

Thiol groups also quench inflammation localized in the intestine, inhibiting the vicious cycle of inflammation and transporter impairment that exacerbates toxicity.

Modified citrus pectin is a soluble dietary fiber derived from the white fleshy inner portion of citrus peels. Supplementation with modified citrus pectin reduces the body burden of several toxic metals, including lead, arsenic, and cadmium. It also alleviates inflammation, an important barrier to effective detoxification.⁵ Modified citrus pectin is exceptionally effective at mopping up metals in the gut and ushering them out of the body via stool.

ACACIA GUM SOOTHES THE GUT AND FACILITATES ELIMINATION

Acacia gum rounds out the array of binders in our formula. It soothes the intestinal mucosa and offers fluidizing effects, counteracting the slowing of gut motility that can occur with strong binding agents such as thiol-functionalized silica.⁶

VITAMIN C PROTECTS THE BODY FROM FREE RADICAL DAMAGE

Inside the body, heavy metals induce the generation of free radicals, unstable atoms “deficient” in electrons that travel throughout the body, stealing electrons from molecules in our DNA, proteins, and cellular structures. Left unaddressed, heavy metal-induced free radicals can damage tissues and organs, causing physiological dysfunction.

Vitamin C is a potent reducing agent, meaning it readily donates electrons to free radicals, stabilizing their biochemical structure, and inhibiting a chain reaction of oxidative stress.⁷ Vitamin C’s ability to terminate these harmful chain reactions makes it the body’s most important non-enzymatic, water-soluble antioxidant in blood plasma and tissues. Together, the antioxidant properties of vitamin C influence numerous physiological processes, including:

- Protect lipids, proteins, DNA, and RNA from reactive oxygen species (ROS) and reactive nitrogen species (RNS)⁵
- Regenerate the fat-soluble antioxidant vitamin E⁸
- Boost intracellular levels of glutathione, the body’s master detoxifier⁹

The synergistic effects of vitamin C alongside thiol-functionalized silica, acacia gum, and modified citrus pectin may optimize antioxidant activity and metal-binding, ensuring that toxic heavy metals from dental amalgams are efficiently cleared from the body and that metal-induced free radicals are neutralized.

NANOEMULSION AMPK CHARGE+®

Category: CARDIOMETABOLIC • DETOX • LONGEVITY • PERFORMANCE



Metabolic Activator

SKU: Q-1152 • Q-1158

SIZE: 100 ML

SIZE: 300 ML

AMPK Charge+® is an innovative phytonutrient blend designed to support the AMPK pathway, a critical metabolic pathway that is responsible for regulating glucose and lipid metabolism, cellular clarity, mitochondrial biogenesis, and body weight.* The blend of botanicals and nutraceuticals in AMPK Charge+ includes diindolylmethane (DIM), quercetin dihydrate, milk thistle seed extract, resveratrol, berberine HCL, and cinnamon bark oil for potent AMPK support.*

TESTED ALLERGEN FREE • TESTED DAIRY FREE • TESTED GLUTEN FREE • TESTED NON-GMO
TESTED SOY PROTEIN FREE • VEGAN

Supplement Facts

Serving Size: 5 mL (1 tsp.)
Servings Per Container: 20 or 60

| | Amount Per Serving | % Daily Value |
|---|-----------------------|------------------|
| Proprietary Blend: | 415mg | ** |
| Highly purified phospholipids, Diindolylmethane, Quercetin Dihydrate (from Sophora japonica flower), Milk Thistle Seed Extract (80% Silymarin), Resveratrol (from Polygonum cuspidatum root), Berberine HCL (from Phellodendron amurense bark), Cinnamon bark oil | | |
| **Daily Value not established | | |
| Other Ingredients: Glycerin, water, ethanol, medium chain triglycerides, tocopherol, natural citrus oils, natural flavoring, natural mixed tocopherols, propolis extract | | |

EDUCATION

THE SIGNIFICANCE OF THE AMPK PATHWAY IN OUR MODERN-DAY WORLD

The AMP-activated protein kinase pathway, AMPK for short, is an evolutionarily-conserved pathway present in all complex life forms, from mice to humans. AMPK is a central regulator of metabolism, growth, and energy, and helps coordinate metabolism in the liver, muscles and fat. AMPK is an exquisite nutrient sensor and is activated whenever intracellular energy (in the form of ATP) is low. AMPK activation restores cellular energy levels by stimulating pathways and processes that generate ATP.

AMPK also has anti-inflammatory effects, regulates insulin sensitivity, upregulates pathways involved in longevity, and enhances

muscle performance and contraction. It also governs autophagy, a process whereby cells engulf and clear out debris, damaged proteins, and dysfunctional organelles, and then recycle or dispose of them. AMPK is a truly pluripotent pathway essential for whole-body health.

AMPK is activated by a variety of inputs, including fasting, low blood insulin levels, and exercise. Unfortunately, very few people routinely engage in AMPK-activating lifestyle practices. A confluence of factors central to modern-day life inhibit AMPK, including chronic overnutrition (i.e., overeating), a sedentary lifestyle, hyperinsulinemia, and overweight and obesity. In particular, AMPK is suppressed by excess glucose, fatty acids, and amino acids present in the blood after eating, when the body is in the “fed” state. Most people in the modern Western world live in a chronic fed state, rarely entering the fasted state necessary for AMPK activation. AMPK activity also decreases during the aging process. As a result, most people today rarely realize the spectrum of health benefits offered by AMPK activation.

When AMPK is inhibited, its opposing pathway, mTOR is activated. The mammalian target of rapamycin pathway, or mTOR, is a central regulatory pathway that orchestrates cellular growth and homeostasis. AMPK controls mTOR signaling. While mTOR has beneficial roles in the body, supporting muscle growth and development, chronic mTOR activation compromises metabolic health and promotes body fat storage and cellular proliferation. For optimal metabolic health, our bodies must alternate between AMPK (fasted state) and mTOR (fed state) activity. In our

mTOR-dominant world, targeted activation of the ancient, powerful AMPK pathway is essential for overcoming the harmful effects of the modern diet and lifestyle and promoting metabolic clarity and longevity.

HOW DOES AMPK BENEFIT OUR HEALTH?

AMPK benefits whole-body health across the lifespan by improving metabolic function, attenuating inflammation, enhancing mitochondrial function, and supporting a healthy aging process.

Metabolic Clarity

AMPK flips the body’s “metabolic switch” from burning primarily glucose for fuel to burning fat (as ketones) for fuel.¹ AMPK activation stimulates lipolysis, which allows the body to tap into its fat stores to create cellular energy. Utilizing ketones for fuel is a cleaner form of cellular energy production that minimizes oxidative stress and inflammation while maximizing the amount of energy, in the form of ATP, your cells can make.

Amplification of AMPK signaling also improves other aspects of metabolic health. It improves blood sugar control by enhancing insulin sensitivity and promoting efficient glucose uptake from the blood into cells.² This prevents glucose from lingering in the blood for too long, where it can wreak havoc on blood vessel integrity.

AMPK activation also supports healthy blood lipid levels. It prevents fat from accumulating in the liver, a phenomenon closely tied to blood sugar control and, if allowed to continue unabated, significantly compromises liver function.³

AMPK is essential for the activation of autophagy, the body’s cellular “housekeeping” system that clears out damaged and dysfunctional cell components so that the body can recycle or dispose of them.⁴ By elegantly maintaining cellular homeostasis, a proper level of autophagy ensures that we stay healthy, fit, and age with grace. Autophagy is inhibited by the postprandial surge in insulin and is stimulated during periods of fasting or when nutrients are in short supply. Without optimal AMPK activation, autophagic activity may be insufficient to support whole-body health.

Together, the beneficial effects of AMPK on fuel utilization, blood sugar, blood lipids, and autophagy help to clean up the body’s metabolic machinery, supporting metabolic clarity.

AMPK Supports a Healthy Inflammatory Balance

Inflammation is a central component of many of the chronic diseases we face in Westernized society today, including cardiovascular disease, type II diabetes, neurodegenerative diseases, and uncontrolled cellular proliferation.⁵ Chronic activation of mTOR and insufficient AMPK activity exacerbates inflammation; this imbalance in cellular signaling pathways is increasingly implicated in chronic disease development.⁶

Conversely, AMPK activation has been found to reduce

inflammation, stemming the tide of unproductive inflammatory processes that contribute to chronic diseases such as cardiovascular disease and type 2 diabetes.^{7,8}

Supports Healthy Mitochondrial Function

Mitochondria are the energy powerhouses of cells, responsible for generating a constant supply of cellular energy in the form of ATP. AMPK activation increases mitochondrial efficiency, supporting ATP production while minimizing harmful free radical byproducts. It also activates mitophagy, the selective degradation of defective mitochondria, and promotes the creation of new, healthy mitochondria.⁹

Supports Healthy Cellular Senescence

Cellular senescence is the process by which cells cease to be functional, instead transitioning into a state of cell cycle arrest and secreting a variety of pro-inflammatory mediators that harm surrounding healthy cells. Cellular senescence is triggered by oxidative stress, DNA damage, and is a part of the aging process. Senolytics, or compounds that selectively kill senescent cells, reduce the body’s senescent cell burden and may promote metabolic health and longevity. A variety of natural compounds exert senolytic effects, rejuvenating the body at the cellular level.

AMPK Activation Promotes Longevity

AMPK activates an ancient network of genes and proteins that regulate longevity, including the sirtuins. Sirtuins are proteins that play a vital role in regulating cellular health and homeostasis. Therapeutic sirtuin activation has been shown to support healthy aging and metabolism.¹⁰ Interestingly, AMPK and sirtuins appear to engage in crosstalk to ultimately impact cellular health and lifespan.¹¹

Sirtuins require NAD+ to function properly; a lack of NAD+ thus inhibits AMPK activation. Fortunately, some of the lifestyle practices that activate AMPK, such as fasting, also support NAD+ generation, providing powerful synergistic support for longevity.^{12,13}

AMPK Activation Acts As An Exercise Mimetic

In an ideal world, we would all engage in daily physical activity to support optimal health. However, the reality is that this is not feasible for many people. This realization has led to increased scientific interest in compounds that induce physiological benefits similar to those seen with exercise; such compounds are referred to as “exercise mimetics.”

AMPK activation drives energy metabolism in skeletal muscle, the cardiovascular system, and mitochondria and plays an essential role in mediating the beneficial effects of physical activity. Several AMPK activators thus act as exercise mimetics, with resveratrol one of the most-studied compounds thus far. In animal studies, resveratrol has been found to increase running endurance and improves cardiac and mitochondrial function via mechanisms that parallel those seen with exercise.^{14,15} Quercetin may offer similar, albeit milder effects; it’s benefits for exercise may come,

in large part, from its ability to attenuate exercise-induced oxidative stress.¹⁶

PHYTOCOMPOUNDS THAT SUPPORT AMPK

Resveratrol stimulates AMPK, inhibits the mTOR pathway, activates sirtuins, and induces autophagy by targeting a complex array of autophagy-associated proteins.^{14,15} Resveratrol is widely known for its ability to increase NAD+, which is needed for sirtuin activation and AMPK/sirtuin crosstalk involved in longevity.¹⁶ Resveratrol also increases mitochondrial biogenesis, supporting robust cellular energy production.¹⁷

Berberine modulates autophagy in the liver, protecting against excessive hepatic fat accumulation that can contribute to non-alcoholic fatty liver disease.¹⁸ Berberine also activates AMPK and inhibits mTOR, improves glucose metabolism and insulin sensitivity, and promotes mitochondrial biogenesis.^{19,20}

Quercetin's powerful antioxidant properties are due in part to its AMPK-activating effects. Multiple studies indicate that quercetin blocks mTOR, activates autophagy, increases mitochondrial biogenesis and reduces inflammation.^{21,22,23} Exciting research has shown that quercetin may also act as a senolytic, a compound that selectively induces the death of senescent cells, or cells that have ceased to be functional and instead secrete pro-inflammatory molecules that harm healthy cells around them.²⁴ Research indicates that targeting senescent cells may stem the tide of aging and promote a youthful physiology.²⁵ Finally, quercetin's ability to stabilize mast cell degranulation offers additional anti-inflammatory, antihistamine and immune support.²⁶

Milk thistle is well-known for its liver-protective properties and ability to induce autophagy in cultured cell lines.²⁷ Silymarin, a group of phytochemicals found in milk thistle, has been found to inhibit mTOR, allowing AMPK to perform its vital roles in the body.²⁸ Silybin also increases mitochondrial biogenesis and can restore healthy NAD+ levels in liver tissue impacted by non-alcoholic fatty liver disease.

Diindolylmethane (DIM) induces protective autophagy and increases the transcription of autophagy-associated genes in cell lines in part by activating AMPK.²⁹ DIM is also immune-balancing, shifting the balance towards calming T-regulatory cells.³⁰

Cinnamon directly activates AMPK and inhibits mTOR.^{31,32} Cinnamon also supports metabolism by lowering fasting glucose levels and homoglobin A1c, a measure of average blood glucose levels over time.³³

AMPK CHARGE+ IS IN THE FOLLOWING PROTOCOL SYSTEMS:

- Bio-Age Activate
- Bio-Age Elevate
- 30-Day Reset Program



PROFESSIONAL ARTEMISININ EMULSION

Category: DETOX • GI • IMMUNE HEALTH



Anti-Microbial

SKU: Q-1006

SIZE: 120 ML

Artemisinin Emulsion is a concentrated emulsified extract of *Artemisia annua*, a botanical used for millennia in Traditional Chinese Medicine (TCM) as a remedy for inflammatory, infectious, and digestive system complaints.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

Supplement Facts

Serving Size: 5 mL (1 tsp.)
Servings Per Container: 24

| | Amount Per Serving | % Daily Value |
|---|--------------------|---------------|
| Artemisinin | 40mg | ** |
| Phosphatidylcholine (from purified soy bean lecithin) | 400mg | ** |

**Daily Value not established

Other Ingredients: Water, glycerin, ethanol, natural citrus oils

EDUCATION

ARTEMISIA ANNUA: AN ANCIENT BOTANICAL WITH MODERN-DAY APPLICATIONS

Artemisia annua, also known as sweet wormwood or qinghaosu, is an herbaceous plant with delicate feathery foliage and a pleasant, sweet smell that belie its powerful health-enhancing properties. Artemisinin is the primary bioactive compound found in *Artemisia annua*. It was identified in 1972 by Tu Youyou, a Chinese scientist tasked with searching the traditional Chinese botanical compendium for herbs with antimalarial properties.¹ The discovery of artemisinin's antimalarial effects prompted the development of synthetic artemisinin-based drugs. These drugs rapidly became the gold-standard treatment for malaria. In 2015, Dr. Tu received the Nobel Prize in Physiology or Medicine for her discovery of artemisinin.

Exciting health benefits of artemisinin continue to emerge, with recent studies demonstrating beneficial effects of this phytochemical on the gut, immune system, and brain. It is thus uniquely positioned to address an array of modern-day health concerns, ranging from stubborn bacterial overgrowth to chronic inflammation.

ARTEMISININ IS A POTENT ACTIVATOR OF BITTER TASTE RECEPTORS

Artemisinin is a sesquiterpene lactone, a phytochemical found in plants from the Asteraceae (daisies, artichoke, endive, and *Artemisia annua*) and Umbelliferae (celery, carrots, parsley) families. Sesquiterpene lactones possess a powerfully bitter taste that deters or temporarily incapacitates hungry pests and pathogens, thus protecting the plant from predation and disease.²

Interestingly, plant-based sesquiterpene lactones also interact with the human body. However, rather than harming us, sesquiterpene lactones, such as artemisinin, interact favorably with pathways and receptors throughout our bodies. Most notably, artemisinin activates bitter taste receptors found on the tongue and in other locations throughout the body, including the GI tract and heart. Activation of bitter taste receptor transduction enhances bile flow and modulates inflammation, exerting various health benefits throughout the body.

BALANCE THE BODY'S MICROBIAL ECOSYSTEM

Artemisinin and its synthetic derivatives have been used for decades in the treatment of malaria, a parasitic infection caused by

Plasmodium, a small protozoan that invades and damages its host's red blood cells. Artemisinin reduces the viability of *Plasmodium* thanks to its unique chemical structure. Artemisinin possesses a peroxide group that breaks apart upon encountering iron inside red blood cells (RBCs). The destruction of the peroxide bridge releases free radicals that destroy Plasmodium congregated inside the cell.³

The antimicrobial effects of artemisinin are not limited to malaria. Emerging research indicates that artemisinin also has antiparasitic effects against the parasitic disease schistosomiasis and antiviral effects against Herpes family viruses, including cytomegalovirus, Epstein-Barr virus, and hepatitis C. It appears to inhibit viral infection by impeding pathways that enable viral replication and invasion of host cells.⁴ It also has activity against *Borrelia burgdorferi*, the bacterium responsible for Lyme disease.⁵

Artemisinin also has antimicrobial effects against opportunistic and pathogenic gut microbes such as *Helicobacter pylori*, apparently without disturbing commensal gut bacteria.^{6,7} Simultaneously, it appears to increase the Bacteroidetes: Firmicutes bacterial ratio; a higher ratio is associated with superior gut and metabolic health.⁸

CREATE A STRONG FOUNDATION FOR SUCCESSFUL DETOXIFICATION

Endotoxins, pro-inflammatory byproducts of Gram-negative gut bacteria, block bile acid transporters involved in cellular detoxification.⁹ Artemisinin protects these vital transporters and may help create a strong foundation for successful detoxification.¹⁰

ALLEVIATE INFLAMMATION AND MODULATE THE IMMUNE SYSTEM

In addition to defending the body against harmful microbes, artemisinin exerts anti-inflammatory and immunomodulatory effects. It inhibits brain inflammation triggered by bacterial endotoxins by inhibiting the pro-inflammatory NF-κB pathway.¹¹ Artemisia extracts, of which artemisinin is a major component, protect the gastrointestinal tract against stress-induced inflammation by upregulating Nrf2, the body's premier antioxidant signaling system.¹²

Artemisinin may also have applications in the management of autoimmune disease. It selectively suppresses pathogenic T cell proliferation, blocks B cell-induced antibody production, and inhibits pro-inflammatory signaling.¹³ Dihydroartemisinin, an active metabolite of artemisinin, increases CD8+ T cells and T regulatory cells that promote self-tolerance. Self-tolerance is an essential physiological mechanism that prevents the body from attacking its own cells; when self-tolerance is lost, autoimmunity may ensue.^{14,15} Unlike many drugs used for autoimmune diseases that act on single targets, artemisinin acts on multiple checkpoints within the immune system, beneficially

modulating its overarching function.

PROTECT COGNITION

Neurodegeneration is an age-related deterioration in the structure and function of neurons that causes deficits in cognition, including mild cognitive impairment and Alzheimer's disease. Preliminary research suggests that artemisinin may protect the brain against degenerative processes by modulating inflammatory signaling pathways such as the NF-κB pathway.¹⁶ It may also protect cells from amyloid-beta, a misfolded protein involved in the progression of Alzheimer's disease.

PROMOTE METABOLIC HEALTH

Hyperglycemia, or chronically high blood sugar levels, wreak havoc on the body, adversely impacting the brain, peripheral nervous system, and heart. *Artemisia* exerts hypoglycemic effects of a magnitude similar to the gold-standard type 2 diabetes drug metformin, suggesting that it may be beneficial for managing blood sugar levels.¹⁷

SUPPORT NORMAL CELLULAR GROWTH & DIVISION

A growing body of research indicates that artemisinin helps regulate cell growth and division, inhibiting abnormal cellular proliferation. It also regulates the microenvironment of the body, making it inhospitable to mutated cells.¹⁸

LIPOSOMAL FORMULATIONS ENHANCE ARTEMISININ BIOAVAILABILITY

Standard artemisinin extracts have low oral bioavailability due to poor oil and water solubility and extensive hepatic first-pass metabolism. Liposomal delivery systems have been found to significantly boost the bioavailability of artemisinin.¹⁹ Liposomal artemisinin has a longer half-life compared to non-liposomal artemisinin, prolonging the time it spends in the circulation. Liposomal formulations of artemisinin may thus have greater efficacy in the management of immune system and infectious conditions.

Artemisinin Emulsion delivers artemisinin in our proprietary liposomal formulation. However, we have chosen to use larger liposomes of approximately 300 nm in size; this allows artemisinin to act locally in the gut, balancing the intestinal microbial ecosystem before entering the lymphatic system and traveling to cells and tissues throughout the body.

ARTEMISININ EMULSION IS IN THE FOLLOWING PROTOCOL SYSTEMS:

- GI Detox Box

NANOSERUM
BI-EST+

Category: **HORMONES • LONGEVITY**



Topical Replenishing Serum

SKU: Q-1195

SIZE: 30 ML

Bi-Est+ Topical Replenishing Serum is a patent-pending, nanoemulsified transdermal serum providing 1 mg of bioidentical estriol (E3) and .25 mg of bioidentical estradiol (E2) per 2 pump dose. The estriol and estradiol are derived from phytosterols, natural compounds used to synthesize bioidentical estrogens. Bi-Est+ is delivered using proprietary lipid nanoemulsion technology for enhanced absorption of ingredients.^{1,2}

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

Supplement Facts

Ingredients: Water, butylene glycol (1,3 butanediol), propylene glycol, ethanol, highly purified phospholipids, tocopherol, medium chain triglycerides, natural mixed tocopherols, hyaluronic acid, lactic acid, estradiol USP

EDUCATION

Estrogen is well known as the quintessential “female” hormone. The body produces three main types of estrogens: estrone, estradiol, and estriol.

Estradiol is the main form of estrogen made by nonpregnant premenopausal women. Estradiol is released in the ovaries by a developing follicle, a small fluid-filled sac containing an immature egg in the ovary.

Estriol has long been considered the least stimulating of the three types of estrogens and is the primary estrogen produced during pregnancy. For many years, estriol was dismissed as an insignificant estrogen outside of pregnancy. However, the work of hormone pioneer Dr. Jonathan Wright suggests that estriol may be an estrogen of great importance for non-pregnant women. In premenopausal women, estriol circulates at levels nearly ten times higher than that of estradiol and estrone, suggesting that it may have significant biological activity yet to be fully elucidated.³ At this point, what we do know is that estriol regulates the effects of estradiol, potentially modulating the overall estrogenicity of the hormone.⁴

ESTRADIOL AND ESTRIOL MAY

SUPPORT HEALTHY AGING AND EASE MENOPAUSAL TRANSITION

During the perimenopausal and menopausal years, estrogen levels fluctuate wildly and ultimately decline significantly and permanently in the postmenopausal period. Insufficient estrogen levels may contribute to a low libido in premenopausal women and a higher sensitivity to stress and mood changes during the menopause transition.⁵ Conversely, replenishing physiologically appropriate levels of estrogen through a combination of estradiol and estriol may ease the menopause transition and support long-term health.

When women supplement with estradiol and estriol together throughout their menopausal years, they may experience enhanced health benefits without the potential downsides of taking estradiol alone. Importantly, both estradiol and estriol have been shown to help midlife women manage one of the most common symptoms of menopause, vasomotor symptoms, such as hot flashes and night sweats.^{6,7,8}

Replenishment of both estradiol and estriol supports healthy bone density, as indicated by increased levels of osteoblasts, reduced levels of alkaline phosphatase (ALP), a critical marker of bone mineralization that signifies bone loss when elevated, and improvements in bone density on dual energy x-ray absorptiometry scans (DXA).^{3,5,9,10}

Estradiol and estriol also support healthy cardiovascular function by modulating cholesterol levels, blood pressure, and endothelial function and protecting against

oxidative stress.^{3,11,12,13}

In addition, estradiol aids insulin sensitivity, facilitating a well-functioning metabolism during the postmenopausal period.^{14,15,16} Estriol applied intravaginally may support healthy vaginal tissue and vaginal microbial balance without increasing the risk of aberrant cell growth.^{17,18}

BIOIDENTICAL ESTRADIOL & ESTRIOL

Bioidentical estradiol and estriol has a molecular structure identical to the body’s own estradiol and estriol. It is commonly derived from yam or soy and typically administered topically or intravaginally. With transdermal application, bioidentical estradiol and estriol can enter the blood circulation quickly, bypassing hepatic first pass metabolism. Furthermore, topical delivery allows for easy

dosage modifications based on patient symptoms.

Research suggests that bioidentical estradiol and estriol may improve menopausal symptoms such as night sweats and hot flashes, support healthy cardiovascular and skeletal systems, and aid metabolism and vaginal health.¹⁹ Together, these hormones may synergistically support a healthy aging process for women during midlife.

BIOCIDIN® LSF

Category: DETOX • GI • IMMUNE HEALTH



Biocidin® LSF is a proprietary blend of 17 botanicals designed to support a healthy microbial balance and immune function.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

Supplement Facts

Serving Size: 0.5 mL (1 Pump)
Servings Per Container: 100

| | Amount Per Serving |
|---|-----------------------|
| Proprietary Blend: | 50mg |
| Vegetable Glycerin [‡] , Bilberry fruit extract, Shiitake mushroom extract [‡] , Goldenseal root, Noni fruit extract [‡] , Garlic bulb [‡] , White Willow bark, Milk Thistle Seed [‡] , Echinacea purpurea herb extract, Echinacea angustifolia root [‡] , Raspberry fruit [‡] , Black Walnut hull, Black walnut leaf, Lavender oil [‡] , Oregano oil [‡] , Galbanum oil, Tea Tree oil [‡] , Fumitory aerial parts extract, Gentian lutea root [‡] | |
| Phospholipids (from sunflower seed lecithin) | 44mg [†] |
| *Daily Value not established | |
| Other Ingredients: Purified water, ethanol (sourced from sugar cane), tocopherol, natural mixed tocopherols | |
| [†] Organic | |

Liposomal Formula

SKU: Q-1013

SIZE: 50 ML

EDUCATION

THE ROLE OF BIOFILMS IN PERSISTENT MICROBIAL DYSFUNCTION

The National Institutes of Health (NIH) reports that a shocking 80 percent of human infections are caused by biofilms.¹ Biofilm is a consortium of microorganisms coexisting in a sticky extracellular matrix. The sticky matrix creates a physical barrier that shields microbes from antibiotics, greatly reducing their susceptibility to this class of drugs.

A growing body of research indicates that attempting to kill pathogens with antibiotics, without also targeting biofilms, may represent a futile effort and facilitate the establishment of persistent infections in the body.² If biofilms aren't addressed in patients with chronic infections such as Lyme disease, MARCoNS,

MRSA, and gastrointestinal pathogens, they will continue to fight an uphill battle for their health.^{3,4,5,6,7} While conventional medicine offers few solutions for disrupting biofilms, the natural world has an abundance of botanicals with anti-biofilm and antimicrobial properties that can help establish a healthy microbial balance.

BIOFILM-BUSTING BOTANICALS TO ADDRESS CHRONIC INFECTIONS

Bilberry

Bilberry (*Vaccinium myrtillus*) is a shrub native to northern Europe, North America, and Canada that bears small blue fruits similar in appearance to blueberries (*Vaccinium corymbosum*). However, bilberries are richer in anthocyanin pigments than their blueberry cousins and have long been used as food and medicine.

Berry phenolics, such as those found in bilberry, demonstrate antimicrobial activity against a variety of periodontal and intestinal pathogens, including *Staphylococcus*, *Salmonella*, *P. gingivalis*, *Fusobacterium nucleatum*, and *Prevotella intermedia*.^{8,9} Bilberry phenolics also strengthen the gut barrier and protect against intestinal oxidative stress.^{10,11,12}

Noni Extract

Noni (*Morinda citrifolia*) is a fruit-bearing tree in the *Rubiaceae* (coffee) family that grows throughout Southeast Asia. It has direct antimicrobial activities and stimulates the immune system, fortifying the body's internal defenses against pathogens.¹³

Noni impedes parasite growth while also reducing the cytokine storm activated by microbial infection.¹⁴ It also inhibits periodontal pathogens and has antifungal activity against *Candida albicans* and *Aspergillus nidulans*, inhibiting the proliferation of fungal hyphae.^{15,16}

The antimicrobial properties of noni are attributed to the presence of phenolic compounds, such as ferulic acid.¹⁷

Milk Thistle

Milk thistle, or *Silybum marianum*, is a revered member of the traditional herbal medicine compendium, used by herbalists for over 2,000 years for its remarkable hepatoprotective properties.¹⁸ Featuring a prickly flower head and purple tubular flowers, this distinctive plant has been extensively studied in the scientific literature and found to support liver function, antioxidant activity, and immunity. However, it also exerts powerful antimicrobial and biofilm-disrupting activities in a variety of microbes, including *Candida albicans* and *Gram-positive bacteria*.^{19,20,21,22,23,24,25,26}

Milk thistle thus offers multifaceted benefits in the treatment of infections by targeting harmful microbes, reducing pathogen-induced inflammation, and facilitating detoxification processes that eliminate pathogens and their harmful byproducts.

Echinacea Purpurea & Echinacea Angustifolia

Echinacea is a genus of flowering plants in the daisy (*Asteraceae*) family that are commonly referred to as "coneflowers." *Echinacea purpurea* is native to eastern North America, while *Echinacea angustifolia* grows in abundance throughout the great plains. Echinacea species were traditionally used by Native Americans and early American physicians for the treatment of wound infections, burns, snake bites, tonsillitis, and septic conditions. When modern medicine caught wind of Echinacea, it began to explore the possible uses of the plant as a remedy for the common cold; unfortunately, the resulting studies have shown little effect of Echinacea on the duration and severity of the common cold.²⁷ However, this route of scientific exploration is misdirected, as it has sought to capitalize on a minor benefit of Echinacea – its mild antiviral properties – while ignoring the powerful, traditional uses of the plant as an immune modulator and "blood purifier" in cases of bacterial and fungal illnesses.²⁸

Fortunately, scientists have continued to explore Echinacea, revealing a variety of healing properties in this potent plant. Echinacea extracts inhibit a wide range of opportunistic bacteria and pathogens, including *Candida albicans*, *Bacillus subtilis*, *Staphylococcus aureus*, and antibiotic-resistance *Enterococcus faecalis*.^{29,30} Echinacea polysaccharides also increase the body's internal resistance against pathogens by modulating the immune system and enhancing the activity of monocytes and natural killer cells.³¹

Goldenseal

Goldenseal is a small perennial plant with thick, knotted roots rich in the orange alkaloid pigment berberine. Berberine offers antibacterial, antifungal, and biofilm-disrupting properties.^{32,33} Goldenseal also contains other beneficial phytochemicals that inhibit efflux pumps in bacterial cells, reducing the ability of

pathogens to clear antimicrobial compounds to which they have been exposed, impairing their survival.³⁴

Shiitake Extract

Shiitake (*Lentinula edodes*) has been prized in traditional Chinese medicine (TCM) and other Asian herbal medical traditions, for millennia.³⁵ Shiitake contains lentinan, a polysaccharide that boosts host immune defense against a stunning array of pathogens, including bacteria, fungi, parasites, and viruses, by enhancing T effector cell function and improving gut mucosal immunity.³⁶ Shiitake also has direct antimicrobial effects against several human pathogens and opportunists, including *Salmonella enterica* and *Streptococcus mutans*, and is a source of potent antioxidant extracts.^{37,38,39}

White Willow Bark

White willow bark comes from the beautiful, graceful white willow tree (*Salix alba*) native to Europe and western and central Asia. White willow bark is rich in salicin, a powerful anti-inflammatory phytochemical that served as the original "molecular inspiration" for acetylsalicylic acid, the active component of aspirin.⁴⁰ White willow bark is generally standardized for its salicin content, though other polyphenols and flavonoids likely play important roles in its anti-inflammatory actions.⁴¹

Garlic

Garlic (*Allium sativum*) has been used since time immemorial for supporting the health of the human body. The Sumerians utilized garlic for its healing properties as far back as 2600 to 2100 BC, while the ancient Egyptians fed garlic to their slaves tasked with building the pyramids to keep them strong. Garlic has also been used throughout the ages as a protective agent against various infectious diseases, including influenza, typhoid fever, and diphtheria.⁴²

Modern-day research strongly supports the therapeutic benefits of garlic in infectious diseases. Garlic has antibacterial activities against *Borrelia burgdorferi*, the causative bacterium in Lyme disease.⁴³ Garlic extract and oils also have antimicrobial activities against *Staphylococcus aureus*, *Escherichia coli*, and *Candida albicans*.^{44,45} Ajoene, one of the organosulfur compounds found in garlic, inhibits quorum sensing, a biochemical process that allows bacteria to communicate with one another and initiate the formation of biofilm.⁴⁶ Whole garlic extracts also inhibit biofilm formation, indicating that this pungent vegetable is a potent biofilm-fighting agent.⁴⁷

Grape Seed Extract

Grape seed extract, a derivative of whole grape seeds, is rich in proanthocyanidins with a variety of health-promoting properties. Grape seed extract inhibits the growth of *Saureus*, *E. coli*, *Pseudomonas aeruginosa*, possibly by impairing the integrity of bacterial cell walls and has antifungal activity against *Aspergillus niger* and *Fusarium oxysporum*.^{48,49} Grape seed extract includes polyphenolic compounds with

antioxidant properties that promotes the growth of beneficial gut bacteria, such as *Lactobacillus*, increasing the intestine's resistance to pathogens.⁵⁰

Black Walnut

The blackened, dried hulls of Black walnut (*Juglans nigra*) have been used for centuries in herbal medicine. The astringent, bitter hulls are rich in polyphenolic compounds, including bitter water-soluble tannins, with antibacterial and antiparasitic effects. Black walnut exerts antibacterial activity against antibiotic-resistant *S. aureus*, possibly by reducing binding to bacterial DNA and reducing its transcription and translation.^{51,52} Black walnut has also demonstrated strong antibacterial activity against *Borrelia burgdorferi*, the causative agent in Lyme disease.⁵³ Fascinatingly, Black walnut also inhibits LPS-induced inflammation, thus may help quench the inflammatory response triggered by intestinal and systemic bacterial infections.⁵⁴

Raspberry

Raspberry (*Rubus idaeus*) isn't just a delicious summer fruit; it also contains bioactive polyphenols, such as ellagitannins and anthocyanins, with antioxidant properties.⁵⁵ In preclinical studies, the consumption of raspberry also boosts beneficial gut bacteria and may create a microbiome with more resilient defenses against opportunistic and pathogenic bacteria.⁵⁶

Fumitory

Fumitory (*Fumaria indica*) is an annual herb with a long-standing history of use in European medicine for the remediation of "toxic blood." Research indicates that it has antiparasitic, antiprotozoal, and antibacterial effects, which are believed to be mediated by its phenolic acid content.^{57,58}

Gentian

Gentian is the quintessential bitter herb, used for centuries as an aid to the liver and gallbladder. Two of gentian's bioactive compounds, gentiopicroside and gentiolactone, have been found to protect the liver from cholestasis-induced liver damage, inhibit LPS-induced toxicity, and upregulate antioxidant enzyme activity.^{59,60,61}

ESSENTIAL OILS: POTENT ANTIMICROBIALS AND BIOFILM DISRUPTORS

A wide range of plants produce essential oils, organic hydrophobic liquids secreted from tiny structures within the plant's fruits, leaves, stem, and other structures. Essential oils defend plants against pests and predators, and modern-day research indicates that they can also help defend the human body against infections.

Tea tree oil is one of the most well-studied plant essential oils. It is obtained through steam distillation of leaves of the *Melaleuca alternifolia* tree, native to Australia. It has antibacterial activity against a wide range of pathogens, including *E. coli*, *S. aureus*, *S. epidermidis*, *E. faecalis*, *P. aeruginosa*, *M. avium*, *H. influenzae*, *S. pyogenes*, and *S. pneumoniae*.^{62,63} Tea tree oil also has potent antifungal activity against fluconazole-resistant *Candida albicans*.⁶⁴

Galbanum oil is steam distilled from *Ferula gummosa*, an umbelliferous plant with delicate yellow flowers. Galbanum oil has antimicrobial activity against several mycobacteria, *Gram-positive and Gram-negative pathogens*, and *Candida albicans*.^{65,66}

Lavender oil is derived from beautiful, fragrant lavender flowers (*Lavandula*). The delicate appearance and lovely smell of lavender belies its potent antimicrobial activities. Lavender essential oil has antifungal activity against *Fusarium* species and *Candida albicans* and antibacterial activity against *Staphylococcus aureus*.^{67,68}

Oregano oil comes from fragrant oregano (*Origanum vulgare*), best known as an ingredient in Italian cooking. However, oregano does far more than just make food delicious; it has potent antibacterial and anti-biofilm effects. Oregano oil exerts antimicrobial activity against multidrug-resistant bacteria, including methicillin-resistant *Staphylococcus aureus* (MRSA) and *Pseudomonas aeruginosa*, by damaging bacterial cells and disrupting biofilm structure.⁶⁹ Oregano oil also demonstrates antimicrobial effects against *Borrelia burgdorferi*, *Bartonella henselae*, multiple *Candida* species, and opportunistic bacteria that affect the female reproductive tract.^{70,71,72,73} Furthermore, oregano oil does not appear to trigger resistance development in bacteria, a common problem with antibiotics that has led to the explosion of antibiotic-resistant bacterial strains.



DR. SHADE'S BITTER X

Category: DETOX • GI



Herbal
Detox Bitters

SKU: Q-1042

SIZE: 50 ML

Dr Shade's Bitter X features a quartet of bitter herbs that help orchestrate optimal digestion and detoxification via the liver, gallbladder, and kidneys.* Dandelion, gentian root, solidago (goldenrod), and myrrh essential oil comprise the foundation of our formula, while sweet orange essential oil adds a touch of sweetness. These potent herbs are delivered together in a liposomal formula, offering unparalleled bioavailability.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

| Supplement Facts | | |
|--|-----------------------|------------------|
| Serving Size: 1 mL (2 Pumps) Servings Per Container: 50 | | |
| | Amount Per Serving | % Daily Value |
| Proprietary Blend: | 410mg | ** |
| Liquid extracts of Dandelion (root), Gentian (root), Solidago gigantea (aerial parts), and Myrrh (Oleo-gum-resin), Essential oil of sweet orange | | |
| **Daily Value not established | | |
| Other Ingredients: Glycerin, water, ethanol, tocopherolan, highly purified phospholipids, acacia gum, natural mixed tocopherols | | |

EDUCATION

BILE FLOW: THE MISSING LINK IN DETOXIFICATION

Detoxification is a complex, multi-step process that moves toxins out of cells, into the liver and gallbladder and out of the body via the digestive tract and kidneys. For decades, detoxification protocols have primarily addressed the intestine and kidneys, overlooking the critical role of the gallbladder and bile flow in facilitating successful detoxification.

Bile is a fluid produced in the liver and secreted by the gallbladder that both aids in the digestion of dietary fats and transports toxins into the intestine so they can be excreted from the body. Bile is comprised of bile acids, salts, phospholipids, cholesterol, and water. Fascinating research indicates that the cellular

transporters that move bile acids and salts in and out of the intestine also transport toxins.^{1,2} Therefore, sluggish bile flow, also known as cholestasis, slows toxin efflux and impedes successful detoxification. Various factors contribute to cholestasis, including gallstones, biliary disease, chronic liver disease, certain medications, excess estrogen, and endotoxin, also known as lipopolysaccharide or LPS.^{3,4}

In addition to having a direct negative impact on detoxification, poor bile flow contributes to gastrointestinal dysbiosis and conditions such as small intestinal bacterial overgrowth (SIBO).⁵

Insufficient bile flow may also promote the formation of intestinal biofilm, a consortium of microorganisms embedded in a sticky matrix that allows pathogens to evade antibiotics and the immune system, enhancing their infectivity.⁶ Dysbiosis, SIBO, and intestinal biofilm exert negative feedback on detoxification by increasing LPS and inflammatory cytokines, creating a vicious cycle of bile stagnation and GI distress.⁷

WHY ARE BITTER HERBS IMPORTANT?

Bitter botanicals have long been used in traditional herbalism to support bile flow. Today, scientific research indicates that many time-honored bitter botanicals not only support bile flow, but also facilitate detoxification through multifaceted cellular mechanisms.

Dandelion supports diuresis, enhancing urinary elimination of toxins. It also protects the liver, enhances bile flow, inhibits LPS-induced inflammation, and upregulates antioxidant pathways such as Nrf2.^{8,9,10}

Gentian, a robustly bitter botanical, also promotes healthy bile flow. Two of its bioactive compounds, gentiopicroside and gentiolactone, have been found to protect the liver from cholestasis-induced liver damage, inhibit LPS-induced toxicity, and upregulate antioxidant enzyme activity.^{11,12,13}

Solidago, a flowering plant with tiny, bright yellow blossoms, has a long history of use in traditional herbalism for supporting the urinary tract. It promotes diuresis and toxin elimination while simultaneously increasing the activity of glutathione S-transferase, a critical enzyme in phase II detoxification.^{14,15} The bioactive polyphenols in Solidago also have antimicrobial activities against Staphylococcus aureus and Candida albicans, common infectious organisms in humans.¹⁶

Finally, the **essential oil of myrrh**, a resinous substance derived from the Commiphora mukul tree native to India, supports healthy bile flow by increasing the expression of the human bile salt export pump and promotes a healthy microbial balance.^{17,18}

BITTER X IS IN THE FOLLOWING PROTOCOL SYSTEMS:

- GI Detox Box
- PreTox System
- Black Box® II

DR. SHADE'S BITTERS® NO.9

Category: DETOX • GI



Digestive
Bitters Blend

SKU: Q-1014

SIZE: 50 ML

Dr. Shade's Bitters® No. 9 is a blend of nine bitter herbs and essential oils that helps orchestrate optimal digestion and detoxification via the liver, gallbladder, and kidneys.* Our formula features a proprietary blend of classic bitter botanicals, including dandelion, milk thistle, gentian, burdock root, and Solidago (goldenrod). The suite of bitter botanicals is rounded out by essential oils of sweet orange, myrrh, juniper, and clove.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

| Supplement Facts | | |
|--|-----------------------|------------------|
| Serving Size: 1 mL (2 Pumps) Servings Per Container: 50 | | |
| | Amount Per Serving | % Daily Value |
| Proprietary Blend: | 271mg | ** |
| Liquid extracts of Dandelion aerial parts, Milk Thistle aerial parts, Gentian root, Burdock root, and Solidago gigantea aerial parts, Essential oil of sweet orange, Myrrh, Juniper and Clove. | | |
| **Daily Value not established | | |
| Other Ingredients: Glycerin, water, ethanol, tocopherols, highly purified phospholipids, acacia gum, natural mixed tocopherols | | |

EDUCATION

BILE FLOW: THE MISSING LINK IN DETOXIFICATION

Detoxification is a complex, multi-step process that moves toxins out of cells, into the liver and gallbladder and out of the body via the digestive tract and kidneys. For decades, detoxification protocols have primarily addressed the intestine and kidneys, overlooking the critical role of the gallbladder and bile flow in facilitating detoxification.

Bile is a fluid produced in the liver and secreted by the gallbladder that both aids in the digestion of dietary fats and transports toxins into the intestine so they can be excreted from the body. Bile is comprised of bile acids, salts, phospholipids, cholesterol, and water. Fascinating research indicates that the cellular

transporters that move bile acids and salts in and out of the intestine also transport toxins.^{1,2} Therefore, sluggish bile flow, also known as cholestasis, slows toxin efflux and impedes successful detoxification. Various factors contribute to cholestasis, including gallstones, biliary disease, chronic liver disease, certain medications, excess estrogen, and endotoxin, also known as lipopolysaccharide or LPS.^{3,4}

In addition to having a direct negative impact on detoxification, poor bile flow contributes to gastrointestinal dysbiosis and conditions such as small intestinal bacterial overgrowth (SIBO).⁵

Insufficient bile flow may also promote the formation of intestinal biofilm, a consortium of microorganisms embedded in a sticky matrix that allows pathogens to evade antibiotics and the immune system, enhancing their infectivity.⁶ Dysbiosis, SIBO, and intestinal biofilm exert negative feedback on detoxification by increasing LPS and inflammatory cytokines, creating a vicious cycle of bile stagnation and GI distress.⁷

BITTER BOTANICALS SUPPORT GENTLE DETOXIFICATION

An array of bitter botanicals have been found to activate the cellular transporters necessary to move bile and toxins from the liver and gallbladder into the intestine. Dandelion, milk thistle, gentian, burdock root, Solidago, and myrrh essential oil have long been used in traditional herbalism to support the detoxification and cleansing functions of the body. Emerging scientific research corroborates the effects of these botanicals on an assortment of detoxification enzymes and systems.

Juniper, clove, and sweet orange essential oils offer antimicrobial and anti-inflammatory effects that complement the effects of bitter botanicals on digestion and detoxification.^{29,30,31}

Dandelion supports diuresis, enhancing urinary elimination of toxins. It also protects the liver, enhances bile flow, inhibits LPS-induced inflammation, and upregulates antioxidant pathways such as Nrf2.^{8,9,10}

Milk thistle is a time-honored botanical in traditional Western herbalism. Silymarin, the primary bioactive constituent of milk thistle, increases bile flow.¹¹ It supports phase II detoxification by activating the Nrf2 pathway, which ultimately enhances glutathione production.¹²

A true multi-purpose detoxification promoter, silymarin and its sister compound, silychristin, also stabilize MRP2 and BSEP transporters, bile acid transporters involved in phase III detox that usher bile and xenobiotics, such as mercury and mycotoxins, out of the body.^{13,14} Last but not least, milk thistle alleviates hepatic inflammation induced by exogenous and endogenous toxins.^{15,16}

Gentian, a full-bodied bitter botanical, also promotes healthy bile flow. Two of its bioactive compounds, gentiopicroside and gentiolactone, have been found to protect the liver from cholestasis-induced liver damage, inhibit LPS-induced toxicity, and upregulate antioxidant enzyme activity.^{17,18,19}

Solidago, a flowering plant with tiny, bright yellow blossoms, has a long history of use in traditional herbalism for supporting the urinary tract. It promotes diuresis and toxin elimination while simultaneously increasing the activity of glutathione S-transferase, a critical enzyme in phase II detoxification.^{20,21} The bioactive polyphenols in Solidago also have antimicrobial activities against Staphylococcus aureus and Candida albicans, common infectious organisms in humans.²²

Burdock root is a hearty root vegetable that has been used for thousands of years in Traditional Chinese Medicine and Western folk herbalism. It is revered for its cooling, decongesting effects on the liver and digestive system, mediated by its bitter principles. Modern-day science indicates that burdock root has potent anti-inflammatory properties, while also protecting against xenobiotic-induced liver injury.^{23,24,25}

The **essential oil of myrrh**, a resinous substance derived from the Commiphora mukul tree native to India, supports healthy bile flow by increasing the expression of the human bile salt export pump and promotes a healthy microbial balance.^{26,27} Juniper essential oil has anti-inflammatory and antimicrobial properties.^{28,29} **Clove essential oil** contains eugenol, a potent antimicrobial agent with a pleasant, spicy scent. **Sweet orange essential oil** offers antioxidant and antimicrobial properties.^{30,31,32}

NANOFORMULATED BROAD SPECTRUM CBD GUMMIES

Category: CALMING & SLEEP • CBD/HEMP

Broad Spectrum CBD Gummies combine nanoemulsified broad spectrum hemp extract and cannabidiol (CBD) in a gummy, providing a delicious and convenient supplemental hemp extract. This THC-free, non-psychoactive formula is vegan, free of allergens and has no artificial colors or sweeteners. Two gummies provide 11 mg of organic broad-spectrum hemp extract, 10 mg of CBD, and is formulated using Quicksilver Delivery Systems® proprietary technology for fast and high absorption of ingredients.

TESTED ALLERGEN FREE • TESTS CLEAN • TESTED GLUTEN FREE • TESTED NON-GMO
TESTED SOY PROTEIN FREE

| Supplement Facts | | |
|---|--------------------|----------------|
| Serving Size: 2 Gummies Servings Per Container: 30 | | |
| | Amount Per Serving | % Daily Value* |
| Calories | 15 | |
| Total Carbohydrate | 3 g | 1% |
| Total Sugars | 2 g | ** |
| Includes 2 g Added Sugars | | 4% |
| Organic Broad Spectrum Hemp Extract (aerial parts) | 11 mg | ** |
| Cannabidiol | 10 mg | ** |

*Percent Daily Values are based on a 2,000 calorie diet.
**Daily Value Not Established

Other Ingredients: Tapioca syrup, cane sugar, water, glycerin, pectin, ethanol, citric acid, natural flavoring, tocopherol, medium chain triglycerides, phospholipids (from purified sunflower seed lecithin), sunflower oil, carnauba wax

EDUCATION

THE ENDOCANNABINOID SYSTEM

Humans have turned to medicinal plants for over 60,000 years, according to archeological records¹ and over 20,000 medicinal plants have been inventoried by the World Health Organization.² Yet few offer such a cornucopia of healing molecules as the flowers, stems, seeds, and leaves of the hemp plant, Cannabis. Cannabis contains over a hundred unique, bioactive cannabinoids that are capable of modulating our neuroendocrine and immune systems, thereby exerting a wide range of beneficial health effects.^{3,4,5}

The isolation and discovery of psychoactive THC in 1964, at Hebrew University of Jerusalem,⁶ led to a decades-long race to discover the receptors it might act upon and ultimately to discover our

unique endocannabinoid system (ECS).⁷ We now know that our ECS features two primary receptors—CB1, found in 1990⁸, and CB2, found in 1993⁹ although other receptors likely also play a role.^{10,11,12} CB1 is widely distributed in the brain and central nervous system, while CB2 is found abundantly in the immune system, in cells such as leukocytes and macrophages, as well as the spleen, tonsils, thymus, lung, and testes.^{13,14} Together, these receptors populate the GI tract, reproductive tract, immune system, arteries, heart, lungs, endocrine glands, and more.¹⁵

Our body produces two unique endocannabinoid lipids to talk to these receptors: anandamide and 2-arachidonoylglycerol. Anandamide is associated with a joyful mood and was named after the Sanskrit word for bliss.¹⁶ Fatty acids and enzymes that help synthesize and break down endocannabinoids complete the system and its feedback loops.

Cannabinoids are retrograde signaling agents, meaning after being released from a postsynaptic dendrite, they travel backward across the synaptic cleft, activating receptors on the presynaptic cell. Cannabinoids are commonly produced and released from neurons to reduce the activity of a stimulated neuron.¹⁷ That stimulated neuron can be excitatory (think of glutamate) or inhibitory (think of GABA). By acting retrogradely to suppress neurotransmitter release and transmission, cannabinoids help maintain homeostasis within the neuroendocrine system.¹⁸

In recent years, an astonishingly broad influence of cannabinoids—both endogenous and plant-based—on multiple receptors and pathways has been documented. Cannabinoids may impact

opioid, GABA, adenosine, and serotonin receptors.^{19,20,21} Other significant molecular targets include glycine receptors and peroxisome proliferator-activated receptors (PPARs), which play an essential role in cellular differentiation, development, and metabolism.^{22,23}

PHYTOCANNABINOIDS: A POTENT FAMILY OF MOLECULES FOR HOMEOSTASIS

The range of effects of the phytocannabinoids suggests broad applicability in their therapeutic action. Cannabidiol and numerous other non-psychoactive phytocannabinoids have the remarkable ability to shift the activity of more than 1000 human genes, increasing our cellular antioxidant defenses as well as downregulating many pro-inflammatory mediators.²⁴ Cannabidiol powerfully supports anandamide by inhibiting the enzyme that breaks down this “bliss molecule” and may thus support a calm mind and balanced mood.²⁵

In addition to regulating mood, phytocannabinoids modulate inflammation, pain, appetite, sleep, and neurologic and immune conditions.^{26,27,28} Phytocannabinoids may also act as neuroprotective antioxidants, superior to alpha-tocopherol

and vitamin C, preventing glutamate toxicity in the nervous system.²⁹ A range of phytocannabinoids may offer an elegant entourage effect, potentiating benefits while modulating adverse effects.³⁰

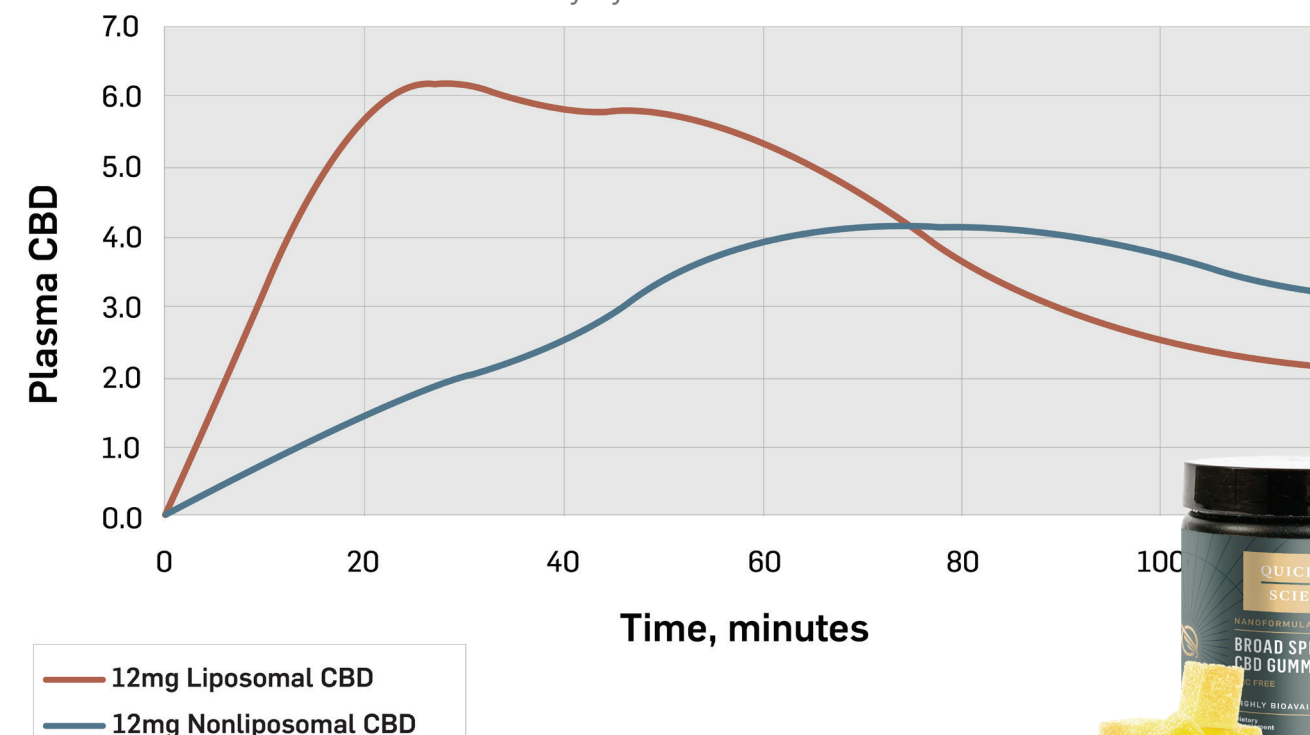
NATURAL TERPENOIDS ENHANCE THE ENTOURAGE EFFECT

Phytocannabinoids aren't the only bioactive compounds found in hemp extract. Hemp also contains terpenoids, aromatic compounds found in plants, and essential oils with unique therapeutic effects.³¹ Terpenoids typically found in Cannabis include limonene, myrcene, a-pinene, linalool, beta-caryophyllene, caryophyllene oxide, nerolidol, and phytol. They may contribute to the entourage effect, serving as agonists to the CB2 receptor.³²

Beta-caryophyllene is the terpene most commonly found in Cannabis and is present in other plants and herbs. It binds directly to the CB2 receptor as a selective full agonist and was described in 2008 as a “dietary cannabinoid.”³³

NANOEMULSIFIED CBD EXTRACT UPTAKE STUDY

Comparison of Nanoemulsified & Non-Nanoemulsified Delivery Systems CBD Extract



NANOEMULSION BROAD SPECTRUM HEMP EXTRACT

Category: CALMING & SLEEP • CBD/HEMP



THC Free

SKU: Q-1026

SIZE: 50 ML

FLAVOR: CITRUS

Nanoemulsified, Broad Spectrum Hemp Extract is a THC-free blend of non-psychoactive phytocannabinoids and terpenoids designed to offer broad support for the endocannabinoid system and neuroendocrine and immune balance. This potent formula features cannabidiol (CBD), as well as the suite of phytocannabinoids naturally present in hemp, including cannabigerol (CBG), cannabidiolic acid (CBDA), cannabinol (CBN), cannabichromene (CBC), and cannabidivarin (CBDV), the “entourage effect.” To boost this unique entourage effect, we add the terpenoid Beta-caryophyllene, the most common terpenoid in cannabis, for direct endocannabinoid activation.*

TESTED ALLERGEN FREE • TESTS CLEAN • TESTED GLUTEN FREE • TESTED NON-GMO
TESTED SOY PROTEIN FREE

| Supplement Facts | | |
|---|-----------------------|------------------|
| Serving Size: 2 mL (4 Pumps) Servings Per Container: 25 | | |
| | Amount Per Serving | % Daily Value |
| Broad Spectrum Hemp Extract (aerial parts) | 21mg | ** |
| Phytocannabinoid | 16mg | ** |
| **Daily Value not established | | |
| Other Ingredients: Water, glycerin, ethanol, tocopherols, phospholipids (from purified sunflower seed lecithin), natural citrus oils, natural mixed tocopherols, natural flavoring | | |

EDUCATION

CANNABIS AND THE ENDOCANNABINOID SYSTEM

Humans have turned to medicinal plants for over 60,000 years, according to archeological records⁵, and over 20,000 medicinal plants have been inventoried by the World Health Organization.⁶ Yet few offer such a cornucopia of healing molecules as the flowers, stems, seeds and leaves of the hemp plant, Cannabis. As a member of the cannabis family, hemp has been called a medicinal plant of unparalleled versatility⁷, a global homeostatic regulator. Cannabis contains over a hundred unique, bioactive cannabinoids that are capable of modulating our neuroendocrine and immune system.^{8,9,10}

The isolation and discovery of psychoactive THC in 1964, at Hebrew University of Jerusalem¹¹, led to a decades-long race to discover the receptors it might act upon, and ultimately led to the discovery of our unique endocannabinoid system (ECS).¹² We now know that our ECS features two main receptors—CB1, found in 1990¹³, and CB2, found in 1993¹⁴, although other receptors likely also play a role.^{15,16,17} CB1 is widely distributed in the brain and central nervous system¹⁸ while CB2 is found abundantly in the immune system, in cells such as leukocytes and macrophages, as well as the spleen, tonsils, thymus, lung and testes.¹⁹ Together, these receptors populate the GI tract, reproductive tract, immune system, arteries, heart, lungs, endocrine glands and more.²⁰ Our body produces two unique endocannabinoid lipids to talk to these receptors: anandamide and 2-arachidonoylglycerol. Anandamide is associated with a joyful mood and was named after the Sanskrit word for bliss.²¹ Fatty acids and enzymes that help synthesize and break down endocannabinoids complete the system and its feedback loops.

Cannabinoids can be thought of as travellers back in time, because they act as retrograde signaling agents. They are produced and released from neurons in order to reduce the activity of a stimulated neuron.²² That stimulated neuron can be excitatory (think of glutamate) or inhibitory (think of GABA). Either way, cannabinoids act retrogradely to suppress neurotransmitter release and transmission, allowing tremendous balancing and homeostatic ability.²³

In recent years, an astonishingly broad influence of cannabinoids—both endogenous and plant-based—on multiple receptors and pathways has been documented. Cannabinoids may impact opioid, GABA, adenosine and serotonin receptors.^{24,25,26} Other significant molecular targets include glycine receptors and peroxisome proliferator-activated receptors (PPARs), which play an essential role in cellular differentiation, development, and metabolism.^{27,28}

Our built-in ECS is critical for bioregulation throughout the body, affecting appetite, pain, mood, memory, cognition, analgesia, immune function, sleep, motivation, emotions and more.²⁹ In essence, cannabinoids allow us to relax, eat, sleep, forget and protect.³⁰ When in harmony and balance, we experience optimal endocannabinoid tone.³¹ “Free radicals are the friction of life,” says biologist Robert Melamede of the University of Colorado, “Endocannabinoids are the oil of life.”³²

PHYTOCANNABINOIDS: A POTENT FAMILY OF MOLECULES ENSURING HOMEOSTASIS

The range of effects of the phytocannabinoids suggests broad applicability in their therapeutic action. THC, cannabidiol and numerous other phytocannabinoids have the remarkable ability to shift activity of more than 1000 human genes, increasing our cellular antioxidant defenses as well as downregulating many pro-inflammatory mediators.³³ Cannabidiol is thought to downregulate receptor activity. However, CBD powerfully supports anandamide by inhibiting the fatty acid that breaks down this “bliss molecule”. Together, a range of phytocannabinoids may offer an elegant

entourage effect, potentiating benefits while modulating potential adverse effects.³⁴

Phytocannabinoids play a significant role in modulating inflammation, pain, appetite, sleep, mood, insulin sensitivity, fat and energy metabolism, and also impact neurologic and immune conditions.^{35,36,37} Phytocannabinoids may act as neuroprotective antioxidants, superior to alpha-tocopherol and ascorbate preventing glutamate toxicity.³⁸ CBD in particular has been shown to regulate cell proliferation and differentiation through DNA methylation.³⁹

TERPENOID, CANNABINOIDS AND BETA-CARYOPHYLLENE

Terpenoids are aromatic compounds found in plants and essential oils⁴⁰, with unique therapeutic effects. Terpenoids in cannabis include limonene, myrcene, a-pinene, linalool, beta-caryophyllene, caryophyllene oxide, nerolidol and phytol. They may contribute to the entourage effect, serving as agonists to the CB2 receptor.⁴¹ Beta-caryophyllene is the terpene most commonly found in cannabis and is present in other plants and herbs. It binds directly to the CB2 receptor, as a selective full agonist, and was described in 2008 as a “dietary cannabinoid.”⁴ Adding beta-caryophyllene to broad spectrum hemp oil extract extends the potency of the extract without the need for THC.

NANOEMULSION CARDIO ELITE

Category: **CARDIOMETABOLIC • COGNITIVE SUPPORT • LONGEVITY • PERFORMANCE**



NO and Vascular Support Formula

SKU: Q-1087

SIZE: 50 ML

Cardio Elite is a blend of modern nutraceuticals and time-honored botanicals designed to support healthy blood pressure, nitric oxide (NO) production, vascular integrity, and micro and macrocirculation. Using our proprietary nanoemulsion delivery technology, the formulation's liquid transparency can only be achieved with nanoparticles that are smaller than wave lengths of light. These small, stable delivery vesicles support optimal absorption of ingredients.^{1,2}

**TESTED ALLERGEN FREE • TESTS CLEAN • TESTED GLUTEN FREE • TESTED NON-GMO
TESTED SOY PROTEIN FREE**

| Supplement Facts | | |
|---|-----------------------|-------------------|
| Serving Size: 5 mL (1 tsp.) Servings Per Container: 20 | Amount Per Serving | % Daily Value* |
| Potassium (as Potassium Nitrate, Potassium Nitrite) | 60 mg | 1% |
| Proprietary Blend | 1025 mg | ** |
| <small>Dan Shen root extract (Salvia miltiorrhiza), Hawthorn berry extract (Crataegus monogyna), L-Citrulline, Rhamnox™100 Green Seaweed (Monostroma nitidum) extract, Potassium Nitrate and Potassium Nitrite, He Shou Wu (Fo-ti) root extract (Polygonum multiflorum), Ginkgo leaf extract (Ginkgo biloba), Myrrh (Commiphora myrrha) resin extract, Ginseng Plus® Panax Notoginseng root extract, Boswellia resin extract (Boswellia Serrata), Cinnamon bark oil</small> | | |
| <small>*Percent Daily Values are based on a 2,000 calorie diet. **Daily Value Not Established</small> | | |
| Other Ingredients: Water, ethanol, highly purified phospholipids, tocopherols, natural mixed tocopherols, natural flavoring | | |

EDUCATION

The circulatory system is a complex network of blood and vessels that deliver nutrients and oxygen to each body cell while simultaneously carrying away carbon dioxide and cellular waste.

Poor blood circulation hinders whole-body health. It inhibits nutrient and oxygen delivery to the body's tissues, depriving the body of the life-giving substrates it needs to function correctly. High blood pressure, low nitric oxide, and vascular dysfunction contribute to many health concerns, including cognitive impairment, decreased sexual function, poor exercise tolerance and stamina, and chronic fatigue.^{3,4,5,6}

Conversely, well-regulated blood pressure, NO sufficiency, a resilient vasculature, and

robust blood circulation improves the delivery of nutrients to cells and tissues, enhances tissue oxygenation, and boosts cognition, sexual function, and exercise performance.

MODERN NUTRACEUTICALS SUPPORT HEALTHY BLOOD PRESSURE, NITRIC OXIDE PRODUCTION, AND VASCULAR INTEGRITY

Potassium Nitrate and Potassium Nitrite

Potassium nitrate and potassium nitrite are naturally occurring elements that support healthy blood pressure through conversion into the vasodilator NO within the body.⁷

NO relaxes the inner lining of blood vessels, causing them to widen so blood can flow through more easily. Low NO narrows blood vessels, impeding blood flow and raising pressure in the vascular system. Low NO is also associated with platelet accumulation and cell adhesion in blood vessels.⁸ Sufficient NO helps maintain healthy blood pressure and vascular function.⁷

Nitrates and nitrites naturally occur in water and soil and, thus in food. Nitrates occur in many healthy whole foods, such as dark leafy greens, beets, and fermented foods. In fact, 80% of dietary nitrate intake occurs through vegetable consumption.⁹ Because of their antimicrobial properties, nitrates are also used as preservatives in processed meats.

The human body handles nitrate in a fascinating process that starts in the mouth. After consuming dietary or supplemental nitrate, the compound accumulates in the blood and

becomes concentrated in the saliva. Bacteria in the mouth subsequently reduces nitrate into nitrite. Upon swallowing the resulting nitrite, the stomach acid converts it into NO, which can then go on to perform its numerous important functions in the body.¹⁰

SUPPLEMENTAL NITRATE AND NITRITE SUPPORT BLOOD PRESSURE AND VASCULAR FUNCTION

Research indicates that the relationship between nitrate, nitrite, and health appears to be a U-shaped curve, with very high and very low exposure causing problems, while moderate intakes confer significant health benefits.

Dietary and supplemental nitrate and nitrite provide proven benefits to the cardiovascular system. Multiple studies show that supplementation with dietary and inorganic nitrate provides a sustained blood pressure-lowering effect in people with high blood pressure.^{11,12} In addition, nitrate supplementation reduces the "oxygen cost" of exercise, the amount of oxygen required to perform a given amount of work, and improves exercise capacity by improving vascular function.¹² Finally, research indicates that lifelong supplementation with potassium nitrate may offer longevity benefits.¹³

SETTLING CONCERNS ABOUT DIETARY NITRATE AND NITRITE

Some epidemiological studies, which cannot ascertain cause and effect, propose that high nitrate intake is a neoplasm risk. However, no direct connection between physiological intakes of nitrate and nitrite from food has been found. Reputable health organizations such as the European Food Safety Authority state that there is no evidence to support dietary nitrates as carcinogens.¹⁴

Some people cite concerns that nitrate intake can cause methemoglobinemia in infants, a rare blood condition that affects how red blood cells deliver oxygen throughout the body. However, this condition has primarily been associated with nitrate exposure through drinking water.¹⁵ Nitrate leaches into drinking water through runoff from fertilized soil, wastewater, and landfills.¹⁶ Exposure to excessive nitrates in these industrial forms may have far different effects on the body than low levels of exposure to naturally occurring nitrates and nitrites in food or a dietary supplement.

Yet, based on these concerns, the World Health Organization (WHO) set an "acceptable daily intake" (ADI) for nitrate of 3.7 mg/kg body weight per day, equivalent to 222 mg nitrate per day for a 132-lb adult, and nitrite of 0.07 mg/kg body weight per day, equivalent to 4.2 mg nitrite per day for a 132-lb adult. Ironically, eating just one serving of a nitrate-rich food or supplement can exceed the WHO's "acceptable daily intake" for nitrate of 3.7 mg/kg body weight per day. If dietary

nitrates are so harmful, then by that measure, green leafy vegetables and beets would be a danger to human health. Of course, that is not the case.¹⁷

Finally, there may be some worry that supplemental nitrate or nitrite could excessively lower blood pressure. However, research indicates that the effect of supplemental nitrate and nitrite on blood pressure is dependent on baseline blood pressure, with people with high baseline blood pressure experiencing the most significant decrease in blood pressure upon supplementation.¹⁸

L-Citrulline

L-citrulline is an amino acid created by mitochondrial enzymes that increases levels of L-arginine, another amino acid and precursor to NO.¹⁹

Oral L-arginine supplementation is ineffective for raising NO and improving blood pressure because it is degraded in the gastrointestinal tract and liver. Conversely, L-citrulline bypasses the absorption constraints posed by the gut and liver and raises plasma and tissue levels of NO and reduces diastolic blood pressure.²⁰ Through its effects on NO synthesis, L-citrulline supports healthy blood pressure and vascular function.²¹

Rhamnan Sulfate

Blood vasculature is a complex network of miniscule tubes that circulate blood throughout the body. Blood vessels contain a glycocalyx, a matrix of unique carbohydrates and water that covers the endothelial cells, protecting the vascular lining from damage. A thicker glycocalyx is associated with better vascular health. Interestingly, the glycocalyx also supports the production of NO.

Research indicates that a degraded, thin, glycocalyx promotes vascular issues such as high blood pressure. Preserving glycocalyx integrity is essential for cardiovascular health.²²

Rhamnan sulfate is an extract from *Monostroma nitidum*, a type of algae that grows on the southwest coast of Japan. It is rich in polysaccharide, a chain of bonded sugar molecules. Rhamnan sulfate rejuvenates the glycocalyx, thereby helping maintain a healthy vascular system and blood pressure regulation.^{23,24} Rhamnan sulfate also maintains a healthy vascular system by inhibiting plaque deposition in arteries and unhealthy clot formation, both of which can occlude healthy blood flow.^{25,27}

TIME-HONORED HERBS SUPPORT MICRO AND MACROCIRCULATION

Traditional Chinese herbalism has long employed herbs with beneficial effects on micro and microcirculation. Microcirculation consists of blood flow through tiny vessels such as arterioles, capillaries, and venules. Macrocirculation comprises blood flow through the heart and large blood

vessels – the arteries and veins. Both levels of circulation must function properly for optimal health.

Several notable herbs that support blood circulation include He Shou Wu, Dan Shen, Hawthorn berry, Ginkgo Leaf, Notoginseng, myrrh resin, Boswellia resin, and cinnamon bark oil.

He Shou Wu

He shou wu (*Polygonum multiflorum*) is a Chinese herb with a rich history of use for supporting the cardiovascular system. It contains a phytochemical called 2,3,5,4'-Tetrahydroxystilbene-2-O-β-D-glucoside or TSG for short. TSG improves circulation by regulating lipid levels in the blood, decreasing vascular inflammation, and improving blood sugar control.²⁶

Dan Shen

Dan Shen, also known as red sage or *Salvia miltiorrhiza*, is a time-honored botanical used in Traditional Chinese Medicine (TCM) for "blood stasis," or a stagnant circulatory system. One of the known risks of driving nitric oxide production is the creation of peroxynitrite. Peroxynitrite is formed from nitric oxide's reaction with superoxide, catalyzed by NADPH oxidase. Dan Shen is shown to inhibit NADPH oxidase preventing the formation of peroxynitrite and the upregulation of inducible NOS.²⁷ Phytochemicals in Dan Shen support healthy micro and macrocirculation by inhibiting LDL cholesterol oxidation, foam cell formation, platelet aggregation, and cellular senescence of endothelial cells.²⁸

Hawthorn Berry

Hawthorn berry comes from the thorny hawthorn shrub, *Crataegus* sp., a member of the Rose family. In traditional Western medicine, the hawthorn berry is considered the "king" of herbs for the circulatory system. It has also been used extensively in TCM since approximately 659 AD.

In TCM, hawthorn berry is utilized to dissipate blood stasis. Scientific research supports the traditional use of hawthorn for circulatory support. Hawthorn phytochemicals, including proanthocyanidins and quercetin, support blood circulation by lowering serum lipids and oxidative stress and protecting the endothelial lining of blood vessels.²⁹

Ginkgo Leaf

The Ginkgo leaf comes from the *Ginkgo biloba* tree, an evolutionarily ancient tree with distinctive fan-shaped leaves. Ginkgo leaf contains an array of phytochemicals, including bilobalide, ginkgolide A, ginkgolide B, and ginkgolide C, that benefit the circulatory system.

Ginkgo may be particularly helpful for improving cerebral blood flow; this effect may alleviate age-related cognitive dysfunction associated with impaired cerebral blood flow.³⁰

Notoginseng

Panax notoginseng, also known simply as "Notoginseng," has historically been used in TCM to rebalance microcirculatory disturbances and as a revered longevity tonic.³¹ It is considered one of the most effective herbs in the TCM herbal compendium for improving blood circulation.

Scientific research confirms the microcirculation-enhancing and longevity benefits of Notoginseng. The herb inhibits chronic cellular senescence, the process by which previously normal cells transform into "zombie cells," secreting an array of inflammatory mediators that damage nearby tissues.³² Cellular senescence damages the vascular endothelium,³³ so inhibition of this cellular process may preserve healthy blood circulation.

Notoginseng saponins, phytochemicals that develop a foamy consistency when mixed with water, reduce white blood cell adhesion in venules, improving blood flow through these tiny veins.³³ Notoginseng saponins also regulate blood flow in the brain after acute intracerebral hemorrhage, bleeding in the brain that can occur after a traumatic brain injury (TBI) or a stroke.³⁵

Myrrh Resin

Myrrh resin is a sticky substance derived from the *Commiphora mukul* tree native to India. In TCM, myrrh resin is believed to vitalize and disperse static blood. Research indicates that myrrh protects the circulatory system from damage during inflammatory events by activating anti-inflammatory and antioxidant signaling pathways.³⁶

Boswellia Resin

Boswellia resin, the fragrant resin from the *Boswellia serrata* tree, has been used for millennia in Indian Ayurvedic medicine with chronic inflammatory illnesses.

In traditional herbal medicine, Boswellia resin is often combined with myrrh resin to improve blood circulation.³⁷ B-boswellic acid, a phytochemical found in Boswellia, ameliorates endothelial dysfunction caused by blood stasis.³⁸ It also improves blood glucose and lipid levels, protecting against the harmful effects of high blood sugar and lipid levels on the vascular endothelium.³⁹

Cinnamon Bark Oil

Cinnamon bark oil is a warming, aromatic essential oil derived from *Cinnamomum cassia* bark. Cinnamon has been shown to lower blood lipids, suppress vascular smooth muscle growth, a critical process in the progression of atherosclerosis, suppress platelet aggregation, and protect the vascular endothelium.⁴⁰



NANOEMULSIFIED CAT'S CLAW ELITE®

Category: DETOX • IMMUNE HEALTH



Immune-Supportive Blend

SKU: Q-1087

SIZE: 50 ML

Cat's Claw Elite® is an innovative formula containing the Amazonian herb Cat's Claw (*Una de gato*), a suite of plant-derived essential oils, Vitamin D, and the fatty acid monolaurin. Together, these potent ingredients are designed to support healthy immune function and resilience against microbial stressors.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE

Supplement Facts

Serving Size: 1 mL (2 Pumps)
Servings Per Container: 50

| | Amount Per Serving | % Daily Value |
|--|--------------------|---------------|
| Vitamin D (as Cholecalciferol) (D3) | 25mcg (1000 IU) | 125% |
| Proprietary Blend: | 350 mg | ** |
| Liquid Cat's Claw bark extract (<i>Uncaria tomentosa</i>), Phospholipids (from purified sunflower seed lecithin), Monolaurin (as Glycerol monolaurate), Liquid Lemon Balm leaf extract, Lemon Balm leaf oil, Natural Mint oil, Rose flower oil | | |

**Daily Value not established

Other Ingredients: Glycerin, water, ethanol, medium chain triglycerides, tocopherol, natural mixed tocopherols

EDUCATION

CAT'S CLAW IS A SACRED HERB THAT STRENGTHENS IMMUNE DEFENSES

Cat's Claw is an impressive climbing vine with sharp, curved thorns native to the tropical rainforests of South and Central America. The medicinal use of the inner bark dates back 2,000 years to the Inca civilization. To this day, Peruvian Ashaninka priests regard the plant as sacred, using it for healing and in religious ceremonies.¹

The most widely utilized strain of Cat's Claw, *Uncaria tomentosa*, boasts a treasure trove of phytonutrients, including quinovic acid glycosides and unique alkaloids known as tetracyclic and pentacyclic oxindoles.² These compounds endow the vine with potent anti-inflammatory, antimicrobial, and immune-strengthening properties.^{3,4,5} Cat's Claw stimulates T-cell mediated immunity, the

ANTIMICROBIAL ESSENTIAL OILS

Plants all over the world have long protected themselves from pests by producing volatile oils that permeate their leaves, bark, or peel. In a beautiful example of synergy between the plant and animal kingdoms, many of these essential oils offer health benefits to humans.¹⁵

Essential oils of spearmint, rose, and lemon balm (*Melissa officinalis*) offer volatile oils, triterpenoids, phenolic acids and flavonoids that exert antimicrobial and anti-inflammatory effects, supporting the immune system.^{16,17,18} Nanoparticle formulations enhance the stability and antimicrobial properties of essential oils, making them the ideal delivery system for these potent plant compounds.¹⁹

CAT'S CLAW ELITE IS IN THE FOLLOWING PROTOCOL SYSTEMS:

- Bio-Age Reset
- Qube® 2.0 Professional Detox System

branch of the immune system that recognizes and destroys specific antigens such as harmful bacteria and viruses. Cat's Claw also inhibits the growth of oral pathogens, making it a useful botanical for supporting oral health.⁴ It inhibits inflammation in osteoarthritis and rheumatoid arthritis, demonstrating a balancing effect on inflammatory immune processes.^{6,7}

MONOLAURIN TARGETS MICROBES & BIOFILM FORMATION

The fatty acid monolaurin is derived from lauric acid, a fatty acid found naturally in breast milk and coconut oil.^{8,9} Monolaurin exerts antimicrobial effects by binding directly to the lipid-protein envelope of pathogens, preventing them from attaching to and entering cells. It also inhibits biofilm formation by *Candida albicans* and *Streptococcus mutans*, a bacterium that causes tooth decay.^{10,11}

THE "SUNSHINE VITAMIN" IS ESSENTIAL FOR OPTIMAL IMMUNITY

Vitamin D isn't just an essential vitamin for bone health – it is also vital for optimal immune function via its diverse array of hormonal effects.¹² It dampens the "cell stress response," an array of molecular changes that cells undergo in response to environmental stressors such as bacteria and viruses. It enhances the phagocytic capabilities of immune cells, increasing the clearance of harmful microbes from the body and upregulates the production of antimicrobial peptides such as cathelicidin.¹³

Vitamin D3 (cholecalciferol) is significantly more bioavailable and biologically active than vitamin D2 (ergocalciferol) and is the form that should be used for dietary supplementation.¹⁴

NANOEMULSIFIED CBD SYNERGIES-AX+

Category: CALMING & SLEEP • CBD/HEMP



Calming Formula

SKU: Q-1204

SIZE: 50 ML

CBD Synergies-AX+ is a blend of nanoemulsified, broad spectrum hemp extract, CBG, anandamide, 5-HTP, GABA, L-theanine, liquid Skullcap extract, and lavender flower oil, designed to support the body's parasympathetic state.*

Nanoemulsified broad spectrum hemp extract, the centerpiece of this formula, is a non-psychoactive hemp blend of cannabidiol (CBD), phytocannabinoids, and terpenoids. It is complemented by cannabigerol (CBG) isolate, a sister phytocannabinoid that supports a relaxed mood, and anandamide, the "bliss molecule," renowned for its soothing effects on the mind.

TESTED ALLERGEN FREE • TESTS CLEAN • TESTED GLUTEN FREE • TESTED NON-GMO
TESTED SOY PROTEIN FREE

| Supplement Facts | | |
|---|-------------|---------|
| Serving Size: 2 mL (4 Pumps) | Amount | % Daily |
| Servings Per Container: 25 | Per Serving | Value |
| Broad Spectrum Hemp Extracts (aerial parts) | 17 mg | ** |
| Cannabidiol (CBD) | 10 mg | ** |
| Cannabigerol (CBG) | 4 mg | ** |
| 5-HTP (L-5-Hydroxytryptophan) (from Griffonia simplicifolia seeds) | 10 mg | ** |
| Proprietary Blend | 220 mg | ** |
| Liquid Skullcap Herb extract (Scutellaria lateriflora), L-Theanine, GABA (gamma-aminobutyric acid), Lavender Essential Oil | | |
| **Daily Value not established | | |
| Other Ingredients: Water, glycerin, ethanol, highly purified phospholipids, tocopherol, medium chain triglycerides, natural mixed tocopherols, natural flavorings, natural citrus oils, anandamide | | |

EDUCATION

AN INTRODUCTION TO THE ENDOCANNABINOID SYSTEM

The endocannabinoid system (ECS) is critical for bioregulation throughout the body, affecting appetite, pain, mood, memory, cognition, analgesia, immune function, sleep, motivation, emotions, and more.^{1,2}

When the ECS is in harmony and balance, it translates to whole-body health.³ The ECS features two primary receptors—CB1 and CB2—and the body produces two endocannabinoid lipids: anandamide and 2-arachidonoylglycerol.^{4,5} Anandamide is associated with a joyful mood was

named after the Sanskrit word for bliss.⁶ Receptors, enzymes, and the fatty acid amide hydrolase (FAAH) complete this complex and fundamental network.

Phytocannabinoids, plant-derived cannabinoids found in the crystalline trichomes of Cannabis plants, also interact with the ECS, exerting powerful biochemical and physiological effects.⁷ An astonishing array of phytocannabinoids can be found in the hemp plant, including cannabidiol (CBD), cannabigerol (CBG), cannabidiolic acid (CBDA), cannabinol (CBN), cannabichromene (CBC), and cannabidivarin (CBDV), among others.⁸

CBD and its sister phytocannabinoids, including CBG, indirectly influence ECS activity by enhancing endocannabinoid tone. Phytocannabinoids also interact with various non-ECS receptors, including GABA, glutamate, serotonin, and opioid receptors.⁹ The complex interactions between phytocannabinoids, the ECS, and non-ECS receptors have significant implications for many aspects of health, including the autonomic nervous system.¹⁰

CBD TAPS INTO THE ENDOCANNABINOID SYSTEM FOR CALMING ACTION

CBD powerfully supports anandamide, the "bliss molecule," by inhibiting the enzyme that breaks it down.¹¹ CBD has been shown to have mood-elevating and calming effects.^{12,13,14,15} One study showed that a single dose of CBD significantly reduced anxious symptoms before a speech.¹⁶ CBD also enhances the activity of 'feel good' serotonin receptors.¹⁷ It has been found to modulate blood flow in limbic areas of the brain associated with fear and anxiousness.¹⁸ Another benefit of CBD is that it doesn't seem to interfere with healthy sleep-wake cycles or have "groggy" effects.¹⁹

CBG AND ANANDAMIDE ENHANCE THE CALMING ACTION OF CBD

Cannabigerol (CBG) is a sister phytocannabinoid to CBD. It offers antioxidant, calming, and neuroprotective effects by interacting with ECS receptors.²⁰ A survey of patients using CBG-predominant Cannabis preparations found that over 50% of the patients used the CBG-predominant variant of this plant specifically for its calming benefits.²¹

Anandamide deficiency within the nervous system is associated with increased anxiousness.²² While CBD supports endogenous anandamide levels by inhibiting the enzyme that degrades the "bliss molecule," it doesn't actively increase the body's own production of anandamide. Increasing anandamide levels inside the body by inhibiting the enzymes that degrade this molecule or through direct anandamide administration may ease anxiousness and promote a more balanced, resilient mood.²³

BALANCE GABA/GLUTAMATE NEUROTRANSMISSION

Gamma-aminobutyric acid (GABA) is the body's primary inhibitory neurotransmitter that plays a central role in modulating nerve cells signaling speed offering a calming effect.²⁴ The brain naturally produces this "calm and connect" molecule, and its calming activity balances glutamate, the body's primary excitatory neurotransmitter.²⁵

Oral supplementation with GABA may promote relaxation and relieve anxiousness.²⁶ GABA supplementation has been found to significantly increase calming alpha-wave patterns during stress.²⁷ Because GABA receptors are abundant in the gut, GABA support may help soothe digestive upsets associated with nervousness.²⁸

5-HTP SUPPORTS "FEEL-GOOD" SEROTONIN PRODUCTION

Serotonin is a "feel-good" neurotransmitter well-recognized for its involvement in mood regulation. It has been proven helpful in anxious states.²⁹ 5-hydroxytryptophan (5-HTP) is a clinically effective serotonin precursor, which is readily taken up by the brain and decarboxylated into serotonin with the help of vitamin B6.³⁰

L-THEANINE SUPPORTS RELAXATION WHILE ENHANCING ALERTNESS

L-theanine is an amino acid found naturally in green tea. After supplementing with L-theanine, brain wave patterns have been observed to even out. L-theanine calms without impairing cognitive ability and has been shown to have relaxing effects on blood pressure.^{31,32} It supports the action of supplemental GABA by increasing brain levels of GABA, serotonin, and dopamine.³³

TIME-HONORED, SOOTHING BOTANICALS

Skullcap (Scutellaria lateriflora) has been used in herbal medicine for centuries to relieve tension and support relaxation. This classic botanical has a balancing effect on both GABA and glutamate and has been shown to reduce anxiousness.^{34,35}

Lavender essential oil is prized for its lush fragrance and has been shown to alleviate anxiousness, promote relaxation, and suppress the body's stress response.^{36,37}

CBD SYNERGIES-AX GUMMIES

Category: CALMING & SLEEP • CBD/HEMP



Calming Formula

SKU: Q-1182

SIZE: 60 GUMMIES

FLAVOR:
GRAPEFRUIT THYME

CBD Synergies-AX Gummies, Calming formula, provides a combination of THC-free broad spectrum hemp extract, cannabidiol (CBD), skullcap herb extract, L-theanine, and gamma-aminobutyric acid (GABA) in a delicious and convenient supplement gummy. This non-psychoactive, calming formula is vegan, free of allergens, and has no artificial colors or sweeteners. Two gummies provide 11 mg of organic broad spectrum hemp extract, 10 mg of CBD, a 150 mg blend of skullcap, L-theanine, and GABA, and is formulated using Quicksilver Delivery Systems® proprietary technology for fast and high absorption of ingredients.

TESTED ALLERGEN FREE • TESTS CLEAN • TESTED GLUTEN FREE • TESTED NON-GMO
TESTED SOY PROTEIN FREE • VEGAN

Supplement Facts

Serving Size: 2 Gummies
Servings Per Container: 30

| | Amount Per Serving | % Daily Value* |
|---|--------------------|----------------|
| Calories | 16 | |
| Total Carbohydrate | 4 g | 1% |
| Total Sugars | 3 g | ** |
| Includes 3g Added Sugars | 6% | |
| Organic Broad Spectrum | 11 mg | ** |
| Hemp Extract (aerial parts) | | |
| Cannabidiol | 10 mg | ** |
| Proprietary Blend: Skullcap Herb extract (Scutellaria lateriflora), L-Theanine, GABA (Gamma Amino Butyric Acid) | 150 mg | ** |

*Percent Daily Values are based on a 2,000 calorie diet.
**Daily Value Not Established

Other Ingredients: Tapioca syrup, cane sugar, water, glycerin, pectin, ethanol, citric acid, tocopherol, medium chain triglycerides, natural flavor and color, highly purified phospholipids, organic sunflower oil, carnauba wax.

EDUCATION THE ENDOCANNABINOID SYSTEM

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The ECS features two primary receptors—CB1 and CB2—and the body produces two unique endocannabinoid lipids: Anandamide and 2-arachidonoylglycerol. Anandamide is associated with a joyful mood and was named after the Sanskrit word for bliss.³ Receptors, enzymes, and fatty acids amide hydrolase (FAAH) complete this complex and fundamental network.

Phytocannabinoids, plant-derived cannabinoids found in the crystalline trichomes of Cannabis plants, also interact with the ECS, exerting powerful biochemical and physiological effects.⁴ An astonishing array of phytocannabinoids can be found in the hemp plant, including cannabidiol (CBD), cannabigerol (CBG), cannabidiolic acid (CBDA), cannabinol (CBN), cannabichromene (CBC), and cannabidivarin (CBDV), among others.⁵

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CBD TAPS INTO THE ENDOCANNABINOID SYSTEM FOR CALMING ACTION

CBD powerfully supports anandamide, the “bliss molecule,” by inhibiting the enzyme that breaks it down.⁸ CBD may have antidepressant, anti-anxiety, and calming effects.^{9,10,11,12} CBD enhances the activity of ‘feel good’ serotonin receptors and modulates blood flow in limbic areas of the brain associated with fear and anxiety.^{13,14}

GABA IS A “CALM AND CONNECT” MOLECULE

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Oral supplementation with GABA may promote relaxation and relieve anxiety.¹⁸ GABA supplementation has been found to significantly increase calming alpha-wave patterns during stress.¹⁹ Because GABA receptors are abundant in the gut, GABA support may also help calm digestive upsets associated with anxiety.²⁰

L-THEANINE SUPPORTS RELAXATION WHILE ENHANCING ALERTNESS

L-theanine is an amino acid found naturally in green tea. After supplementing with L-theanine, brain wave patterns have been shown to change, reflecting a calmer neurological state.²¹ In addition, L-theanine calms without impairing cognitive ability and has been shown to have relaxing effects on blood pressure.^{22,23} It supports the action of supplemental GABA by increasing brain levels of GABA, serotonin, and dopamine.²⁴

TIME-HONORED BOTANICALS SOOTHE STRESS

Skullcap (*Scutellaria lateriflora*) has been used in herbal medicine for hundreds of years to relieve tension and support relaxation. This classic botanical has a balancing effect on both GABA and glutamate and has been shown to reduce anxiety.^{25,26}

SELF-EMULSIFYING CBD SYNERGIES-PN

Category: CALMING & SLEEP • CBD/HEMP • PERFORMANCE



Relief Formula

SKU: Q-1124

SIZE: 60 CAPSULES

CBD Synergies-PN Relief Formula is a comprehensive blend of full spectrum hemp extract, curcuminoids, Boswellia extract, and propolis designed to support healthy pain and inflammatory responses.*

Our full spectrum hemp extract contains an array of highly-bioavailable phytocannabinoids, including cannabidiol (CBD) and a Farm Bill-compliant level of THC.

FARM BILL COMPLIANT • SELF-EMULSIFYING DELIVERY SYSTEM • TESTED ALLERGEN FREE

TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE

Supplement Facts

Serving Size: 2 Capsules
Servings Per Container: 30

| | Amount Per Serving | % Daily Value |
|--|--------------------|---------------|
| Full Spectrum Hemp Extract (aerial parts) | 30mg | ** |
| Cannabidiol | 20mg | ** |
| Proprietary Curcuminoid Complex | 160mg | ** |
| Turmeric Oleoresin and Turmeric Oil (from Curcuma longa) (rhizomes) - Containing 35mg of Curcuminoids | | |
| Proprietary Blend | 260mg | ** |
| Boswellia extract (Boswellia Serrata), Propolis Extract, Spearmint Oil, Natural Citrus Oils, Cinnamon Bark Oil | | |

**Daily Value not established

Other Ingredients: Plant-derived cellulose capsule, polysorbate 80, medium chain triglycerides, phospholipids (from purified soybean lecithin), natural mixed tocopherols

beneficially modulate pain and inflammation pathways, including CBD, curcumin, boswellia extract, and β -caryophyllene.

THE ENDOCANNABINOID SYSTEM MODULATES INFLAMMATORY RESPONSES

The endocannabinoid system (ECS) is a complex network of neuromodulatory lipid molecules and receptors that regulate many aspects of human physiology, including inflammation and pain responses.⁶ The ECS consists of the endocannabinoids anandamide and 2-arachidonoylglycerol, their G-protein-coupled receptors, and enzymes that regulate endocannabinoid synthesis and degradation, including fatty acid amide hydrolase (FAAH). Phytocannabinoids also interact with the ECS, exerting powerful biochemical and physiological effects. $\Delta 9$ -tetrahydrocannabinol (THC) is arguably the most well-known phytocannabinoid due to its psychoactive properties. However, THC is but one member of an astonishing array of phytochemicals found in the hemp plant, including the phytocannabinoid cannabidiol (CBD) and β -caryophyllene, a terpenoid.

Emerging research indicates that the ECS plays a critical role in pain perception and inflammatory balance.⁷ Compounds that modulate the ECS, such as cannabinoids, thus offer promise in pain management. In clinical trials, cannabinoids have been found to alleviate chemotherapy-induced neuropathic pain and osteoarthritis and fibromyalgia pain.^{8,9,10} CBD elicits analgesia

and anti-inflammatory effects by acting as a direct agonist at 5-HT_{1A} serotonin receptors, the adenosine A_{2A} receptor, PPAR- α , and TRPA1 channels, all of which mediate pain and inflammation.¹¹ CBD may also desensitize joint afferent nerve fibers, thus dampening pain perception in osteoarthritis.¹² THC ameliorates pain by exerting agonistic activity at CB₁ receptors, which link the ECS to endogenous pain control systems.¹³ CBD, THC, and other phytocannabinoids work synergistically to modulate the pain response, a phenomenon referred to as the "entourage effect."^{14,15} Our full spectrum hemp extract contains an array of highly-bioavailable phytocannabinoids that support healthy pain and inflammatory responses, including cannabidiol (CBD) and a Farm Bill-compliant level of THC.¹⁶

CURCUMINOIDS: PURE GOLD FOR SUPPORTING A HEALTHY INFLAMMATORY RESPONSE

Turmeric, the brilliant yellow powdered rhizome of *Curcuma longa*, has been a cornerstone of traditional Indian Ayurvedic medicine for thousands of years, and is currently the "golden child" of the nutraceutical industry. It contains a unique class of phytochemicals called curcuminoids, the most well-recognized of which is curcumin. In 2014, consumers spent a whopping \$20 million on curcumin supplements, while over \$150 million was spent on curcumin research between 1995 and 2017.¹⁷

Curcuminoids demonstrate a wide range of pharmacological activities, including potent anti-inflammatory effects. Curcumin decreases cytokines that instigate and perpetuate the inflammatory response, including TNF- α , IL-1 α , IL-6, and IL-17A.¹⁸ Turmeric essential oils, such as turmerone, potentiate the anti-inflammatory effects of curcumin.^{19,20} The potent inflammation-balancing activities of curcuminoids have instigated research on their clinical effects, with significant benefits observed in conditions ranging from osteoarthritis to inflammatory bowel disease. Despite the multitude of health benefits attributed to curcuminoids,

the results of clinical trials have been mixed, with some studies showing little benefit.²¹ Emerging research indicates that the inconsistent efficacy of curcumin observed in trials is due to its limited bioavailability, rather than an inherent lack of health benefits. When curcumin is administered in a nanoparticle, lipid-based delivery system with turmeric essential oils, including turmerone and turmeric oleoresin, its bioavailability is vastly improved. Turmeric essential oils inhibit ATP-binding cassette transporters, preventing the efflux of curcumin out of intestinal epithelial cells and enhancing its bioavailability.^{22,23,24}

A TIME-HONORED BOTANICAL FOR HEALTHY JOINTS

Boswellia serrata, also known as indian frankincense, has been a treasured herb for inflammatory conditions in indian ayurvedic medicine for millennia. In recent years, scientific research has validated the traditional uses of boswellia by elucidating its broad anti-inflammatory and analgesic effects.

Boswellic acids, the primary active ingredients in boswellia, inhibit enzymes, transcription factors, and cytokines involved in the inflammatory process, including 5-lipoxygenase, microsomal prostaglandin E-synthase, NF- κ B, TNF α , IL-1 α , and IL-6.²⁵ Clinical trials investigating the anti-inflammatory applications of boswellia have found it to be palliative for knee osteoarthritis and chronic colitis.^{26,27,28} Interestingly, boswellia's anti-arthritic activity is enhanced when it is combined with curcumin.²⁹

While the oral bioavailability of boswellia is relatively poor, its absorption is significantly enhanced when delivered in a solubilized phospholipid form.³⁰

CBD SYNERGIES-PN IS IN THE FOLLOWING PROTOCOL SYSTEMS:

- Qube® 2.0 Professional Detoxification System

REFER TO THE BIOAVAILABILITY GRAPH FOR CURCUMIN ON PAGE 10.

NANOEMULSIFIED CBD SYNERGIES-SP+

Category: CALMING & SLEEP • CBD/HEMP



Sleep Aid Formula

SKU: Q-1207

SIZE: 50 ML

CBD Synergies – SP+ formula is a fast-acting blend of full spectrum hemp extract, CBG, CBN, anandamide, melatonin, GABA, 5-HTP, skullcap, and passionflower, designed to help ease tension, calm the mind, and support restorative slumber. Full spectrum hemp extract retains the non-psychoactive, Farm Bill-compliant amount of THC to enhance the effects of the other phytocannabinoids in this sleep support formula.

FARM BILL COMPLIANT • TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO
TESTED SOY PROTEIN FREE

Supplement Facts

| Serving Size: 2 mL (4 Pumps) | Amount | % Daily |
|--|-------------|---------|
| Servings Per Container: 25 | Per Serving | Value |
| Full Spectrum Hemp | | |
| Extracts (aerial parts) | 18 mg | ** |
| Cannabidiol (CBD) | 10 mg | ** |
| Cannabigerol (CBG) | 2 mg | ** |
| Cannabinol (CBN) | 2 mg | ** |
| Melatonin | 0.25 mg | ** |
| 5-HTP | 16 mg | ** |
| (L-5-Hydroxytryptophan) (from Griffonia simplicifolia seed extract) | | |
| Proprietary Blend | 160 mg | ** |
| GABA (gamma-aminobutyric acid), Liquid Skullcap Herb extract (Scutellaria lateriflora), Liquid Passionflower extract (Passiflora incarnata), Chamomile essential oil | | |
| **Daily Value not established | | |

Other Ingredients: Water, glycerin, ethanol, highly purified phospholipids, tocopherols, natural citrus oils, natural mixed tocopherols, medium chain triglycerides, natural flavorings, anandamide

EDUCATION

THE ENDOCANNABINOID SYSTEM AND PHYTOCANNABINOIDS FOR RESTFUL SLEEP

The endocannabinoid system (ECS) is a complex network of neuromodulators and receptors that regulates many aspects of human physiology, including cognition, immune function, and inflammation.¹ The ECS consists of the endocannabinoids anandamide and 2-arachidonoylglycerol, their G-protein-coupled receptors, and enzymes that regulate endocannabinoid synthesis and degradation, including fatty acid amide hydrolase (FAAH). Phytocannabinoids, plant-derived cannabinoids found in the crystalline trichomes of Cannabis plants, also interact with the ECS, exerting powerful biochemical and physiological effects.

Δ9-tetrahydrocannabinol (THC) is arguably the most well-known phytocannabinoid due to its psychoactive properties. Maintaining a small, non-psychoactive amount of THC alongside many other well-researched phytocannabinoids like cannabidiol (CBD), cannabigerol (CBG), cannabidiolic acid (CBDA), cannabinol (CBN), cannabichromene (CBC), and cannabidivarin (CBDV) can offer a more powerful therapeutic experience referred to as the 'entourage' effect.

THC interacts directly with the G-protein-coupled CB1 and CB2 receptors, CBD, and its sister phytocannabinoids indirectly influence ECS activity by enhancing endocannabinoid tone. Phytocannabinoids also interact with various non-ECS receptors, including GABA, glutamate, serotonin, and opioid receptors. The complex interactions between phytocannabinoids, the ECS, and non-ECS receptors have significant implications for many aspects of health, including sleep.

An emerging body of research indicates that the ECS influences the sleep cycle, including the duration and quality of sleep.^{2,3,4} CBD's interactions with the ECS promote restorative non-rapid eye movement (NREM) sleep and decrease sleep latency and disturbances.⁵ CBD does not interfere with healthy sleep-wake cycles or have "groggy" effects.⁶ As well, a small amount of THC may gently support the sleep benefits of CBD.⁷

CANNABIGEROL (CBG), CANNABINOL (CBN), AND ANANDAMIDE

Cannabigerol (CBG) and cannabinol (CBN) also show promise as sleep aids. CBG

offers calming effects that may prepare the mind for deep, restful sleep.⁸ When consumed alongside other cannabinoids, CBN may induce sleepiness, further easing the body into slumber.⁹

Anandamide, one of the body's endocannabinoids, also appears to play a role in sleep by interacting with adenosine. Adenosine is a sleep-inducing molecule that builds up inside our bodies each day; interestingly, caffeine blocks the binding of adenosine to its receptors, which is why it induces wakefulness! Anandamide has been found to increase adenosine levels, inducing sleep. Therefore, it shows promise as a helpful sleep aid.¹⁰

5-HTP, MELATONIN: CIRCADIAN RHYTHM SUPPORT FOR RESTORATIVE SLEEP

The circadian rhythm is the internal set of biochemical processes within the human body that regulate many aspects of physiology, including the sleep cycle. Melatonin is a hormone released by the pineal gland in the brain that functions as an endogenous synchronizer of the circadian rhythm, stabilizing and reinforcing the sleep cycle.¹¹ Melatonin is released in response to dimming light in the evening. Several aspects of modern-day life diminish melatonin production, including evening blue light exposure, travel across time zones, and aberrant sleep schedules. Supplemental melatonin realigns melatonin rhythms, initiating sleep and increasing total sleep time. It has been found to reduce sleep latency and improve sleep quality in diverse populations, including children on the autism spectrum, healthcare professionals, shift workers, and frequent flyers.^{12,13}

Fascinating research indicates that the endocannabinoid system, which mediates the effects of cannabinoids, also influences the circadian rhythm.¹⁴ The complex interplay between these two systems suggests that simultaneously taking nutraceuticals that target both the circadian and endocannabinoid systems may lead to even greater sleep-enhancing effects.

Unfolding research indicates that serotonin is critical for the induction of sleep.¹⁵ 5-Hydroxytryptophan, or 5-HTP is readily taken up by the brain and decarboxylated into serotonin with the help of vitamin B6.¹⁶ Serotonin, in turn, is the precursor for melatonin, a hormone released by the brain that regulates the sleep-wake cycle.¹⁷ 5-HTP thus indirectly supports melatonin production, easing the body's transition into deep sleep.

BALANCING GABA AND GLUTAMATE NEUROTRANSMISSION

Gamma-aminobutyric acid (GABA) is the body's primary inhibitory neurotransmitter and plays a central role in sleep induction.¹⁸ Its calming activity is opposed by glutamate, the body's primary excitatory neurotransmitter. A delicate balance must be achieved between GABA and glutamate to attain restful sleep.¹⁹ A deficiency in GABA neuronal signaling promotes chronic hyperarousal and sleeplessness.²⁰

TIME-HONORED BOTANICALS FOR RESTFUL SLEEP

Skullcap (Scutellaria lateriflora) has been used in traditional herbal medicine for centuries to relieve tension and support relaxation.²¹ The traditional uses of skullcap have been validated by modern-day research, indicating that the botanical balances GABA and glutamate.²² Skullcap is an excellent standalone sleep aid but also synergizes well with other sleep-promoting nutraceuticals such as GABA, passionflower, and CBD.

The beautiful purple and white flowers of Passiflora incarnata, the passionflower vine, have been used by Native Americans and professional herbalists for centuries for their gentle sedative and anxiety-relieving properties. Passionflower potentiates GABA activity, enhancing NREM sleep. It also regulates the activity of circadian genes, normalizing the body's sleep-wake cycle.^{23,24,25} Passionflower's calming effects are believed to be mediated by its unique flavonoids, which interact with GABA receptors.²⁶

CAPSULES CLEAR WAY COFACTORS®

Category: DETOX • GI



**NRF2 + AMPK
Activator**

SKU: Q-1002 • Q-1034

SIZE: 75 CAPSULES

SIZE: 120 CAPSULES

Clear Way Cofactors® is a proprietary blend of botanically-sourced polyphenolic antioxidants, R-Lipoic Acid (RLA), B vitamins, selenium, and high-potency nattokinase designed to maximally support metal detoxification pathways.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE

VEGAN

| Supplement Facts | | |
|--|--------------------|---------------|
| Serving Size: 3 Capsules Servings Per Container: 25 or 40 | | |
| | Amount Per Serving | % Daily Value |
| Thiamin (Vitamin B1) (as thiamine HCl) | 100mg | 8333% |
| Vitamin B6 (as pyridoxal 5-phosphate) | 20mg | 1176% |
| Pantothenic acid (as d-calcium pantothenate) | 100mg | 2000% |
| Selenium (as selenomethionine) | 200mcg | 364% |
| Proprietary Blend: | 1405mg | ** |
| <small>Haritaki (Terminalia chebula) fruit extract, Dandelion (Taraxacum officinale) root extract, Bacopa monnieri leaf extract, Gotu kola (Centella asiatica) whole plant (or herb) extract, Nattokinase (20,000 fu/g), Pine (Pinus massoniana) bark extract, Pomegranate (Punica granatum) pericarp extract, R-Lipoic acid Quercetin dihydrate</small> | | |
| **Daily Value not established | | |
| Other Ingredients: Vegetable (cellulose) capsule, silicon dioxide, vegetable stearic acid | | |

EDUCATION

The optimal way to support heavy metals detoxification is to stimulate the activity of intracellular detoxification pathways, while also upregulating pathways that attenuate oxidative stress. The plant kingdom offers an abundance of botanicals that enhance intracellular detoxification pathways, thereby stearic acid assisting in the detoxification of endogenous and exogenous toxins, repairing damaged proteins, and quenching oxidative stress. Clear Way Cofactors® contains a synergistic combination of the most potent plant compounds for activating these vital intracellular pathways, setting the stage for successful detoxification.*

Haritaki (Terminalia chebula) is a fruit that has been used for thousands of years in traditional Indian Ayurvedic medicine. In fact, in the Ayurvedic Materia Medica, haritaki is lauded as “the King of Medicines,” with broad applications including anti-inflammatory and antimicrobial

properties.¹ Modern-day scientific research indicates that haritaki supports antioxidant and detoxification pathways in the liver and kidneys, facilitating the transformation and elimination of toxins.^{2,3} It also protects cell membranes from oxidative damage, preserving the cellular structure critical for successful detoxification.⁴

Pine bark extract (Pinus massoniana) comes from an evergreen tree native to Taiwan and China. It is rich in proanthocyanidins, plant-based compounds with free radical-scavenging and glutathione-boosting properties.^{5,6}

Pomegranate extract (Punica granatum) is an excellent source of ellagic acid, which exerts anti-inflammatory properties through the upregulation of the Nrf2 pathway.⁷ Ellagic acid is metabolized by intestinal bacteria into urolithin A, a compound that supports gut barrier integrity, a critical component for successful detoxification.⁸

Ellagic acid and two other pomegranate polyphenols, punicalin and punicalagin, also increase the activity of the antioxidant enzymes superoxide dismutase and glutathione peroxidase while inhibiting lipid peroxidation, thus protecting cell membranes and other essential lipid-based molecules from oxidative damage.⁹

Gotu kola (Centella asiatica) and **Bacopa extract** (Bacopa monnieri) have long been used in Ayurvedic medicine for revitalizing the brain and nervous system. Their neuroprotective properties stabilize neural cells, protecting the nervous system from neurotoxic compounds such as bacterial lipopolysaccharides (LPS) and methylmercury.^{10,11}

Dandelion root extract (Taraxacum officinale) is a staple botanical in traditional Western

herbalism, long utilized for its hepatoprotective properties. Dandelion initiates diuresis, enhancing urinary elimination of toxins. It also protects the liver from oxidative stress by upregulating the Nrf2 antioxidant pathway, increases bile flow, and inhibits inflammation caused by LPS.^{12,13,14}

BREAK DOWN BIOFILM FOR BETTER DETOXIFICATION

Biofilm is a consortium of microorganisms embedded in a sticky extracellular matrix. When microbes team up to form biofilms, they collectively enhance their resistance to antibiotics and other antimicrobials, establishing stubborn infections. Also, biofilms may impair detoxification and absorption of nutrients. Biofilms can form in numerous places throughout the body, including the gastrointestinal tract, mouth, and blood vessels.^{15,16,17}

Nattokinase is an enzyme extracted from the Japanese fermented soybean delicacy, natto. It has strong fibrinolytic properties that allow it to break down biofilm.^{18,19} The clearance of biofilm enhances antimicrobial protocols and may also augment detoxification.

ALLEVIATE HEAVY METALS TOXICITY AND OXIDATIVE STRESS WITH R-LIPOIC ACID

Alpha lipoic acid is an organosulfur compound commonly found in mitochondria, where it serves as a critical cofactor for energy-generating pathways. ALA also aids the activity of intrinsic antioxidant pathways, regenerating the oxidized forms of vitamins C and E and increasing intracellular glutathione levels, and alleviates the body burden of heavy metals.

Alpha lipoic acid supplements generally are a mixture of two enantiomers or molecules that are mirror images of each other, an S-enantiomer and an R-enantiomer. Such mixtures demonstrate limited bioavailability, with only 30 percent of the compound reaching circulation after hepatic processing and intestinal absorption. However, the R enantiomer of ALA, **R-lipoic acid**, is significantly more bioavailable than S- and R-enantiomer mixtures, and may offer superior therapeutic effects.²⁰

B VITAMINS AND SELENIUM SUPPORT DETOXIFICATION PATHWAYS

B vitamins serve as cofactors for hundreds of enzymes in the body, including those involved in vital detoxification pathways. Vitamin B1 (thiamine) is a vital cofactor for transketolase, an enzyme involved in the pentose phosphate pathway, which is essential for antioxidant defenses. Heavy metal toxicity hampers transketolase activity, disrupting thiamine homeostasis and antioxidant balance. Supplementation with B1 may correct heavy metal-induced thiamine deficiency and has been found to bolster antioxidant defenses and to reduce the body burden of mercury, arsenic, and lead.^{21,22,23}

Vitamin B5, included in our formula as d-calcium pantothenate, may support glutathione production through its vital role in ATP production.²⁴ It also has hepatoprotective effects via its free radical-scavenging activities.²⁵

Vitamin B6 (pyridoxal-5-phosphate) alleviates oxidative stress, caused by elevated homocysteine, by redistributing glutathione from the liver into the blood plasma.²⁶ It may also assist in lead detoxification by chelating or interfering with intestinal absorption of the heavy metal.²⁷

Selenium is a micronutrient with diverse functions throughout the body. In the context of detoxification, selenium is an essential cofactor for glutathione peroxidase, an enzyme that detoxifies damaging peroxide radicals into innocuous alcohol molecules and oxygen, thus protecting cells from oxidative damage.²⁸ Glutathione peroxidase activity is an indirect marker of selenium sufficiency, with selenium deficiency significantly inhibiting enzymatic activity. Dietary selenium also protects against and alleviates mercury toxicity by inhibiting the binding of mercury to cellular targets in the thioredoxin and glutathione antioxidant systems, thus preserving the integrity of the body's antioxidant defenses.²⁹

NANOEMULSION CoQ10

Category: **CARDIOMETABOLIC • LONGEVITY • PERFORMANCE**



Cellular Energy Optimizer

SKU: Q-1026

SIZE: 50 ML

Nanoemulsified **CoQ10** is a dietary supplement delivering Coenzyme Q10, or ubiquinone, using Quicksilver Delivery Systems® technology to enhance absorption of this essential molecule.* Each 1 mL serving (2 pumps) provides 30 mg of bioavailable CoQ10.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

| Supplement Facts | | |
|--|--------------------|---------------|
| Serving Size: 1 mL (2 Pumps) Servings Per Container: 50 | | |
| | Amount Per Serving | % Daily Value |
| Coenzyme Q10 | 30mg | ** |
| **Daily Value not established | | |
| Other Ingredients: Water, glycerin, ethanol, tocopherol, natural citrus oils, phospholipids(from sunflower seed lecithin), natural mixed tocopherols | | |

EDUCATION

THE BODY'S CRUCIAL FAT-SOLUBLE ANTIOXIDANT

Coenzyme Q10 (CoQ10) is the body's only endogenously produced fat-soluble antioxidant.¹ It is essential for cellular energy production^{2,3} and functions as a powerful antioxidant, stabilizing cell and mitochondrial membranes⁴ and optimizing heart health.⁵ Supplementation has been shown beneficial in conditions effecting cardiovascular health, metabolic health, neurological health, kidney health, immune function and fertility.^{6,7,8} CoQ10 appears to be a potent anti-aging nutrient as well.^{9,10} Unfortunately, this essential antioxidant steeply declines with age. The highest concentrations peak between ages one and twenty, then steadily decrease so that by our 80's levels are as much as seven times lower.¹¹

MITOCHONDRIAL METABOLISM AND CELLULAR ENERGY PRODUCTION

95% of all cellular energy is dependent on Coenzyme Q10¹², which plays an irreplaceable role in mitochondrial oxidative phosphorylation and the production of adenosine triphosphate (ATP), the energy currency of all cells.¹³ Animal studies show that oral CoQ10 is taken up by all tissues including heart and brain mitochondria, with profound implications for a wide array of therapeutic applications¹⁴, since mitochondrial dysfunction is linked to numerous neurodegenerative diseases.¹⁵ CoQ10 lives mostly on the inner membranes of the mitochondria, where the "power lines" for electrons live. When CoQ10 levels drop, mitochondrial dysfunction increases. When CoQ10 has been added to aging mitochondria, their function has improved markedly.¹⁶

HEART FUNCTION

CoQ10 can protect and support cardiovascular function.¹⁷ In 2014, the decade-long Q-SYMBIO trial found that of 420 heart failure patients, those supplemented with CoQ10 in addition to standard therapy showed a 44% reduction in cardiovascular mortality and a 42% reduction in all-cause mortality.¹⁸ A 2019 follow-up found the same significant protection as well as a profound reduction in serious cardiovascular events and improvement in left ventricular ejection fraction.⁵ CoQ10 supplementation significantly improves endothelial function after cardiovascular events.¹⁹ In animal studies, CoQ10 preserves myocardial function after a heart attack²⁰ and improves the response to coronary artery bypass graft (CABG) surgery.²¹

LIPID ANTIOXIDANT PROTECTION

CoQ10 is a potent fat-soluble antioxidant that protects cell mitochondrial DNA, cell membranes and lipoproteins (both LDL and HDL) from oxidation.²² It regenerates other antioxidants such as alpha-tocopherol and vitamin C.²³

METABOLIC SYNDROME AND CHRONIC INFLAMMATION

Metabolic Syndrome is marked by insulin resistance, obesity, high cholesterol and hypertension. Supplementation with CoQ10 normalizes dysregulated blood glucose levels and lowers blood pressure.²⁴ CoQ10 also reduces serum triglycerides and plasma lipoprotein(a).^{25,26} The chronic, low-grade inflammation associated with metabolic syndrome is lowered by CoQ10.²⁷ CoQ10 supplementation also decreases glycosylated hemoglobin (HbA1C), a measure of average blood glucose over the past few months.²⁸

A LONGEVITY MOLECULE

CoQ10 levels fall dramatically with age, and animal studies have shown that supplemental CoQ10 promotes mitochondrial biogenesis and respiration, increases both mean and maximum life span and delays senescence.^{29,30}

EFFECTIVE IN A WIDE RANGE OF CONDITIONS

CoQ10 is one of the most well-researched nutrients and has been shown to support a wide variety of conditions ranging from neurogenerative to cardiometabolic issues. Coenzyme Q10 may balance mood and support mental sharpness by protecting brain cells from oxidative damage, and thus supporting neural signaling. Asthmatic patients have been able to reduce the amount of steroids they take daily after supplementing with CoQ10.³⁹ In turn, individuals suffering from COPD were able to improve their exercise performance, tissue oxygenation and heart rate while taking CoQ10.⁴⁰

NANOEMULSION
D3K2

Category: HORMONES • IMMUNE HEALTH • VITAMINS & MINERALS



Synergistic Support

SKU: Q-1023

SIZE: 50 ML

D3K2 is a highly-absorbable nanoemulsified blend of two critical fat-soluble vitamins, vitamins D3 and K2. One pump of our formula delivers 2500 IU's of vitamin D as cholecalciferol D3 and 90 mcg of vitamin K as menaquinone-7 (K2).*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE VEGETARIAN

Supplement Facts

Serving Size: 0.5 mL (1 Pump)
Servings Per Container: 100

| | Amount Per Serving | % Daily Value [†] |
|-------------------------------------|--------------------|----------------------------|
| Vitamin D (as cholecalciferol [D3]) | 62.5mcg (2500 IU) | 313% |
| Menaquinone MK-7 (Vitamin K2) | 90mcg | ** |

[†]Percent Daily Values are based on a 2,000 calorie diet.
^{**}Daily Value Not Established

Other Ingredients: Water, glycerin, ethanol, tocopherolan, highly purified phospholipids, natural citrus oils, natural mixed tocopherols

EDUCATION

Vitamin D deficiency is defined as levels of vitamin D (serum 25-hydroxyvitamin D) below 20 ng/mL. Nearly 40 percent of adults in the U.S fit this definition¹; however, this number likely underestimates the true prevalence of vitamin D deficiency since optimal 25-OH vitamin D levels may be quite higher, closer to 50 ng/mL.² Vitamin D deficiency adversely affects bone health, immune function, and cardiovascular disease, among other health concerns. Most people do not obtain sufficient sun exposure to synthesize vitamin D cutaneously, and food sources of this nutrient are limited, necessitating supplementation. Supplemental vitamin D3 is more effective than vitamin D2 (calciferol) at raising the body's serum 25-OH vitamin D concentration.³ Vitamin D3 works in concert with vitamin K2, which comes in several forms, including menaquinone-7, or MK-7. Vitamin K2 works synergistically with vitamin

D to ensure that calcium is deposited where it belongs, in bone tissue, and kept out of places it doesn't belong, such as arteries, kidneys, and joint cartilage.

SUPPORTS BONE HEALTH

Vitamin D increases our absorption of critical vitamins and minerals, including calcium and magnesium. Adequate vitamin D levels are associated with increased bone mineral density and a reduced risk of bone fracture, especially as we age.⁴

SUPPORTS HEALTHY, BALANCED IMMUNE FUNCTION

Vitamin D regulates the innate immune system, the body's front line of defense against bacterial and viral pathogens.⁵ Vitamin D shifts the immune system toward tolerogenic profile, reducing the risk of autoimmune processes.⁶ Clear connections have been established between vitamin D deficiency and autoimmune diseases, including multiple sclerosis, Crohn's disease, and ulcerative colitis.^{7,8} Vitamin D deficiency is also associated with an increased risk of dying from cancers, including breast, uterine, prostate and colon cancers.^{9,10} Low vitamin D increases the incidence of viral respiratory infections in those with asthma^{11,12} while supplementation decreases the risk of respiratory tract infections like the common cold.¹³ Lower vitamin D levels are even associated with larger tonsil size and recurrent tonsillopharyngitis in children,¹⁴ as well as increased incidence of upper respiratory infection (URTI) and community acquired pneumonia in adults.^{15,16}

SUPPORTS MOOD AND PROTECTS AGAINST DEPRESSION

Vitamin D deficiency has been found in many studies to be associated with depression.¹⁷ A 2013 study found more than twice the risk of depression in those with low vitamin D levels compared to the general population.¹⁸ Supplementation with vitamin D has been found beneficial for those suffering from clinical depression.¹⁹ In people with diabetes, vitamin D supplementation helps reduce both anxiety and depression.²⁹ Supplementation of vitamin D was associated with an improvement in vitamin D levels as well as depression scale scores in patients with seasonal affective disorder.²¹

SUPPORTS THE BRAIN AND NEUROCOGNITION

Vitamin D's role in nervous system development and function is well-known; it also plays a therapeutic role in neurological pathologies and cognitive function. Low levels of circulating 25-hydroxyvitamin D (25(OH)D) are linked to cognitive impairment or dementia in aging populations.²² Repletion of vitamin D may protect against cognitive decline and dementia.²³ Vitamin D improves neurocognition²⁴ and has been shown to exert positive effects on the symptoms of Alzheimer's disease and mild cognitive impairment.^{25,26,27}

SUPPORTS HEART AND LUNG FUNCTION

Vitamin D deficiency has been tied to vascular dysfunction; arterial stiffening; hypertension, and high cholesterol—and an overall higher risk of cardiovascular problems

and death.²⁸ Coronary artery disease, heart attack, heart failure, atherosclerosis and hypertension are all correlated with vitamin D deficiency.^{29,30} Vitamin D helps preserve the function of the endothelium in blood vessels.³¹ Asthma and COPD improve with supplementation of vitamin D.³² Low vitamin D levels are associated with lower baseline lung function and increased COPD flareups.³³ Respiratory function improves with vitamin D supplementation.³⁴

VITAMIN D WORKS OPTIMALLY IN CONJUNCTION WITH VITAMIN K

Vitamin K2 is important for more than clotting; it also protects bones and works with vitamin D. Vitamin K and D are interdependent, as vitamin K plays a role in directing calcium deposition to the bone matrix, and insufficiency may be associated with soft tissue calcification and lower bone mineral density.³⁵ Vitamin K deficiency is common in chronic gastrointestinal, liver or gallbladder disease, while factors such as antibiotic use and low dietary intake may also contribute to deficiency.³⁶ Menaquinone-7, or MK-7, is a highly bioactive form of vitamin K2 and has been shown to have a longer half-life than vitamin K1 resulting in more stable serum levels. It has been shown to reduce fractures in clinical trials.³⁷ Menaquinone also has been shown to improve bone density.³⁸

NANOFORMULATED DAILY IMMUNE GUMMIES

Category: IMMUNE HEALTH • VITAMINS & MINERALS



Immune Formula

SKU: Q-1187

SIZE: 60 GUMMIES

FLAVOR:
ELDERBERRY LIME

Daily Immune Gummies provide a powerful blend of immune support ingredients in a convenient, great-tasting gummy. Elderberry extract, bioavailable zinc, and vitamins A, D, C, and K provide comprehensive support for innate and adaptive immune defenses, helping defend against seasonal stressors and supporting long-term immune resilience.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

Supplement Facts

Serving Size: 2 Gummies
Servings Per Container: 30

| | Amount Per Serving | % Daily Value* |
|---|--------------------|----------------|
| Calories | 15 | |
| Total Carbohydrates | 4 g | 1% |
| Total Sugars | 2 g | ** |
| Includes 2g Added Sugars 4% | | |
| Vitamin A (as Retinyl Palmitate) | 1250 mcg RAE | 139% |
| Vitamin C (as Ascorbic Acid) | 100 mg | 111% |
| Vitamin D (as Plant-based Cholecalciferol) (D3) | 40 mcg | 200% |
| Vitamin K1 (as Phytonadione) | 165 mcg | 138% |
| Vitamin K2 (as Menaquinone MK-7) | 8 mcg | ** |
| Zinc (from Zinc Citrate) | 8 mg | 73% |
| DeltaGold® Tocotrienols | 4 mg | ** |
| ElderCraft® European BlackElderberry Extract (Sambucus nigra L.), (Contains 5.76 grams of black elderberry herb equivalent) | 180 mg | ** |

*Percent Daily Values are based on a 2,000 calorie diet.
**Daily Value Not Established

Other Ingredients: Tapioca syrup, cane sugar, water, glycerin, pectin, ethanol, citric acid, natural flavoring, tocopherol, highly purified phospholipids, natural citrus oils, sunflower oil, carnauba wax

EDUCATION

TURNING TO NATURE FOR POWERFUL SEASONAL IMMUNE SUPPORT

The immune system is generally quite resilient and able to handle a wide variety of stressors. However, seasonal immune challenges can catch it off guard, especially if one's body is low in critical immune-support nutrients. Research indicates that fortification with specific nutrients and compounds, such as elderberry, zinc, and vitamins A, D, C, and K, supports immune system resilience, fulfilling the need for seasonal immune support.

Vitamin A

Vitamin A, which includes retinol and retinyl esters, plays several vital roles in the immune system. First, it maintains epithelial barriers inside the body, including the epithelial lining of the lungs and gut mucosa, where a significant portion of the immune system resides. Vitamin A deficiency renders the respiratory and gastrointestinal tracts more susceptible to infection, whereas sufficient intakes protect against infection.^{1,2,3} Vitamin A is also crucial for initiating the host immune response to viruses. For example, supplemental vitamin A can enhance the immunoglobulin response to the influenza A virus.^{4,5} Importantly, vitamin A supports healthy immune system homeostasis by activating immune cells when needed.⁶

Vitamin C

Vitamin C (ascorbic acid) offers multifaceted support for the immune system. Like vitamin A, it promotes healthy epithelial barriers in the lungs and gastrointestinal tract, creating a robust first-line defense against pathogens.⁷ It is an essential factor in antimicrobial immune responses, stimulating phagocytosis, neutrophil chemotaxis, and T cell development and maturation.⁸

Vitamin C is also a potent antioxidant, meaning it readily donates electrons to electron-deficient recipient molecules (also referred to as free radicals), stabilizing their biochemical structure and inhibiting a chain reaction of oxidative stress. As an antioxidant, vitamin C can help "clean up" excessive free radicals released by active immune cells such as neutrophils, inhibiting excessive inflammation without hampering proper immune function.⁹

Viruses activate the NLRP3 inflammasome, a multiprotein complex involved in innate immunity and the production of pro-inflammatory cytokines.¹⁰ Excessive NLRP3 activation drives the "cytokine storm," an overproduction of immune cells and their activating products, cytokines, which can damage the body. Vitamin C inhibits the NLRP3 inflammasome and may thus help inhibit virus-induced inflammation.¹¹

Vitamin C also bolsters the activity of other antioxidants vital to the immune system. For example, it recycles the fat-soluble antioxidant vitamin E and increases endogenous levels of glutathione, the body's premier antioxidant that also fine-tunes the innate immune response to infections.^{12,13}

Vitamin D

Vitamin D is a pro-hormone with multiple vital effects on immune function. Vitamin D receptors (VDR) are present on the surface of most immune cells, indicating their indispensability as components of the immune system.¹⁴ It is essential for forming cathelicidin, a peptide with antimicrobial effects.¹⁵ Vitamin D deficiency increases the risk of viral infections and bacterial pneumonia.¹⁶ Conversely, vitamin D supplementation in vitamin D-deficient individuals can reduce the risk of common illnesses.^{17,18}

Vitamins K1 and K2

Vitamins K1 and K2 are fat-soluble vitamins that synergize with vitamins A, D, and E to support healthy immune function. Vitamin K1 (phyloquinone) has anti-inflammatory properties by inhibiting the NF-κB pathway.¹⁹ Vitamin K2 modulates the immune system, decreasing immune reactivity, helping manage the inflammatory response.²⁰

Zinc

Zinc is crucial for the normal development of innate immune cells involved in the body's frontline defenses against

microbial invaders.²¹ Zinc availability also influences cytokine production, with zinc insufficiency compromising cytokine mobilization in response to pathogens.

Zinc also fortifies mucosal barriers in the upper respiratory and gastrointestinal tracts by inducing beneficial structural changes in tight junction complexes, the proteins that bind epithelial cells together.²² These changes strengthen membrane barrier integrity, creating a robust line of defense against external invaders.²³

ELDERBERRY

Elderberry (*Sambucus nigra*) is a small dark purple berry that has been used for centuries in traditional herbalism as an aid to the immune system. Haschberg variety European black elderberry is revered for its high levels of anthocyanin flavonoids, which offer antioxidant and immune-modulating benefits.

Elderberry demonstrates antiviral activity, eliciting a mild inhibitory effect in the early stage of viral infection and a considerably stronger response in the later stages of infection.²⁴ Elderberry inhibits viral activity by blocking the function of hemagglutinin (HA) glycoproteins present on the surface of viruses. When the binding of these spikes to host cells is inhibited, viruses cannot enter the host cell to replicate and cause infection. Elderberry also binds to neuraminidase (NA), an enzyme necessary for viral replication.²⁵

Given these findings, it is no surprise that a meta-analysis of randomized controlled trials found elderberry supplementation effective for the treatment of upper respiratory symptoms, which are frequently caused by viruses.²⁶ In fact, one study found that overseas travelers using elderberry for 10 days before traveling and up to 5 days after arriving experienced a 2-day shorter duration of the cold (on average), along with a reduction in symptom severity.²⁷

NANOFORMULATED DAILY VITAMIN GUMMIES

Category: IMMUNE HEALTH • VITAMINS & MINERALS



Foundational
Vitamin Formula

SKU: Q-1186

SIZE: 120 GUMMIES

FLAVOR:
ORANGE BASIL

Quicksilver Scientific's Daily Vitamin Gummies provide the ultimate blend of bioavailable vitamins in a convenient, great-tasting gummy. Our formula combines activated B vitamins, a suite of fat-soluble vitamins, vitamin C, and carotenoids for well-rounded nutritional support that harmoniously complements a balanced diet.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

Supplement Facts

| | Amount Per Serving | % Daily Value |
|---|-----------------------|------------------|
| Serving Size: 4 Gummies Servings Per Container: 30 | | |
| Calories | 30 | |
| Total Carbohydrate | 8 g | 3% |
| Total Sugars | 4 g | ** |
| Includes 4g Added Sugars | | 8% |
| Vitamin A (as Retinyl Palmitate, Beta Carotene) | 600 mcg RAE | 67% |
| Vitamin C (as Ascorbic Acid) | 180 mg | 200% |
| Vitamin D (as Plant-based Cholecalciferol) (D3) | 20 mcg | 100% |
| Vitamin E (as Natural Mixed Tocopherols) | 4 mg | 27% |
| Vitamin K (as Phytonadione) (K1) | 110 mcg | 92% |
| Thiamine (Vitamin B1) (Thiamine HCl) | 16 mg | 1333% |
| Riboflavin (as Riboflavin-5-Phosphate) | 4 mg | 308% |
| Niacin (as Niacin, Niacinamide) | 14 mg | 88% |
| Vitamin B6 (as Pyridoxine HCl) | 6 mg | 353% |
| Folate (as Calcium Folate) | 1400 mcg DFE | 350% |
| Vitamin B12 (as Cyanocobalamin) | 70 mcg | 2917% |
| Biotin | 70 mcg | 233% |
| Pantothenic Acid (from Calcium d-Pantothenate) | 36 mg | 720% |
| Proprietary Blend | 50 mg | ** |
| Highly purified phospholipids, Trimethylglycine (Betaine), Lycopene, Zeaxanthin, Lutein | | |

*Percent Daily Values are based on a 2,000 calorie diet.
**Daily Value Not Established

Other Ingredients: Organic tapioca syrup, organic cane sugar, water, citric acid, pectin, glycerin, natural coloring, ethanol, tocopherols, natural flavoring, organic sunflower oil, organic carnauba wax, natural citrus oils

EDUCATION

MULTIVITAMINS IN THE MODERN WORLD: ARE THEY MORE ESSENTIAL THAN EVER BEFORE?

The modern-day diet has left us nutrient-depleted. Ultra-processed foods, which constitute an astonishing 60 percent of calorie intake in the United States (and a growing percentage of calorie intake in other parts of the world), are nutrient-poor foods, providing an abundance of calories with few vitamins or minerals.¹ As well, research indicates that the soils in which we grow our food are increasingly nutrient-depleted due to unsustainable

agricultural practices. This means even the most nutritious organic vegetables, meat, and eggs may provide us with fewer nutrients now than they previously did 50 years ago.²

According to "What We Eat in America," the dietary assessment portion of The National Health and Nutrition Examination Survey (NHANES), vitamin and mineral inadequacies are extraordinarily prevalent in the United States. Vitamin and mineral inadequacies are defined as nutrient intakes less than the estimated average requirement (EAR), the nutrient intake value estimated to meet the requirement of *half* of the healthy individuals in a particular life stage and gender group.³ The NHANES data reveals that 94.3 percent of the U.S. population fails to meet the daily requirement for vitamin D, 88.5 percent for vitamin E, 43 percent for vitamin A, and 38.9 percent for vitamin C.⁴

Micronutrient inadequacies left unaddressed, can drive significant physiological dysfunction over the long term, including sarcopenia and frailty in older adults, cognitive decline, blood sugar imbalances, and compromised bone density.^{5,6,7,8} Replenishing depleted vitamins may improve both immediate and long-term health outcomes. In fact, recent research suggests that a daily multivitamin supplement may protect against cognitive decline and improve cognition.⁹

BIOAVAILABLE VITAMINS AND CAROTENOIDS PROVIDE "NUTRITIONAL INSURANCE"

Supplying our bodies with bioavailable vitamins and carotenoids through dietary intake and supplementation, we can shore up our nutrient stores and build resilient long-term health.

Activated B Vitamins

The form of supplemental B vitamins significantly affects the body's ability to utilize these nutrients. For example, activated forms of folate and B12 are better able to support methylation, the epigenetic mechanism by which a methyl group (CH₃) is added to a DNA molecule, modifying gene expression. Proper methylation is crucial for brain function, cardiovascular health, and healthy aging.^{10,11,12} Activated B vitamins can directly participate in our bodies' methylation pathways without first needing to be processed.

For proper methylation, our bodies need folate, vitamin B2 (riboflavin 5'-phosphate), vitamin B6 (pyridoxine hydrochloride), vitamin B12, and trimethylglycine (TMG), also known as betaine. Vitamin B2 is a cofactor for methylenetetrahydrofolate reductase (MTHFR), an enzyme that converts precursor molecules into active 5-methyl THF, the form of folate critical for methylation. Vitamin B6 is a cofactor for serine hydroxymethyltransferase, the enzyme that creates 5-methyl THF precursors. Vitamin B12 assists in the conversion of homocysteine to methionine, a central component of the methylation cycle. Finally, TMG donates methyl groups to unmethylated molecules, facilitating the entire cycle.

Together, these nutrients keep methylation chugging along without creating a methyl folate "trap," a scenario in which folate and methylated B12 cannot join together, resulting in impaired methylation. As a result, most people need to consume more methylation nutrients in their diets.¹³ Supplementation with an array of methylation nutrients provides nutritional insurance for optimal methylation.

Vitamin C is a water-soluble vitamin that can be found in modest amounts in certain types of fresh produce, including citrus fruits, strawberries, bell peppers, and broccoli. Vitamin C has antioxidant properties, protecting the body against free radical damage. It also supports optimal immune function and modulates gene expression.^{14,15,16} Chronic stress depletes vitamin C, rendering the body more susceptible to infection.^{17,19} While vitamin C is prevalent in fresh fruits and vegetables, supplementation may be necessary when clinical outcomes, such as improvements in immunity, are desired.¹⁸

Vitamin E family includes two compounds, tocopherols and tocotrienols. The primary forms of tocopherols in the diet are α -tocopherol and α -tocopherol. Both types of tocopherols offer potent antioxidant properties, particularly within the lipid membranes of cells and organelles.

A significant percentage of the U.S. population, 88.5 percent to be exact, fails to meet the EAR for vitamin E and may thus be at an increased risk of experiencing oxidative stress and inflammation.¹⁹ Conversely, sufficient intake of tocopherols may support cardiovascular health, including healthy vasculature and blood lipid levels, promote balanced immune system function, and protect healthy liver function.²⁰

Vitamin D is labeled as a vitamin, but it is actually a pro-hormone with pleiotropic effects on human health. It plays vital roles in bone formation and integrity and cardiovascular health, aids both the innate and adaptive branches of the immune system, protects against dental caries, and promotes healthy brain function.^{21,22,23,24,25}

Nearly 40 percent of Americans are frankly deficient in vitamin D; many more have insufficient vitamin D levels below the optimal range of 40-60 ng/mL.²⁶ For many people, vitamin D supplementation is necessary to achieve optimal levels of this vital nutrient.

Vitamin K1 is a fat-soluble vitamin found predominantly in dark green leafy vegetables, such as kale, spinach, broccoli, and brussels sprouts. It regulates blood coagulation factors II, VII, IX, X, protein C, and protein S; a bone-forming protein called osteocalcin; and matrix-GLA protein, which prevents the calcification of soft tissues inside the body.²⁷ Insufficient vitamin K1 intake can compromise cardiovascular health and bone structure while also driving the abnormal calcification of soft tissues, such as coronary arteries.

Vitamin A family comprises preformed vitamin A, which includes retinol, retinal, and retinoic acid, and vitamin A precursors called carotenoids. For many people, the conversion of carotenoids to active vitamin A inside the body is inefficient, necessitating dietary and supplemental intake of preformed vitamin A.²⁸

Preformed vitamin A is essential for proper immune function, including antiviral defenses, vision, and skin health.^{29,30,31,32} Vitamin A also works alongside vitamin D to modulate gene expression.³³

Carotenoids

The carotenoids lutein, zeaxanthin, and lycopene are phytochemicals rather than vitamins. Even though they are nonessential nutrients, carotenoids offer distinct health benefits. They activate Nrf2, a cellular antioxidant pathway that protects cells against oxidative stress and inflammation.^{34,35,36} Lutein and zeaxanthin can also cross the blood-retina barrier, supporting healthy vision in children and protecting against age-related declines in vision.³⁷ Finally, lycopene may support cardiovascular health and protect against aberrant cell growth that, left unchecked, can promote cancer development.³⁸

PATENT PENDING

NANOFORMULATED DHEA+

Category: COGNITIVE SUPPORT • HORMONES • LONGEVITY



Female Hormone Tonic

SKU: Q-1163 • Q-1172

SIZE: 100 ML

SIZE: 300 ML

Nanoformulated DHEA+ Female Hormone Tonic, is a blend of micronized DHEA, pregnenolone, diindolylmethane, chrysin, and the premium herbal extracts Fermented Korean Panax Ginseng, Maca root, and Dang Gui. Designed to support sex hormones, this product is ideal for women in the perimenopausal, menopausal, and postmenopausal stages of life.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE VEGAN

| Supplement Facts | | |
|---|--------------------|---------------|
| Serving Size: 5 mL (1 tsp.) | | |
| Servings Per Container: 20 or 60 | | |
| | Amount Per Serving | % Daily Value |
| DHEA (Dehydroepiandrosterone) | 100mg | ** |
| Chrysin (from <i>Oroxylum indicum</i> seeds) | 10mg | ** |
| Pregnenolone | 10mg | ** |
| Diindolylmethane | 10mg | ** |
| Proprietary Blend | 500mg | ** |
| Maca root extract (<i>Lepidium meyenii</i>), Dang Gui root extract (<i>Angelica sinensis</i>), GS15-4® Fermented Korean Panax Ginseng extract | | |
| **Daily Value not established | | |
| Other Ingredients: Glycerin, ethanol, water, tocopherol, medium chain triglycerides, highly purified phospholipids, natural flavoring | | |

EDUCATION

STRENGTHEN HORMONES WITH DHEA AND PREGNENOLONE

Dehydroepiandrosterone (DHEA) is an androgenic steroid hormone produced by the adrenal glands, ovaries, testes, and brain with diverse effects on the female body. It is involved in blood sugar regulation, immune function, bone integrity, brain function, and skin health. Through these diverse effects, DHEA also supports healthy aging.^{1,2,3} DHEA is also converted into estrogen and testosterone and is widely used as a safe and effective way to support sex hormone balance in women.

Natural DHEA production peaks between the ages of 25 and 30 and begins declining precipitously after that, leading many perimenopausal, menopausal, and postmenopausal women to be low in this

vital hormone. Low DHEA is associated with high blood sugar and insulin resistance, fatigue, loss of libido, and difficulty maintaining muscle mass. This constellation of physiological changes, in turn, accelerates biological aging.⁴ Restoration of healthy DHEA levels can counteract these physiological shifts, supporting hormonal production and balance, which is influential in the area of longevity.

Pregnenolone is another steroid hormone synthesized from cholesterol and a key player in steroidogenesis, the process by which cholesterol is converted to biologically active steroid hormones. Often referred to as the “mother hormone”, pregnenolone is the predecessor to hormones within the steroidogenesis cascade to include all progestagens, androgens, estrogens, glucocorticoids, and mineralocorticoids. Supplying the body with pregnenolone supports healthy aging and HPA axis function by facilitating the production of these critical sex and stress hormones. Pregnenolone is also a neuroactive steroid that influences memory processes and healthy brain aging.⁵

PROMOTE HEALTHY HORMONE SYNTHESIS AND METABOLISM WITH DIM AND CHRYSIN

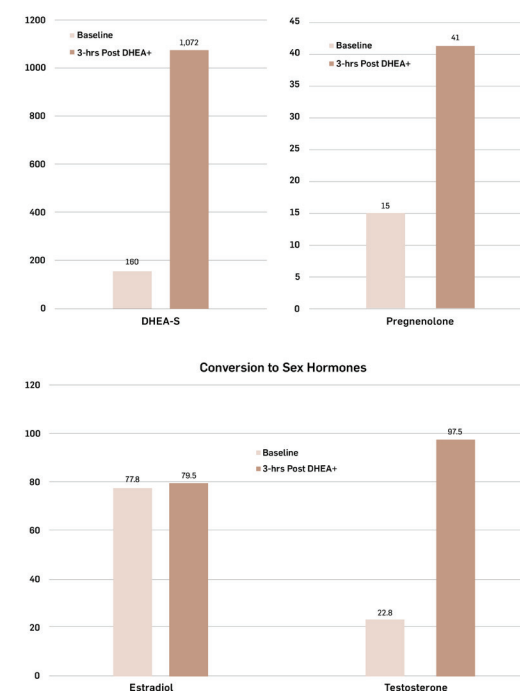
The biological effect of estrogen is dependent on how it is metabolized. The metabolism of estrogen takes place primarily in the liver through Phase I (hydroxylation) and Phase II (methylation and glucuronidation) detoxification pathways. Hydroxylation yields three estrogen metabolites that vary greatly in their activity: 2-hydroxyestrone (2-OH), 16-hydroxyestrone

(16a-OH), and 4-hydroxyestrone (4-OH).⁶ The 2-OH metabolite is generally termed the “good” estrogen because it generates very weak estrogenic activity—and therefore helping promote healthy breast tissue. In contrast, the 16a-OH and 4-OH metabolites show persistent estrogenic activity and may promote dangerous tissue growth if unchecked. Ideally, estrogen metabolized down the 2-OH pathway is preferred over the 4-OH and 16-OH pathways. 3,3'-Diindolylmethane, or DIM, is a nutraceutical well studied for its ability to modulate estrogen metabolite pathways.

A sulfurous compound derived from indole-3-carbinol, DIM (3,3'-Diindolylmethane) is a phytochemical found in cruciferous vegetables such as broccoli, Brussels sprouts, cabbage, and kale. As estrogen is metabolized, DIM promotes the production of the more favorable, anti-inflammatory 2-OH estrogen metabolites, as opposed to the highly estrogenic 16-OH and mutagenic 4-OH estrogen metabolites.^{7,8}

Excess estrogen can also be synthesized in the body when aromatase, an enzyme that occurs in the ovaries and adipose tissue of women, among other organs, converts androgens such as DHEA and testosterone into estrogens. High levels of aromatase activity can thus lead to an estrogen excess, disrupting female hormonal balance. Chrysin, a nutraceutical derived from the seeds of *Oroxylum indicum* or the Indian Trumpet Flower, inhibits aromatase activity, helping to build up the testosterone pool and prevent estrogen excess. Co-administration of DHEA and pregnenolone with DIM and chrysin ensures that estrogens derived from these hormone precursors are predominantly of the beneficial 2-OH variety and that DHEA isn't inordinately converted into estrogens.

DHEA+ HORMONE CONVERSION PILOT STUDY



GINSENG, MACA, AND DANG GUI PROVIDE SYNERGISTIC BOTANICAL SUPPORT FOR FEMALE HORMONES

Fermented Korean Panax Ginseng Extract

The time-honored botanical Panax ginseng, a cornerstone herb in the Traditional Chinese Medicine (TCM) compendium, synergizes with bioidentical DHEA to support the female body's DHEA levels. Panax ginseng contains ginsenosides, phytochemicals that mitigate stress-induced gene expression and bolster DHEA levels. Ginseng also optimizes the function of our mitochondria, the tiny energy-generating organelles that also serve as critical sites for the initiation of steroid hormone synthesis.^{9,10}

Maca Root

Maca root (*Lepidium meyenii*), also referred to as “Peruvian ginseng,” is an herbaceous plant native to the high, forbidding Andes mountains of Peru. It has traditionally been used by Andean people as a tonic for stress, fatigue, fertility, and libido and may be particularly beneficial as a hormonal support for females.¹¹

In a double-blind, randomized clinical trial, two months of supplementation with maca root increased estradiol, lowered cortisol, and alleviated menopausal symptoms in postmenopausal women. Moreover, maca did not trigger any of the adverse symptoms associated with pharmaceutical hormone replacement therapy (HRT), such as increased blood pressure and body weight, depression, and mood swings.¹² Interestingly, maca does not contain any phytoestrogens or other plant-based hormones; instead, it exerts beneficial health effects by toning the hypothalamic-pituitary-ovarian (HPO) axis.

Dang Gui

Angelica root (*Angelica sinensis*), also known as Dang Gui in TCM, is a time-honored female tonic that addresses uniquely feminine issues such as hot flashes during perimenopause and menopause.¹³

Outcomes: On average, participants saw a significant increase in blood levels of pregnenolone, progesterone, DHEA, and testosterone, with moderate increase in DHT, and an insignificant increase in estradiol.

Conclusion: This pilot suggests DHEA+ can be used to support hormonal optimization of DHEA, pregnenolone, progesterone and testosterone in perimenopausal and menopausal women as part of a comprehensive hormone replenishing protocol.

Category: DETOX • HORMONES • IMMUNE HEALTH



Diindolylmethane

SKU: Q-1028

SIZE: 50 ML

Nanoemulsified DIM is a highly bioavailable diindolylmethane (DIM) formula designed to support healthy estrogen metabolism, detoxification, and immune balance.* DIM is a plant compound derived from the phytochemical indole-3-carbinol found in cruciferous vegetables such as broccoli, brussels sprouts, cabbage, and kale. Each 2 mL (4 pump) serving provides 20 mg of nanoemulsified DIM using Quicksilver Delivery Systems® technology for unsurpassed absorption.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

| Supplement Facts | | |
|---|--------------------|---------------|
| Serving Size: 2 mL (4 Pumps) Servings Per Container: 25 | | |
| | Amount Per Serving | % Daily Value |
| Diindolylmethane | 20mg | ** |
| **Daily Value not established | | |
| Other Ingredients: Glycerin, water, ethanol, medium chain triglycerides, tocopherols, highly purified phospholipids, natural mixed tocopherols | | |

EDUCATION

PLURIPOTENT HEALTH BENEFITS

Dietary consumption of cruciferous vegetables has many positive health impacts, including the ability to reduce inflammation, enhance detoxification, and beneficially modulate epigenetic pathways linked to neoplasias.^{1,2,3} Research indicates that DIM is a crucial contributor to the health benefits of cruciferous vegetables. It balances hormones, modulates the immune system, upregulates endogenous detoxification pathways, and interacts favorably with the human genome to promote whole-body health.*

HORMONAL BALANCE

Diindolylmethane is a powerful ally for female hormonal health. It modulates estrogen

metabolism, favoring the formation of protective 2-hydroxyestrogen rather than the potentially estrogenic 16-hydroxyestrogen.⁴ In patients taking tamoxifen for breast cancer, DIM has been found to induce favorable changes in estrogen metabolism.⁵ DIM also supports cervical health by modulating estrogen metabolism and helps maintain normal cervical epithelial cell morphology during exposure to HPV.^{6,7} DIM also helps the body's sensitivity to insulin, a peptide hormone that regulates blood sugar.⁸

BALANCES STIMULATORY AND ANTI-INFLAMMATORY IMMUNE ACTIVITY

DIM balances the stimulatory and anti-inflammatory branches of the immune system, helping the immune system maintain a state of dynamic balance. DIM stimulates the production of IFN- γ , a cytokine that inhibits abnormal cell proliferation and targets harmful microbes.¹⁰ It also upregulates the production of G-CSF, a growth factor that induces white blood cell production and IL-6, a cytokine with microbicidal properties.¹¹

On the other hand, DIM suppresses unproductive inflammatory responses, such as those elicited by lipopolysaccharide (LPS), a pro-inflammatory microbial byproduct elevated in states of intestinal dysbiosis.¹² DIM also alleviates endothelial and neurological inflammation, supporting a healthy microvasculature and brain.^{13,14}

UPREGULATES DETOXIFICATION

DIM is a potent inducer of the Antioxidant Response Element (ARE), a regulator of the expression of phase II drug metabolizing enzymes and phase III transporters that usher toxins out of cells and into the bile and urine for elimination.¹⁵ DIM is a stronger ARE inducer than its precursor, indole-3-carbinol (I3C). Activation of ARE by DIM increases the expression of glutathione-S-transferases and UGT enzymes, involved in phase II detoxification, and superoxide dismutase (SOD), an antioxidant enzyme that protects cells from oxidative stress.¹⁶

REGULATES THE EPIGENOME

Emerging research indicates that DIM modulates the epigenome, which consists of chemical compounds and proteins that attach to DNA and can turn genes "on" and "off." In some neoplasias, Nrf2 is epigenetically downregulated and supplemental DIM has been shown to modulate this effect, suggesting that it may be useful in a variety of Nrf2 downregulated scenarios.¹⁷

BIOAVAILABILITY OF THE PLANT COMPOUND, DIM

When taken in traditional oral formats such as tablets and capsules, DIM is poorly absorbed and rapidly cleared from the body.¹⁸ Liposomal delivery systems have been found to significantly enhance the bioavailability of DIM, allowing for greater therapeutic benefits.¹⁹ Liposomal delivery systems may also prolong the time a therapeutic agent, such as DIM, is in circulation, leading to a reduced need for dosing.²⁰

DIM IS IN THE FOLLOWING PROTOCOL SYSTEMS:

- Black Box® II

LIPOSOMAL EDTA WITH R-LIPOIC ACID

Category: **CARDIOMETABOLIC • DETOX**



Master Chelator

SKU: Q-1004

SIZE: 120 ML

Liposomal EDTA with R-Lipoic Acid is a highly absorbable form of the universal chelating agent, ethylenediaminetetraacetic acid (EDTA), delivered together with potent R-lipoic acid, which is noted for its antioxidant, detoxification and metal-binding properties. This highly bioavailable liposomal blend is designed to bind a wide range of harmful metals and offer balanced redox actions.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

| Supplement Facts | | |
|--|--------------------|---------------|
| Serving Size: 5 mL (1 tsp.) Servings Per Container: 24 | | |
| | Amount Per Serving | % Daily Value |
| Sodium | 68mg | 3% |
| EDTA (Disodium EDTA) | 210mg | ** |
| Lipoic Acid (from Sodium R-Lipoate) | 26mg | ** |
| Phosphatidylcholine (from purified soybean lecithin) | 400mg | ** |
| **Daily Value not established | | |
| Other Ingredients: Glycerin, ethanol, water, sodium hydroxide | | |

EDUCATION

METAL BINDING

Calcium disodium ethylenediaminetetraacetic acid (EDTA) is the most commonly used chelating agent in the world. It binds to a variety of metals, including lead, cadmium, and other toxic metals.^{1,2} Heavy metals can penetrate biomembranes and sequester inside cells, tissue and bone.^{3,4,5} Effective chelators must cross those biomembranes and stay in the cell long enough to capture metals. R-Lipoic acid, the most active isomer of alpha-lipoic acid, functions as a mitochondrial antioxidant, supporting glutathione, ubiquinol, Vitamin C and Vitamin E.⁶ It also binds to a variety of metals.^{7,8,9}

BIOAVAILABILITY

Only 5% of orally consumed EDTA is absorbed, while the other 95% is excreted unchanged

in the urine within 72 hours.¹⁰ Intracellular absorption is also low with intravenous delivery, as EDTA is rapidly excreted from the kidneys, with a maximum half-life of 3 hours.¹¹ In contrast, liposomal formulations of EDTA have been shown to offer superior bioavailability, with greater uptake in spleen, lungs, liver and marrow, depending on the specific formulation.^{12,13}

Lipoic acid, in turn, can bind to cadmium, lead, cobalt, nickel, and mercury, among other metals.¹⁴ Lipoic acid is lipophilic and is able to penetrate cell membranes. However, R-Lipoic acid is significantly better absorbed than the S-form, with peak plasma concentrations 40%-50% higher.¹⁵ Liposomal formulations of lipoic acid outperform other oral forms, allowing slow, sustained release.¹⁶

ANTIOXIDANT DEFENSES

Both EDTA and R-lipoic acid reduce oxidative stress and injury, and increase antioxidant activity. By chelating toxic metals that are responsible for cell membrane injury, EDTA reduces oxidative stress and inflammation.¹⁷ EDTA has shown direct antioxidant activity in blood vessel walls¹⁸ and has decreased DNA damage and plasma peroxide levels by 20%.¹⁹

Lipoic acid is a powerful mitochondrial antioxidant that plays a critical role in mitochondrial energy metabolism. It has been called a universal antioxidant, both fat- and water-soluble, and able to neutralize reactive oxygen species (ROS) both inside and outside cells.⁶ Lipoic acid is particularly effective in offsetting free radical peroxidation of membrane phospholipids.²⁰ It supports vitamin C, glutathione, vitamin E and CoQ10.^{21,22} It

is associated with elevated cell resistance to oxidative challenge.²³ Lipoic acid has also been shown to regulate the transcription of genes associated with antioxidant and anti-inflammatory pathways, including the potent master antioxidant switch, Nrf2.²⁴

CARDIOPROTECTIVE, NEUROPROTECTIVE AND TISSUE PROTECTIVE PROPERTIES

Lipoic acid can cross the blood-brain barrier, where it may benefit the central nervous system. It has been shown to increase the antioxidant capacity of brain tissue, promote angiogenesis - the growth of blood vessels from the existing vasculature, and regulate activity of genes linked to cell survival and plasticity.²⁵ It has been shown beneficial in nervous system diseases such as multiple sclerosis and Parkinson's disease.²⁶

EDTA has been shown to improve arteriosclerosis²⁷ and reduce risk of cardiovascular events.²⁸ EDTA has also been shown to slow the progression of diabetic nephropathy²⁹ and improve symptoms in those with multiple sclerosis.³⁰

ANTI-INFLAMMATORY AND IMMUNE MODULATING ACTION

Lipoic acid has been shown to downregulate levels of inflammatory cytokines such as IL-1B and IL-631, as well as interferon gamma, IL-4, TGF beta and other cytokines.³² It has been found effective in studies of peripheral neuropathy, diabetes, hepatitis, Alzheimer's and Parkinson's disease, multiple sclerosis, and more.^{33,34}

EDTA WITH R-LIPOIC ACID IS IN THE FOLLOWING PROTOCOL SYSTEMS:

- Qube® 2.0 Professional Detoxification System

PATENT PENDING

NANOSERUM ESTRADIOL+

Category: HORMONES • LONGEVITY



Topical Replenishing Serum

SKU: Q-1176

SIZE: 30 ML

Estradiol+ Topical Replenishing Serum is a patent-pending, nanoemulsified transdermal serum providing .25 mg of bioidentical estradiol (E2) per 1 pump dose. Our estradiol is derived from phytosterols, natural compounds used to synthesize bioidentical estrogen. Estradiol+ is delivered using proprietary lipid nanoemulsion technology for enhanced absorption of ingredients.^{1,2}

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

Supplement Facts

Other Ingredients: Water, butylene glycol (1,3 butanediol), ethanol, tocopherol, medium chain triglycerides, highly purified phospholipids, hyaluronic acid, natural mixed tocopherols, estradiol USP

EDUCATION

Estrogen is well known as the quintessential “female” hormone because it plays a role in regulating feminine characteristics such as a rounded figure, increased body fat, reduced body hair, and lower muscle strength compared to males.

The body produces three major types of estrogens: estrone, estradiol, and estriol. Estradiol is the main form of estrogen made by nonpregnant premenopausal women. While both men and women produce estrogen, women of reproductive age have much higher estrogen levels than men due to estrogen production by the ovaries.³

Estradiol is released in the ovaries by a developing follicle, a small fluid-filled sac containing an immature egg in the ovary.

In perimenopausal women, estradiol levels fluctuate wildly, potentially even reaching the highest levels in a woman’s lifespan, before declining significantly and permanently in the postmenopausal period.

ESTRADIOL MAY SUPPORT HEALTHY AGING AND EASE MENOPAUSAL TRANSITION

According to female hormone expert Dr.

Lara Briden, estradiol is a woman’s “happy hormone” that stimulates mood and libido by boosting serotonin.⁴ Insufficient estrogen levels may thus contribute to a low libido in premenopausal women and to a higher sensitivity to stress and mood changes during the menopause transition.⁵

Estradiol also plays a crucial role in supporting the bones by stimulating osteoblasts, the body’s bone-building cells and regulating osteoclasts, cells responsible for bone cell breakdown that support healthy bone turnover.^{6,7}

It also supports a healthy cardiovascular system by modulating vascular function, protecting against oxidative stress, and regulating cholesterol levels.^{8,9}

Estradiol also supports healthy skin, restorative sleep, and insulin sensitivity, promoting a well-functioning metabolism during the postmenopausal period.^{10,11,12}

BIOIDENTICAL ESTRADIOL

Bioidentical estradiol is an estradiol with a structure identical to the body’s own estradiol. It is commonly derived from yam or soy

and is typically administered topically or intravaginally. With transdermal application, bioidentical estradiol can enter the blood circulation quickly, bypassing hepatic first pass metabolism. Furthermore, topical delivery allows for easy dosage modifications based on patient symptoms. Bioidentical estradiol is a safe strategy for replenishing depleted estradiol levels and restoring healthy function of estradiol-dependent

processes within the body.

Estradiol levels ultimately decline significantly after menopause as the ovaries cease their production of follicles. In menopausal women, low estradiol levels may contribute to low libido, mood swings, and vaginal dryness.^{5,13,14} Research suggests that bioidentical estradiol may improve emotional lability, anxiety, irritability, and vasomotor symptoms, such as night sweats, in women.¹⁵ It may also reduce cutaneous aging, maintaining healthy, supple skin.¹⁶ For perimenopausal and postmenopausal women, bioidentical estradiol may be most effective

when paired with bioidentical progesterone. In fact, it may be most beneficial to replenish progesterone when perimenopausal symptoms begin and then incorporate estradiol when estrogen deficiency symptoms start.

PATENT PENDING

NANOSERUM ESTRIOL+

Category: HORMONES • LONGEVITY



Topical Replenishing Serum

SKU: Q-1194

SIZE: 30 ML

Estriol+ Topical Replenishing Serum is a patent-pending, nanoemulsified transdermal serum providing 0.5 mg of bioidentical estriol (E3) per 1 pump dose. Our estriol is derived from phytosterols, natural compounds used to synthesize bioidentical estrogens. Estriol+ is delivered using proprietary lipid nanoemulsion technology for enhanced absorption of ingredients.^{1,2}

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

Supplement Facts

Other Ingredients: Water, butylene glycol (1,3 butanediol), propylene glycol, ethanol, highly purified phospholipids, tocopherols, medium chain triglycerides, natural mixed tocopherols, hyaluronic acid, estriol USP, lactic acid

EDUCATION

Estriol has long been considered the least stimulating of the three types of estrogens and was originally dismissed as an insignificant estrogen outside of pregnancy. However, the work of hormone pioneer Dr. Jonathan Wright suggests that estriol may be an estrogen of great importance for non-pregnant women. In premenopausal women, estriol circulates at levels nearly ten times higher than that of estradiol and estrone, suggesting that it may have significant biological activity yet to be fully elucidated.³

ESTRIOL MAY SUPPORT HEALTHY AGING AND EASE MENOPAUSAL TRANSITION

Research indicates that estriol offers multiple health benefits for women in midlife. Estriol administration can help manage menopausal symptoms as indicated by improvements in the Kupperman Index, an 11-item menopausal symptom questionnaire that asks midlife women to rate their experience with symptoms such as sweating, heart palpitations, insomnia, and fatigue.

Estriol, administered in combination with supplemental calcium, also supports healthy bone density in the menopausal period as indicated by reduced levels of alkaline

phosphatase (ALP), a critical marker of bone mineralization that signifies bone loss when elevated, and improvements in bone density on dual energy x-ray absorptiometry scans (DXA).^{3,4,5}

Estriol may also support a healthy cardiovascular system, vaginal tissue, and skin. Preliminary research suggests that estriol facilitates cardiovascular health by regulating blood pressure and endothelial function, the function of the lining of blood vessels that is imperative for cardiovascular health.^{3,5}

Research shows that estriol applied intravaginally may support healthy vaginal tissue and vaginal microbial balance without increasing the risk of aberrant cell growth.^{6,7} In addition, a study of 93 postmenopausal women found that intravaginal administration of estriol addressed stubborn microbial imbalances in the urinary tract, possibly by modifying the vaginal microflora.⁸ Finally, a small study found that topical estriol improved skin quality in postmenopausal women by increasing and thickening elastic fibers in the dermis, suggesting that it may support healthy skin aging.⁹

BIOIDENTICAL ESTRIOL

Bioidentical estriol is an estriol with a structure identical to the body's own estriol. It is commonly derived from yam or soy and is typically administered topically or intravaginally. With transdermal application, bioidentical estriol can enter the blood circulation quickly, bypassing hepatic first pass metabolism. Furthermore, topical delivery allows for easy dosage modifications based on patient symptoms.

Finally, unlike estradiol, estriol doesn't have a high affinity for sex-hormone binding globulin (SHBG), leaving more estriol available in the body for biological activity.¹⁰

Estrogen levels ultimately decline significantly after menopause as the ovaries cease their production of follicles. Low estrogen levels may contribute to hot flashes, loss of bone density, and vaginal dryness in menopausal women.^{5,11,12} For perimenopausal and postmenopausal women, bioidentical estriol may facilitate an easier menopausal transition by gently supporting age-appropriate estrogen levels in the body. In women who are hesitant to supplement with estrogen, the milder estrogenic effects of estriol may make it a more appealing estrogen option.

NANOEMULSIFIED FULL SPECTRUM BLISS

Category: CALMING & SLEEP • CBD/HEMP



Phytocannabinoid
& Anandamide
Blend

SKU: Q-1205

SIZE: 50 ML

Full Spectrum Bliss is a nanoemulsified formula featuring full spectrum hemp extract, cannabidiol (CBD), cannabigerol (CBG) isolate, and anandamide. This feel-good blend retains the Farm Bill compliant level of $\Delta 9$ tetrahydrocannabinol (THC) naturally present in hemp to support the “entourage effect.”

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE

Supplement Facts

Serving Size: 2 mL (4 Pumps) Amount % Daily
Servings Per Container: 25 Per Serving Value

| | Amount Per Serving | % Daily Value |
|---|-----------------------|------------------|
| Full Spectrum Hemp Extracts (aerial parts) | 25 mg | ** |
| Cannabidiol (CBD) | 16 mg | ** |
| Cannabigerol (CBG) | 4 mg | ** |

**Daily Value not established

Other Ingredients: Glycerin, water, tocopherol, medium chain triglycerides, ethanol, highly purified phospholipids, natural citrus oils, natural mixed tocopherols, anandamide, natural flavoring

to the discovery of the body’s endocannabinoid system (ECS).⁷ The ECS features two main receptors—CB1, found in 1990,⁸ and CB2, found in 1993,⁹ although other receptors likely also play a role.^{10,11,12} CB1 is widely distributed in the brain and central nervous system¹³ while CB2 is found abundantly in the immune system, in cells such as leukocytes and macrophages, as well as the spleen, tonsils, thymus, lung, and testes.¹⁴ These receptors populate the GI tract, reproductive tract, immune system, arteries, heart, lungs, endocrine glands, and more.¹⁵

A growing body of research indicates that cannabinoids—both endogenous and plant-based—act on numerous receptors and pathways. Cannabinoids may impact opioid, GABA, adenosine, and serotonin receptors.^{16,17,18,19,20} Other significant molecular targets include glycine receptors and peroxisome proliferator-activated receptors (PPARs), which play an essential role in cellular differentiation, development, and metabolism.^{21,22}

Our built-in ECS is critical for bioregulation throughout the body, affecting appetite, pain, mood, memory, cognition, analgesia, immune function, sleep, motivation, emotions, and more.²³ In essence, cannabinoids allow us to relax, eat, sleep, and protect our bodies.²⁴ When cannabinoid signaling is balanced, we experience optimal endocannabinoid tone and whole-body health. “Free radicals are the friction of life,” says biologist Robert Melamede of the University of Colorado, “ [and] Endocannabinoids are the oil of life.”²⁵

ANANDAMIDE: THE BODY’S “BLISS MOLECULE”

Our body produces two unique endocannabinoid

lipids that “talk” to ECS receptors: anandamide and 2-arachidonoylglycerol. Anandamide is associated with a joyful mood and was named after the Sanskrit word for bliss.²⁶ Fatty acids and enzymes that help synthesize and break down endocannabinoids complete the system and its feedback loops.

Cannabidiol (CBD) powerfully supports anandamide, the “bliss molecule,” by inhibiting the enzyme that breaks it down.²⁷ However, it does not actively increase the body’s own production of anandamide. Anandamide deficiency within the nervous system is associated with reduced stress tolerance, increased nervousness and bodily discomforts. Conversely, supporting healthy anandamide levels may lead to a balanced, peaceful mood and restorative sleep.^{28,29,30}

PHYTOCANNABINOIDS: A POTENT FAMILY OF MOLECULES ISSUING HOMEOSTASIS

A growing body of research indicates that phytocannabinoids have a broad range of therapeutic action. Phytocannabinoids significantly modulate inflammation, pain, appetite, sleep, mood, insulin sensitivity, fat and energy metabolism, and impact neurologic conditions.^{31,32,33} Phytocannabinoids may act as neuroprotective antioxidants, superior to alpha-tocopherol and ascorbate in preventing glutamate toxicity.³⁴

THC, cannabidiol, cannabigerol, and numerous other phytocannabinoids can shift the activity of more than 1000 human genes, increasing our cellular antioxidant defenses and downregulating many pro-inflammatory mediators.³⁵ For example, THC is an agonist—stimulating activity of both CB1 and CB2 receptors. CBD, on the other hand, is thought to be an antagonist that downregulates receptor activity.

CANNABIDIOL (CBD)

The scientific community has taken a keen interest in cannabidiol (CBD). CBD may positively impact health by inhibiting the reuptake of anandamide, activating CB2 receptors, and interacting with opioid, dopamine, serotonin, and glutamate systems in the body.³⁶

Research shows CBD is an effective, non-intoxicating option for managing ongoing discomforts.³⁷ It also offers significant nervous system support, alleviating anxiousness³⁸ and improving mood disorders. The anti-inflammatory effects of CBD may also make it useful for individuals with autoimmune conditions of the gastrointestinal tract.^{39,40}

CANNABIGEROL (CBG)

While THC and CBD get most of the attention, another phytocannabinoid, cannabigerol (CBG), is emerging as another powerful phytocannabinoid that works synergistically with its “sister” phytocannabinoids. CBG interacts with the ECS, cyclooxygenase (COX) enzymes, and serotonin receptors to exert various health benefits, including calming, neuroprotective, and anti-nausea properties.⁴¹ A survey of patients using CBG-predominant Cannabis preparations found that over 50% of the patients used the CBG-predominant variant of this plant specifically for its calming benefits.⁴²

EDUCATION

CANNABIS AND THE ENDOCANNABINOID SYSTEM

According to archaeological records, humans have turned to medicinal plants for over 60,000 years.¹ Furthermore, the World Health Organization has inventoried over 20,000 medicinal plants utilized by countless cultures worldwide.² However, few botanicals offer a spectrum of healing molecules comparable to that of the hemp plant, Cannabis.

Cannabis contains over a hundred unique, bioactive cannabinoids that can modulate the neuroendocrine and immune systems, including THC, CBD, and CBG.^{3,4,5}

The isolation and discovery of psychoactive THC in 1964 at the Hebrew University of Jerusalem,⁶ led to a decades-long race to discover the receptors it might act upon, and ultimately led

FULL SPECTRUM HEMP EXTRACT

Category: CALMING & SLEEP • CBD/HEMP



Natural
Phytocannabinoid
Blend

SKU: Q-1101

SIZE: 50 ML

Nanoemulsified, Full Spectrum Hemp Extract is a blend of non-psychoactive phytocannabinoids and terpenoids designed to offer broad support for the endocannabinoid, neuroendocrine, and immune systems.* This formula features cannabidiol (CBD), as well as the suite of phytocannabinoids naturally present in hemp, including cannabigerol (CBG), cannabidiolic acid (CBDA), cannabinal (CBN), cannabichromene (CBC), and cannabidivarin (CBDV), to support the “entourage effect.”*

To enhance the unique entourage effect of a full spectrum extract, we retain a level of Δ9 tetrahydrocannabinol (THC) naturally present in hemp grown under the 2018 Farm Bill regulations.¹ While this amount of THC (<0.3%) is far below psychoactive levels, it is sufficient to support cannabinoid receptors.²

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

| Supplement Facts | | |
|---|--------------------|---------------|
| Serving Size: 2 mL (4 Pumps) Servings Per Container: 25 | | |
| | Amount Per Serving | % Daily Value |
| Full Spectrum Hemp Extract (aerial parts) | 21mg | ** |
| Cannabidiol | 16mg | ** |
| **Daily Value not established | | |
| Other Ingredients: Water, glycerin, ethanol, tocopherol, phospholipids (from purified sunflower seed lecithin), natural citrus oils, DeltaGOLD [®] tocotrienols, natural flavoring | | |

EDUCATION CANNABIS AND THE ENDOCANNABINOID SYSTEM

Humans have turned to medicinal plants for over 60,000 years, according to archeological records,³ and over 20,000 medicinal plants have been inventoried by the World Health Organization.⁴ Yet few offer such a cornucopia of healing molecules as the flowers, stems, seeds and leaves of the hemp plant, Cannabis. As a member of the Cannabis family, hemp has been called a medicinal plant of unparalleled versatility,⁵ a global homeostatic regulator.

Cannabis contains over a hundred unique, bioactive cannabinoids that are capable of modulating our neuroendocrine and immune system.^{6,7,8}

The isolation and discovery of psychoactive THC in 1964, at Hebrew University of Jerusalem,⁹ led to a decades-long race to discover the receptors it might act upon, and ultimately led to the discovery of our unique endocannabinoid system (ECS).¹⁰ We now know that our ECS features two main receptors—CB1, found in 1990,¹¹ and CB2, found in 1993,¹² although other receptors likely also play a role.^{13,14,15} CB1 is widely distributed in the brain and central nervous system¹⁶ while CB2 is found abundantly in the immune system, in cells such as leukocytes and macrophages, as well as the spleen, tonsils, thymus, lung and testes.¹⁷ Together, these receptors populate the GI tract, reproductive tract, immune system, arteries, heart, lungs, endocrine glands, and more.¹⁸

Our body produces two unique endocannabinoid lipids to talk to these receptors: anandamide and 2-arachidonoylglycerol.

Anandamide is associated with a joyful mood and was named after the Sanskrit word for bliss.¹⁹ Fatty acids and enzymes that help synthesize and break down endocannabinoids complete the system and its feedback loops.

Cannabinoids can be thought of as travelers

back in time, because they act as retrograde signaling agents. They are produced and released from neurons in order to reduce the activity of a stimulated neuron.²⁰ That stimulated neuron can be excitatory (think of glutamate) or inhibitory (think of GABA). Either way, cannabinoids act retrogradely to suppress neurotransmitter release and transmission, allowing tremendous balancing and homeostatic ability.²¹

In recent years, an astonishingly broad influence of cannabinoids—both endogenous and plant-based—on multiple receptors and pathways has been documented. Cannabinoids may impact opioid, GABA, adenosine, and serotonin receptors.^{22,23,24,25,26} Other significant molecular targets include glycine receptors and peroxisome proliferator-activated receptors (PPARs), which play an essential role in cellular differentiation, development, and metabolism.^{27,28}

Our built-in ECS is critical for bioregulation throughout the body, affecting appetite, pain, mood, memory, cognition, analgesia, immune function, sleep, motivation, emotions, and more.²⁹ In essence, cannabinoids allow us to relax, eat, sleep, forget and protect.³⁰ When our cannabinoid signaling is in balance, we experience optimal endocannabinoid tone and whole-body health.³² “Free radicals are the friction of life,” says biologist Robert Melamede of the University of Colorado, “Endocannabinoids are the oil of life.”³²

PHYTOCANNABINOID: A POTENT FAMILY OF MOLECULES ENSURING HOMEOSTASIS

The range of effects of the phytocannabinoids suggests broad applicability in their therapeutic action. THC, cannabidiol and numerous other phytocannabinoids have the remarkable ability to shift activity of more than 1000 human genes, increasing our cellular antioxidant defenses

as well as downregulating many pro-inflammatory mediators.³³ THC is an agonist—stimulating activity of both CB1 and CB2 receptors. Cannabidiol is thought to be an antagonist that downregulates receptor activity. However, CBD powerfully supports anandamide by inhibiting the enzyme that breaks down this “bliss molecule”. Together, a range of phytocannabinoids may offer an elegant entourage effect,³⁴ potentiating benefits while modulating potential adverse effects. For instance, CBD helps modulate some of the psychoactive impact of THC; conversely, a little THC to upregulate CB receptors is thought to render cannabidiol more effective.³⁵

Phytocannabinoids play a significant role in modulating inflammation, pain, appetite, sleep, mood, insulin sensitivity, fat and energy metabolism, and also impact neurologic and immune conditions.^{36,37,38} Phytocannabinoids may act as neuroprotective antioxidants, superior to alpha-tocopherol and ascorbate in preventing glutamate toxicity.³⁹ CBD in particular has been shown to regulate cell proliferation and differentiation through DNA methylation.⁴⁰

TERPENOID, CANNABINOID, AND BETA-CARYOPHYLLENE

Terpenoids, or terpenes, are aromatic compounds found in plants and essential oils⁴¹ with unique therapeutic effects. Terpenoids typically found in Cannabis include limonene, myrcene, a-pinene, linalool, beta-caryophyllene, caryophyllene oxide, nerolidol, and phytol. They may contribute to the entourage effect, serving as agonists to the CB2 receptor.⁴² Beta-caryophyllene is the terpene most commonly found in Cannabis and is present in other plants and herbs. It binds directly to the CB2 receptor, as a selective full agonist, and was described in 2008 as a “dietary cannabinoid.”⁴⁴

LIPOSOMAL GABA WITH L-THEANINE

Category: CALMING + SLEEP • COGNITIVE SUPPORT



Calm & Focus

SKU: Q-1007

SIZE: 50 ML

Liposomal GABA with L-Theanine combines a highly bioavailable form of GABA, the body's primary inhibitory neurotransmitter, with the green tea-based compound L-theanine for optimal parasympathetic nervous system support, helping your patients achieve calm and relaxation amidst our frenetic world.*

TESTED ALLERGEN FREE • TESTED DAIRY FREE • TESTED GLUTEN FREE • TESTED NON-GMO
TESTED SOY PROTEIN FREE • VEGAN

Supplement Facts

Serving Size: 2 mL (4 Pumps)
Servings Per Container: 25

| | Amount Per Serving | % Daily Value |
|---|-----------------------|------------------|
| GABA (Gamma Amino Butyric Acid) | 250mg | ** |
| L-Theanine | 100mg | ** |
| Phosphatidylcholine (from highly purified phospholipids) | 134mg | ** |

**Daily Value not established

Other Ingredients: Water, glycerin, ethanol, tocopherol, natural mixed tocopherols

EDUCATION

SOOTHE AND PROTECT THE MIND WITH BIOAVAILABLE GABA

GABA (gamma-aminobutyric acid) is produced by neurons in the brain and the gastrointestinal tract, and functions as the body's principal inhibitory neurotransmitter.^{1,2} GABA balances the autonomic nervous system, inhibiting the sympathetic "fight-or-flight" response and enhancing the parasympathetic "rest-and-digest" response. Many pharmacological agents, including benzodiazepines, exert anxiolytic, analgesic, anticonvulsant, and sedative effects by modulating GABA receptor activity and increasing GABA availability.^{3,4}

Persistent stress induces an imbalance in excitatory and inhibitory neurotransmission, reducing GABA signaling and creating a vicious cycle of anxiety.⁵ GABA signaling may

also decrease with age, leading to cognitive impairment.⁶ Supplemental GABA has been found to reduce stress and improve heart rate variability, a measure of autonomic nervous system balance.⁷ It also alleviates anxiety and improves sleep quality.⁸ Fascinatingly, GABA-loaded liposomes may also represent a promising therapy for the treatment of neurological diseases, such as Alzheimer's disease.⁹

L-THEANINE: A POTENT ANTI-STRESS INGREDIENT IN GREEN TEA

L-Theanine is an amino acid analogue derived from L-glutamate and L-glutamine that is found in high amounts in green tea. Clinical research indicates that L-theanine offers potent anti-stress effects, without causing drowsiness, and supports a positive mood and relaxation.^{10,11} In fact, L-theanine is proposed to be the reason why green tea-drinking monks experience such extraordinary calm and focus!

Research indicates that L-theanine exerts these effects by increasing alpha-wave activity in the brain, inhibiting excitatory glutamate neurotransmission, and modulating levels of serotonin, dopamine, and GABA in the central nervous system.^{12,13,14}

More recently, L-theanine has been revealed to have potent neuroprotective properties. It boosts levels of brain-derived neurotrophic factor (BDNF) and enhances long-term potentiation, a strengthening of neuronal synapses based on recent activity that is critical in learning and memory.^{15,16}

GABA AND L-THEANINE: BETTER TOGETHER

When it comes to inducing calm and relaxation, GABA and L-theanine work synergistically together. The compounds swiftly balance parasympathetic nervous system activity, supporting deep rest and relaxation. In fact, research has found that the synergistic combination of GABA and L-theanine dramatically decreases sleep latency while increasing deep, restorative non-REM (NREM) sleep.¹⁷

GABA AND L-THEANINE BIOAVAILABILITY

The bioavailability of L-theanine is limited to approximately 47 to 54 percent in ingested capsules and green and black tea, making high doses of L-theanine necessary to achieve therapeutic benefits.^{13,12} Furthermore, conventional oral forms of GABA do not readily cross the blood-brain barrier.⁸ Liposomal delivery systems may improve the bioavailability of GABA and L-Theanine, allowing these nutraceuticals to produce quick and powerful calming effects.¹⁸

LIPOSOMAL GLUTATHIONE

Category: DETOX • IMMUNE HEALTH • LONGEVITY



Master Detoxifier

SKU: Q-1005

SIZE: 50 ML

Liposomal Glutathione is OPITAC™ reduced L-Glutathione (GSH), a tripeptide consisting of glutamic acid, cysteine, and glycine. Known as our body's master antioxidant, Liposomal Glutathione is an ally in detoxification, healthy aging, and immunity.*

TESTED ALLERGEN FREE • TESTED DAIRY FREE • TESTED GLUTEN FREE • TESTED NON-GMO
TESTED SOY PROTEIN FREE • VEGAN

| Supplement Facts | | |
|--|--------------------|---------------|
| Serving Size: 1 mL (2 Pumps) Servings Per Container: 50 | | |
| | Amount Per Serving | % Daily Value |
| Opitac™ Glutathione | 100mg | ** |
| Phosphatidylcholine (from purified sunflower seed lecithin) | 75mg | ** |
| **Daily Value not established | | |
| Other Ingredients: Water, glycerin, ethanol, tocopherol, natural citrus and mint oils | | |

EDUCATION

SUPPORTS ALL THREE PHASES OF DETOXIFICATION

Glutathione is the body's master detoxifier and most potent endogenous antioxidant.¹ Glutathione offers comprehensive antioxidant protection, binding to a wide array of damaging molecules, including reactive oxygen species (ROS), lipid peroxides, xenobiotics, pesticides, mycotoxins, oxidized vitamin E, oxidized vitamin C, methylmercury, medications, heavy metals, and other harmful substances. Glutathione serves as an essential cofactor for critical and powerful antioxidant enzymes including superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPX), glutathione reductase (GR) and glutathione-s-transferase (GST).² Glutathione also helps regenerate the antioxidants vitamin C and vitamin E.³ Glutathione offers potent protection inside the

mitochondria, our cells' energy powerhouses; is critical to our immune system function, helps dampen inflammation; is a key player in autoimmunity; and may confer protection from cancer, heart disease and Alzheimer's disease.^{4,5,6,7,8,9}

Glutathione is present in every single cell of our bodies—at surprisingly high levels equal to that of glucose, potassium or cholesterol.⁹ Concentrations are five to ten times higher in hepatocytes than other cells as the liver is constantly processing and removing toxins.¹⁰

Strengthening the glutathione system supports all three phases of detoxification, but in particular phases II and III.¹¹

- **Phase I—Oxidation:** The liver converts a lipid-soluble toxin into a less harmful compound, preparing it for phase II detoxification. This occurs through oxidation, reduction and hydrolysis of substances via cytochrome P450 enzymes.
- **Phase II—Conjugation:** Glutathione binds to the toxin, rendering it water-soluble. This occurs through sulfation, glucuronidation, and glutathione conjugation of toxins.
- **Phase III—Elimination:** Cellular transport and elimination of the conjugated toxin through bile or urine.

Optimal phase II and III detoxification requires the activation of the cellular master switch Nrf2.¹² Nrf2 regulates over 500 genes involved in detoxification.

POTENT ANTI-INFLAMMATORY ACTION AND AUTOIMMUNE SUPPORT

Glutathione is integral to the proper

function of our immune system. In autoimmune diseases, activated neutrophils and chronic inflammation lead to continual production of ROS and oxidative stress.⁶ Altered intracellular levels of reduced glutathione (GSH) have been seen in infections and autoimmune disease, along with immune activation and inflammation.¹³ The two arms of the immune system, TH1 and TH2, are regulated by intracellular glutathione levels, and even a modest increase in intracellular glutathione (GSH) and glutathione disulfide (GSSG) levels potentiates the immune action of lymphocytes.^{14,15} Reduced levels of GSH have been linked with lupus, rheumatoid arthritis, autoimmune thyroiditis, cataracts, and aging.^{16,17,18,19,20,21,22,23}

CONJUGATES AND ELIMINATES MYCOTOXINS, METHYLMERCURY AND OTHER NEUROTOXINS

Glutathione plays an essential role in defending us from mercury toxicity. Mercury is a potent biological toxin that is present in auto pollution, fish, dental amalgam, vaccines, and contaminated air and water. Glutathione targets and binds methylmercury and prevents it from penetrating the cell, thereby reducing inflammation and protecting against oxidative damage.²⁵ Glutathione is also critical in conjugating and eliminating other heavy metals, such as arsenic.²⁶

PROTECTS THE HEART AND BRAIN

Glutathione is the most abundant antioxidant in the heart. Lowered levels play an important role in the development of cardiovascular diseases, and have been found in patients

with coronary artery disease.²⁹ Depressed glutathione synthesis can lead to atherogenesis (fatty plaques) and is also associated with hypertension.³⁰ In contrast, an increased level of intracellular glutathione is correlated with lower blood pressure and a decreased incidence of diabetes.³¹ In addition, glutathione is a key antioxidant for the mitochondria, which are more abundant in heart muscle than any other tissue in the body.⁵

Just as glutathione protects the heart, it can be neuroprotective and help support brain function. Neurodegenerative diseases are linked to increased mitochondrial oxidative stress, and lowered levels of mitochondrial glutathione.³² The increased oxidative stress noted in Alzheimer's disease and mild cognitive impairment has been attributed to lowered levels of glutathione in the brain.^{34,35}

LIPOSOMAL GLUTATHIONE IS IN THE FOLLOWING PROTOCOL SYSTEMS:

- Bio-Age Activate
- Advanced PushCatch® Detoxification System
- Black Box® II

LIPOSOMAL GLUTATHIONE COMPLEX

Category: DETOX • IMMUNE HEALTH • LONGEVITY



Advanced
Detox Blend

SKU: Q-1060

SIZE: 100 ML

Glutathione Complex is an advanced liposomal formula that blends glutathione, the body's master antioxidant, with B complex vitamins, trimethylglycine (TMG), and milk thistle seed extract for optimal support of high-level detoxification.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

| Supplement Facts | | |
|--|-----------------------|------------------|
| Serving Size: 5 mL (1 tsp.) Servings Per Container: 20 | Amount Per Serving | % Daily Value |
| Thiamin (Vitamin B1) (Thiamine HCl) | 12mg | 1000% |
| Riboflavin (as Riboflavin-5-Phosphate) | 3.6mg | 277% |
| Niacin (as Niacin, Niacinamide) | 10mg | 63% |
| Vitamin B6 (as Pyridoxine HCl) | 6.7mg | 394% |
| Folate (as Calcium Folate) | 850mcg DFE | 213% |
| Vitamin B12 (as Methylcobalamin) | 500mcg | 20833% |
| Biotin | 500mcg | 1667% |
| Pantothenic acid (as Calcium d-Pantothenate) | 22.5mg | 450% |
| Glutathione | 325mg | ** |
| Trimethylglycine (as betaine) | 20mg | ** |
| Milk Thistle Seed Extract | 57.5mg | ** |
| Phospholipids (from highly purified phospholipids) | 330mg | ** |
| **Daily Value not established | | |
| Other Ingredients: Water, glycerin, ethanol, tocopherols, medium chain triglycerides, EDTA (as preservative), natural plant flavoring (no MSG), natural mixed tocopherols, natural citrus and mint oils | | |

EDUCATION

GLUTATHIONE SUPPORTS ALL THREE PHASES OF DETOXIFICATION

Glutathione is present in every single cell of our bodies—at surprisingly high levels equal to that of glucose, potassium or cholesterol.¹ Concentrations are five to ten times higher in hepatocytes than other cells as the liver is constantly processing and removing toxins.²

Glutathione offers comprehensive, broad spectrum antioxidant protection³, binding to a wide array of damaging molecules, including reactive oxygen species (ROS), lipid peroxides, xenobiotics, pesticides, mycotoxins, oxidized vitamin E, oxidized vitamin C, methylmercury, medications, heavy metals, and other harmful substances. Glutathione also provides potent protection inside the mitochondria, our cells' energy powerhouses; is critical to our immune system function, helps dampen inflammation; is a key player in autoimmunity; and may confer

protection from cancer, heart disease, and Alzheimer's disease.^{4,5,6,7,8}

Strengthening the glutathione system supports all three phases of detoxification, but in particular phases II and III.⁹

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- **Phase II—Conjugation:** Glutathione binds to the toxin, rendering it water soluble. This occurs through sulfation, glucuronidation, and glutathione conjugation of toxins.
- **Phase III—Elimination:** Cellular transport and elimination of the conjugated substances through bile or urine.

Optimal phase II and III detoxification requires the activation of the cellular master switch Nrf2.¹⁰ Nrf2 regulates over 500 genes involved in detoxification.

GLUTATHIONE EXERTS POTENT ANTI-INFLAMMATORY ACTION AND AUTOIMMUNE SUPPORT

Glutathione is integral to the proper function of our immune system. Altered intracellular levels of reduced glutathione (GSH) have been seen in infections and autoimmune disease, along with immune activation and inflammation.¹¹ The two arms of the immune system, TH1 and TH2, are regulated by intracellular glutathione levels, and even a modest increase in intracellular glutathione (GSH) and glutathione disulfide (GSSG) levels potentiates the immune action of lymphocytes.^{12,13} Reduced levels of GSH have been linked with lupus, rheumatoid arthritis, autoimmune

thyroiditis, cataracts, and aging.^{14,15,16,17,18,19,20,21} Supplementing glutathione improves markers of immune function.²²

GLUTATHIONE CONJUGATES AND ELIMINATES MYCOTOXINS, METHYLMERCURY AND OTHER NEUROTOXINS

Glutathione plays an essential role in defending us from mercury toxicity. Mercury is a potent biological toxin that is present in auto pollution, fish, dental amalgam, vaccines, and contaminated air and water. Glutathione targets and binds methylmercury and prevents it from penetrating the cell, thereby reducing inflammation and protecting against oxidative damage.²³ Glutathione is also critical in conjugating and eliminating other heavy metals, such as arsenic.²⁴

Chronic exposure to mycotoxins from mold can decrease levels of the enzymes needed to form glutathione, leading to compromised glutathione production and tissue damage or systemic illness.²⁵ Liposomal glutathione has been reported to be beneficial in the management of mycotoxin-related conditions.²⁶

GLUTATHIONE PROTECTS THE HEART AND BRAIN

Glutathione is the most abundant antioxidant in the heart. Lowered levels play an important role in the development of cardiovascular diseases, and have been found in patients with coronary artery disease.²⁷ Depressed GSH synthesis can lead to atherogenesis (fatty plaques) and is also associated with hypertension.²⁸ In contrast, an increased level of GSH is correlated with lower blood pressure and a decreased incidence of diabetes.²⁹ In addition, glutathione is a key antioxidant for the mitochondria, which are more abundant in heart muscle than any other tissue in the body.⁷

Just as glutathione protects the heart, it can be neuroprotective and help support brain function. Neurodegenerative diseases are linked to increased mitochondrial oxidative stress, and lowered levels of mitochondrial glutathione.³⁰ The increased oxidative stress noted in Alzheimer's disease and mild cognitive impairment has been attributed to lowered levels of glutathione in the brain.^{31,32}

MILK THISTLE AND BETAINES SUPPORT LIVER FUNCTION & DETOXIFICATION

Disturbances in glutathione homeostasis correlate with liver diseases induced by drugs, alcohol, diet and environmental toxins. Not surprisingly, glutathione is present in high levels in the liver.³³ Milk thistle (*Silybum marianum*) has been used as an herbal remedy for 2000 years, in particular for treatment of hepatobiliary diseases.³⁴ Milk thistle contains three potent flavonolignans together known as silymarin. Silymarin can prevent the absorption of harmful compounds into the liver's hepatocytes and may protect against liver injury due to chemical and environmental compounds. It has a beneficial effect on bile flow and novel anticholestatic properties.³⁵ Laboratory and animal studies show that silymarin boosts glutathione levels.^{36,37}

Betaine is synthesized in the liver and kidney, where it is abundant, and supports both liver and kidney function.^{38,39} Betaine has been shown to improve conditions ranging from diabetes to obesity and Alzheimer's disease.⁴⁰ Betaine is widely found in foods and is well tolerated in supplement form.⁴¹

B VITAMINS FUEL CELLULAR METABOLISM

B vitamins are critical to overall health and wellbeing. They serve as cofactors for enzymatic reactions, and are necessary for gene expression, oxidation and reduction, energy metabolism, methylation, DNA repair, immune function, detoxification, and mitochondrial function.⁴² Our B-Complex includes the active form of B2 (riboflavin 5'-phosphate), B6 (pyridoxine hydrochloride), folate (as folic acid), and MethylB12, as well as B1, B3, B5 and biotin. These provide the building blocks for healthy, balanced methylation and detoxification.⁴³

GLUTATHIONE COMPLEX IS IN THE FOLLOWING PROTOCOL SYSTEMS:

- MerProtect® Protocol
- Qube® 2.0 Professional Detoxification System
- Dr. Jill's Miracle Mold Detox
- Bio-Age Reset

TABLETS
H2 ELITE®

Category: **CARDIOMETABOLIC • DETOX • PERFORMANCE**



Molecular Hydrogen

SKU: Q-1122 • Q-1045

SIZE: 30 TABLETS

SIZE: 60 TABLETS

H2 Elite® features a high dose of molecular hydrogen, a selective antioxidant that aids cellular detoxification, healthy brain function and metabolism, and a balanced inflammatory response. H2 Elite® hydrogen tablets dissolve rapidly in a glass of water, offering fast-acting and portable antioxidant support.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • VEGAN

| Supplement Facts | | |
|---|---------------------------|----------------------|
| Serving Size: 1 Tablet Servings Per Container: 30 or 60 | | |
| | Amount Per Serving | % Daily Value |
| Magnesium | 80mg | 19% |
| **Daily Value not established | | |
| Other Ingredients: Proprietary Hydrogen Matrix (malic acid, dextrose, tartaric acid, adipic acid, sodium stearyl fumarate) | | |

EDUCATION

MOLECULAR HYDROGEN SUPPORTS ANTIOXIDANT HOMEOSTASIS

Balancing oxidation and reduction is the fundamental challenge of life. Molecular hydrogen is unlike other antioxidants with broad reductive reactivity that may also impair essential defense mechanisms.¹ Molecular hydrogen is a potent, selective antioxidant that quenches the most cytotoxic, harmful hydroxyl free radicals while sparing important oxidants that assist in cell signaling, and fight microbes, pathogens, and other bodily irritants.^{2,3,4}

Molecular hydrogen delivered to the body rapidly forms tiny bubbles that pass easily through cellular and organelle membranes and the blood brain barrier, offering potent antioxidant and anti-inflammatory action to the entire body. Molecular hydrogen neutralizes highly oxidizing hydroxyl (OH) and peroxynitrite (ONOO-) radicals

in living cells and penetrates biomembranes, diffusing across cell membranes to reach the cell's nuclear DNA as well as mitochondria.⁵ Mitochondria are a major intracellular source of reactive oxygen species that can harm the cell.^{6,7,8} At the same time, molecular hydrogen spares other important oxidizing molecules such as hydrogen peroxide or superoxide.⁴

MOLECULAR HYDROGEN MODULATES INFLAMMATION AND STIMULATES REPAIR

In animal studies, molecular hydrogen has been found to have a significant therapeutic effect on cerebral infarction (stroke), myocardial infarction (heart attack), and ischemia-reperfusion injuries (including organ transplantation).^{15,16,17,18} In fact, Nature Medicine published a news and views editorial in 2007 stating: "Hydrogen gas debuts as a selective antioxidant with explosive potential as cytoprotective therapy for ischemia-reperfusion injury and stroke."¹⁹ Further animal studies have found that hydrogen water prevented the development of Parkinson's disease²⁰, liver injury and fatty liver^{21,22}, skin damage induced by UV radiation^{23,24}, arthritis²⁵, neuropathic pain²⁶, Alzheimer's disease²⁷ and numerous other conditions.²⁸ In humans, metabolic syndrome has responded to hydrogen by improving LDL levels and HDL function.²⁹

Hydrogen water may benefit athletes, lowering levels of blood lactate, increasing stamina and decreasing muscle fatigue.³⁰ It is possible, indeed, that molecular hydrogen may benefit every organ of the human body by mitigating oxidative stress and inflammation.*

MOLECULAR HYDROGEN AS AN EXERCISE MIMETIC & ERGOGENIC AID

Exercise-induced increases in pro-inflammatory molecules, such as reactive oxygen species (ROS), largely mediate the beneficial physiological effects of exercise. However, when ROS production exceeds the body's capacity to neutralize these compounds, inflammation and cellular damage can occur. Untrained, sedentary individuals or "weekend warriors" who only exercise sporadically are particularly susceptible to the damaging effects of exercise-induced ROS production, as this haphazard approach to exercise prevents the body from effectively adapting to exercise and consistently upregulating antioxidant production. Molecular hydrogen may represent an effective solution to this problem by acting as an "exercise mimetic," a compound that induces physiological benefits similar to those seen with exercise.*

As an exercise mimetic, hydrogen acutely upregulates several pro-inflammatory pathways, including NF-kB and IL-6. However, the initial spike in pro-inflammatory signaling is followed by a sustained activation of beneficial anti-inflammatory, pro-survival signaling pathways and proteins,

including mitochondrial biogenesis, ATP production, heat shock proteins, and sirtuins. This pattern closely resembles the pattern of biochemical signaling provoked by exercise. The exercise mimetic effects of molecular hydrogen may make it a beneficial intervention for those who are unable to engage in a consistent exercise routine due to factors such as disability or old age.*

Molecular hydrogen is also a beneficial supplement for trained individuals, including hard-charging elite athletes by acting as an ergogenic aid.³¹ By restoring redox homeostasis, it may enhance exercise performance and training-induced adaptations, which are partly mediated by ROS, while simultaneously reducing the risk of overtraining-associated inflammation and injury.

H2 ELITE IS IN THE FOLLOWING PROTOCOL SYSTEMS:

- 30-Day Reset Program

NANOFORMULATED
HISTA-AID®

Category: **DETOX • IMMUNE HEALTH**



Seasonal Relief Formula

SKU: Q-1088

SIZE: 50 ML

Hista-Aid® is a novel nanoformulated blend of vitamin C, quercetin, luteolin, and diindolylmethane (DIM), designed to support healthy immune function and balanced histamine levels. Appropriate for acute or preventative needs, a four pump dose can be taken multiple times daily for fast relief.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

| Supplement Facts | | |
|--|--------------------|---------------|
| Serving Size: 2 mL (4 Pumps) Servings Per Container: 25 | | |
| | Amount Per Serving | % Daily Value |
| Vitamin C (from European Sodium Ascorbate) | 170mg | 189% |
| Sodium | 22mg | <1% |
| Quercetin dihydrate | 16mg | ** |
| Luteolin extract | 20mg | ** |
| Proprietary Blend Highly purified phospholipids, Diindolylmethane | 120mg | ** |
| **Daily Value not established | | |
| Other Ingredients: Glycerin, water, ethanol, tocopherol, medium-chain triglycerides, natural citrus oils, natural mixed tocopherols | | |

EDUCATION

HISTAMINE IS A UNIQUE AND QUINTESSENTIAL MEDIATOR

Allergic reactions to insect bites, dust, molds, foods, pollens and medications have been steadily rising for the last fifty years.¹ Inhalant allergies afflict 30% of adults and 40% of children in the US.² Ten percent of adults now suffer from food allergies, with nearly half having severe reactions.³ Not surprisingly, antihistamine medications have been popular for over sixty years.⁴

Though histamine is best known for its impact on allergies and allergic symptoms such as rhinitis and urticaria, it is actually a broad and quintessential mediator that helps modulate the innate and adaptive immune response, systemic inflammation, gastric acid secretion, and a cascade of inflammatory molecules and cytokines in the body.^{5,6} Histamine can function

as a neurotransmitter with widespread influence on the CNS, modulating circadian rhythm and arousal.⁷ It is a vasoactive amine, orchestrating vasodilation, vascular permeability and smooth muscle contraction.⁸ Found primarily in mast cells and released upon mast cell degranulation, histamine binds to four different receptors in the body (H1-H4).⁹

Mast cells themselves have been called multifunctional master cells because they are intimately involved in the allergic response, bacterial and parasite elimination, cardiac and neurologic function and more.¹⁰ Impaired degradation of histamine rich foods, due to reduced DAO activity, may cause many uncomfortable symptoms mimicking an allergic reaction.^{11,12} At an extreme, excess mast cell activity and histamine can lead to mast cell activation syndrome, a multisystem disorder involving the skin, gastrointestinal, cardiovascular, respiratory, and neurologic systems.¹³ Histamine, it is clear, is a molecule with far-reaching impact on the body, which may be one reason why allergies are often comorbid with other conditions, and why bringing histamine into balance treats not only allergies, but improves overall health.^{14,15}

QUERCETIN AND LUTEOLIN BALANCE HISTAMINE LEVELS

The phytonutrients quercetin and luteolin are natural flavonoids that modulate release of histamine from the body's mast cells.^{16,17,18} Quercetin has been shown to modulate activity of NF-KB, cyclooxygenase (COX), lipo-oxygenase (LOX), proteins, enzymes, cytokines and other potentially inflammatory molecules.^{19,20} Quercetin also has the ability to inhibit IgE antibodies including allergens.²¹

Luteolin powerfully inhibits mast cell degranulation as well as the release of histamine from mast cells, lessens mucus production, reduces vascular permeability and diminishes gene activity that increases inflammation.^{22,23} Luteolin may also curb inflammatory molecules including TNF, nitric oxide, inducible nitric oxygen synthase (iNOS), leukotrienes, numerous interleukins, and NF-KB. It scavenges reactive oxygen species (ROS) and activates antioxidant enzymes and interleukin-10, an anti-inflammatory molecule.^{24,25}

VITAMIN C IS A BROAD-ACTING ANTIHISTAMINE AND ANTIOXIDANT

Vitamin C (ascorbate) is widely known as a powerful aqueous-phase antioxidant. It protects against oxidative stress,²⁶ reduces histamine levels,²⁷ aids in the production of diamine oxidase (DAO), the body's key enzyme for breaking down histamine in food.²⁸ Allergic diseases are associated with lower blood levels of ascorbate and oxidative stress plays a significant role in the pathophysiology of asthma.²⁹ In fact, one gram of daily oral vitamin C for sixteen weeks allowed asthma patients to reduce their corticosteroid dose.³⁰ In a separate study, intravenous vitamin C resulted in a significant serum histamine reduction in individuals with allergies or upper respiratory infections.^{31,32} Finally, vitamin C supports diamine oxidase (DAO), the enzyme that metabolizes and inactivates histamine ingested in foods. The ingestion of histamine-rich food can provoke diarrhea, headache, asthma, hypotension, urticarial, pruritus, and flushing. Adding vitamin C can lead to an increase in DAO activity.²⁸

DIM ACTIVATES THE BODY'S MASTER ANTIOXIDANT SWITCH

A key centerpiece of this novel formula is Nrf2 (Nuclear factor erythroid 2-related factor 2) activation, a cellular switch that orchestrates antioxidant, detoxification and cellular defenses.³³ It specifically activates over 200 genes involved in detoxification, encoding cytoprotective proteins that are associated with inflammation, including genes involved in histamine release.^{33,34}

Diindolylmethane (DIM) activates our master antioxidant switch, Nrf2, and supports healthy hormone levels, leading to a more balanced histamine response as well.^{35,36,37,38} By "turning on" the Nrf2 switch, DIM may increase the body's expression of enzymes, transporters, and anti-inflammatory molecules.³⁹ With oral intake, the highest amounts of DIM are found in the liver, followed by the lungs and kidneys.⁴⁰ The liver and kidneys are the organs most burdened by detoxification—and the liver has been shown to play a role in food allergies.⁴¹

NUTRACEUTICALS & LIPOSOMAL TECHNOLOGY

Uptake and absorption of nutraceuticals, including flavonoids and vitamin C, can vary and be limited by breakdown in the digestive tract. Research indicates that liposomal delivery systems may enhance the bioavailability, uptake and action of quercetin, luteolin, and vitamin C.^{42,43,44}



Intestinal Metals Binder

SKU: Q-1001

SIZE: 6 GRAMS

IMD® (Intestinal Metals Detox) Intestinal Cleanse is a thiol-functionalized silica blend that supports the natural elimination of harmful metals through the intestine while balancing antioxidant activity, providing multifaceted support for metals detox.¹ Elimination of toxic metals through the intestine spares the delicate kidneys, which are highly sensitive to the toxic effects of mercury and other heavy metals.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • VEGAN

| Supplement Facts | | |
|--|--------------------|---------------|
| Serving Size: 200mg (about 2 scoops) Servings Per Container: 30 or 45 | | |
| | Amount Per Serving | % Daily Value |
| Silica extract† | 200mg | ** |
| **Daily Value not established | | |
| Other Ingredients: Water, Glycerin, Ethanol, Sodium Hydroxide | | |
| †Proprietary thiol-functionalized silica | | |

For decades, mercury was used as a preservative (thimerosal) in pediatric vaccines and comprised a significant source of exposure for children; today, it has been removed from most pediatric vaccines but remains in more than half of flu shots.³

There are four primary forms of mercury, each with unique environmental sources, bioavailability, and toxicity within the body. These four include Elemental mercury, Inorganic mercury, Methylmercury, and Ethylmercury. Elemental mercury (Hg0) exists primarily in the atmosphere as a liquid or gas released through mining and burning processes, runoff from landfills, and erosion from natural depots. Elemental mercury is also released copiously from dental amalgams⁴. Inorganic mercury (Hg2+) is released from the surface of corroding dental amalgams; its toxic effects are more significant than elemental mercury; however, it also has more limited mobility in the body.

Methylmercury (MeHg) is a form of organic mercury that is lipophilic in nature, meaning it readily crosses lipid-based cell membranes. Over 95 percent of the mercury found in fish is methylmercury, making seafood the most significant source of exposure. Methylmercury is also formed in the gut when gut bacteria react with the metal. Last but not least, ethylmercury is the form of mercury that has been used in vaccines as a preservative.¹⁸

MERCURY HAS TOXIC EFFECTS ON HUMAN PHYSIOLOGY

The adverse health impacts of mercury are extensive, extending across a wide range of cells, tissues, and organs. At a cellular level, mercury triggers the generation of free radicals,

reactive molecules that “steal” electrons from enzymes, proteins, lipids, and genetic material. The free radicals also overwhelm the body’s intrinsic antioxidant capacities, instigating oxidative stress. Oxidative stress elicited by mercury harms the nervous system, cardiovascular system, immune system, and gut, leading to a vast array of adverse health effects. Methylmercury also binds to amino acid structures called cysteinyl residues, allowing it to rapidly enter the central nervous system. This property of methylmercury makes it highly mobile, allowing it to easily cross from the intestine into the systemic circulation, and from the circulation into the brain.^{4,5,6,9,12}

While acute exposure to high levels of mercury is a well-recognized public health threat, chronic low-level exposures remain unaddressed by the medical community at large, despite an overwhelming body of research indicating harmful health effects.

The adverse health impacts of mercury exposure include:

- A shift in immune function towards an autoimmune phenotype⁵
- Oxidative stress in the brain, potentially contributing to neurodegenerative diseases⁶
- Impairments in reproductive function contributing to infertility and an increased risk of miscarriage⁷
- Thyroid dysfunction, including hypothyroidism⁸
- Gut dysfunction, including imbalances in the gut microbiome⁹

Mercury is highly toxic to the human body; however, mercury detoxification must be pursued in a delicate, intelligent way due to its volatility. Thiol-functionalized silica is a gentle yet highly effective tool for safely facilitating detoxification of mercury through the intestines, rather than the fragile kidneys, thereby optimizing whole-body health.*

THE VICIOUS CIRCLE OF INTESTINAL INFLAMMATION AND MERCURY TOXICITY

Mercury is known to trigger intestinal inflammation. Intestinal inflammation, in turn, inhibits the elimination of toxins by downregulating the body’s natural detox pathways. The vicious circle of mercury toxicity and gut inflammation can make successful mercury detoxification elusive. However, the thiol groups in thiol-functionalized silica both bind mercury and offer antioxidant properties that quench intestinal inflammation, creating a functional foundation for successful mercury detox.^{5,8}

CONVENTIONAL MERCURY CHELATION THREATENS THE KIDNEYS

Conventional mercury chelation techniques involve the administration of synthetic chelating agents, such as DMSA and DMPS, that usher mercury out of the body via the kidneys. However, mercury can have significant harmful effects on the kidneys, which are quite delicate in structure and function. For this reason, the gastrointestinal tract is the preferred route of elimination for mercury. Thiol-functionalized silica intervenes in the enterohepatic circulation of mercury, efficiently mopping up this highly toxic metal and safely ushering it out of the body via the stool.¹⁰

Thiol-functionalized silica does not enter the bloodstream and thus does not cause redistribution or surge of mobilized metals in the body that could potentially harm the liver or kidneys. Through these mechanisms, it allows organ and tissue-bound mercury to safely drain into the blood at a natural rate.*

IMD IS IN THE FOLLOWING PROTOCOL SYSTEMS:

- Qube® 2.0 Professional Detox System

EDUCATION

MERCURY: AN EVER-INCREASING HEALTH HAZARD

Mercury is perhaps the most well-recognized toxic heavy metal in our environment and also the most complex! Industrial plants, coal burning, incinerators, and chlor-alkali facilities have historically released copious amounts of mercury into our atmosphere, resulting in widespread mercury contamination of our oceans, soil, and air.

Mercury is also a primary component of dental amalgams, which reside in the teeth of more than 100 million Americans. The act of breathing and eating is enough to release mercury vapor from amalgams, allowing it to enter the lungs and GI tract. Interestingly, exposure to non-native EMFs may also release mercury from dental amalgams.²

NANOFORMULATED IMMUNE CHARGE+®

Category: IMMUNE HEALTH • VITAMINS & MINERALS

Immune Charge+® is a comprehensive blend of vitamins C, A, D, E, K1, K2 and elderberry (Sambucus nigra) formulated to support healthy immune function.* Our nanoformulation supports enhanced absorption of ingredients and is packaged in a 100 mL bottle for flexible dosing.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO

| Supplement Facts | | | | |
|--|--------------------|---------------|--------------------|---------------|
| | Amount Per Serving | % Daily Value | Amount Per Serving | % Daily Value |
| Vitamin A (as Palmitate) | 3125mcg | 347% | 6250mcg | 694% |
| Vitamin C (as Sodium ascorbate) | 833mg | 926% | 1667mg | 1852% |
| Vitamin D (as Cholecalciferol) (D3) | 104mcg (4166 IU) | 520% | 208mcg (8333 IU) | 1040% |
| Vitamin K (as K2 (MK7), K1 (phytonadione)) | 438mcg | 365% | 875mcg | 729% |
| Sodium (as Sodium ascorbate) | 104mg | 5% | 208mg | 9% |
| ElderCraft® European Black Elderberry Extract (Sambucus nigra L.), (1 tsp contains 2.65 grams of black elderberry herb equivalent) | 83mg | ** | 167mg | ** |
| DeltaGOLD® Tocotrienols | 16.5mg | ** | 33mg | ** |

****Daily Value not established**

Other Ingredients: Water, glycerin, ethanol, phospholipids (from purified sunflower seed lecithin), tocopherol, citric acid, natural citrus oils

| Supplement Facts | | |
|---|--------------------|---------------|
| | Amount Per Serving | % Daily Value |
| Vitamin A (as Palmitate) | 7500mcg | 833% |
| Vitamin C (as Sodium ascorbate) | 2000mg | 2222% |
| Vitamin D (as Cholecalciferol) (D3) | 250mcg (10000 IU) | 1250% |
| Vitamin K (as K2 (MK7), K1 (phytonadione)) | 1050mcg | 875% |
| Sodium (as Sodium ascorbate) | 250mg | 11% |
| ElderCraft® European Black Elderberry Extract (Sambucus nigra L.), (contains 6.4 grams of black elderberry herb equivalent) | 200mg | ** |
| DeltaGOLD® Tocotrienols | 40mg | ** |

****Daily Value not established**

Other Ingredients: Water, glycerin, ethanol, phospholipids (from purified sunflower seed lecithin), tocopherol, citric acid, natural citrus oils

EDUCATION

VITAMIN C

Supports Barrier Integrity

The epithelial cells of the skin, lungs, and gastrointestinal tract serve as a first-line defense against microbial invaders, including viruses responsible for respiratory infections such as colds and the flu. Vitamin C supports epithelial barrier integrity, enhancing the function of these fundamental defense systems.¹

Antioxidant Properties

Vitamin C is a potent reducing agent, meaning it readily donates electrons to electron-deficient recipient molecules (also referred to as free radicals), stabilizing their biochemical structure and inhibiting a chain reaction of oxidative stress. Vitamin C's ability to terminate these harmful chain reactions makes it one of the body's most crucial antioxidants. In fact, vitamin C is the body's primary non-enzymatic, water-soluble antioxidant in blood plasma and tissues.

Vitamin C also boosts the activity of other antioxidants vital to the immune system. It recycles the fat-soluble antioxidant vitamin E and increases endogenous levels of glutathione, the body's premier antioxidant that also fine-tunes the innate immune response to viral infections.^{5,6,7}

Vitamin C Inhibits Virus-Induced Inflammation

Viruses activate the NLRP3 inflammasome, a multiprotein complex that plays a crucial role in innate immunity and the production of pro-inflammatory cytokines.¹¹ Excessive NLRP3 activation contributes to a phenomenon called a "cytokine storm," an overproduction of immune cells and their activating products, cytokines. Cytokine storms occur in the end stages of severe infections, causing symptoms such as acute lung inflammation and fluid buildup in

the lungs. Vitamin C inhibits the NLRP3 inflammasome¹³ and may thus help inhibit virus-induced inflammation.

Vitamin C Supports the Antiviral Immune Response

Finally, vitamin C is an essential factor in the antiviral immune response to viral respiratory infections, such as influenza H3N1, through increased production of interferon- α/β .¹⁵ It also stimulates phagocytosis, neutrophil chemotaxis, and T cell development and maturation, crucial processes for fighting pathogenic bacteria and viruses.¹⁶

VITAMIN A

Vitamin A maintains epithelial barriers in the human body, including the epithelial lining of the lungs and the gut mucosa, where a significant portion of the immune system resides. Vitamin A deficiency compromises immunity in the lungs, rendering them more susceptible to respiratory infections.^{17,18} Vitamin A deficiency also impairs the immune response to intranasal vaccination for respiratory syncytial virus (RSV), a human virus that causes respiratory infections, thus suggesting that this nutrient is crucial for the development of the host immune response to envelope viruses.¹⁹ Altered vitamin A metabolism is also suspected to play a role in the pathogenesis of influenza.²⁰

Conversely, vitamin A sufficiency, and supplementation reduce susceptibility and mortality in numerous preclinical and clinical models of viral infection. In preclinical research, animals fed vitamin A-deficient diets suffer from more severe coronavirus infections than those fed vitamin A-sufficient diets.²¹ High-dose supplemental vitamin A also enhances the immunoglobulin response to influenza A virus.²²

Finally, vitamin A supports immune homeostasis by activating immune cells when they are needed to combat infectious threats while attenuating excessive inflammation.²³

VITAMIN D

Vitamin D has pleiotropic benefits for immunity. Vitamin D receptors (VDR) are present on most immune cells, indicating their indispensability as components of the immune system.²⁴ Vitamin D deficiency has repeatedly been independently associated with an increased risk of viral infections.²⁵

Vitamin D modulates both the innate and adaptive immune responses to respiratory viruses.²⁵ In the presence of viral infection, lung epithelial cells convert inactive vitamin D into the active form, increasing the expression of a peptide called cathelicidin, which has antiviral effects.²⁶ Vitamin D also modulates the immune response to respiratory viruses and protects the lungs from damage caused by pro-inflammatory LPS.²⁷

VITAMIN E

Vitamin E is a fat-soluble antioxidant that protects the polyunsaturated fatty acids in cell membranes from oxidative damage, which can be triggered by microbial infections. It

increases white blood cell proliferation, immunoglobulin levels, natural killer cell activity, and antibody activity, thus supporting broad-spectrum immune function.^{28,29,30}

VITAMINS K1 AND K2

Vitamins K1 and K2 are fat-soluble vitamins that work in synergy with vitamins A, D, and E to support healthy immune function. Vitamin K1 (phylloquinone) has anti-inflammatory properties through inhibition of the NF- κ B pathway.³¹ Vitamin K2 modulates the immune system, decreasing immune reactivity and helping to manage the inflammatory response.³²

ELDERBERRY

Elderberry is a small dark purple berry that has been used for centuries in traditional herbalism as an aid to the immune system.

Elderberry Supports Antiviral and Antibacterial Activity

Elderberry has direct antiviral activities, demonstrating mild inhibitory effect at the early stage of viral infection and a considerably stronger response in the later stages of infection.³³

Elderberry has the ability to target viruses through multiple pathways making it unlikely to trigger antiviral resistance, a common problem with other antiviral options.³⁴ Given these findings, it is no surprise that a meta-analysis of RCTs found elderberry supplementation effective for the treatment of upper respiratory symptoms, which are frequently caused by viruses.³⁵ In fact, one study found that overseas travelers using elderberry for 10 days before traveling and up to 5 days after arriving experienced a 2-day shorter duration of the cold (on average), along with noticing a reduction in symptom severity.³⁶

Elderberry Offers Immunomodulatory Properties

Elderberry is an immune modulator, enabling a robust immune response while inhibiting excessive inflammation. Elderberry also coordinates a more efficient immune response by mobilizing antiviral innate immune defenses, including the release of the cytokines IL-6 and IL-8.³³ The antioxidant anthocyanins found in elderberry may quench excessive inflammation triggered by a viral infection and promote the growth of beneficial gut bacteria, many of which have immune-enhancing properties.^{38,39,40}

Elderberry Beneficially Alters Cellular Redox State

Finally, elderberry also fine-tunes the cellular redox state, or the balance between reactive oxygen species (ROS), reactive nitrogen species (RNS), and their scavenging by antioxidant compounds. The cellular redox state plays a critical role in the immune defense against viral invaders.⁴¹



Vitamins C, D, A, E, and K with Haschberg Elderberry

SKU: Q-1151

SIZE: 100 ML



SKU: S-3049

SIZE: BOX OF 12 / 12 ML

NANOEMULSION IMMUNE CHARGE+® THROAT SPRAY

Category: IMMUNE HEALTH • VITAMINS & MINERALS



Immune Charge+® Throat Spray is a synergistic blend of the essential mineral zinc complexed with the flavonoids quercetin, luteolin, and propolis. Our zinc throat spray is designed to support effective cellular uptake of zinc in the throat and upper respiratory tract for healthy immune function during travel and when exposure to external immune threats is unavoidable.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGETARIAN

| Supplement Facts | | |
|---|--------------------|---------------|
| Serving Size: 0.54 mL (3 Pumps) Servings Per Container: 24 | | |
| | Amount Per Serving | % Daily Value |
| Zinc (as Zinc Acetate) | 0.5mg | 5% |
| Proprietary Zinc Complex | 12mg | ** |
| Phospholipids (from sunflower seed lecithin), Zinc Acetate, Quercetin Dihydrate (from Sophora japonica flower), Luteolin extract, Propolis extract | | |
| **Daily Value not established | | |
| Other Ingredients: Glycerin, water, ethanol, tocopherol, medium chain triglycerides, natural mint oils, natural citrus oils, natural mixed tocopherols | | |

EDUCATION

THE ROLE OF ZINC IN IMMUNITY & THE SCIENCE OF ZINC IONOPHORES

Zinc is an essential micronutrient in the human diet that is critical for healthy immune function.¹ Zinc is crucial for the normal development of cells within the innate immune system, which comprises the body's frontline defenses against microbial invaders.² Cytokine production is also significantly influenced by zinc availability, with zinc insufficiency compromising cytokine mobilization in response to pathogens.

Within cells, most zinc cations are bound to proteins, acting as enzymatic cofactors or structural components of proteins. A minority of zinc is present as free, or "labile," zinc, present in its free ionic form or loosely bound to proteins. Labile zinc acts as a second messenger molecule, modulating numerous

signaling pathways, including those involved in immune function.

Mammalian cells contain an array of zinc transporters from the Znt and ZIP transporter "families" that transport zinc from the extracellular milieu into the cell itself. However, cutting-edge research indicates that zinc's immunity-enhancing properties exponentially increase when delivered as a zinc ionophore. This chemical compound reversibly binds zinc ions, transporting zinc across cell membranes independently of zinc transporters.

What substances in nature act as zinc ionophores? Quercetin, a plant flavonoid found in onions, green tea, apples, and berries, demonstrates remarkable zinc ionophore activity. It chelates zinc cations, facilitating their transport across lipid membranes, and enhancing intracellular zinc levels.³ While quercetin enhances total zinc levels inside cells, it also inhibits zinc toxicity, maintaining optimal intracellular levels of this vital micronutrient.⁴

Quercetin also demonstrates antimicrobial properties independent of its role as a zinc ionophore. It demonstrates antiviral activities and balances immune function, dampening unproductive immune responses.^{5,6} Complexation of quercetin with zinc also enhances quercetin bioavailability, allowing greater amounts of the beneficial polyphenol to enter cells.

Luteolin is a flavonoid found in a variety of fruits, vegetables, and medicinal herbs that also demonstrates zinc ionophore activity.⁷ Complexation with zinc may increase the bioavailability of this flavonoid within cells, where it can exert additional beneficial effects including direct antiviral and anti-inflammatory properties.⁸

ZINC IONOPHORES AND THE IMMUNE SYSTEM

Zinc Ionophores May Inhibit Microbial Invasion of Respiratory Cells and Fortifies Mucosal Barriers

Cells of the upper respiratory and gastrointestinal tracts, which converge at the pharynx (throat), serve as crucial frontline defenses against external invaders, including bacteria and viruses. Delivery of zinc directly to the tissues of the throat and the upper respiratory tract has been found to prevent pathogen entry into respiratory epithelial cells.⁹ Zinc also fortifies mucosal immune defenses in the upper respiratory and gastrointestinal tracts by inducing beneficial structural changes in tight junction complexes, the proteins that bind epithelial cells together.¹⁰ These changes strengthen membrane barrier integrity, creating a robust line of defense against external invaders.¹¹

Quercetin provides additional mucosal barrier support by activating AMPK, an evolutionarily-conserved pathway that is a central regulator of metabolism, growth, and energy production. AMPK activation is known to regulate the apical junctions and barrier integrity of the intestinal mucosal epithelium; the pharynx (throat) represents the very beginning of the gastrointestinal tract, so there is reason to believe that AMPK activation may support barrier integrity and immune resilience in this critical location as well.¹²

Quercetin provides further support for mucosal barrier integrity by acting as an agonist at aryl hydrocarbon (AhR) receptors in the intestine.¹³ AhR activation defends the respiratory and gut barriers against environmental stressors, such as infectious agents. Since the throat sits at the crossroads of the respiratory and gastrointestinal system, AhR activation may fortify immune defenses in this vital tissue.^{14,15}

Zinc Supports the Redox System

The body's redox system refers to its balance between reactive oxygen species (ROS), reactive nitrogen species (RNS), and scavenging by antioxidant compounds. The cellular redox state plays a critical role in the immune defense against viral invaders. Emerging research indicates that zinc plays an essential role in maintaining the body's redox system, supporting robust immune defenses.¹⁶

Propolis Establishes a Resilient Internal Terrain

Pathogens have a more challenging time invading host cells and causing disease when the body's internal terrain is immunologically resilient. Propolis, a resinous mixture produced by honeybees, offers powerful immunomodulatory effects in addition to antibacterial, antiviral, and antifungal properties, improving the resilience of the body's internal terrain.^{17,18}

Flavonoids and Propolis Attenuate Unproductive Inflammatory Signaling

Quercetin induces the expression of enzymes that balance inflammatory and anti-inflammatory signaling pathways in the body. It activates the Nrf2 pathway to increase the activity of antioxidant enzymes such as superoxide dismutase (SOD) and inhibiting the pro-inflammatory signaling pathway NF-kappa B. Luteolin suppresses the expression of inflammatory mediators, inhibiting pathogen-triggered respiratory inflammation.¹⁹ It also stabilizes mast cells, which are immune cells implicated in airway reactivity.²⁰

Propolis may also attenuate inflammasome activation in acute viral infections, inhibiting unproductive signaling while allowing the immune system to target foreign invaders efficiently.²¹

Zinc Complexed with Quercetin and Propolis

SKU: Q-1156

SIZE: 27 ML



SKU: Q-1203

SIZE: BOX OF 9 / 27 ML

IMMUNE CHARGE+[®] ZINC IONOPHORE

Category: IMMUNE HEALTH • VITAMINS & MINERALS



Advanced Zinc Complex

SKU: Q-1157

SIZE: 60 CAPSULES

Immune Charge+[®] Zinc Ionophore contains the essential mineral zinc complexed with the flavonoids quercetin, luteolin, hesperetin, and propolis, designed to support effective cellular uptake of zinc for healthy immune function.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGETARIAN

| Supplement Facts | | |
|--|--------------------|---------------|
| Serving Size: 2 Capsules Servings Per Container: 30 | | |
| | Amount Per Serving | % Daily Value |
| Zinc (as Zinc Acetate) | 10mg | 91% |
| Proprietary Blend | 150mg | ** |
| Propolis extract, Zinc acetate, Quercetin Dihydrate (from Sophora japonica flower), Luteolin extract, Hesperetin extract | | |
| **Daily Value not established | | |
| Other Ingredients: Plant-derived cellulose capsule, tocopherols, medium chain triglycerides, natural mint oil, turmeric oil, phospholipids (from sunflower seed lecithin) | | |

EDUCATION

THE ROLE OF ZINC IN WHOLE-BODY HEALTH BEGINS AT THE CELLULAR LEVEL

Zinc is an essential micronutrient that plays a critical role in numerous physiological processes throughout the body. Zinc is required for the activity of over 300 enzymes, including all six classes of enzymes, including transferases, hydrolases, oxidoreductases, lyases, isomerases and ligases.¹ Zinc is also a cofactor for over 50 metalloenzymes, including the alcohol dehydrogenase (ADH) enzyme involved in alcohol detoxification and superoxide dismutase, an enzyme that neutralizes harmful free radicals.¹

Zinc also aids in the structural maintenance of proteins, including the metallothioneins, small cysteine-rich proteins involved in metal ion homeostasis, the cellular defense against

oxidative stress, and heavy metal detoxification.²

Zinc also influences gene expression as an intrinsic component of the “zinc finger” proteins involved in an array of molecular functions ranging from the regulation of gene expression to acting as cellular receptors for estrogens, thyroid hormones, vitamin D, and vitamin A.³

Through its far-reaching impact on enzymatic activity, protein maintenance, and immune function, zinc mediates whole-body health. For zinc to exert its beneficial systemic health effects, it must first be absorbed from dietary sources and then taken up into cells. However, zinc absorption and entry into cells is tightly regulated, a phenomenon that limits the potential for therapeutic zinc dosing strategies. Zinc ionophores represent an elegant solution to this problem by rapidly enhancing cellular delivery of zinc throughout the body.

THE SCIENCE OF ZINC IONOPHORES

Within cells, most zinc cations are bound to proteins due to their roles as cofactors in enzymatic activity, structural protein maintenance, and gene expression, as mentioned above. A minority of zinc is available as free, or “labile,” zinc, present in its free ionic form or loosely bound to proteins. Labile zinc acts as a second messenger molecule, modulating numerous signaling pathways, including those involved in immune function.

Mammalian cells contain an array of zinc transporters from the Znt and ZIP transporter “families” that transport zinc from the extracellular milieu into the cell itself. However, higher doses of zinc decrease zinc uptake from the gut lumen into systemic circulation, limiting the utility of therapeutic zinc dosing strategies

when zinc is delivered through traditional oral supplements. Zinc ionophores are a sophisticated solution to the bioavailability problem posed by zinc transporters.

Zinc ionophores are chemical compounds that reversibly bind zinc ions, transporting zinc across cell membranes independently of zinc transporters. Several natural substances function as zinc ionophores. Quercetin, a plant flavonoid found in onions, green tea, apples, and berries, demonstrates remarkable zinc ionophore activity. It chelates zinc cations, facilitating their transport across lipid membranes and enhancing intracellular zinc levels.⁴ While quercetin enhances total zinc levels inside cells, it also inhibits zinc toxicity, maintaining optimal intracellular levels of this vital micronutrient.⁵

Quercetin also demonstrates beneficial effects independent of its role as a zinc ionophore. It exerts antiviral activity and balances immune function, dampening unproductive immune responses.^{6,7} It also promotes glucose uptake into cells, thereby improving glucose homeostasis, through activation of the AMPK pathway.⁸ Complexation of quercetin with zinc in zinc ionophores enhances quercetin bioavailability, allowing greater amounts of the beneficial polyphenol to enter cells.

Luteolin is a flavonoid found in various fruits, vegetables, and medicinal herbs that also demonstrates zinc ionophore activity.⁹ Complexation with zinc may increase this flavonoid’s bioavailability within cells, where it can exert additional beneficial effects, including direct antiviral, anti-inflammatory, and brain-supportive properties.^{10,11}

Hesperetin is a flavonoid found in the peels of citrus fruits, such as oranges and tangerines. Like its flavonoid cousins, quercetin and luteolin, it acts as a zinc ionophore and supports the immune system. Hesperidin, a glycosylated form of hesperetin, interferes with the binding of viral invaders to host cells, enhancing host resilience to infection.¹² The multi-ringed chemical structure of hesperitin is strikingly similar to that of quercetin and may also make it an effective zinc ionophore for enhancing intracellular zinc levels.¹³

ZINC IONOPHORES SUPPORT THE IMMUNE SYSTEM

Zinc plays a vital role in the immune system.¹⁴ It is crucial for the normal development of innate white blood cells, which comprise the body’s frontline defenses against microbial invaders.¹⁵ Cytokine production is also significantly influenced by zinc availability, with zinc insufficiency compromising cytokine mobilization in response to pathogens.

Zinc also fortifies mucosal immune defenses in the upper respiratory and gastrointestinal tracts by inducing beneficial structural changes in tight junction complexes, the proteins that bind epithelial cells together.¹⁶ These changes strengthen membrane barrier integrity, creating a more

robust physical defense barrier against external invaders.¹⁷ Quercetin provides additional mucosal barrier support by activating AMPK, an evolutionarily conserved pathway that is a central regulator of metabolism, growth, and energy production. AMPK activation is known to regulate the apical junctions and barrier integrity of the intestinal mucosal epithelium. The pharynx (throat) represents the very beginning of the gastrointestinal tract, and there is reason to believe that AMPK activation may support barrier integrity and immune resilience in this critical location as well.¹⁸

The body’s response to infection involves the production of free radicals. In appropriate amounts, these free radicals effectively target and eliminate pathogens; however, when free radical production exceeds the body’s capacity to neutralize these molecules, an unproductive inflammatory response may result, distracting the immune system from the pathogens at hand. Hesperetin counteracts the damaging effects of pathogen-triggered free radical production, allowing the immune system to prioritize infection management.¹²

Pathogens have a more challenging time invading host cells and causing disease when the body’s internal terrain is immunologically resilient. Propolis, a resinous mixture produced by honeybees, offers powerful immunomodulatory effects in addition to antibacterial, antiviral, and antifungal properties, improving the resilience of the body’s internal terrain.^{19,20}

ZINC AND QUERCETIN FORTIFY THE GASTROINTESTINAL TRACT

Approximately 70 percent of the human immune system resides in the gastrointestinal tract, making maintaining a healthy gastrointestinal milieu essential for optimal immune function. Zinc exerts powerful, overlapping effects on immune and gastrointestinal function through its impact on epithelial cells, which comprise the interface between the intestinal lumen, the immune cell-rich mucosal barrier of the gut, and systemic circulation.

Quercetin provides additional support for mucosal barrier integrity by acting as an agonist at aryl hydrocarbon (AhR) receptors in the intestine.²¹ Aryl hydrocarbon receptors are transcription factors that link environmental stimuli to cellular responses, including immune responses, within the body. AhR activation defends the respiratory and gut barriers against environmental stressors, such as infectious agents. Since the throat sits at the crossroads of the respiratory and gastrointestinal system, AhR activation may fortify immune defenses in this vital tissue.^{22,23}

ZINC SUPPORTS THE BODY’S REDOX SYSTEM

The body’s redox system refers to its balance between reactive oxygen species (ROS), reactive nitrogen species (RNS), and scavenging by antioxidant compounds. The cellular redox state influences the immune defense against

foreign invaders, brain function, and metabolic health. Emerging research indicates that zinc plays an essential role in maintaining the body's redox system, an effect that may bolster immune function and mitigate inflammation.²⁴

ZINC, FLAVONOIDS, AND QUERCETIN ATTENUATE UNPRODUCTIVE INFLAMMATORY SIGNALING

Zinc homeostasis is crucial for regulating the body's inflammatory response.²⁵ It is truly a "Goldilocks" nutrient; either too little or too much zinc can pose a problem for regulating the body's inflammatory balance. Pairing zinc with flavonoids may help the body maintain a "just right" level of zinc required for a healthy inflammatory balance by delivering zinc to cells' interior while helping to prevent zinc toxicity.

Quercetin induces the expression of antioxidant enzymes that balance inflammatory and anti-inflammatory signaling pathways in the body. It activates the Nrf2 pathway to increase the activity of antioxidant enzymes such as superoxide dismutase (SOD) and inhibiting the pro-inflammatory signaling pathway NF-kappa B. Luteolin suppresses the expression of inflammatory mediators, inhibiting pathogen-triggered respiratory inflammation.²⁶ It also stabilizes mast cells, which are immune cells implicated in airway reactivity.²⁷ Propolis may also attenuate inflammasome activation in acute viral infections, inhibiting unproductive signaling while allowing the immune system to efficiently target foreign invaders.²⁸

ZINC SUPPORTS METABOLIC HEALTH

Zinc plays several regulatory roles in metabolic health. It stimulates glucose oxidation and supports the activity of insulin, improving glucose homeostasis.²⁹ Dysfunctional zinc transporter mechanisms are associated with the pathogenesis of metabolic diseases, such as type 2 diabetes.³⁰ Replenishment of bodily zinc levels with a delivery system that bypasses zinc transporters may be beneficial for correcting zinc insufficiency and supporting healthy glucose homeostasis in individuals heading down a trajectory towards metabolic dysfunction.

ZINC AND FLAVONOIDS PROTECT BRAIN FUNCTION

Zinc regulates neuronal growth and signaling, and a lack of zinc is implicated in decreased neurogenesis and increased neuronal death.^{31,32} Supplemental zinc may improve memory and attention in older adults and positively impact aspects of mental health, such as mood.^{33,34}

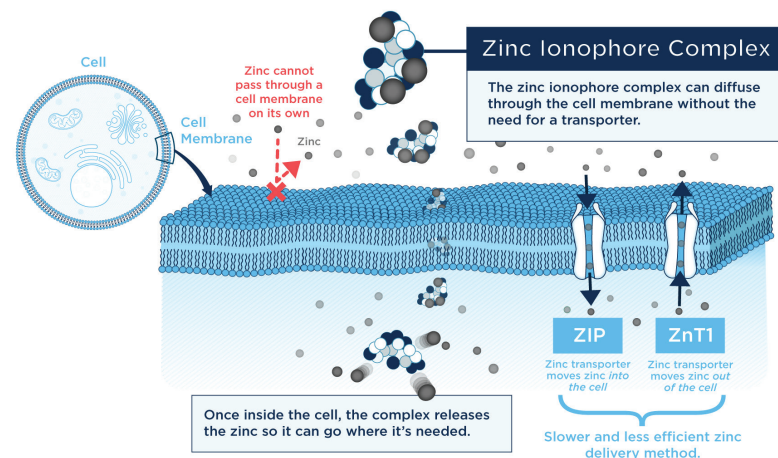
Excitingly, hesperetin also shows promise as a brain-supportive compound. It has been found to attenuate neuroinflammation triggered by pro-inflammatory bacterial byproducts.³⁵ It may also protect the brain during the aging process by enhancing the generation of neural growth factors and endogenous antioxidant balance in the brain.³⁶

ZINC AND HORMONAL BALANCE

Zinc plays several crucial roles in the body's hormonal balance. It is a vital cofactor for the deiodinases, enzymes involved in the synthesis of thyroid hormones.³⁷ Low zinc intakes can thus adversely impact thyroid function.

Zinc is essential for testosterone synthesis, with zinc supplementation improving testosterone levels in zinc-deficient men.³⁸ Zinc is also essential for female reproductive hormone balance; it may normalize aromatase activity in women with PCOS, reduce hyperandrogenism symptoms, and improve fertility by attenuating inflammation and oxidative stress.³⁹

Supporting optimal bodily levels of zinc may also balance the hypothalamic-pituitary-adrenal (HPA) axis, a complex network of hormones and other signaling molecules that regulate the body's stress response and overall hormone balance.⁴⁰ A balanced HPA axis is crucial for healthy thymic function; by supporting hormones, zinc may exert further positive effects on immune function.



NANOEMULSION
KETO BEFORE 6®

Category: **CARDIOMETABOLIC • DETOX • LONGEVITY • PERFORMANCE**



On Demand Keto

SKU: Q-1097

SIZE: 100 ML

Keto Before 6® is an innovative phytonutrient blend designed to support the AMPK pathway, a critical metabolic pathway that is responsible for regulating glucose and lipid metabolism, cellular clarity, mitochondrial biogenesis, and body weight.* The blend of botanicals and nutraceuticals in Keto Before 6® includes diindolylmethane (DIM), quercetin dihydrate, milk thistle seed extract, resveratrol, berberine HCL, and cinnamon bark oil for potent AMPK support.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
 VEGAN

| Supplement Facts | | |
|--|-----------------------|------------------|
| Serving Size: 5 mL (1 tsp) Servings Per Container: 20 | | |
| | Amount Per Serving | % Daily Value |
| Proprietary Blend | 415 mg | ** |
| Highly purified phospholipids, Diindolylmethane, Quercetin Dihydrate (from Sophora japonica flower), Milk Thistle Seed Extract (80% Silymarin), Resveratrol (from Polygonumcuspidatum root), Berberine HCL (from Phellodendron amurense bark), Cinnamon bark oil | | |
| **Daily Value not established | | |
| Other Ingredients: Glycerin, water, ethanol, medium chain triglycerides, tocopherols, natural citrus oils, natural flavoring, natural mixed tocopherols, propolis extract | | |

muscle performance and contraction.^{4,5,6,7} It also governs autophagy, a process whereby cells engulf and clear out debris, damaged proteins, and dysfunctional organelles, and then recycle or dispose of them.^{8,9} AMPK is a truly pluripotent pathway essential for whole-body health.

AMPK is activated by a variety of inputs, including fasting, low blood insulin levels, and exercise.¹⁰ Unfortunately, very few people routinely engage in AMPK-activating lifestyle practices. A confluence of factors central to modern-day life inhibit AMPK, including chronic overnutrition (i.e., overeating), a sedentary lifestyle, hyperinsulinemia, and overweight and obesity.^{11,12} In particular, AMPK is suppressed by excess glucose, fatty acids, and amino acids present in the blood after eating, when the body is in the “fed” state.¹³ Most people in the modern Western world live in a chronic fed state, rarely entering the fasted state necessary for AMPK activation. AMPK activity also decreases during the aging process.^{14,15}

When AMPK is inhibited, its opposing pathway, mTOR is activated.^{16,17} The mammalian target of rapamycin pathway, or mTOR, is a central regulatory pathway that orchestrates cellular growth and homeostasis. AMPK controls mTOR signaling.¹⁸ While mTOR has beneficial roles in the body, supporting muscle growth and development, chronic mTOR activation compromises metabolic health and promotes body fat storage and cellular proliferation.¹⁹ For optimal metabolic health, our bodies must alternate between AMPK (fasted state) and mTOR (fed state) activity.²⁰

EDUCATION

THE SIGNIFICANCE OF THE AMPK PATHWAY IN OUR MODERN-DAY WORLD

The AMP-activated protein kinase pathway, AMPK for short, is an evolutionarily-conserved pathway present in all complex life forms, from mice to humans. AMPK is a central regulator of metabolism, growth, and energy, and helps coordinate metabolism in the liver, muscles and fat.¹ AMPK is an exquisite nutrient sensor and is activated whenever intracellular energy (in the form of ATP) is low.² AMPK activation restores cellular energy levels by stimulating pathways and processes that generate ATP.³

AMPK also has anti-inflammatory effects, regulates insulin sensitivity, upregulates pathways involved in longevity, and enhances

HOW DOES AMPK BENEFIT OUR HEALTH?

Metabolic Clarity

AMPK flips the body’s “metabolic switch” from burning primarily glucose for fuel to burning fat (as ketones) for fuel.²¹

Amplification of AMPK signaling also improves other aspects of metabolic health. It improves blood sugar control by enhancing insulin sensitivity and promoting efficient glucose uptake from the blood into cells.²²

AMPK activation also supports healthy blood lipid levels. It prevents fat from accumulating in the liver, a phenomenon closely tied to blood sugar control and, if allowed to continue unabated, significantly compromises liver function.²³

AMPK is essential for the activation of autophagy, the body’s cellular “housekeeping” system that clears out damaged and dysfunctional cell components so that the body can recycle or dispose of them.²⁴

AMPK Supports a Healthy Inflammatory Balance

Inflammation is a central component of many of the chronic diseases we face in Westernized society today, including cardiovascular disease, type II diabetes, neurodegenerative diseases, and uncontrolled cellular proliferation.²⁵

Conversely, AMPK activation has been found to reduce inflammation, stemming the tide of unproductive inflammatory processes that contribute to chronic diseases such as cardiovascular disease and type 2 diabetes.^{27,28}

Supports Healthy Mitochondrial Function

AMPK activation increases mitochondrial efficiency, supporting ATP production while minimizing harmful free radical byproducts. It also activates mitophagy, the selective degradation of defective mitochondria, and promotes the creation of new, healthy mitochondria.²⁹

Supports Healthy Cellular Senescence

Cellular senescence is the process by which cells cease to be functional, instead transitioning into a state of cell cycle arrest and secreting a variety of pro-inflammatory mediators that harm surrounding healthy cells. Cellular senescence is triggered by oxidative stress, DNA damage, and is a part of the aging process. Senolytics, or compounds that selectively kill senescent cells, reduce the body’s senescent cell burden and may promote metabolic health and longevity. A variety of natural compounds exert senolytic effects, rejuvenating the body at the cellular level.

AMPK Activation Promotes Longevity

AMPK activates an ancient network of genes and proteins that regulate longevity, including the sirtuins. Sirtuins are proteins that play a vital role in regulating cellular health and homeostasis. Therapeutic sirtuin activation has been shown to support healthy aging and metabolism.³⁰ Interestingly, AMPK and sirtuins appear to engage in crosstalk to ultimately impact cellular health and lifespan.³¹

AMPK Activation Acts As An Exercise Mimetic

AMPK activation drives energy metabolism in skeletal muscle, the cardiovascular system, and mitochondria and plays an essential role in mediating the beneficial effects of physical activity. Several AMPK activators thus act as exercise mimetics, with resveratrol one of the most-studied compounds thus far. In animal studies, resveratrol has been found to increase running endurance and improves cardiac and mitochondrial function via mechanisms that parallel those seen with exercise.^{14,15} Quercetin may offer similar, albeit milder effects; its benefits for exercise may come, in large part, from its ability to attenuate exercise-induced oxidative stress.³⁶

NANOEMULSIFIED KIDNEY CARE

Category: DETOX • LONGEVITY

Kidney Care is a blend of botanicals and nutraceuticals that support healthy kidney function and detoxification. The array of botanicals and nutraceuticals in this formula includes ferulic acid, Astragaloside IV, goldenrod, dandelion leaf extract, Zhu ling, He Shou Wu root extract, and Fu Ling extract.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

| Supplement Facts | | |
|---|---------------|----|
| Serving Size: 5 mL (1 tsp.) Servings Per Container: 20 | | |
| Amount Per Serving | % Daily Value | |
| Astragaloside IV extract (Astragalus membranaceus root) | 5 mg | ** |
| Ferulic Acid | 20 mg | ** |
| Proprietary Blend | 1100 mg | ** |
| Dandelion (Taraxacum officinale) leaf extract, Goldenrod (Solidago gigantea aerial parts) extract, Fu Ling (Poria cocos) sclerotium extract, Zhu Ling (Polyporus umbellatus) fruiting body extract, He Shou Wu (Fo-ti) root extract (Polygonum multiflorum), Citrus and juniper berry essential oils | | |
| Percent Daily Values are based on a 2,000 calorie diet. **Daily Value Not Established | | |
| Other Ingredients: Glycerin, water, ethanol, tocopherol, highly purified phospholipids, natural mixed tocopherols, natural flavoring | | |

EDUCATION

HEALTHY KIDNEY FUNCTION IS ESSENTIAL FOR DETOXIFICATION

Our kidneys filter an astounding 150 quarts of blood every day, helping us rid our bodies of a variety of endogenously-produced and exogenously acquired toxins, including ammonia, urea, creatinine, and toxins derived from phase II hepatic detoxification, and industrial toxins such as heavy metals¹. This filtration process takes place within the renal proximal tubules - millions of tiny tubes that support fluid regulation and homeostasis of the body. Alongside the liver and the gastrointestinal system, the kidneys play a crucial role in detoxification; their small size and delicate structure make them more susceptible to damage directly by toxins and through the

detoxification process.

TOXINS AND KIDNEY FUNCTION

Since 1990, the prevalence of chronic kidney disease (CKD) has increased nearly 30% globally, a phenomenon likely due to an increased toxic burden and an increased prevalence of chronic conditions, such as type 2 diabetes and hypertension, that ultimately harm the kidneys.⁴ Cadmium, a heavy metal released into the environment through smelting and the burning of fossil fuels, is highly toxic to the kidneys and can accumulate in these organs, causing lasting damage.⁵ Lead, mercury, and uranium are also nephrotoxic.^{6,7,8} Microplastics are also a growing threat to our kidneys, triggering mitochondrial dysfunction and inflammation in kidney cells.⁹

Endogenously-produced toxins, including endotoxin (lipopolysaccharide) derived from an imbalanced gut microbiota and high blood sugar derived from an unhealthy diet and lifestyle, are also harmful to the fragile kidneys and can induce oxidative stress and microvascular damage.^{10,11} These findings explain why gut dysfunction and diabetes are risk factors for kidney dysfunction.¹²

Persistent organic pollutants (POPs) such as pesticides, the herbicide glyphosate, and non-stick chemicals, such as perfluorooctanoic acid (PFOA), are also toxic to the kidneys and are very difficult for the body to metabolize on its own.¹³

TIME-HONORED HERBS SUPPORT KIDNEY STRUCTURE AND FUNCTION

Both traditional Western herbalism and

Traditional Chinese Medicine (TCM) harbor repertoires of herbs used to support healthy kidney function.

Dandelion Leaf (Taraxacum officinale): In TCM, dandelion leaf is considered an anti-toxin herb. It has long been used in Western herbalism as a diuretic. Modern-day research validates the traditional use of this herb, demonstrating its diuretic actions in healthy subjects.¹⁴ Dandelion leaf is rich in phytochemicals such as β -sitosterol, α -amyirin, stigmasterol, quercetin glycosides, chicoric acid, and sesquiterpene lactones. β -sitosterol has been found to inhibit kidney damage in rats exposed to toxic industrial solvents and modulates aberrant cell proliferation in the kidneys, exerting nephroprotective effects.^{15,16} Quercetin glycosides exert antioxidant effects in the kidneys, protecting the kidneys against toxin-induced oxidative stress in the delicate renal tubular cells.¹⁷ Chicoric acid prevents kidney damage induced by the chemotherapy drug methotrexate by downregulating the pro-inflammatory NLRP3 inflammasome and upregulating the antioxidant Nrf2 pathway.¹⁸

Goldenrod (Solidago gigantea): Like dandelion leaf, goldenrod acts as a diuretic, gently flushing the body by increasing urine output. Historically, goldenrod has been used for various kidney disorders, including kidney stones, UTIs, and overactive bladder issues.¹⁹

Fu Ling (Poria cocos): Poria cocos, also known as "Fu Ling" in TCM, is a medicinal fungus that grows around the roots of pine trees in China, Japan, Korea, and North America. Poricoic acid A (PAA), derived from Poria cocos, has been found in combination with melatonin to inhibit renal fibrosis, stemming the tide of the acute kidney injury, which can ultimately lead to chronic kidney disease (CKD) over time.²⁰ Poricoic acid ZG and ZH have also been found to attenuate renal fibrosis by functioning as RAS (renin-angiotensin system) inhibitors. In animal research, Poria has also been found to exert diuretic effects by inhibiting renal aquaporin-2 without the excessive loss of electrolytes caused by pharmaceutical diuretics like furosemide.²¹ Also, in animal studies, it is an effective treatment for chronic kidney injury.²²

Zhu Ling (Polyporus umbellatus): Polyporus umbellatus is an edible mushroom species that grow on old beeches or oak. Known as "Zhu Ling" in Traditional Chinese Medicine, this mushroom has been used medicinally to address urinary and kidney dysfunction, including scanty urine and edema.²³ It protects against kidney injury and fibrosis by regulating fatty acyl metabolism in the kidneys.²⁵

He Shou Wu (Polygonum multiflorum): He Shou Wu is another Chinese herb with a rich history of use in supporting healthy kidney function. He Shou Wu contains a bioactive compound called^{2,3,4,5} Tetrahydroxystilbene-2-O- β -D-glucoside (THSG) that is structurally similar to resveratrol and has been shown to protect the kidneys against anthropogenic chemical-induced toxicity while also reducing

the expression of genes involved in kidney fibrosis through the Nrf2 antioxidant pathway.²⁶

Astragaloside IV: Astragaloside IV, derived from Astragalus membranaceus root, is a phytochemical with tonifying effects on the kidneys. In kidney disease caused by diabetes, a process called "epithelial-to-mesenchymal transition" is critical in the progression of damage to kidney tubules. Astragaloside IV inhibits this process by reducing oxidative stress in renal tubular cells.²⁷ It also protects against endoplasmic reticulum stress²⁸ and against damage to the podocytes of the kidneys by enhancing AMPK-regulated autophagy.²⁹ Astragaloside IV also protects against apoptosis, or programmed cell death, of podocytes by upregulating the Klotho pathway, a critical longevity pathway.³⁰

The Klotho protein is a transmembrane protein that is expressed in the liver, kidney, gut, and spleen. It regulates multiple pathways and proteins involved in the aging process, including proteins in the fibroblast growth factor (FGF), phosphate homeostasis, and insulin signaling.³¹ Klotho levels decline in the body during the aging process. When Klotho declines, a major shift occurs in phosphate metabolism that ultimately harms the kidneys. Phosphate is required by the body for bone growth, energy storage in adenosine triphosphate (ATP), and nerve and muscle function. The kidneys regulate phosphate metabolism in partnership with bone tissue, vitamin D, and parathyroid hormone. Declines in Klotho expression promote hyperphosphatemia (elevated phosphate), accelerating kidney and systemic aging.³²

Astragaloside IV also exerts regenerative effects on kidney function. It improves kidney function in diabetic mice by inhibiting microRNA-21, a signaling molecule linked to kidney fibrosis.³³

Ferulic acid: Ferulic acid is a phytochemical found in various fruits and vegetables that attenuates oxidative damage, inflammation, and damaging levels of autophagy in the kidneys. These mechanisms protect against hyperglycemia-induced kidney damage and kidney ischemia-reperfusion injury.^{34,35}

KIDNEY CARE IS IN THE FOLLOWING PROTOCOL SYSTEMS:

- PreTox System
- Advanced PushCatch® Detox System
- Qube® 2.0 Professional Detox System



Kidney & Lymphatic Drainage

SKU: Q-1173

SIZE: 100 ML

LIPOSOMAL LIPOCALM®

Category: CALMING + SLEEP



PharmaGABA® +
Botanicals

SKU: Q-1096

SIZE: 50 ML

LipoCalm® is a balanced blend of nutraceuticals designed to support parasympathetic balance, a peaceful mind, and a relaxed body. This formula includes PharmaGABA®, a naturally fermented form of the amino acid GABA (gamma-aminobutyric acid), along with the botanicals skullcap (*Scutellaria lateriflora*), passion flower (*Passiflora incarnata*), and Egyptian blue chamomile.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

Supplement Facts

Serving Size: 2 mL (4 pumps)
Servings Per Container: 25

| | Amount Per Serving | % Daily Value |
|---|-----------------------|------------------|
| Proprietary Blend | 350mg | ** |
| Highly purified phospholipids, gamma-Aminobutyric acid (as PharmaGABA®), Liquid Skullcap Herb extract (<i>Scutellaria lateriflora</i>), Liquid Passion Flower extract (<i>Passiflora incarnata</i>), Chamomile Flower oil | | |

**Daily Value not established

Other Ingredients: Water, glycerin, ethanol, tocopherol and natural mixed tocopherols

GABA levels have been linked to sleep and mood disorder.^{15,16,17} During exposure to acute stress, GABA levels plummet.^{18,19,20,21} GABA is known as a sleep aid^{22,23,24} and has been found to increase calming alpha-wave patterns during challenging mental tasks.²⁵ Supplemental GABA may reach receptors in the enteric nervous system (the 'gut brain'), thereby calming digestion.²⁶

GABA is synthesized from the brain's primary excitatory neurotransmitter, glutamate. In optimal health, the two neurotransmitters oscillate in a binary fashion, shifting us in a fluid manner from a state of readiness and "fight or flight" to a state of relaxation and calm. However, the various stressors of modern life can deplete GABA levels and create an imbalance in these neurotransmitters, resulting in chronic "fight or flight" sympathetic activity that disrupts restorative sleep.

PHARMAGABA® OFFERS SUPERIOR ACTION FOR RELAXATION, SLEEP, ADDICTION, AND IMMUNITY

PharmaGABA® is a naturally-sourced GABA produced via fermentation by *Lactobacillus hilgardii*, found in kimchi, a traditional Korean fermented cabbage dish. Kimchi is known to contain high amounts of natural, food-based GABA.²⁸ Naturally sourced GABA has been shown to promote relaxation and alpha wave activity; EEG results one hour after consuming PharmaGABA® demonstrated a significant increase in calming alpha waves, and a parallel decrease in beta waves associated with stress.²⁹ By dampening the stress response, PharmaGABA® may support learning and mental performance. When given to elementary school

students in Japan, PharmaGABA® reduced mental tension and suppressed CgA (salivary chromogranin A), which is a marker of adrenal stress. Test performance also improved.²⁷

GABA-induced relaxation may be linked to an increase in immune function. When acrophobic individuals crossed a suspended bridge over a 150 foot canyon, those taking GABA maintained levels of Immunoglobulin A (IgA) during the crossing, and levels were higher upon completion. In contrast, a control group of acrophobics given a placebo experienced a sharp reduction in IgA during the activity. A second study with different individuals found that PharmaGABA® supplementation led to a 20% decrease in CgA at the halfway point across the bridge, while a control group had a 20% increase.³⁰

PharmaGABA® may help people fall asleep more quickly and easily. A double blind study found that this form of GABA increased sleep efficiency and valuable non-REM sleep time, significantly shortened sleep latency (the time to fall asleep) and increased the total non-rapid eye movement (non-REM) sleep time. This form of GABA was quickly absorbed, with blood levels the highest 30 minutes after oral administration, consistent with its strong effect in the early stage of sleep.³¹

Addictions—such as alcohol or the nicotine in cigarettes—can be refractory in part because they target and "reward" the GABAergic system and GABA receptors.^{32,33} In a double blind study of tobacco users, PharmaGABA® significantly reduced the desire to continue smoking. Lower levels of CgA were observed in the PharmaGABA® group, suggesting that the stress of quitting smoking was mitigated by GABA.

Though there has been debate as to whether oral GABA can cross the blood-brain barrier, GABA's ability to modulate gut receptors suggests that it may affect the central nervous system through the vagus nerve, the 10th cranial nerve, which is a fundamental component of the parasympathetic branch of the autonomic nervous system.³⁴

POTENT PHYTONUTRIENTS REGULATE GABA NEUROTRANSMISSION

Nervousness and poor sleep have been treated with botanical medicines since antiquity.³⁵ The efficacy of traditional botanicals may rely on their broad action across multiple populations of GABAergic neurons located throughout the brain. New research has shown each GABA subpopulation offers specialized functions such as orchestrating EEG activity in NREM and REM sleep.¹²

Skullcap (*Scutellaria lateriflora*), passion flower (*Passiflora incarnata*) and chamomile (*Matricaria chamomilla*) are widely used in European and American traditional herbal medicine to allay tension and support relaxation and sleep.^{36,37,38} Skullcap contains unique flavonoids thought to bind to GABA receptors as well as serotonin receptors.^{39,40} Skullcap has been shown to promote relaxation and tranquility.⁴¹ Passion flower, a tendril-bearing vine with purple and white blossoms, has long been used in folk medicine for sleep, mood, worry and more.^{42,43,44} It is high in GABA⁴⁵ and contains potent flavonoids, such as apigenin, with an affinity for both GABA-A and GABA-B receptors^{46,47} and has been shown to lessen anxiety via its GABA receptor affinity.⁴⁸ It is thought that passion flower may also help in treating addictions.⁴⁹

Finally, chamomile is one of our most revered and ancient medicinal herbs, with a long history of folk use for calmness, relaxation and sleep.⁵⁰ Egyptian chamomile oil is a fragrant, midnight-blue essential oil that contains numerous potent lactones, glycosides, flavonoids and terpenoids that contribute to its flavor, fragrance and popularity.⁵¹ In particular, it is high in apigenin, which binds to GABA receptors.^{52,53} Studies show it can reduce symptoms of general nervousness⁵⁴ and improve sleep.⁵⁵

PATENTED
U.S. Patent Number 7,991,704

DR SHADE'S LIVER SAUCE®

Category: DETOX



Comprehensive
Detoxifier

SKU: Q-1059

SIZE: 100 ML

Dr. Shade's Liver Sauce® is a premier liver and detoxification support formula. Our nanoformulated blend features four potent bitters to aid bile fluidity and flow, along with powerful liver and detoxification support from milk thistle, R-lipoic acid (RLA), diindolylmethane (DIM), quercetin, and luteolin.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

Supplement Facts

| Serving Size: 5 mL (1 tsp.) | Amount | % Daily |
|--|-------------|---------|
| Servings Per Container: 20 | Per Serving | Value |
| Lipoic Acid (from Sodium R-Lipoate) | 48mg | ** |
| Proprietary Blend: | 750mg | ** |
| Liquid extracts of Dandelion root, Gentian root, Solidago gigantea aerial parts, Myrrh Oleo-gum-resin, and Essential Oil of Sweet Orange | | |
| Proprietary Blend: | 60mg | ** |
| Diindolylmethane, Milk Thistle Seed Extract (80% Silymarin), Quercetin, and Luteolin Extract | | |
| **Daily Value not established | | |
| Other Ingredients: Ethanol, glycerin, water, tocopherols, highly purified phospholipids, medium chain triglycerides, acacia gum, natural mixed tocopherols. | | |

EDUCATION

BILE FLOW IS CRITICAL TO HEALTH

The liver plays a vital role in clearing the body of harmful toxins acquired externally from the environment and generated internally through metabolism and the gut microbiota.¹ It converts toxins into water-soluble compounds via several distinct phases^{2,3} and produces a fluid, bile, that is released into the gut and ushers toxins out of the body via the stool. Bile flow is also critical for proper digestion,⁴ an intact gut lining, healthy small intestine flora, and normal cholesterol and blood sugar levels.^{5,6,7,8}

Bile salts are antimicrobial, can denature bacterial endotoxins, and modify lipids.^{9,10} Stagnant bile flow impedes the flow of toxins out of the liver into the gallbladder and digestive tract for excretion.¹¹ This includes endotoxin produced by gram-negative bacteria,

a highly inflammatory bacterial byproduct that downregulates critical pumps (called phase III transporters) that transport toxins out of our cells.^{12,13} Poor bile flow can contribute to gastrointestinal dysbiosis and small intestinal bacteria overgrowth (SIBO).^{14,4} An inflamed and "leaky" gut then lets bacterial and other toxins slip into the bloodstream, triggering a systemic inflammatory response.¹⁵ That inflammatory response impairs liver and gallbladder function and further inhibits bile flow, contributing to cholestasis.¹⁶

BITTER HERBS STIMULATE BILE FLOW

Bitters are herbs that support digestion, regulate blood sugar and activate the immune response.^{22,23,24,25} The four bitters in this formula include dandelion, gentian, goldenrod and myrrh, all to enhance elimination through the liver, gallbladder, digestive tract and kidneys. Each also offers protective antioxidant benefits. Gentian (*Gentiana lutea*) is one of the strongest herbal bitters and a liver protective agent that can increase levels of glutathione and superoxide dismutase.^{26,27} Dandelion (*Taraxacum officinale*) activates bile production²⁸, has hepatoprotective effects²⁹ and can increase antioxidant activity in the liver.³⁰ Goldenrod (*Solidago*) promotes urination and elimination of toxins through the kidneys.³¹ Flavonoids from solidago help activate GSH-S-transferase, a critical enzyme in phase II detoxification.³² Myrrh (*Commiphora myrrha*) is cherished for its antimicrobial effect.^{33,34} It is also anti-inflammatory, antioxidant, and a cholesterol lowering agent.^{35,36,37}

SPECIALIZED PHYTONUTRIENTS PROTECT AND SUPPORT LIVER DETOX

When bile flow is enhanced and liver detoxification is stimulated, support for all three phases of detoxification is important. Milk thistle (*Silybum marianum*) is a premier liver-support herb that is anti-cholestatic³⁸, antioxidant, anti-inflammatory, and hepatoprotective.^{39,40} Its most active constituent is silymarin, along with the flavonolignan silybin, also known as silibinin. It can prevent estrogen-induced decrease in bile-salt dependent bile flow.⁴¹ Silibinin and silymarin, R-lipoic acid, quercetin, and DIM (3,3'-Diindolylmethane) induce the critical Nrf2 pathway.^{42,43,44} Nrf2 is our internal, master antioxidant switch, which turns on the production of glutathione and numerous detoxifying enzymes. DIM, in combination with quercetin and luteolin, balance inflammation.^{45,46} Quercetin supports intestinal barrier function, reducing permeability.¹¹

LIVER SAUCE IS IN THE FOLLOWING PROTOCOL SYSTEMS:

- PushCatch® Liver Detox
- Advanced PushCatch® Detox System
- Qube® 2.0 Professional Detox System
- Bio-Age Reset
- Dr. Jill's Miracle Mold Detox

NANOFORMULATED LONGEVITY ELITE®

Category: HORMONES • LONGEVITY • PERFORMANCE



Adaptogen +
Hormone Tonic

SKU: Q-1162

SIZE: 100 ML

Longevity Elite® is a nanoformulated blend of the hormone precursor pregnenolone and whole plant and isolate adaptogenic herbal extracts. Formulated for age optimization, Longevity Elite nourishes the steroid-backed sex and adrenal hormones while supporting a healthy inflammatory response, and autonomic nervous system balance.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

| Supplement Facts | | |
|---|-----------------------|------------------|
| Serving Size: 5 mL (1 tsp.) Servings Per Container: 20 | Amount Per Serving | % Daily Value |
| Pregnenolone | 10mg | ** |
| Astragaloside IV extract (Astragalus membranaceus root) | 10mg | ** |
| Cycloastragenol extract (Astragalus membranaceus root) | 10mg | ** |
| Proprietary Blend: | 1000mg | ** |
| He Shou Wu (Fo-ti) root extract (Polygonum multiflorum), Zhi Gan Cao root extract (Chinese honey-prepared licorice) (Glycyrrhiza uralensis), GS15-4® Fermented Korean Panax Ginseng extract, Ginseng Plus® Panax Notoginseng root extract, Ashwagandha root extract (Withania somnifera), American Ginseng (Panax quinquefolius) root extract | | |
| **Daily Value not established | | |
| Other Ingredients: Glycerin, water, ethanol, tocopherol, highly purified phospholipids, medium chain triglycerides, natural citrus oil, natural flavoring, natural cinnamon bark oil | | |

EDUCATION

THE HPA AXIS AND LONGEVITY: WHAT'S THE CONNECTION?

Dehydroepiandrosterone (DHEA)The hypothalamic-pituitary-adrenal axis, or the HPA axis, is an elegant network of endocrine glands, hormones, and neurons that regulates the body's stress response, metabolism, libido, immune system, and energy levels. It consists of the hypothalamus, the pituitary gland, and the adrenal glands. This ancient physiological "axis" allowed our hunter-gatherer ancestors to respond adeptly to acute stressors, such as being chased by a lion on the African savannah and return seamlessly back to a "rest and digest" state once the stressor had passed.

However, in the modern industrialized world, most people contend with chronic stress rather than acute stress. Unfortunately, the HPA axis

is not evolutionarily designed to handle chronic stressors. A chronically stressed body pumps out high levels of cortisol, a critical stress hormone that literally accelerates aging on a cellular level. Sustained high cortisol levels disrupt blood sugar control, wreaking havoc on metabolic health.¹ Elevated cortisol ages the hippocampus, a critical part of the brain involved in memory and cognitive function.² Cortisol dysregulation also impacts levels of crucial sex hormones, catabolizes vital skeletal muscle, and compromises immune function.^{3,4} HPA axis dysfunction, with its turbulent effects on cortisol, thus directly impacts our longevity.⁵

The HPA axis influences six primary physiological systems involved in aging, including:

- **Glycemic control:** Blood glucose dysregulation plays a central role in the aging process by triggering insulin resistance, oxidative stress, and inflammation.⁶ Blood glucose levels are, in turn, significantly impacted by hormones intrinsic to the HPA axis, including cortisol and DHEA. Optimization of HPA axis function has been found to improve glycemic control.⁷
- **Neurocognitive function:** Feeling "less sharp" is considered a normal aspect of aging, but it's not inevitable. However, without a well-functioning HPA axis, cognitive function can significantly decline with age. Higher blood glucose levels are a risk factor for cognitive decline; while the mechanisms behind this connection have yet to be fully elucidated, high blood glucose may trigger oxidative stress in the brain, damaging neurons.
- **Cardiovascular health:** Heart disease and

atherosclerosis are manifestations of biological aging or aging that occurs as the body gradually accumulates damage to cells and tissues; this process is distinct from chronological aging, defined as one's age in years. Chronic stress increases the release of epinephrine and norepinephrine - neurochemicals that raise blood pressure. Elevated blood pressure, in turn, damages the vascular endothelium, precipitating cardiovascular dysfunction. Optimization of HPA axis function can thus improve cardiovascular health.

- **Sex hormone status:** Hyperactivation of the HPA axis changes the expression of genes involved in sex hormone synthesis and can lead to declines or imbalances in estrogen, progesterone, testosterone, and DHEA, the body's most important sex hormones. Suboptimal levels of these hormones adversely contribute to low vitality during the aging process.
- **Immune function and inflammation:** A chronically activated stress response adversely impacts the body's anti-inflammatory responses, leading to chronic inflammation. Chronic inflammation, in turn, drives a loss of Th1 status, increasing the body's vulnerability to infection. This chain of events is one reason why chronic stress contributes to aging and a reduced ability to fight off pathogens. Chronic stress can also dampen total cortisol production; insufficient levels of cortisol, particularly first thing in the morning, impairs immune surveillance and allows dysfunctional autoreactive immune cells to escape destruction. Over time, this dysfunctional process may lead to the onset of autoimmunity.⁸
- **Telomere biology:** Cortisol levels are closely related to the length of telomeres, regions of repetitive nucleotide sequences (nucleotides are the building blocks of DNA) found at the end of each chromosome in the body. Telomeres protect the chromosome from damage and serve as a "buffer," safeguarding the chromosome during the cell replication process. However, telomeres are also shortened with each round of chromosome replication, contributing to the aging process.⁹ By balancing HPA axis function, we may be able to attenuate telomere shortening, thus addressing a critical node in the aging process.

PREGNENOLONE & TIME-HONORED ADAPTOGENIC HERBS OPTIMIZE LONGEVITY

The HPA axis has far-reaching effects on numerous drivers of aging. Through strategic supplementation with the "mother hormone," pregnenolone, and adaptogens, we can support healthy HPA function and longevity. Adaptogens are plants and plant extracts that fortify the body against the effects of physiological, mental, and emotional stress. They boost stress resilience by inducing a mild stress response when consumed; this process, referred to as "hormesis," allows our bodies to

become more vigorous and vital. Pregnenolone complements the activity of adaptogens by acting as a steroidal precursor to our essential HPA axis and sex hormones.

PREGNENOLONE BALANCES STRESS AND SEX HORMONES

Each of the body's steroid hormones, including cortisol, estrogen, progesterone, testosterone, and DHEA, is biosynthesized from an endogenous steroid precursor, pregnenolone. Pregnenolone helps maintain a normal balance between the body's stress and sex hormones. It is synthesized in various tissues, including the brain, adrenal glands, skin, testicles, ovaries, and retina.

BUSTING THE MYTH OF THE "PREGNENOLONE STEAL"

Chronic stress was previously thought to deplete pregnenolone through a process referred to as the "pregnenolone steal." The pregnenolone steal concept posits that when stress is high, the body shunts pregnenolone down a path that culminates in cortisol production, leaving less pregnenolone available to create anti-inflammatory DHEA and vital sex hormones. However, we now understand that there is no single pool of pregnenolone available for all steroid hormone synthesis. Thus, demand for the production of cortisol in the adrenal cortex will not necessarily drain pregnenolone available for estrogen, progesterone, or testosterone production. The downregulated production of sex hormones in response to stress is more a factor of processes such as feedback inhibition, receptor signaling, and gene expression that ultimately influence hormone production.

Supplying the body with pregnenolone supports healthy HPA axis function and aging by facilitating the balanced production of ALL steroid hormones. Pregnenolone is a neuroactive steroid that influences memory processes and healthy brain aging.¹⁰ Pregnenolone supplementation may enhance DHEA production; DHEA is an anti-inflammatory hormone that improves blood glucose balance, cardiovascular health, brain function, and sexual function. DHEA levels peak between the ages of 25 and 30 and decline from there. DHEA levels are also downregulated by chronic stress. Conversely, robust levels of DHEA support healthy aging.¹¹

ASTRAGALOSIDE IV AND CYCLOASTRAGENOL SUPPORT TELOMERES

Astragalus membranaceus is a revered herb in the Traditional Chinese Medicine botanical compendium. It contains two primary phytochemicals, Astragaloside IV and Cycloastragenol, that promote telomerase activity, maintaining and even restoring telomere length to inhibit aging at the cellular level and support overall physical vitality.

Astragaloside IV supports telomerase expression in critical immune cell populations and may stave off the decline in

immune function that occurs with age.¹² Cycloastragenol supports telomerase expression in neuronal cells, supporting neuronal integrity.¹³ Through their regenerative effects on telomeres, astragalosides may restore tissue and organ function compromised by telomere shortening.

In preclinical research, whole extracts of *Astragalus membranaceus* have also been found to dampen the adverse effects of chronic stress on learning and memory processes, suggesting a role for this botanical in the maintenance of cognitive integrity during times of stress.¹⁴ It also regulates immune function, including increasing the proliferation of B and T lymphocytes and regulating the expression of pro-inflammatory cytokines.¹⁵ Because immune function tends to decline with age, *Astragalus* may represent a useful therapeutic tool for regulating and optimizing the aging immune system.

KOREAN PANAX GINSENG EXTRACT SUPPORTS STRESS RESILIENCE

In Traditional Chinese Medicine, Panax ginseng is a fundamental tonic used to tone the vital energy, or qi, of all bodily organs. In the USSR, Panax ginseng was introduced as an adaptogen, a substance that induces a mild stress response, thereby upregulating the body's own resilience to stress. Since its early inception as a tonifying, fortifying herb, Panax ginseng has remained a central herb for regulating the stress response and enhancing whole-body health.

Today, we know that ginseng is rich in primary bioactive constituents called ginsenosides. Ginsenosides have a four-ring, cholesterol-like skeleton, which appears to endow them with unique steroid hormone-like properties.¹⁶ More than 100 different ginsenosides have been isolated and identified in Panax ginseng; these ginsenosides may account for ginseng's powerful impacts on hormonal balance, libido, cognition, metabolic health, and overall vitality. Ginseng also contains polysaccharides, fatty acids, and other bioactive compounds that interact with our biology.

Research indicates that ginseng mitigates stress-induced gene expression and dampens the effects of chronic stress on the hippocampus, a critical portion of the brain that is impacted during aging and implicated in cognitive decline.^{17,18} Ginseng also enhances nitric oxide production for healthy cardiovascular aging. Ginsenosides also improve glycemic control, bolster levels of DHEA, the body's crucial anti-aging hormone, and upregulate AMPK, a critical cellular energy sensor intrinsically involved in the aging process.^{19,20}

Ginseng may alleviate menopausal symptoms by exerting beneficial estrogenic effects through interactions with estrogen receptor-alpha (ERα) and estrogen receptor-beta (ERβ).¹⁶ Steep declines in ovarian estrogen production and reduced estrogen signaling at the cellular level in the brain, bones, and reproductive tissues may contribute to common menopause symptoms such as vaginal

dryness, loss of bone density, brain fog, and weight gain. Supplementation with ginseng stimulates estrogenic activity and may counteract health declines associated with reduced estrogen levels.²¹ Interestingly, activation of ERα and ERβ by ginseng occurs in a tissue- and organ-specific manner, such that the plant's constituents modulate estrogen receptor activity in healthy tissues, but do not promote proliferative estrogen signaling by binding to cell receptors in estrogen-sensitive cancerous tissues.^{22,23}

PANAX NOTOGINSENG MODULATES CELLULAR SENESCENCE AND SUPPORTS A HEALTHY VASCULAR SYSTEM

Panax notoginseng comes from the same plant genus as *Panax ginseng* but offers different benefits for healthy aging. *Panax notoginseng* contains phytochemicals called ginsenosides that modulate cellular senescence, the process by which somatic cells stop dividing and instead become stagnant secretors of pro-inflammatory compounds that ultimately exacerbate inflammation and damage neighboring cells. Senescent cells are implicated in many of the adverse changes associated with aging, including chronic inflammation and declines in immune function. By cleaning up senescent cells, *Panax notoginseng* supports an internal environment more conducive to healthy aging.²⁴

Panax ginseng also protects the vascular system during the aging process, maintaining healthy microcirculation, decreasing blood pressure, and inhibiting the accumulation of misfolded proteins in the central nervous system, an insidious process implicated in brain aging. In preclinical studies, *Panax notoginseng* has been found to increase stress resistance and slow the accumulation of age-related biological damage, including free radical damage, in model organisms.²⁵

HE SHOU WU SUPPORTS HEALTHY BRAIN AGING AND IMMUNE FUNCTION

He shou wu, also known as "tuber fleece flower," is a revered botanical in the Traditional Chinese Medicine herbal compendium. Modern-day scientific research indicates that this time-honored longevity herb impacts multiple pathways involved in the HPA axis and biological aging process. A compound found in he shou wu called 2,3,5,4'-tetrahydroxystilbene-2-O-β-d-glucoside (TSG) has been found to inhibit acetylcholinesterase activity and exert antioxidant activity in the brain, thus inhibiting brain aging.²⁶

Immune system activity declines with age, rendering the body more susceptible to infection. He shou wu's polysaccharides and anthraquinone glycosides modulate the immune system, improving natural killer cell activity and macrophage phagocytosis, thereby enhancing the body's frontline defenses against invading microbes. These changes may bolster the aging immune system, promoting more youthful immune activity.

ASHWAGANDHA REGULATES THE STRESS RESPONSE FOR HEALTHY AGING

Ashwagandha is primarily a strengthening tonic in Indian Ayurvedic medicine, lauded as a "Rasayana," or rejuvenator. Ashwagandha phytochemicals, including the sitoindosides VII-X and Withaferin-A, have been shown to exert anti-stress activity by influencing the HPA axis and heat shock proteins (HSPs), critical mediators of the stress response that are also intrinsically involved in aging.^{27,28} Ashwagandha improves mental alertness and sleep quality in aged individuals and bolsters DHEA-S and testosterone in aging males.^{29,30}

ZHI GAN CAO

Zhi Gan Cao is a Chinese honey-prepared licorice long used in Traditional Chinese Medicine to tonify Spleen-Qi, which correlates with the digestive system and aspects of the circulatory system.

Licorice root contains a phytochemical called glycyrrhetic acid that inhibits an enzyme called 11β hydroxysteroid dehydrogenase, which is involved in the deactivation of cortisol into cortisone. By balancing active cortisol and inactivated cortisone, licorice root helps to maintain HPA axis balance from the top down.³¹

SELF-EMULSIFYING DELIVERY SYSTEM LONGEVITY PHYTO CAPS

Category: LONGEVITY



Sirtuin Activator
& Senolytic

SKU: Q-1180

SIZE: 60 CAPSULES

Longevity Phyto Caps provide a blend of phytonutrients designed to support sirtuin activation and balance senescent cell activity inside the body. Each two-capsule serving provides turmeric oleoresin and turmeric oil, quercetin, resveratrol, and trans-pterostilbene in our highly bioavailable SEDS delivery technology.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

Supplement Facts

Serving Size: 2 Capsules
Servings Per Container: 30

| | Amount Per Serving | % Daily Value |
|--|-----------------------|------------------|
| Calories | 0 | |
| Total Carbohydrates | 0g | 0% |
| Total Sugars | 0g | ** |
| Includes 0g Added Sugars | | 0% |
| Proprietary Curcuminoid Complex | 150mg | ** |
| Turmeric Oleoresin and Turmeric Oil (from <i>Curcuma longa</i>) (rhizomes) - Containing 20mg of Curcuminoids | | |
| Proprietary Blend | 170mg | ** |
| Quercetin Dihydrate (from <i>Sophora japonica</i> flower), Resveratrol (from <i>Polygonum cuspidatum</i> root), Trans Pterostilbene Extract, Mint Oils | | |

**Daily Value not established

Other Ingredients: Plant-derived cellulose capsule, tocopherol, medium chain triglycerides, phospholipids (from purified sunflower seed lecithin)

EDUCATION

A growing body of research indicates that the biological aging process is malleable through the modulation of several cellular processes. Two hallmarks of biological aging amenable to modulation through nutrition, lifestyle, and supplement strategies include declining sirtuin activity and cellular senescence.¹

SIRTUIN ACTIVATION PROMOTES LONGEVITY

Sirtuins are a family of seven cellular proteins that regulate numerous vital cellular functions, including inflammation, energy metabolism, neuronal function, stress resistance, and longevity.² At a biochemical level, sirtuins' primary mechanism of action is removing acetyl groups from an amino acid called lysine found in proteins throughout the body. Removal of this acetyl group, a process

known as "deacetylation," activates the target protein, allowing it to function effectively inside the body. Many target proteins that sirtuins deacetylate are involved in biological aging and longevity.

While a decline in sirtuin activity is associated with biological aging, therapeutic sirtuin activation counteracts health declines related to aging, facilitating positive effects on metabolism, brain function, healthspan, and longevity.^{3,4,5} Many natural compounds are sirtuin activators, including curcumin and resveratrol, and may offer longevity benefits due to their sirtuin activity.

CLEARANCE OF SENESCENT CELLS NURTURES LONGEVITY

As we age, our tissues accumulate cells that have irreversibly ceased to divide, known as senescent cells. Senescent cells are playfully referred to as "zombie cells" due to their resistance to cell death and ability to secrete inflammatory mediators (the "senescence-associated secretory phenotype," or SASP) that can "infect" and harm neighboring cells. Through these mechanisms, senescent cells are critical instigators of low-grade chronic inflammation that drives biological aging and depreciates health.

Chronic senescent cells impair immune function, age the endothelial lining of blood vessels, and promote the accumulation of misfolded proteins in the nervous system. These cells are thus associated with many age-related diseases, including immune dysfunction, certain types of cancers, cardiovascular disease, and neurodegenerative disease.^{6,7,8,9} Senolytics, or compounds that

selectively induce the death of senescent cells, can help manage senescent cell populations, promoting healthier cells, tissues and improved aging.

TARGETED PHYTONUTRIENTS SUPPORT SIRTUINS AND CELLULAR SENESCENCE

Turmeric Oleoresin

Turmeric oleoresin is an extract of the bright gold turmeric root, *Curcuma longa*, and contains both curcumin and turmeric essential oil. Curcumin demonstrates potent sirtuin-activating properties.¹⁰ It enhances the expression of a sirtuin known as SIRT1, which alleviates damage induced by beta-amyloid, a malformed protein involved in the pathogenesis of Alzheimer's disease.¹¹

SIRT1 activation by curcumin also inhibits mitochondrial damage triggered by ischemia-reperfusion injury.¹² A primary mechanism through which ischemia-reperfusion injury damages mitochondria is through the enhanced generation of free radicals.¹³ Excessive free radical activity and damaged mitochondria are independently associated with biological aging.¹⁴

The impact of curcumin on cellular senescence has yet to be intensively studied. However, some interesting preclinical research suggests that curcumin may actually selectively induce senescence in cancer cells, a positive effect when one is trying to clear dysfunctional and harmful cancerous cells from the body.¹⁵ Furthermore, even though it is not a senolytic per se, curcumin can inhibit the generation of inflammatory mediators released by senescent cells, such as NfκB.¹⁶

Resveratrol

The phytochemical resveratrol, a flavonoid found in grapes and grape products such as red wine, is a veritable superstar for longevity. Its popularity is well-deserved given its significant sirtuin-activating effects.¹⁷ It triggers the anti-inflammatory SIRT1 pathway, inhibiting various pro-inflammatory factors that drive biological aging, including NFκB, TLR4, platelet-activating factor, and TNF-α.

Resveratrol may support healthy brain aging and a youthful cardiovascular and immune system by enhancing sirtuin activity.^{18,19,20} It also improves insulin sensitivity and energy metabolism, both of which are critical for healthy aging.²¹

Quercetin

Quercetin is a phytochemical found in various vegetables and fruits, including onions, capers, and apples. It activates SIRT6, a gene that codes for one of the members of the sirtuin family involved in DNA repair, telomere maintenance,

and stress response regulation, all of which are vital processes that influence healthy aging.²² Early research also suggests that quercetin has senolytic properties on adipocytes, or fat cells, and fibroblasts, which are connective tissue cells that produce collagen and maintain connections between organs and tissues in the body.^{23,24}

By increasing the expression of SIRT1, quercetin may support a healthy cardiovascular system through the attenuation of atherosclerosis. It may also protect against the harmful effects of high blood glucose, a problem that is increasingly common with brain aging.^{25,26}

Trans-Pterostilbene

Trans-pterostilbene is a phytochemical closely related to resveratrol. It belongs to a family of phytochemicals called "phytoalexins" that defend plants against harmful microbes and demonstrate health-promoting effects in humans.²⁷ It is found in high concentrations in blueberries and other members of the *Vaccinium* berry family, including almonds, grape leaves, and grape vines. Pterostilbene is found in two forms in nature: Cis-pterostilbene and trans-pterostilbene. The trans form is more stable and appropriate for supplementation.

Pterostilbene activates SIRT1 in skeletal muscle, protecting the muscle against oxidative stress and mitochondrial dysfunction caused by ischemia-reperfusion injury.²⁸ When combined with nutrients that nourish mitochondrial function, including lipoic acid and L-carnitine, pterostilbene has been found to increase sirtuin activity and activate the unfolded protein response (UPR), a mitochondrial process with effects on longevity.²⁹ Activation of the UPR in mitochondria counteracts aging-associated health declines, including neurodegeneration.³⁰

IMPROVING THE BIOAVAILABILITY OF LONGEVITY PHYTONUTRIENTS

Curcumin, resveratrol, and quercetin are poorly absorbed by intestinal cells and thus demonstrate suboptimal bioavailability when administered in traditional delivery formats, such as powders and capsules.^{31,32,33} Self-emulsifying delivery systems (SEDS) demonstrate the ability to improve absorption of these phytonutrients and may enhance the beneficial impact of these compounds on biological aging and longevity.^{34,35,36}

CAPSULES MAGNESIUM HYDROXIDE

Category: DETOX • GI



GI Regularity Support

SKU: Q-1223

SIZE: 120 CAPSULES

Magnesium Hydroxide is designed to support GI regularity in those prone to constipation. It provides 133 mg of magnesium hydroxide per capsule to support occasional constipation and healthy bowel motility.*

ALLERGEN FREE • GLUTEN FREE • NON-GMO • SOY PROTEIN FREE VEGAN

Supplement Facts

| Serving Size: 2 Capsules Servings Per Container: 60 | Amount Per Serving | % Daily Value |
|--|--------------------|---------------|
| Magnesium | 266 mg | 63% |
| <small>(from 700 mg from Magnesium Hydroxide)</small> | | |

**Daily Value not established

Other Ingredients: Plant-derived cellulose capsule, microcrystalline cellulose, organic carnauba wax

EDUCATION

MAGNESIUM: A KEY MINERAL FOR GI REGULARITY

Constipation doesn't just feel uncomfortable; it may also increase the recirculation of hormones and toxins that the body needs to get rid of.¹ Constipation can also make it difficult for patients to comply with detoxification protocols, especially protocols that include motility-slowing binding agents such as activated charcoal and bentonite clay.

In addition, GI regularity is essential for a healthy gut. Constipation may disrupt the balance of microbes in the gut, promoting an unhealthy gut microbiome.² An unhealthy gut microbiome can, in turn, drive inflammation and associated health challenges such as brain fog and fatigue.^{3,4,5}

Various forms of magnesium, including magnesium sulfate and magnesium citrate, have been used to treat constipation in Traditional Chinese herbal medicine and in Western countries.⁶ Magnesium hydroxide, also known as "milk of magnesia," has long been used as an intervention for constipation as an osmotic laxative. Magnesium hydroxide improves bowel movement regularity by drawing water into the intestinal lumen, increasing the hydration and volume of stool.⁷ These changes, in turn, can

make stool easier to pass and improve bowel regularity.

Magnesium hydroxide shares many of the same benefits with magnesium oxide, another widely used form of magnesium. This is because magnesium oxide is a precursor to magnesium hydroxide; when magnesium oxide is mixed with water, such as it would in the gastrointestinal tract, it forms magnesium hydroxide.⁸

Magnesium oxide also has a long history of use for supporting healthy bowel motility.⁹ In a randomized controlled trial comparing magnesium oxide to placebo, it significantly improved bowel movement frequency, form, and quality of life in adults struggling with persistent constipation.¹⁰ Another study found that both magnesium oxide and senna, an herbal laxative, improved bowel movements; however, magnesium oxide has the benefit of inducing bowel movements through a gentle osmotic effect, whereas the stimulant effects of senna can be harsh on the gut.¹¹

In addition, this form of magnesium can support healthy bowel motility in multiple age groups. A double-blind, randomized controlled trial that administered the probiotic microorganism *Lactobacillus reuteri* DSM 17938 with magnesium oxide or magnesium oxide alone found that both interventions significantly improved bowel movement frequency in children.¹² Another clinical trial found that magnesium oxide increased bowel movement frequency, reduced the need for enemas, and improved stool consistency compared to a placebo.¹³ Altogether, the research indicates that magnesium hydroxide is a form of magnesium commonly used for improving bowel regularity in children, adolescents, and adults.^{14,15}



NANOEMULSION MELATONIN

Category: CALMING + SLEEP • HORMONES



Sleep Hormone

SKU: Q-1057

SIZE: 30 ML

Nanoemulsion Melatonin is an advanced delivery form of the body's primary sleep-modulating hormone, melatonin. In supplemental form, melatonin supports a healthy circadian rhythm and sleep cycle. It also normalizes sleep during and after travel across time zones and in shift workers.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

Supplement Facts

Serving Size: 0.2 mL (1 pump)
Servings Per Container: 150

| | Amount Per Serving | % Daily Value |
|-----------|--------------------|---------------|
| Melatonin | 1mg | ** |

**Daily Value not established

Other Ingredients: Water, glycerin, ethanol, tocopherol, highly purified phospholipids, medium-chain triglycerides, natural mixed tocopherols

exposure to non-native EMFs (EMFs produced by man-made technologies), blue light exposure at night, exercise performed late in the day, and aberrant sleeping patterns.^{1,2,3,4,5,6} Melatonin production also naturally declines with age.⁷ Melatonin supplementation can help correct these deficits by realigning the circadian rhythm, restoring healthy sleep patterns and whole-body wellbeing.

Importantly, melatonin does not cause sleep; instead, by signaling to our circadian system that darkness has arrived, melatonin acts as the "starting gun" for the beginning of the "race" that is sleep.

MELATONIN SUPPORTS MOOD AND COGNITION AND DETOXIFIES THE BRAIN

Melatonin doesn't just ease the body into sleep – it is also a potent neuroprotective antioxidant. In fact, the antioxidant properties of melatonin have an array of beneficial effects on the brain. Melatonin protects the brain from oxidative stress resulting from traumatic brain injury.^{8,9,10} It may also alleviate depression and anxiety by quenching neuroinflammation.¹¹

Emerging research also suggests that supplementation with low-dose melatonin in the afternoon or evening alleviates seasonal affective disorder (SAD), a type of depression related to changes in seasons and the circadian system.¹² Not to be overlooked is melatonin's critical role in brain detoxification. Melatonin helps the brain eliminate harmful waste by facilitating deep non-REM sleep, which, in turn, activates the glymphatic system.¹³ The glymphatic system is a waste clearance system in the central nervous system that removes metabolic wastes and toxic proteins, allowing

the brain to function optimally. Insufficient glymphatic system activity caused by a lack of deep sleep permits the accumulation of misfolded, toxic proteins in the CNS, which play a role in neurodegenerative diseases such as Alzheimer's disease.¹⁴

MELATONIN SUPPORTS HEALTHY GI FUNCTION

Melatonin doesn't just impact the brain - melatonin receptors are widely distributed throughout the body. As a result, this hormone exerts biological effects on numerous body systems, including the gastrointestinal tract. Melatonin has been found to promote normal bowel patterns and elimination, reducing gastrointestinal discomfort.¹⁵ Optimal melatonin levels may also support an anti-inflammatory, metabolically-healthy gut microbiota, a foundational element of whole-body health.^{16,17}

MELATONIN REGULATES CARDIOVASCULAR AND METABOLIC HEALTH

Melatonin also promotes cardiovascular health, which research suggests is impacted by decreased melatonin secretion.¹⁸ It attenuates atherosclerosis by upregulating mitophagy, the selective degradation of defective mitochondria, and by inhibiting the NLRP3 inflammasome.¹⁹ Melatonin is also a key regulator of glucose metabolism and energy balance.²⁰ In animals, removal of the pineal gland (where melatonin is made) has been found to induce glucose intolerance and insulin resistance.^{21,22} Conversely, restoration of optimal melatonin levels abolishes these adverse effects, restoring insulin sensitivity and glucose tolerance.²³

Melatonin may support healthy blood glucose control and body weight by alleviating the inflammatory processes that promote metabolic dysfunction and by balancing hormones involved in food intake, such as leptin. The relationship between melatonin and metabolic health explain why sleep deprivation is so strongly linked to the development of insulin resistance and type 2 diabetes in humans.²⁴

MELATONIN OPTIMIZES IMMUNITY

Emerging research indicates that melatonin has profound effects on the immune system. It protects against aberrant cell proliferation. Emerging research indicates that melatonin has profound effects on the immune system. It protects against aberrant cell proliferation and balances the pro-inflammatory and anti-inflammatory branches of the immune system.^{25,26} These immunomodulatory properties may explain why artificial light exposure at night and sleep deprivation/disturbances are implicated in the development of breast malignancies and other neoplasms.²⁷

LIPOSOMAL DELIVERY SYSTEMS MAY IMPROVE MELATONIN BIOAVAILABILITY

Supplemental melatonin typically has low oral bioavailability.²⁸ However, nanoparticle delivery systems may enhance the absorption of supplemental melatonin by bypassing hepatic first-pass metabolism and permitting a direct absorption of melatonin into the bloodstream.^{29,30} Nanoparticle delivery systems may thus enhance the therapeutic properties of melatonin.

EDUCATION

MODERN-DAY LIFESTYLE DIMINISHES MELATONIN

Melatonin is a hormone that is principally produced by the pineal gland in the brain, with smaller amounts produced in peripheral tissues. It is most well-known for its role in regulating the circadian rhythm and facilitating sleep.

A circadian rhythm is an internal set of biological processes in the body that follows an approximately 24-hour cycle and regulates many aspects of our behavior and physiology. Melatonin is the primary regulator of the circadian rhythm, in animals, including humans. Its release is triggered by darkness and inhibited by light, whether from the sun or a glowing computer screen.

A variety of factors in our modern-day world disrupt our circadian rhythms and diminish natural melatonin production, including jet lag,

NANOEMULSION MELATONIN PROFESSIONAL DOSE

Category: CALMING + SLEEP • HORMONES



High Dose

SKU: Q-1058

SIZE: 30 ML

Nanoemulsion Melatonin Professional Dose is an advanced delivery form of melatonin, the body's primary sleep-modulating hormone. In supplemental form, melatonin supports a healthy circadian rhythm and sleep cycle. It also normalizes sleep during and after travel across time zones and in shift workers. Nanoemulsion Melatonin Professional Dose offers a higher dose than our Nanoemulsion Melatonin, at 4 mg melatonin per 0.2 mL pump, and is recommended for use under the guidance of a qualified healthcare professional.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

Supplement Facts

Serving Size: 0.2 mL (1 pump)
Servings Per Container: 150

| | Amount Per Serving | % Daily Value |
|-----------|--------------------|---------------|
| Melatonin | 4mg | ** |

**Daily Value not established

Other Ingredients: Water, glycerin, ethanol, tocopherol, highly purified phospholipids, medium-chain triglycerides, natural mixed tocopherols

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PATENT PENDING

NANOFORMULATED MEMBRANE MEND®

Category: COGNITIVE SUPPORT • DETOX • LONGEVITY

Membrane Mend® is a blend of phosphatidylcholine, plant-based essential fatty acids, astaxanthin, and tocotrienols designed to promote the health and resilience of cell and organelle membranes.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

| Supplement Facts | | |
|--|--------------------|---------------|
| Serving Size: 5 mL (1 tsp.) Servings Per Container: 20 | | |
| | Amount Per Serving | % Daily Value |
| Natural Astaxanthin (from Haematococcus pluvialis extract) | 7mg | ** |
| DeltaGold® Tocotrienols | 10mg | ** |
| Ahiflower® (refined Buglossoides arvensis) seed oil | 150mg | ** |
| Phosphatidylcholine (from highly purified phospholipids) | 460mg | ** |
| **Daily Value not established | | |
| Other Ingredients: Water, glycerin, ethanol, tocopherols, natural citrus oils, antioxidants (rosemary extract, natural tocopherols, ascorbyl palmitate) | | |

ensure the maintenance of mitochondrial membrane potential.⁴ Factors that damage mitochondrial membranes compromise this membrane potential. Because mitochondria generate the energy necessary for every cell and tissue in the body, these organelles' structural and functional integrity is paramount.

The endoplasmic reticulum (ER) is a network of membranous tubules studded with ribosomes involved in protein and lipid synthesis. The ribosomes are tiny particles consisting of RNA that synthesize polypeptides and proteins. The ER is intrinsically involved in the synthesis of steroid hormones, including estrogen and testosterone.

The Golgi apparatus is a complex set of folded membranes inside the cell involved in the transport, modification, and packaging of proteins and lipids. It synthesizes the peptide-based fibers of the intracellular matrix. Like mitochondria, the ER and Golgi apparatus are encased in phospholipid membranes.

THE MODERN LIFESTYLE COMPROMISES MEMBRANE INTEGRITY

A variety of modern-day factors disrupt the integrity and health of biological membranes. Anthropogenic pollutants, such as particulate matter, pesticides, and heavy metals damage mitochondrial membranes, impairing ATP production.^{5,6} Environmental toxins also damage the delicate lipid membranes of the endoplasmic reticulum. A growing body of research indicates that ER damage is a significant contributor to chronic disease processes, including cardiometabolic and neurodegenerative diseases.^{7,8} Other aspects of the modern lifestyle, including antibiotic use and non-native electromagnetic fields disrupt cell and organelle membranes.^{9,10}

EDUCATION

BIOLOGICAL MEMBRANES ARE ESSENTIAL FOR CELL AND ORGANELLE FUNCTION

Every cell and organelle in the human body is encapsulated by a biological membrane composed of orderly lipid molecules called phospholipids. Biological membranes maintain the architecture and physiology of cells and organelles and serve as the initiation point for critical intracellular signaling pathways.¹

The cell membrane is the interface between the body's extracellular space and the complex intracellular milieu. The three most significant lipids in cell membranes are phospholipids, glycolipids, and cholesterol; phosphatidylcholine accounts for 23 percent of the lipids in cell membranes, making it an integral component of the cellular interface.³

Mitochondria, the minuscule yet powerful energy factories of our cells, have their own biological membranes. Intact mitochondrial membranes

THE THERAPEUTIC POTENTIAL OF SUPPLEMENTAL MEMBRANE LIPIDS

Membrane lipid therapy aims to normalize and optimize membrane lipid composition and support healthy cellular function by supplying supplemental membrane lipids to replace damaged lipids. Supplemental phosphatidylcholine (PC) is the cornerstone of membrane lipid therapy.

Membrane Lipid Therapy Optimizes Energy Production

The mitochondrial membrane potential is a proton electrochemical gradient across the inner mitochondrial membrane that produces the potential energy necessary to create ATP, our cellular energy "currency."¹¹ PC is an essential element of mitochondrial membranes, and damage to these membranes disrupts the membrane potential and ATP production. Membrane lipid therapy repairs mitochondrial membranes, restoring the membrane potential and energy production while reducing fatigue.¹²

Supplemental PC Promotes Detoxification & Protects the Liver

Phosphatidylcholine solubilizes bile acids, ushering toxins out of the body via the stool. PC also offers hepatoprotective effects, guarding the liver against anthropogenic toxins, such as solvents, as well as the deposition of hepatic fat triggered by the pro-inflammatory Western diet and lifestyle.^{13,14}

Membrane Lipid Therapy Improves Intestinal Barrier Function

Intestinal epithelial cells harbor membranes enriched in phosphatidylcholine.¹⁵ A variety of inflammatory triggers, including NSAIDs and the Western diet, may disrupt intestinal epithelial cell membranes, compromising gut health.

Emerging research indicates that membrane lipid therapy may reduce gut inflammation in inflammatory bowel disease, reverse increased intestinal permeability (aka "leaky gut") and protect the gastrointestinal mucosa from pathogens such as Helicobacter pylori.^{16,17,18}

Supplemental Phospholipids Bolster Brain Function

As we age, the composition of our neuronal membrane lipids changes, adversely affecting neuronal signaling. Supplemental phosphatidylcholine may support healthy neuronal membranes, improving neurotransmission and protecting brain function as we age.¹⁹ Supplemental phospholipids may also aid recovery from traumatic brain injury (TBI) by replacing oxidized lipids in neuronal membranes, improving neuronal function.²⁰

Supplemental PC May Support Hormone Synthesis

The smooth endoplasmic reticulum is the site of hormone synthesis, including that of testosterone, estrogen, and thyroid hormones.^{21,22} Without intact ER membranes, hormones cannot be synthesized in adequate amounts. Restoration of ER membranes with supplemental PC may thus improve hormone synthesis and secretion.

ESSENTIAL FATTY ACIDS OFFER ADJUNCT SUPPORT FOR HEALTHY MEMBRANES

Phospholipids aren't the only lipid molecules that support healthy biological membranes; essential fatty acids (EFAs) also play vital roles in membrane health. Linoleic acid (LA), alpha-linolenic acid (ALA), gamma-linolenic acid (GLA), and stearidonic acid (SDA) work together to support the health and function of cell membranes while also reducing inflammation.

While both omega-6 and omega-3 fatty acids are essential, a delicate balance between these two fats must be achieved to promote optimal membrane health and function. Buglossoides arvensis seeds contain an oil that provides an optimal ratio of omega-6 to omega-3 fatty acids that has been shown to increase circulating and tissue levels of omega-3 fatty acids.^{23,24}

MEMBRANE-TARGETED ANTIOXIDANTS SUPPORT CELL AND ORGANELLE HEALTH

Carotenoids are vitamin A precursors and natural pigments that impart vegetables and fruits with yellow, orange, and red colors. While β-carotene is the most well-known carotenoid, it is but one of more than 750 carotenoids that have been characterized to date. Astaxanthin is a carotenoid abundant in marine life, including krill, shrimp, wild salmon, and certain microalgae species that confer these organisms with a rich pink color. It is a potent lipid-soluble antioxidant that supports biological membrane integrity, protecting delicate membrane phospholipids against oxidative stress.²⁵ It has a particular affinity for mitochondrial membranes, where it squeezes itself in-between phospholipids to provide frontline protection against oxidative stress. The absorption of astaxanthin is increased when it is consumed with omega-3 rich oils.

Tocotrienols are compounds within the vitamin E family with powerful antioxidant properties. Delta tocotrienol is a highly bioavailable form of tocotrienol that quenches free radicals with membrane-damaging potential, supporting membrane integrity.

MEMBRANE MEND IS FOUND IN THE FOLLOWING PROTOCOL SYSTEMS:

- PreTox System
- Advanced PushCatch® Detox System
- Bio-Age Activate
- Bio-Age Elevate

Comprehensive Cellular Support

SKU: Q-1159

SIZE: 100 ML

LIPOSOMAL METHYL B-12

Category: **CARDIOMETABOLIC • VITAMINS & MINERALS**



Cellular Energy

SKU: Q-1008

SIZE: 30 ML

Liposomal Methyl B-12 provides 1000 mcg of methylcobalamin per serving. It is widely known that age, genetic variation, and low stomach acid can inhibit B12 absorption. Our advanced delivery technology offers higher absorption to support the repletion of this multi-purpose vitamin.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE VEGAN

| Supplement Facts | | |
|---|---------------------------|----------------------|
| Serving Size: 0.33 mL (2 pumps) Servings Per Container: 90 | | |
| | Amount Per Serving | % Daily Value |
| Vitamin B12 (as methylcobalamin) | 1000mcg | 41,667% |
| **Daily Value not established | | |
| Other Ingredients: Water, glycerin, ethanol, highly purified phospholipids, tocopherols, natural mixed tocopherols | | |

EDUCATION

VITAMIN B12: A CRITICAL NUTRIENT FOR WHOLE-BODY HEALTH

Methylcobalamin (methyl B12) is an essential water-soluble nutrient essential for DNA and RNA synthesis, red blood cell production, neurological function, mood and memory, and bone and heart health.¹ Methylation is fundamental to life itself: it is the process by which protein and DNA are synthesized and sustained in the body and is necessary for the synthesis of glutathione.² When methylation is slowed we may have trouble detoxifying, keeping viruses in check, and ensuring our DNA is stable, healthy, and easily repaired.³

Vitamin B12 deficiency occurs in about 5%–7% of youth⁴, and 10-30% of healthy individuals over age 65.⁵ Functional B12 deficiency is also widespread, and vitamin B12 deficiency is considered to be a global issue. Sufficient levels of all B vitamins are essential for

optimal physiological and neurological functioning¹¹, but the implications are especially profound when there is insufficient methyl B12. B12 is already present in the metabolism of every cell, as a cofactor in DNA synthesis, as well as fatty acid and amino acid metabolism. Low levels of B12 have been linked to peripheral neuropathy, autism, multiple sclerosis, hypothyroidism, immune dysfunction and mercury toxicity.^{6,7,8,9,10,11,12} Methylcobalamin also helps keep homocysteine levels in check.

METHYLATED VITAMIN B12 REGULATES GENE EXPRESSION

Efficient methylation regulates gene expression and activity, DNA and RNA synthesis and cell differentiation throughout the body.¹⁴ During gene methylation, cells add a methyl group (an alkyl derived from methane, containing one carbon atom bonded to three hydrogen atoms — CH₃TK) to DNA. This methylation turns the gene off and renders it inactive, while removing the methyl group – a process called demethylation – turns a gene back on.

Deregulation of methylation machinery – both hypomethylation and hypermethylation – has been well studied.¹⁵ When methylation is slowed (hypomethylation), we can have trouble suppressing viruses¹⁶, processing toxins in the liver¹⁷, controlling inflammation and oxidation¹⁸, and generating sufficient neurotransmitters in the brain, which can lead to depression.¹¹ In contrast, hypermethylation results in higher levels of inflammatory cytokines as well as excess dopamine, norepinephrine, and serotonin, leading to irritability and anxiety.¹⁹

METHYLATED VITAMIN B12 OPTIMIZES HOMOCYSTEINE METABOLISM

Methylcobalamin plays a critical role in regulating the levels of the amino acid homocysteine in the bloodstream. Methylcobalamin prevents the accumulation of homocysteine by activating the enzyme methionine synthase. This enzyme converts homocysteine to the amino acid methionine, which can be converted into sulfur-containing molecules that modify DNA and help maintain healthy cellular function.²⁰ Vitamin B12 also regulates, together with 5-methyltetrahydrofolate (5-MTHF), the remethylation of homocysteine to methionine and the formation of S-adenosylmethionine (SAME). SAME is important for the methylation of myelin, neurotransmitters, and phospholipids such as phosphatidylcholine.

High homocysteine levels, along with low levels of folate and B12, have been linked to an increased risk of cardiovascular disease, as well as Alzheimer's disease and oxidative stress.^{21,22,23,24}

METHYLATED VITAMIN B12 SUPPORTS HEALTHY NERVE FUNCTION

Methylcobalamin's effect on methionine synthase benefits the nervous system. Methionine synthase supports pathways the body uses to make neurotransmitters. Methionine synthase also helps maintain the myelin sheath of nerves. Methylcobalamin has been shown to promote nerve repair and regeneration.²⁵ It has been shown to improve neuron recovery after traumatic brain injury.²⁶ It has also been shown to alleviate the neuropathic pain associated with diabetic neuropathy as well as pain and paresthesia associated with neck problems. Treatment with methylcobalamin significantly reduced continuous pain, paroxysmal pain, and allodynia in the subacute herpetic neuralgia (SHN) patients.²⁷

VITAMIN B12 PROTECTS COGNITIVE FUNCTION

Improved intake of Vitamin B12 in the elderly may significantly reduce the risk of age-related brain atrophy.²⁸ By lowering homocysteine, it may help defend against cognitive decline and Alzheimer's disease.²⁹

REFER TO THE ABSORPTION GRAPH ON PAGE 8.

LIPOSOMAL METHYL B-COMPLEX

Category: CARDIOMETABOLIC • VITAMINS & MINERALS



Methyl B Complex is a liposomal blend of eight B vitamins, trimethylglycine (TMG), and milk thistle seed extract, designed to fully support healthy energy levels, mood, cognition, immunity, cardiovascular health, methylation, detoxification, nervous system function, and optimal liver function.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • VEGAN

| Supplement Facts | | |
|---|-------------|---------|
| Serving Size: 1 mL (2 Pumps) | Amount | % Daily |
| Servings Per Container: 50 | Per Serving | Value |
| Thiamin (Vitamin B1) (Thiamine HCl) | 12mg | 1000% |
| Riboflavin (as Riboflavin-5-Phosphate) | 3.6mg | 277% |
| Niacin (as Niacin, Niacinamide) | 10mg | 63% |
| Vitamin B6 (as Pyridoxine HCl) | 6.7mg | 394% |
| Folate (as Calcium Folate) | 850mcg DFE | 213% |
| Vitamin B12 (as Methylcobalamin) | 500mcg | 20833% |
| Biotin | 500mcg | 1667% |
| Pantothenic acid (as Calcium d-Pantothenate) | 22.5mg | 450% |
| Proprietary Blend | 125mg | ** |
| Phosphatidylcholine (from highly purified phospholipids), Milk Thistle Seed Extract, Trimethylglycine (as betaine) | | |
| **Daily Value not established | | |
| Other Ingredients: Water, glycerin, ethanol, tocopherol, EDTA (as preservative), natural citrus oils, natural mixed tocopherols, natural flavoring | | |

adulthood is correlated with better cognitive function many years later in midlife.⁹

METHYLATED B12 IS CRITICAL FOR DNA REPAIR, AMINO ACID METABOLISM, & CARDIOVASCULAR HEALTH

Sufficient levels of all B vitamins are essential for optimal physiological and neurological functioning¹⁰, but the implications are especially profound when there is insufficient methyl B12 (methylcobalamin). B12 is already involved in the metabolism of every cell, as a cofactor in DNA synthesis, as well as fatty acid and amino acid metabolism, including the metabolism of homocysteine.¹¹ Low levels of methyl B12 have been linked to peripheral neuropathy, autism, multiple sclerosis, and mercury toxicity.^{12,13,14,15,16} High homocysteine levels, along with low levels of folate and B12, have been linked to an increased risk of cardiovascular disease, as well as Alzheimer's disease and oxidative stress.^{17,18,19,20}

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Supplying methylated B12 with metabolically active folinic acid (folate) as well as the spectrum of other B vitamins ensures that sufficient B vitamins are available for metabolic activity, without creating imbalances in the body such as hypermethylation of hypomethylation.^{27,28} Intermediate active forms of folate, such as folinic acid, may be better tolerated than the final active form, methylfolate. Supplementation with folinic acid bypasses the deconjugation and reduction steps utilized with folic acid. Human absorption studies of folinic acid show a bioavailability of 92%.²⁹

B VITAMINS PROTECT THE BRAIN

B vitamins have shown measurable benefit in stroke, cognitive decline, dementia, and depression.^{30,31,32} High dietary intake of B vitamins, particularly vitamin B6, has been associated with better cognitive function in older adults.^{33,34} B complex vitamins significantly improve depression and anxiety in adults diagnosed with major depression.³⁵ Meanwhile, low folate intake has been linked to increased risk of mild cognitive impairment and dementia.³⁶ Serum vitamin B12 concentrations in the low normal range are present in about 30% of stroke patients over 70 years old.³⁷ Riboflavin and niacin may be neuroprotective and helpful in Parkinson's disease.^{38,39,40} High-dose riboflavin has been shown to reduce migraine severity and frequency⁴¹ while high dose biotin has improved symptoms in some patients with multiple sclerosis.⁴² Deficiency of thiamine has been linked to dementia, Alzheimer's disease, Parkinson's disease, and Huntington's disease.⁴³

B VITAMINS SUPPORT ENERGY, EXERCISE, AND ENDURANCE

B vitamins are critical to meet daily energy needs as well as to maintain and repair muscle mass in elite athletics and endurance sports.⁴⁴ Studies show that B6, riboflavin, and folate are frequently low in the diets of women who exercise regularly.⁴⁵ Up to 60% of male and female athletes can have poor vitamin B6 levels^{46,47}, and over half of athletes may have low levels of riboflavin.⁴⁸ Even after taking a multivitamin and mineral supplement for 8 months, 10% of athletes were still low in vitamin B6.^{49,50} B5, also known as pantothenic acid, is a significant component of the Krebs cycle and energy metabolism.

B VITAMINS SUPPORT OPTIMAL IMMUNITY AND HEALTHY INFLAMMATION LEVELS

Suboptimal levels of B vitamins can lead to chronic inflammation and reduced immune function. Thiamine (B1) deficiency is associated with an increase in neuroinflammation and increased production of pro-inflammatory cytokines such as IL-1, TNF-alpha, and IL-6.⁵¹ Riboflavin prevents lipid peroxidation and reduces some forms of oxidative injury.⁵² Niacin has been shown to lessen pro-inflammatory cytokines and lessen the effects of inflammation.⁵³ Vitamin B6 can reduce NF-kappa B activation by macrophages, dampening inflammation⁵⁴; it also modulates immunity and gene expression.^{55,56} Trimethylglycine (betaine) and milk thistle seed extract are both anti-inflammatory and support healthy liver function.^{57,58,59,60}

LIPOSOMES IMPROVE B VITAMIN ABSORPTION

Uptake and absorption of B vitamins can vary and can be limited by breakdown in the digestive tract. Liposomal delivery systems protect molecules from breakdown while enabling more rapid uptake. Liposomal formulations improve absorption of many molecules in the gastrointestinal tract, avoiding hepatic first-pass metabolism and resulting in higher bioavailability.^{61,62}

METHYL B-COMPLEX IS IN THE FOLLOWING PROTOCOL SYSTEMS:

- Black Box® II

EDUCATION

B VITAMIN DEFICIENCIES ARE PREVALENT IN OUR MODERN-DAY WORLD

Despite our era of food fortification, widespread deficiency of B vitamins – often subclinical—has been thoroughly documented.¹ B vitamins may be deficient due to age, hypochlorhydria, small intestinal bacterial overgrowth, a micronutrient-poor diet, or excessive use of alcohol or medications, such as proton-pump inhibitors, metformin, or hormone-based contraceptives.^{2,3,4} The National Institute of Health's (NIH) Dietary Office estimates that up to 15% of people in the U.S. are deficient in vitamin B12.⁵ As many as 13% of elite endurance athletes can show vitamin B6 deficiency, as well as 10% of those playing team sports.⁶ Niacin deficiency is twice as common in women as in men.⁷ Genes encoding the transformation of B12 to its bioactive forms—adenosylcobalamin and methylcobalamin—also impact health.⁸

The effect of vitamin B status on wellbeing can be lifelong: higher B vitamin intake in young

LIPOSOMAL METHYL CHARGE+®

Category: **CARDIOMETABOLIC • LONGEVITY • VITAMINS & MINERALS**



Advanced
Methylation
Formula

SKU: Q-1148

SIZE: 50 ML

Methyl Charge+® is a blend of vitamin B2, methyl-B12, trimethylglycine (TMG or betaine), B6, and folinic acid, designed to support healthy methylation.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • VEGAN

| Supplement Facts | | |
|--|--------------------|---------------|
| Serving Size: 1 mL (2 Pumps) Servings Per Container: 50 | | |
| | Amount Per Serving | % Daily Value |
| Riboflavin (as Riboflavin-5-Phosphate) | 10mg | 769% |
| Vitamin B6 (as Pyridoxine HCl) | 1mg | 59% |
| Folate (as Calcium Folate) | 850mcg DFE | 213% |
| Vitamin B12 (as Methylcobalamin) | 500mcg | 20833% |
| Trimethylglycine (betaine) | 75mg | ** |
| **Daily Value not established | | |
| Other Ingredients: Water, glycerin, ethanol, highly purified phospholipids, tocopherols, EDTA (as preservative), natural mixed tocopherols, natural citrus oils, cinnamon bark oil, natural flavoring | | |

EDUCATION

METHYLATION 101

Methylation is critical to detoxification, glutathione regeneration,¹ DNA repair, and closely connected to the NAD+ cycle. Methyltransferases are important enzymes that broadly catalyze the transfer of methyl groups and thus modify DNA and gene expression. Methylation supplements have traditionally focused solely on providing 5-MTHF (L-5-methyltetrahydrofolate), the naturally-occurring, active form of folic acid, to counter methylation issues arising from variations in the MTHFR gene (methylene tetrahydrofolate reductase). However, the administration of 5-MTHF alone may yield short-term benefits, only to cause an eventual “crash” that is now understood to be mitochondrial dysfunction downstream of NAD+ deficiency.² It is therefore crucial to supply NAD+ precursors, such as nicotinamide mononucleotide (NMN) alongside pro-methylation nutrients such as vitamins B2, methylated B12, B6, folinic acid, and TMG.

THE INTERCONNECTION BETWEEN NAD+ AND METHYLATION CYCLES

NAD+ (nicotinamide adenine dinucleotide) is the celebrated ‘anti-aging’ molecule naturally present in every cell and critical for DNA repair, cellular bioenergetics, genomic signaling, and cell survival.^{3,4} As we age, however, we experience a steady decrease in systemic NAD+ biosynthesis making supplementation desirable for whole body health. In fact, NAD+ repletion has been shown to increase the body’s resilience to the diseases of aging, thereby extending healthy human lifespan.⁵

As NAD+ biosynthesis rises, methylation activity increases and methyl donors are consumed at a higher rate in order to remove excess nicotinamide or NAM (a metabolite of NAD+). It is under-recognized how intimately connected and interdependent the NAD+ and methylation cycles are.^{1,6,7,8,9,10} For optimum health, the two cycles must be fully supplemented and balanced. Excess methylation supplementation relative to NAD+ production can have a detrimental effect on NAD+ pools and thus on mitochondrial number and health.^{11,12} Likewise, excess NAD+ supplementation relative to methyl donors can significantly deplete available methyl groups in those prone to hypomethylation (see image below).¹³ Insufficient methylation can result in pooling of NAM, which is an inhibitor of sirtuins, the primary anti-aging target of NAD+.

TARGETED B VITAMINS SUPPORT BALANCED METHYLATION IN HYPOMETHYLATORS

Efficient methylation regulates gene expression and activity, DNA and RNA synthesis, and cell differentiation throughout the body.^{14,15} A process called one-carbon metabolism

regulates the provision of methyl groups for methylation processes. Folate, B2, B6, B12, and betaine play a major role here.¹⁶

When methylation is slowed (hypomethylation), we can have trouble suppressing viruses¹⁷, processing toxins in the liver¹⁸, controlling inflammation and oxidation, and generating sufficient neurotransmitters in the brain.¹¹ This is seen in hypomethylators, including those with common gene variations like MTHFR.^{20,21}

B2 is especially significant for those with MTHFR variants, since MTHFR is a flavin adenine dinucleotide (vitamin B-2) containing enzyme and is thus dependent on adequate B2 levels for full activity.²² Riboflavin deficiency can also lead to lower levels of reduced glutathione (GSH), compromising redox balance.²³ Supplementing with generous amounts of B2 may offer support to MTHFR. TMG offers a safe source of methyl donors that will B2 B6 not push the system, but simply support it. The addition of methyl B12 provides support for DNA and RNA synthesis, red blood cell production, neurological function, mood and memory, and bone and heart health.²⁴ Vitamin B12 is the coenzyme of

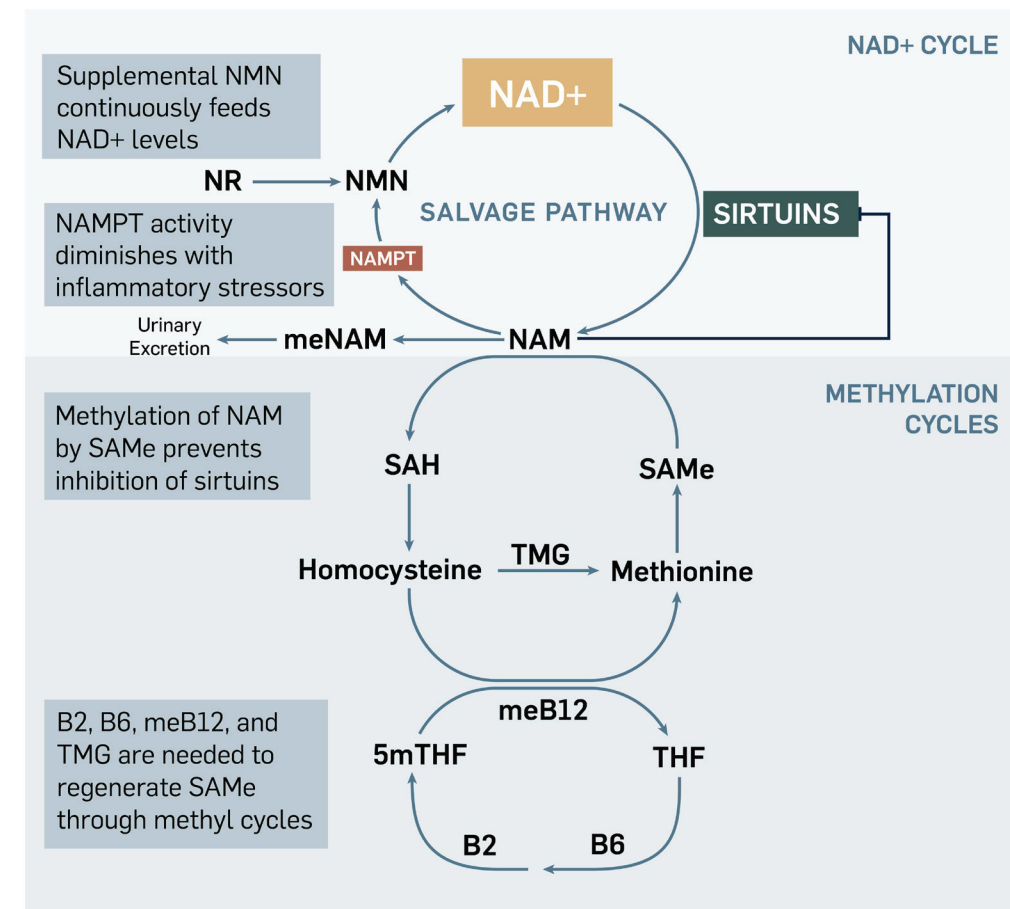
methionine synthase that helps transform homocysteine, the by-product of SAME, to methionine and is necessary for healthy methylation and glutathione synthesis.²⁵

Both vitamin B6, and folinic acid—metabolically active folinic acid (folate) that is not fully methylated—round out the formula. Vitamin B6 is an important cofactor in the synthesis of neurotransmitters and in trans-sulfuration – in which homocysteine is transformed into cysteine.²⁶ Vitamin B6 also serves as a coenzyme in the folate cycle converting tetrahydrofolate (THF) to 5,10-methylene THF.²⁷ In hypomethylators, intermediate active forms of folate such as folinic acid may be better tolerated than the final active form, methylfolate, which if taken alone may cause methyl-trapping.

METHYL CHARGE+ IS FOUND IN THE FOLLOWING PROTOCOL SYSTEMS:

- 30-Day Reset Program

Interdependence of NAD+ and Methylation Cycles



SELF EMULSIFYING MICROB-MANAGER®

Category: CBD + HEMP • GI • IMMUNE HEALTH



Microbial
Balancing Formula

SKU: Q-1130

SIZE: 60 CAPSULES

Microb-Manager® is a premier immune formula designed to support healthy microbial balance inside the body. Artemisinin, berberine, broad spectrum hemp extract, propolis, and andrographis help support a balanced and resilient microbial terrain, while curcuminoids and boswellia extract help maintain a healthy inflammatory response to microbes. Milk thistle and quercetin aid healthy liver function and balance mast cell activity.

SELF-EMULSIFYING DELIVERY SYSTEM • TESTED ALLERGEN FREE • TESTS CLEAN • TESTED NON-GMO
TESTED SOY PROTEIN FREE

| Supplement Facts | | |
|---|-----------------------|------------------|
| Serving Size: 2 Capsules Servings Per Container: 30 | Amount Per Serving | % Daily Value |
| Broad Spectrum Hemp Extract (aerial parts) | 5mg | ** |
| Cannabidiol | 4mg | ** |
| Berberine HCL (from Phellodendron amurense bark) | 10mg | ** |
| Artemisinin (from Artemisia annua) | 45mg | ** |
| Proprietary Curcuminoid Complex 185mg Turmeric Oleoresin and Turmeric Oil (from Curcuma longa) (rhizomes) - Containing 15 mg of Curcuminoids | | ** |
| Proprietary Blend 200mg Boswellia extract (Boswellia Serrata), Milk Thistle Seed Extract (80% Silymarin), Quercetin Dihydrate, Andrographis Extract (from Andrographis paniculata), Propolis Extract, Cinnamon Bark and Mint Oils | | ** |
| **Daily Value not established | | |
| Other Ingredients: Plant-derived cellulose capsule, tocopherols, medium chain triglycerides, phospholipids (from purified sunflower seed lecithin) | | |

EDUCATION

BOTANICALS: THE WAY OF THE FUTURE FOR MANAGING MICROBES

Vast reductions in infectious disease mortality and morbidity have come at the cost of bacterial antibiotic resistance, now considered a "global crisis."¹ In the United States, two million people acquire antibiotic-resistant infections each year; this number continues to rise.² The dwindling efficacy of pharmaceutical antibiotics has led to a resurgence of scientific interest in traditional medicinal plants for supporting the body's antimicrobial defenses.³ Unlike antibiotics, plant extracts utilize multiple mechanisms to selectively target pathogenic microbes, reducing the risk of antibiotic resistance while promoting a healthy microbial balance.

BOTANICALS CONFER ANTIMICROBIAL ACTIVITY

Artemisia annua, an intensely bitter and aromatic botanical, has been used for thousands of years in Traditional Chinese Medicine for the treatment of chills and fever of an infectious origin.⁴ Its primary active ingredient, artemisinin, has potent antimalarial activity and is the basis for artesunate, a synthetic antimalarial drug. However, artemisinin also has formidable antimicrobial activity against a variety of other pathogens, including periodontal microbes and Staphylococcus aureus.⁵ It is also a candidate drug against Borrelia burgdorferi, the cause of Lyme disease, and has antioxidant and anti-inflammatory properties.^{6,7,8} Artemisinin's ability to block the cellular multidrug efflux system in bacteria, involved in the development of antibiotic resistance, makes it an especially valuable botanical in the modern-day clinician's antimicrobial toolkit.⁷

Berberine, the bitter yellow alkaloid found in the roots and bark of various Berberis species, also has potent antimicrobial activity against oral pathogens, Candida species, and gastrointestinal pathogens, not to mention its long history of use for inflammatory conditions.^{9,10}

Cinnamon essential oil is also antimicrobial. With activity against *Borrelia burgdorferi*, *H. pylori*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Escherichia coli*, and *Candida albicans*.^{11,12}

The hemp-based phytocannabinoid CBD is well-known for its analgesic and anti-inflammatory

properties. CBD is also a potent antimicrobial, inhibiting the growth of Staphylococcus aureus and Streptococcus pneumoniae with a potency similar to that of vancomycin and daptomycin.¹³ The antimicrobial and anti-inflammatory activity of CBD, make hemp extract an attractive option for treating infections while also minimizing the harmful effects of pathogen-induced inflammation on the body.

BOTANICALS MODULATE CYTOKINE RESPONSE

Infections induce a profound inflammatory response within the body. While this inflammatory response is intended to harm pathogens, impairing their survival, ongoing inflammation in the body can be destructive. Botanicals with dual antimicrobial and anti-inflammatory properties help limit microbial survival while tempering the body's response to physical irritations.

Curcuminoids, including curcumin and turmeric essential oils, are found in the brilliant yellow rhizome of Curcuma longa. They possess a wide range of pharmacological activities, including antimicrobial and anti-inflammatory effects. Curcumin inhibits the growth of Staphylococcus aureus, E. coli, Salmonella, and Candida while simultaneously decreasing pro-inflammatory cytokines.^{14,15,16} It also potentiates the antimicrobial activity of artemisinin.¹⁷ Turmeric essential oils enhance curcumin bioavailability and possess unique anti-inflammatory properties.¹⁸

Boswellia, the fragrant resin from the Boswellia serrata tree, has been used for millennia in Indian Ayurvedic medicine for the treatment of chronic inflammatory illnesses. It too possesses an impressive array of antimicrobial activities, inhibiting the growth of Staphylococcus aureus, Streptococcus pneumoniae, E. coli, Klebsiella pneumoniae, Pseudomonas aeruginosa, and Proteus vulgaris.¹⁹ It also inhibits oral pathogens and biofilm formation, while modulating inflammatory pathways triggered by infection.^{20,21,22,23} Interestingly, a combination of curcumin and Boswellia extract is more potent than either compound alone for supporting a healthy cytokine response.²⁴

MILK THISTLE AND QUERCETIN OFFER LIVER AND MAST CELL SUPPORT

Microbial pathogens have damaging effects on the liver, impairing the liver's natural detoxification capacities.²⁵ Milk thistle is profoundly hepatoprotective, supporting liver function while also balancing the immune system and systemic inflammatory responses.²⁶ The polyphenol quercetin, found in edible plants ranging from green tea to apples, stabilizes mast cells, which are often hyper-reactive in individuals with chronic infections. Natural mast cell stabilization may help the most sensitive patients better tolerate medications and supplements, improving adherence to protocols.^{27,28}

BUILD A RESILIENT INTERNAL TERRAIN

Andrographis and propolis are rich sources of immunomodulatory compounds that support a healthy internal terrain, fortifying the body against microbial stressors. Andrographolide, a primary constituent of Andrographis, has potent immune-stimulating, antimicrobial, and anti-inflammatory properties.^{29,30,31} Propolis, a resinous mixture produced by honeybees, has immunomodulatory, antibacterial, antiviral, and antifungal effects.^{32,33,34}

MICROB-MANAGER IS FOUND IN THE FOLLOWING PROTOCOL SYSTEMS:

- Dr. Jill's Miracle Mold Detox

NANOEMULSION
MILK THISTLE

Category: DETOX • GI



Liver Support

SKU: Q-1064

SIZE: 50 ML

Nanoemulsified Milk Thistle provides a highly bioavailable form of silymarin, a combination of bioactive flavonoids present in the well known herb, milk thistle. This formulation is designed to support detoxification and healthy liver function.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • VEGAN

Supplement Facts

Serving Size: 2 mL (4 Pumps)
Servings Per Container: 25

| | Amount Per Serving | % Daily Value |
|---|--------------------|---------------|
| Milk Thistle Seed Extract (80% Silymarin) | 30mg | ** |

**Daily Value not established

Other Ingredients: Glycerin, water, ethanol, medium-chain triglycerides, tocopherol, highly purified phospholipids, natural citrus oils, natural mixed tocopherols

metabolizing toxins, it is susceptible to injury.² When demand on the liver's detoxification pathways is high, the function of this critical organ may become impaired. Liver dysfunction, in turn, causes downstream effects such as fatigue and intestinal dysbiosis.^{3,4}

ENHANCES HEALTHY LIVER FUNCTION

The herb milk thistle offers gentle, broad-based support to the liver, serving as a powerful plant ally in our modern, toxin-laden world. It is a bitter herb that promotes the excretion of hepatoprotective bile salts, aiding healthy bile flow and digestion.⁵ Milk thistle is rich in silymarin, a mixture of bioactive flavonoids including silybin, silydianin, and silychristine.

Silymarin inhibits the absorption of toxins into hepatocytes, the chief functional cells of the liver.⁶ Silymarin also protects the liver from chemical and environmental stressors, including alcohol and pathogens, and supports liver cells' ability to synthesize new proteins, assisting the organ's regenerative capacity.^{7,8}

INCREASES ANTIOXIDANTS AND MAY ENHANCE CELLULAR RESILIENCE

The herb milk thistle has been shown to enhance the production of our bodies' master endogenous antioxidant, glutathione, by upregulating the activity of the Nrf2 pathway.⁹ Due to its phenolic structure, silymarin can also donate electrons directly to free radicals, neutralizing these damaging molecules and preventing them from harming cell membranes. Last but not least, silymarin inhibits the activity of cyclooxygenase (COX) and lipoxygenase (LOX) enzymes and NF-KB, thereby inhibiting oxidative and inflammatory processes. Together,

these effects promote cellular redox balance and restore physiological homeostasis.^{10,11,12}

Emerging research indicates that milk thistle enhances the production of proteins that protect cells in times of physiological stress, including heat shock proteins, thioredoxin, and sirtuins.¹⁰

MODULATES THE IMMUNE SYSTEM

Scientific research indicates that the herb milk thistle has potent immunomodulatory properties.¹³ Silymarin downregulates the NF-KB signaling pathway, alleviating the inflammatory cytokine cascade involved in chronic inflammatory diseases. In preclinical studies, silymarin has been found to suppress the STAT3 and MEK/ERK signaling pathways involved in abnormal cell proliferation, thus offering possible chemoprotective effects.¹³ Silibinin, the major active constituent of silymarin, stabilizes mast cell membranes, inhibiting histamine release and alleviating allergic inflammation.¹⁴ Last but not least, silymarin exerts antimicrobial effects by augmenting interferon expression and forming complexes with bacterial cell walls, thereby disabling viruses and bacteria and promoting their elimination from the body.^{15,16}

EXERTS ANTI-FIBROTIC EFFECTS

Liver fibrosis is an accumulation of extracellular matrix proteins in the liver caused by chronic inflammatory assaults on the organ. Fibrosis leads to the formation of scar tissue, which ultimately compromises liver function. Through the inhibition of the NF-kB signaling pathway, silymarin helps alleviate hepatic inflammation caused by various toxic exposures that can lead to fibrosis.^{17,18}

LIPOSOMAL DELIVERY ENHANCES SILYMARIN BIOAVAILABILITY

The main constituent of silymarin, silybin, has low water solubility, limiting its bioavailability in typical oral formulations. Liposomal delivery systems improve the absorption of hydrophobic molecules and allow them to bypass hepatic first-pass metabolism, resulting in higher bioavailability. A liposomal delivery system has been found to significantly enhance the bioavailability of silymarin and enhances the compound's beneficial effects on hepatocytes and immune cells.^{19,20}

EDUCATION

A BURDENED LIVER LEADS TO AN UNHEALTHY BODY

Silybum marianum, is a revered member of the traditional herbal medicine compendium, used by herbalists for over 2,000 years for its remarkable hepatoprotective properties.¹ Featuring a prickly flower head and purple tubular flowers, this distinctive plant has been extensively studied in the scientific literature and found to support liver function, antioxidant activity, and immunity.

The human body is elegantly equipped with biochemical pathways and organs that support the transformation and elimination of harmful compounds, a process known as detoxification. The liver works tirelessly to orchestrate detoxification, equipped with a broad array of enzymes that neutralize and eliminate environmental toxins and internally-generated waste products. Because the liver is continually

LIPOSOMAL NAD+ GOLD®

Category: **CARDIOMETABOLIC • DETOX • LONGEVITY • PERFORMANCE**



NAD+ Builder

SKU: Q-1136 • Q-1127

SIZE: 30 ML

SIZE: 50 ML

NAD+ Gold® is a liposomal blend of nicotinamide mononucleotide (NMN), a stable precursor to NAD+, and trimethylglycine (TMG), also known as betaine. 2 pumps of NAD+ Gold provides 50 mg of highly bioavailable NMN and TMG to support repletion of NAD+ (nicotinamide adenine dinucleotide), a well known anti-aging molecule naturally present in every cell and critical for DNA repair, cellular bioenergetics, genomic signaling, and cell survival.^{1,2*}

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

| Supplement Facts | | |
|--|--------------------|---------------|
| Serving Size: 1 mL (2 Pumps) Servings Per Container: 30 or 50 | | |
| | Amount Per Serving | % Daily Value |
| NMN (β-Nicotinamide mononucleotide) | 50mg | ** |
| Trimethylglycine (as betaine) | 50mg | ** |
| **Daily Value not established | | |
| Other Ingredients: Water, glycerin, ethanol, highly purified phospholipids, tocopherols, natural mixed tocopherols | | |

EDUCATION

AN INTRODUCTION TO AGING, NAD+, AND NMN

Nicotinamide adenine dinucleotide (NAD+) is essential for life. It has been called “one of the most important and interesting molecules in the body. It is required for over 500 enzymatic reactions and plays key roles in the regulation of almost all major biological processes.”⁴ NAD+ is a true pleiotropic molecule and activator of innumerable protective enzymes; it regulates hundreds of critical functions in the body from energy production to mitochondrial metabolism.^{5,6} In studies on multiple organisms, an increase in intracellular levels of NAD+ triggers shifts that boost energy production and upregulate cellular repair, leading to a longer healthspan and enhanced survival.⁷ New evidence shows that human mitochondria

directly import intact NAD+ from the cell itself.⁸ As we age, however, we experience a steady decrease in systemic NAD+ biosynthesis and a corresponding functional decline in organs and tissues.^{9,10} By middle age, our NAD+ levels have plummeted to half that of our youth.¹¹ NAD+ repletion has been shown to increase the body's resilience to the diseases of aging, thereby extending healthy human lifespan.¹²

Supplementing with NAD+, however, is not an effective route to increasing levels. It is easily broken down in the gut, and transformed into the precursor molecules NMN and NR (nicotinamide riboside).¹³ NMN, in contrast, is an effective, direct and stable precursor to NAD+ that is rapidly absorbed and converted to NAD+.¹⁴ Human clinical trials have used NAD+ precursors like NMN and NR (nicotinamide riboside), looking at safety and efficacy for metabolic syndrome and glucose intolerance. Human research began in 2016 in Japan¹⁵, and is underway at Washington University School of Medicine, where a double-blind, placebo-controlled study on the physiological effects of NMN is being carried out.¹⁶

WHY NMN?

NMN is a potent precursor for NAD+, synthesized from vitamin B3 in the form of nicotinamide. For years, it was thought that NMN was unable to enter cells on its own. It was thought necessary to convert NMN to nicotinamide riboside (NR), a different NAD+ precursor. NR would then enter cells, and be converted back to NMN. Yet no one could explain the fast pharmacokinetics of NMN, the surprising speed with which it moved from the

gut to the bloodstream and then tissues throughout the body.

Animal experiments had already proven that this entire journey takes place in a matter of minutes—too fast for multiple biochemical transformations.¹⁷ In 2019 groundbreaking research showed that NMN has a unique and dedicated transporter (Slc12a8) that can move the molecule quickly across the cell membrane and into the cell where it can be transformed rapidly into NAD+.³ The researchers report that this NMN transporter is critical for aging individuals; as NAD+ levels fall with age, levels of this transporter are upregulated so that more NMN can enter cells and enrich levels of NAD+. These new findings suggest that, due to NMN's critical role in repleting NAD+, the body has more than one route of bringing it into the cell—both directly with its own transporter, and by moving NR into the cell and then transforming NR into NMN.

Supplementing with NMN may improve adult human metabolism, rendering it more like that of someone ten or twenty years younger.¹⁸ In animal studies, NMN has enhanced NAD+ biosynthesis in pancreas, adipose, heart, eyes, blood vessel, skeletal muscle, kidney tissues and more.^{8,19,20}

NMN has been shown to improve against age-associated physical decline, weight gain, energy decline, and decreased physical activity, without any obvious toxicity.¹⁷ NMN also suppresses age-related adipose tissue inflammation, enhances insulin secretion and insulin action, supports healthy mitochondrial function, improves neuronal function in the brain, stimulates new blood vessel growth, helps ameliorate cardiac and cerebral ischemia, and increases exercise capacity.^{21,22,23}

WHY TMG?

As NAD+ biosynthesis rises, methylation activity increases. Trimethylglycine (TMG) is a methyl donor that supports the action of NMN and the liver.²⁴ TMG provides significant methylation support by donating three methyl groups. Methylation is needed by the ‘longevity’ enzymes known as the sirtuins, which depend on NAD+ and which require the methylation of nicotinamide (NAM), a form of vitamin B3.^{25,26} The sirtuin family is thought to delay fundamental aspects of aging and to be responsible, in great part, for the cardiometabolic benefits of lean diets and exercise.²⁷ Nicotinamide (NAM) has been shown to consume a significant amount of TMG when being methylated by the body.²⁸

ADDITIONAL RESEARCH

1. Enhance Insulin Sensitivity and Action

Both insulin sensitivity and secretion are modulated by NAD+ metabolism.³² In mice studies, NMN improved glucose-stimulated insulin secretion³³, corrected impaired pancreatic islet function and restored decreased insulin secretion.³⁴ When given long-term NMN ameliorated age-associated

insulin resistance and improved lipid profiles.⁶

2. Restore Skeletal Muscle, Vascular Integrity and Exercise Capacity

Long-term NMN administration has reversed vascular atrophy and restored blood vessel growth in mice, augmenting the physiological response to exercise and boosting stamina and endurance.⁶ It has improved mitochondrial respiratory capacity in skeletal muscle.²⁰ In aged mice, NMN has restored aspects of arterial function to that of young mice, and reduced vascular oxidative stress, in part by increasing superoxide dismutase and NAD+.³⁵

3. Protect Against Metabolic Disorders Including Diabetes, Obesity, NAFLD

A decline in NAD+ levels is closely correlated with diabetes and fatty liver disease (NAFLD), and intracellular NAD+ levels decrease with obesity.³⁶ Long term NMN administration protects against both diet- and age-associated weight gain. NMN prevents lowered NAD+ levels in diet-induced obese mice. NMN also reduces age-associated weight gain. 5 NMN can restore NAD+ levels that have been depleted due to a high-fat-diet and obesity.³⁷

4. Diminish Cognitive Decline and Protect the Brain

NMN has impressive effects on the brain and increases intracerebral NAD+.³⁸ In mice, NMN inhibits A-beta, a neurotoxic protein which forms plaques in the brains of Alzheimer's patients.³⁹ NMN slowed cognitive decline in a mouse model of Alzheimer's disease by improving the survival of neurons, improving energy metabolism, and reducing reactive oxygen species.³⁰ NMN has been shown to reduce the production of amyloid plaque, as well as DNA damage and neuroinflammation in the hippocampus.^{40,41} NMN also helped maintain the integrity of the blood brain barrier.⁴²

5. Suppress Inflammation Associated with Aging

NMN has been found to reduce inflammatory cytokines such as TNF-a and IL-6 in skeletal muscle. NMN is able to reduce adipose tissue inflammation associated with age.⁴⁴

6. Support Mitochondrial Function and Metabolism

Mitochondrial dysfunction is a molecular hallmark of aging, and NMN has enhanced mitochondrial function in numerous studies. NMN increased mitochondrial metabolism and restored mitochondrial function in skeletal muscle.³⁵ NMN also promoted mitochondrial function in the liver⁴⁵ and eye, repairing severe retinal degeneration in mice.⁴⁶

7. Support the Liver and Methylation for Overall Health

Aging predisposes to functional and structural impairment of the liver, as well as risk for non-alcoholic fatty liver disease.^{47,48} The liver utilizes TMG for methylation, and the abundance of TMG in the liver exceeds that of any other organs. TMG can halt and reverse deterioration of liver function.⁴⁹ TMG has been shown to offer remarkable benefits to human health, addressing conditions ranging

from diabetes to obesity and Alzheimer's disease.⁵⁰ It has been used to lower the concentration of plasma total homocysteine (tHcy) in patients with homocystinuria.⁵¹ TMG is widely found in foods and is well tolerated in supplement form.⁵²

NAD+ IS AN ESSENTIAL ELEMENT OF DETOXIFICATION

Detoxification is a complex set of bodily processes that occur on both a microcosmic and a macrocosmic level, ultimately processing and eliminating toxins from the body. At the microcosmic level, toxins are mobilized and shuttled out of cells via special transporters. At the macrocosmic level, toxins are ushered through the liver, kidneys, and GI tract to be eliminated via the urine or stool. Most detoxification protocols target the macrocosmic level of detox, ignoring crucial processes that occur at the cellular level. However, when we ignore the microcosmic level of detoxification, toxins may remain within cells and even the most well-intentioned detox protocol may fall flat. Cellular energy is crucial for driving the microcosmic level of detoxification. By enhancing our NAD+ levels with NMN, we can bolster our cellular energy production, drive detoxification bioenergetics, and more efficiently mobilize and eliminate toxins from the body.

Optimal NAD+ levels may be particularly important for the detoxification of mercury. One study found that treatment of mercury-exposed *Caenorhabditis elegans*, a worm commonly used for preclinical research, with supplemental NAD+ provided protection against mercury-induced oxidative stress and mitochondrial dysfunction.⁵³ These findings suggest that the enhancement of NAD+ levels should be a central part of any comprehensive mercury detoxification protocol.

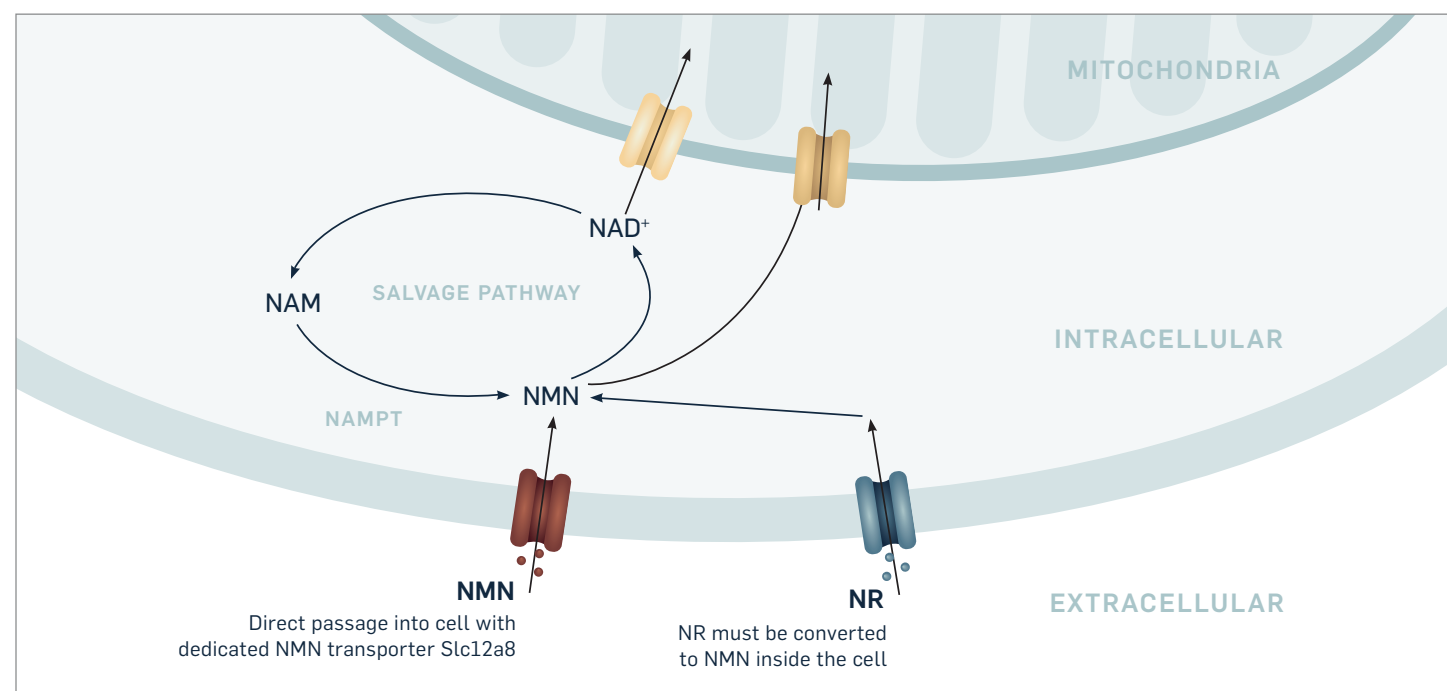
NAD+ FORTIFIES THE BODY'S ANTIOXIDANT DEFENSES, PROMOTING EMF PROTECTION

Advancements in technology have inundated much of the world with non-native electromagnetic fields (nnEMF). It's becoming increasingly difficult to reduce exposure incurred from electronic devices, Bluetooth, and wireless networking technology. Non-native EMF is a form of man-made, non-ionizing radiation that deranges biological processes by disrupting the activity of the electrons that make up each and every molecule of the body. By disturbing electron homeostasis, nnEMF triggers oxidative stress, which damages proteins, lipids, and DNA. Down the line, this sub-cellular damage impairs processes ranging from mitochondrial function to metabolic health.⁵⁴

While reducing exposure to nnEMF through lifestyle changes is a crucial step towards better health, it is impossible to completely avoid nnEMF. Bolstering cellular antioxidant capacity may support the amelioration of nnEMF-induced oxidative damage, helping further mitigate the overall body burden of nnEMF stress. Supplemental NMN supports the increase of cellular NAD+ and may improve the body's antioxidant defenses, defending the body against radiation sources such as nnEMF.⁵⁵

NAD+ GOLD FOUND IN THE FOLLOWING PROTOCOL SYSTEMS:

- 30-Day Reset Program
- Dr. Jill's Miracle Mold Detox



LIPOSOMAL NAD+ PLATINUM®

Category: **CARDIOMETABOLIC • DETOX • LONGEVITY • PERFORMANCE**

NAD+ Platinum® is a liposomal formulation of nicotinamide mononucleotide (NMN), vitamin B12 as methylcobalamin, riboflavin, trimethylglycine (TMG), quercetin, and resveratrol. Together, these ingredients are designed to support healthy aging through NAD+ generation, sirtuin activation, and methylation.*

**TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN**

| Supplement Facts | | |
|---|--------------------|---------------|
| Serving Size: 2.5 mL (1/2 tsp.) Servings Per Container: 40 | | |
| | Amount Per Serving | % Daily Value |
| Riboflavin (as Riboflavin-5-Phosphate) | 3.6mg | 277% |
| Vitamin B12 (as Methylcobalamin) | 250mcg | 10417% |
| NMN (β-Nicotinamide mononucleotide) | 50mg | ** |
| Proprietary Blend Trimethylglycine (as Betaine), Quercetin Dihydrate (from Sophora japonica flower), Resveratrol (from Polygonum cuspidatum root) | 60mg | ** |
| **Daily Value not established | | |
| Other Ingredients: Water, glycerin, ethanol, highly purified phospholipids, tocopherols, medium chain triglycerides, natural citrus oils, natural mixed tocopherols, natural flavoring | | |

methylation, including riboflavin, vitamin B12, and trimethylglycine (TMG). Supplying these nutrients alongside NMN enables the NAD+ cycle to function optimally.

NICOTINAMIDE ADENINE DINUCLEOTIDE (NAD+)

NAD+ is a critical molecule found in every cell of the body essential for cellular energy generation. It is a carrier of high-energy electrons and drives oxidative phosphorylation, the process by which cells oxidize nutrients to produce ATP.

Mammalian cells must synthesize NAD+ either de novo from tryptophan through the kynurenine pathway or from vitamin B3 in the form of nicotinamide (NAM) and nicotinic acid (NA). Besides de novo synthesis, the other major NAD+ generation route is through the salvage pathway, which makes NAD+ from precursor molecules.

NAD+ levels naturally decline with age. According to the world's leading longevity researcher, Dr. David Sinclair, at 50 years old, you have less than half of the NAD+ that you had at age 20.

NAD+ insufficiency hinders hundreds of NAD+ dependent metabolic processes, pushing us towards physiological decline. Conversely, enhancing NAD+ levels may enhance the body's resilience and extend healthy human lifespan.

NAD+ AND DETOXIFICATION

Detoxification is a complex, essential set of bodily processes that occur on both a microcosmic and a macrocosmic level, ultimately processing and eliminating toxins from the body. At the microcosmic level,

toxins are mobilized and shuttled out of cells via special transporters. At the macrocosmic level, toxins are ushered through the liver, kidneys, and GI tract to be eliminated via the urine or stool. Most detoxification protocols target the macrocosmic level of detox, ignoring crucial processes that occur at the cellular level. However, when we ignore the microcosmic level of detoxification, toxins may remain within cells and even the most well-intentioned detox protocol may fall flat. Cellular energy is crucial for driving the microcosmic level of detoxification. By enhancing our NAD+ levels with NMN, we can bolster our cellular energy production, drive detoxification bioenergetics, and efficiently mobilize and eliminate toxins from our bodies.

Optimal NAD+ levels may be particularly important for the detoxification of mercury. One study found that treatment of mercury-exposed *Caenorhabditis elegans*, a worm commonly used for preclinical research, with supplemental NAD+ provided protection against mercury-induced oxidative stress and mitochondrial dysfunction.⁵ These findings suggest that the enhancement of NAD+ levels should be a central part of any comprehensive mercury detoxification protocol.

NAD+ AND EMF PROTECTION

Like it or not, we are inundated with non-native electromagnetic fields (nnEMF) daily from the myriad electronic devices, WiFi, Bluetooth, and other technologies we use in our modern-day lives. Non-native EMF is a form of man-made, non-ionizing radiation that disturbs biological processes by disrupting the activity of the electrons that make up each and every molecule in our bodies. By unsettling electron homeostasis, nnEMF triggers oxidative stress and damages physiological processes ranging from mitochondrial function to metabolic health.⁶

While reducing exposure to nnEMF through lifestyle changes is a crucial step towards better health, it is impossible to completely avoid nnEMF. Bolstering cellular antioxidant capacity can ameliorate nnEMF-induced oxidative stress. By enhancing cellular NAD+ levels, NMN enhances the body's antioxidant defenses and may help defend the body against radiation, such as nnEMF.⁷

NAD+ PRECURSORS ARE NOT ALL CREATED EQUAL

As our understanding of NAD+'s importance for health and longevity has expanded, the scientific community has leaped into action, researching safe, efficacious ways to boost cellular NAD+ levels. The scientific community has identified several molecules with therapeutic NAD+ boosting effects; these compounds are referred to as "NAD+ boosters." However, not all NAD+ boosters are created equal.

For example, nicotinic acid (NA) and nicotinamide (NAM) are two molecules that can be used to generate NAD+. However, the processes required to convert these precursors into

NAD+ are complicated and inefficient.

Nicotinamide riboside (NR) is another NAD+ precursor that offers more therapeutic potential than NA and NAM. However, it must first be converted into NMN before transforming into NAD+.

Nicotinamide mononucleotide (NMN) is a promising, potent alternative to NA, NAM, and NR for supporting NAD+ production. It is a direct, stable NAD+ precursor that has been found to effectively raise NAD+ levels and may thus help alleviate the downstream health impacts of NAD+ depletion.⁸ It was originally thought that NMN was unable to enter cells on its own and that NR was the only precursor that could effectively raise NAD+ levels. However, in 2019, groundbreaking research showed that NMN has a unique and dedicated transporter (Slc12a8) that can move the molecule quickly across the cell membrane and into the cell where it can be transformed rapidly into NAD+.⁹

METHYLATION: THE MISSING LINK FOR SUSTAINABLE NAD+ PRODUCTION

NAM is an intermediate in the biochemical cycle used to generate NAD+. Aging, stress, high levels of body fat, an unhealthy diet, and inflammation inhibit the enzyme NAMPT, which converts NAM into NMN and then NAD+.¹⁰ When the conversion of NAM to NMN and NAD+ is hindered, NAM builds up in the body. NAM accumulation prevents NAM from recycling back into NAD+, inhibiting vital NAD+-dependent processes such as sirtuin activation. This is where methylation nutrients come into play.

Methylation is a biochemical process in which methyl (-CH3) groups are added to molecules. Methylation is essential for removing excess NAM from the body, keeping the NAD+ cycle spinning. Simultaneous supplementation of methylation nutrients alongside NMN may optimize NAD+ bioenergetics, allowing you to experience the full potential of NMN supplementation.

AMPLIFY SIRTUINS FOR CELLULAR HEALTH, STAMINA, AND LONGEVITY

Sirtuins are a family of seven proteins that regulate cellular homeostasis, including metabolism, mitochondrial function, oxidative stress, inflammation, autophagy and apoptosis.^{11,12} They coordinate which cellular "tasks" must be done at given points in time in response to environmental cues. Sirtuins also regulate crucial cellular mechanisms involved in aging and longevity. NAD+ is an essential coenzyme to sirtuins; without sufficient NAD+, sirtuins cannot function and drive a healthy cellular environment. The dependence of sirtuin activation on NAD+ was discovered by American biologist Leonard Guarente in the 1990s, leading to an explosion in scientific research on sirtuins.



Balanced Sirtuin Activation

SKU: Q-1154

SIZE: 100 ML

EDUCATION

NUTRIENTS FOR HEALTHY AGING

NAD+ (nicotinamide adenine dinucleotide) is naturally present in every cell of the body and is critical for DNA repair, cellular bioenergetics, genomic signaling, and cell survival.^{1,2} It is also a coenzyme for sirtuins, a family of proteins involved in cellular health and longevity. NMN is a direct, stable, immediate precursor to NAD+ that supports healthy aging by bolstering cellular NAD+ levels. Quercetin and resveratrol are potent phytochemicals that activate sirtuins, effectively synergizing with NAD+ to support optimal sirtuin activity. Quercetin also has the benefit of acting as a senolytic, selectively destroying pro-inflammatory aging cells.

A growing body of research indicates that NAD+ generation must be balanced with methylation for optimal health-enhancing effects. Several nutrients are necessary for balanced

Sirtuins play an important role in histone deacetylation, a biochemical process in which they remove a chemical group called an acetyl group from histones, the proteins around which your DNA is wrapped. Through this process, sirtuins regulate gene expression, turning genes on and off to maintain optimal health.

As a side note, NAD+ is also a coenzyme for poly-ADP-ribose-polymerases, or PARPs, enzymes involved in DNA repair, telomere maintenance, and longevity.¹³

NAD+ levels are gradually depleted in multiple tissues during the aging process. This subsequently leads to a decline in sirtuin and PARP activity. Administration of exogenous NAD+ boosters, such as NR and NMN, has been found to enhance cellular NAD+ levels and support sirtuin activation.¹⁴

Sirtuin-activating compounds, also known as "STACs," are chemical compounds that initiate sirtuin activity. A handful of STACs have been identified, including the phytochemicals quercetin and resveratrol. By allosterically activating sirtuins, quercetin and resveratrol support NAD+'s coenzymatic activity to promote optimal sirtuin function.¹⁵

Sirtuin activation, in turn, offers a wide range of beneficial health effects, including:

- Healthy brain aging¹⁶
- Robust immune function¹⁷
- Appropriate inflammatory response⁹
- A healthy circadian rhythm²⁰
- Metabolic and cardiovascular optimization⁹
- Increase insulin sensitivity⁹
- Physical stamina and endurance^{18,19}
- Aging and longevity support²¹

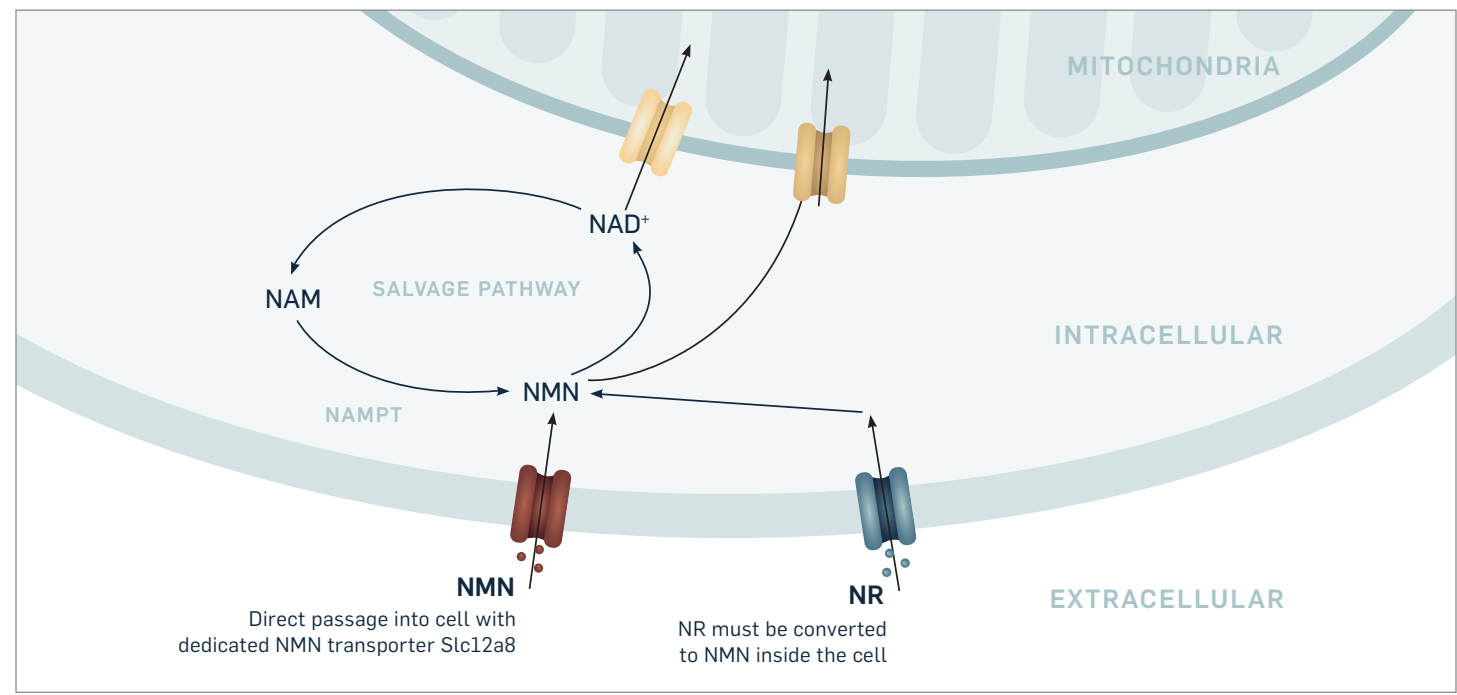
REDUCE YOUR SENESCENT CELL BURDEN

Senescent cells are cells that have ceased to divide and instead secrete an array of pro-inflammatory mediators that damage surrounding cells. Certain pharmaceutical drugs and phytonutrients act as senolytics, selectively destroying senescent cells. Quercetin is one such phytonutrient that has been found to selectively target senescent cells.

Importantly, quercetin may work best alongside diet and lifestyle changes for reducing your senescent cell burden. For example, exercise has been found to attenuate cellular senescence.²² Beta-hydroxybutyrate, a ketone body produced during fasting and by the ketogenic diet, also inhibits senescent cell generation.²³

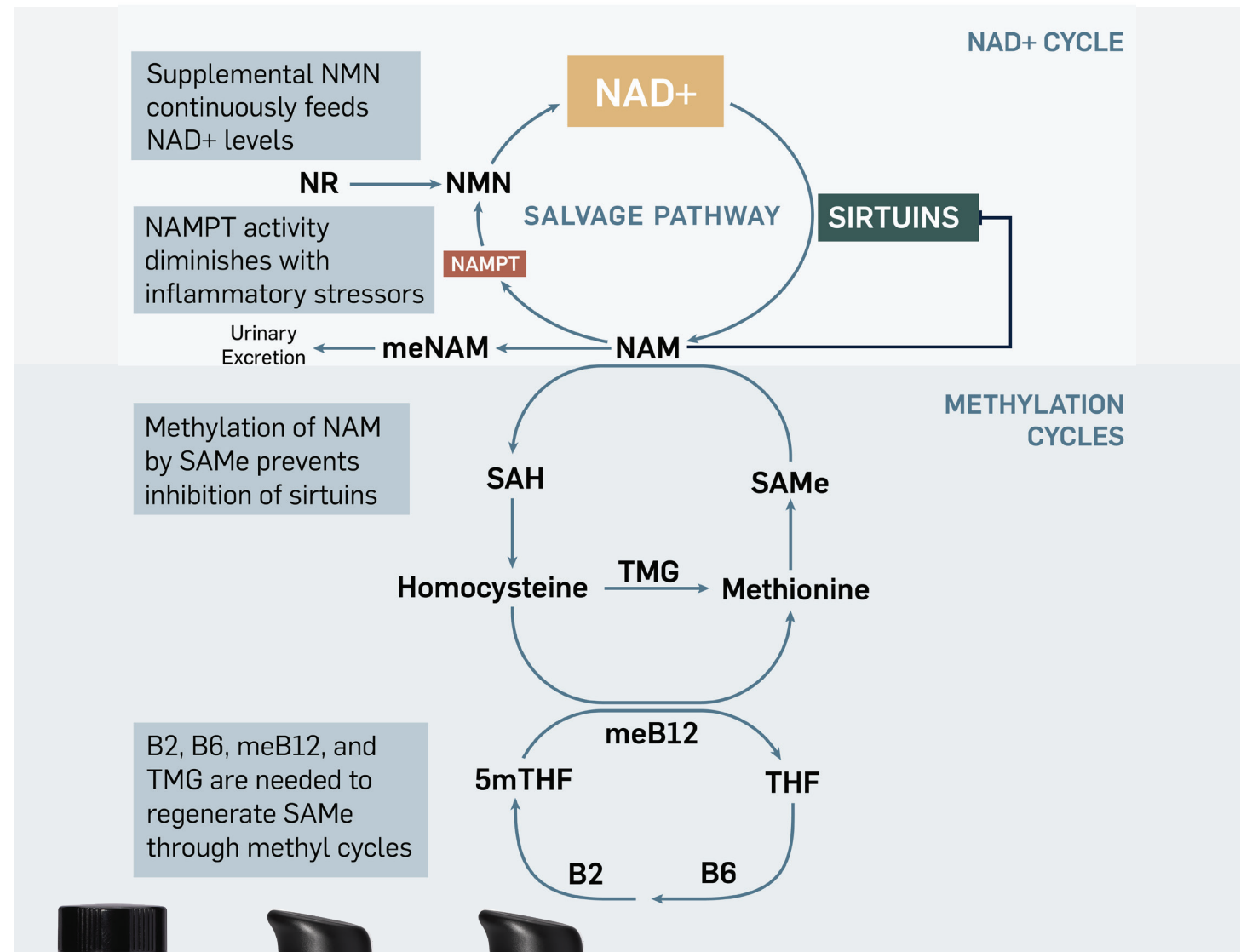
NAD+ PLATINUM IS FOUND IN THE FOLLOWING PROTOCOL SYSTEMS:

- Bio-Age Activate
- Bio-Age Elevate
- Qube® 2.0 Professional Detoxification System



WHY IS SUPPLEMENTING WITH NAD SO IMPORTANT?

Interdependence of NAD+ and Methylation Cycles



NANOEMULSIFIED
NANOFUEL®

Category: **CARDIOMETABOLIC • COGNITIVE SUPPORT • PERFORMANCE**



Nootropic Formula

SKU: Q-1161

SIZE: 100 ML

NanoFuel® is a nanoemulsified blend of botanical nootropics including GS15-4® Fermented Korean Ginseng, Panax Ginseng, alpha-GPC, DMAE, Theacrine, and caffeine. This neuro-support formulation is designed to optimize energy, focus, information processing, and productivity.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

| Supplement Facts | | | | |
|---|--------------------|---------------|--------------------|---------------|
| Serving Size: | 2.5 mL (1/2 tsp) | 5 mL (1 tsp) | | |
| Servings Per Container: | 40 | 20 | | |
| | Amount Per Serving | % Daily Value | Amount Per Serving | % Daily Value |
| Proprietary Blend | 190mg | ** | 380mg | ** |
| Highly purified phospholipids, Guarana seed extract, L-Alpha Glycerylphosphorylcholine (GPC), Ginseng Plus® Panax Notoginseng root extract, Dimethylaminoethanol (DMAE) (from DMAE Bitartrate), Caffeine Anhydrous, LifeFlower® Erigeron Breviscapus herb extract, Theacrine (as Teacrine®), American Ginseng (Panax quinquefolius root extract), GS15-4® Fermented Korean Panax Ginseng Extract, Epimedium Sagittatum extract (aerial parts), Bacopa Monnieri herb extract, Ginger Oleoresin, Cinnamon bark oil, Clove bud oil | | | | |
| **Daily Value not established | | | | |
| Other Ingredients: Glycerin, water, ethanol, tocopherol, natural flavoring | | | | |

EDUCATION

PROTECT AND STRENGTHEN THE BRAIN WITH TIME-HONORED BOTANICALS

Botanical nootropics are not a recent addition to human life. Many traditional cultures have been using botanical nootropics for millennia.

Fermented Korean Panax Ginseng Extract

In Traditional Chinese Medicine, Panax ginseng, also known as Korean Ginseng, is a fundamental tonic used to tone the vital energy, or qi, of all the body's organs. It is revered for its revitalizing effects on the body and mind. Research indicates that ginseng's health benefits are attributable to many bioactive compounds, including saponin molecules called ginsenosides, polysaccharides, peptides, and polyacetylenic alcohols.

Ginsenosides improve glycemic control, which significantly impacts one's ability to perform well cognitively, while also enhancing the expression

of nerve growth factor (NGF), a crucial molecule that optimizes our neural circuitry.^{2,3,4} Ginseng components also inhibit lipid oxidation in the brain, scavenge free radicals that can harm neurons, and support neuronal energy production by bolstering mitochondrial function.⁵ Together, these mechanistic actions of ginsenosides help sustain cognitive clarity, energy, and focus.⁶

American Ginseng

American Ginseng or Panax quinquefolius improves neurocognitive function, including working memory. American Ginseng may enhance cognition by boosting the expression of choline acetyltransferase, an enzyme involved in synthesizing the neurotransmitter acetylcholine. Acetylcholine recruits more neurons in the prefrontal cortex to facilitate efficient information processing.^{7,8}

Panax Notoginseng Root Extract

The Chinese botanical Panax notoginseng contains saponins that upregulate neuroprotective pathways in the brain, protecting against the harmful effects of oxygen deprivation and supporting cerebral blood flow.⁹ It also exerts antidepressant and anxiolytic effects and alleviates cognitive impairments.¹⁰

Epimedium Sagittatum Extract

Epimedium, known colloquially as "horny goat weed," has historically been used in Traditional Chinese Medicine to treat arterial conditions and improve male sexual function. Icarin, one of the primary active constituents in Epimedium, relaxes blood vessels, improving cerebrovascular circulation. It also enhances the survival and function of neurons and prevents declines in memory and learning capabilities.¹¹

Bacopa Monnieri Herb Extract

Bacopa monnieri, known simply as bacopa or "Brahmi" in Indian Ayurvedic medicine, has been used as a potent brain tonic in India for thousands of years. Bacopa attenuates stress-induced damage to the hippocampus, a crucial brain region involved in memory and learning, while also regulating nitric-oxide mediated vasodilation, improving blood flow to the brain.¹² It has been found to produce statistically significant improvements in cognitive function in both young medical students and older adults.^{13,14}

Erigeron Breviscapus Herb Extract

Breviscapine, an extract from Erigeron breviscapus, an herbaceous perennial from the daisy family, has traditionally been used by Chinese herbalists to activate blood circulation. Modern-day scientific research indicates that Breviscapine improves cerebral blood supply, enhancing the delivery of vital oxygen and nutrients to the brain. Furthermore, in animal studies, breviscapine attenuates cognitive impairments induced by transient cerebral ischemia and reperfusion injury, which involves a lack of oxygen delivery to the brain.¹⁵ Liposomal delivery systems improve breviscapine bioavailability and may enhance the delivery of this powerful compound to the brain.¹⁶

CAFFEINE, GUARANA, AND THEACRINE SUPPORT SMOOTH, STEADY ALERTNESS

Nature offers several powerful botanical brain stimulants that synergize with other botanical nootropics to support steady alertness and attention without jitteriness.

Caffeine Anhydrous

Caffeine (1,3,7-trimethylxanthine) is the most widely consumed psychoactive compound in the world and a potent nootropic. Caffeine is an adenosine antagonist, which means that it blocks the binding of a molecule called adenosine to its receptors. Adenosine receptors are distributed throughout the body but highly concentrated in the central nervous system. When adenosine binds to its respective receptors, it slows down neural activity, causing sleepiness. By interfering with adenosine receptor binding, caffeine promotes stimulating, alertness-enhancing effects.¹⁷

Caffeine also enhances epinephrine and dopamine neurotransmission. Epinephrine enhances mental arousal, potentiating memory formation.¹⁸ Dopamine is involved in learning and "action planning," or engaging in the mental processes that bring work to fruition.¹⁹

Guarana Seed Extract

Guarana is a climbing plant native to the Amazon rainforest with seeds that contain four times the caffeine content of coffee beans.²³ The caffeine derived from guarana functions as an adenosine antagonist, supporting wakefulness, focus, and attention; however, additional phytochemicals, such as saponins and tannins, found

in guarana may also exert cognition-enhancing effects. Guarana, combined with multivitamin supplementation, has also been found to improve mood, memory, and functional brain activation, according to functional MRI (fMRI) scans of supplemented individuals.²⁴

Theacrine

Theacrine is an alkaloid compound found in several different types of tea and coffee, including Chinese tea leaves, and produces a smoother, calmer state of focus. Like caffeine, theacrine blocks adenosine, a critical molecule that inhibits cognitive arousal and causes sleepiness, supporting focus for 3-4 hours without the jitteriness associated with caffeine. In addition, Theacrine is a non-habit-forming nootropic that improves energy, focus, and concentration.²⁵

DMAE, ALPHA-GPC, AND PHOSPHATIDYLCHOLINE SUPPORT ACETYLCHOLINE

Acetylcholine is a neuromodulator that mediates critical cognitive processes, including attention, concentration, learning, and memory formation. Several natural substances potentiate acetylcholine neurotransmission, including DMAE, L-alpha GPC, and phosphatidylcholine. Acetylcholine is synthesized from acetyl-coenzyme A and choline in a reaction initiated by the enzyme choline acetyltransferase.

Dimethylaminoethanol (DMAE)

Dimethylaminoethanol (DMAE) from DMAE Bitartrate is a molecule found naturally in fish that supports healthy brain function and cognition. The consumption of DMAE can increase levels of choline in the brain, providing more substrates for acetylcholine synthesis.²⁶ It may also scavenge harmful free radicals,²⁷ which are damaging to the brain.

L-Alpha Glycerylphosphorylcholine (GPC)

L-alpha glycerylphosphorylcholine (GPC) is a compound that directly increases circulating acetylcholine levels in the CNS; it is metabolized within the gastrointestinal tract, yielding choline and glycerophosphate. The resulting choline is used to create cognition-supporting acetylcholine.²⁸ Alpha-GPC is superior to isolated choline and CDP-choline for optimizing cognitive abilities and directly crosses the blood-brain barrier.²⁹

Phosphatidylcholine

Phosphatidylcholine is a choline donor that can provide the necessary substrate for acetylcholine biosynthesis.³⁰



**Energizing
 Adaptogen Blend**

SKU: Q-1022

SIZE: 50 ML

NanoMojo® is a proprietary adaptogenic blend of nineteen herbs that are well known to support resilience and endurance. This potent medley was crafted and refined by master herbalist Dan Moriarty of Sun Horse Energy over several decades. Packaged in our advanced liposomal delivery system, this balanced blend of supportive herbs is formulated for everyday use with an emphasis on the male constitution. It is the first and original herbal formula in the Sun Horse adaptogenic trinity, which also includes Thrivagen (for women) and Ultra Energy® (for general use)*

**TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
 VEGAN**

| Supplement Facts | | |
|--|-----------------------|------------------|
| Serving Size: 1 mL (2 Pumps) Servings Per Container: 50 | | |
| | Amount Per Serving | % Daily Value |
| Sun Horse Proprietary Liquid Adaptogenic Herbal Blend | 400mg | ** |
| Acai Berry; Gynostemma rhizome (Jiaogulan); Lycium fruit (Himalayan Goji); Maca root; American Ginseng root; Siberian Ginseng root; Schisandra fruit; Chinese Licorice root; Rhodiola root; Astragalus root; Reishi fruiting body; Catuaba bark; Stinging Nettle aerial parts; Saw Palmetto fruit; Guarana seed; Ashwagandha root; Tribulus aerial parts; Epimedium aerial parts; Maple sap Syrup | | |
| **Daily Value not established | | |
| Other Ingredients: Water, glycerin, ethanol, tocopherol, highly purified phospholipids, acacia gum, natural mixed tocopherols | | |

EDUCATION

MALE-SPECIFIC ADAPTOGENS

Adaptogenic herbs, also known as “adaptogens,” are botanicals that support the body’s response to daily stressors while boosting overall health and vitality. They have long been used in traditional medical systems, such as Ayurveda and Traditional Chinese Medicine (TCM), to support physiological balance and resilience while attenuating the “fight or flight” response and exhaustion. Modern scientific research shows that adaptogens act on multiple systems to fortify the body against stress, supporting long-term health and vitality.¹

Optimal function of the HPA axis, a network of signaling molecules and endocrine organs that regulates the body’s response to stress, is

essential for healthy male reproductive function. By adjusting the HPA axis, adaptogens support healthy energy levels, sharp cognition, and male hormonal balance,^{2,15} with downstream benefits for libido, fertility, and prostate health.^{5,6,9,12}

ADAPTOGENS SUPPORT RESILIENCE, ENERGY, AND VITALITY

A variety of adaptogens support hormonal balance in men by influencing the HPA axis, the testes, and the prostate gland. Botanicals with beneficial effects on male hormonal balance and health outcomes, such as energy and libido, include Siberian Ginseng Root, Nettle, Saw Palmetto, Epimedium, Tribulus, Ashwagandha, and Maca root.*

Siberian Ginseng Root - Siberian ginseng (Eleutherococcus senticosus), also referred to as “Eleuthero,” is a small woody shrub native to Northeastern Asia. The root of the plant has traditionally been used in Russia and China as an energy-boosting tonic, performance enhancer, and immunostimulant. Eleuthero has been shown to increase work capacity and inhibit fatigue during strenuous aerobic exercise by increasing fatty acid beta-oxidation in muscles, the preferred source of fuel for muscles during endurance activity.^{2,3,4}

Nettle - Stinging nettle (Urtica dioica) is an herbaceous plant native to Europe and North America that bears hundreds of sharp hairs on its leaves. Stinging nettle leaves contain phytochemicals that support healthy inflammation and regulate prostate cell proliferation.⁵ While our understanding of

nettle is still in its infancy, traditional Western herbalism has long used the prickly leaves of this unassuming plant to support men’s health.

Saw Palmetto - Saw palmetto berries (Serenoa repens) are treasured in traditional herbalism and functional medicine for their prostate health benefits.⁶ Saw palmetto berries reduce symptoms of benign prostatic hyperplasia (BPH), an enlargement of the prostate gland that commonly occurs in older men.

Saw palmetto may also support hair regrowth in male androgenetic alopecia due to its inhibitory effects on 5-alpha reductase, an enzyme that converts testosterone into dihydrotestosterone (DHT), an androgen that promotes the death of hair follicles.⁷

Epimedium - Epimedium, known colloquially as “horny goat weed,” is a Chinese herb traditionally used to support healthy libido. Modern research indicates that icariin, a key constituent of Epimedium, does indeed have beneficial effects on male sexual health. Icariin inhibits phosphodiesterase 5 (PDE5), the same enzyme targeted by pharmaceutical drugs in the treatment of erectile dysfunction (ED).⁸ Icariin inhibits oxidative stress in male reproductive cells, improving sperm count and quality.⁹ Preclinical research suggests that icariin acts as a testosterone mimetic, regulating mRNA expression for genes involved in steroid hormone synthesis and increasing overall testosterone levels.^{10,11}

Tribulus - Tribulus (Tribulus terrestris) is a plant with delicate yellow flowers distributed in warm temperate and tropical regions around the world. Research suggests that it increases nitric oxide, a signaling molecule that is essential for healthy erectile function and libido. This mechanism may explain why this plant has long been used as a libido-booster.¹²

Ashwagandha - Ashwagandha (Withania somnifera) has an array of beneficial effects on men’s health. It has been found to increase sperm count, sperm motility, and semen volume, thereby improving fertility.¹³ It is an excellent tonic for older men because it increases DHEA-S, a steroid hormone produced in the adrenal cortex associated with youthfulness and vitality, along with testosterone.¹⁴ It also enhances cognition and memory, improving both short- and long-term memory, attention, and processing speed.¹⁵

Maca Root - Maca root (Lepidium meyenii), also referred to as “Peruvian ginseng,” is an herbaceous plant native to the high, forbidding Andes mountains of Peru. It has traditionally been used by Andean people as a tonic for stress, fatigue, fertility, and libido.¹⁶ Research shows that maca can increase sperm count and motility, thereby boosting male fertility, while also inhibiting abnormal prostate cell proliferation.^{17,18} Maca also has anti-fatigue properties and can help your male patients maintain peak performance at work, home, and in their exercise routine.^{19,20}

NANOEMULSION PERFORMANCE CARDIO+

Category: CARDIOMETABOLIC • COGNITIVE SUPPORT • LONGEVITY • PERFORMANCE



Whole Body
Circulation Support

SKU: Q-1175

SIZE: 100 ML

Performance Cardio+ is a blend of Western nutraceuticals and time-honored Eastern botanicals designed to support healthy whole-body blood circulation. Using patent-pending nanoemulsion delivery technology, the formulation's liquid transparency can only be achieved with nanoparticles that are smaller than wave lengths of light. These small, stable delivery vesicles support optimal absorption of ingredients.*

TESTED ALLERGEN FREE • TESTED DAIRY FREE • TESTED GLUTEN FREE • TESTED NON-GMO
TESTED SOY PROTEIN FREE • VEGAN

| Supplement Facts | | |
|---|-----------------------|------------------|
| Serving Size: 5 mL (1 tsp.) Servings Per Container: 20 | | |
| | Amount Per Serving | % Daily Value |
| L-Citrulline | 100mg | ** |
| Proprietary Blend | 775mg | ** |
| Dan Shen root extract (Salvia miltiorrhiza), Hawthorn berry extract (Crataegus monogyna), He Shou Wu (Fo-ti) root extract (Polygonum multiflorum), Ginkgo leaf extract (Ginkgo biloba), Myrrh resin extract (Commiphora myrrha), Ginseng Plus® Panax Notoginseng root extract, Boswellia resin extract (Boswellia Serrata), Cinnamon bark oil | | |
| Percent Daily Values are based on a 2,000 calorie diet. **Daily Value Not Established | | |
| Other Ingredients: Water, ethanol, tocopherols, highly purified phospholipids, natural mixed tocopherols, natural flavoring | | |

EDUCATION

The circulatory system is a complex network of blood and vessels that delivers nutrients and oxygen to each cell of the body, while simultaneously carrying away carbon dioxide and cellular waste. Blood is the only liquid tissue in the body, consisting of cells, cell fragments, and an intercellular matrix (plasma). The health of the circulatory system that distributes this liquid tissue is vital for the optimal functioning of the entire body.

Poor blood circulation adversely impacts the health of the entire body. It inhibits nutrient and oxygen delivery to the body's tissues, depriving the body of the life-giving substrates it needs to function properly. As a result, an unhealthy circulatory system can drive the development of multiple age-related health concerns, including:

- High blood pressure⁹
- Cognitive impairment¹⁰
- Decreased sexual function¹¹
- Poor exercise tolerance and stamina¹²
- Chronic fatigue¹³

TIME-HONORED HERBS AND MODERN NUTRACEUTICALS SUPPORT CARDIOVASCULAR FUNCTION

A variety of herbs and nutraceuticals in the traditional Eastern and Western medicinal systems offer overlapping functionality in supporting blood circulation, nitric oxide synthesis, and healthy aging of blood vessels, each critical elements of cardiovascular health. Of these, there are a select few that confer more impact in one category than another. The following indicates the "stand out" herbs and nutraceuticals impacting blood circulation, nitric oxide production, and healthy vascular aging.

CIRCULATORY HERBS

Dan Shen - Dan Shen, also known as red sage or *Salvia miltiorrhiza*, is a time-honored botanical used in Traditional Chinese Medicine (TCM) to treat blood stasis. It is the most frequently and widely used blood vitalizing herb in the TCM herbal compendium. It addresses various cardiovascular complications, including atherosclerosis, myocardial ischemia/reperfusion injury, arrhythmia, cardiac hypertrophy, and cardiac fibrosis. Phytochemicals in Dan Shen inhibit multiple processes involved in circulatory system dysfunction, including LDL cholesterol oxidation,

foam cell formation, platelet aggregation, and cellular senescence of endothelial cells.¹⁴

Hawthorn Berry - Hawthorn berry comes from the thorny hawthorn shrub, *Crataegus* sp., a member of the Rose family. In traditional Western medicine, the hawthorn berry is considered the "king" of herbs for the heart and circulatory system. It has also been used extensively in TCM since approximately 659 AD. From a TCM perspective, hawthorn berry is utilized to dissipate blood stasis. Scientific research supports the traditional use of hawthorn for circulatory support. Hawthorn phytochemicals lower serum lipids and oxidative stress and protect the vascular endothelium.¹⁰ The cardioprotective properties of hawthorn are attributed to several phytochemicals, including proanthocyanidins and quercetin.^{15,16}

Panax Notoginseng - Panax notoginseng, also known simply as "Notoginseng," has historically been used in TCM to treat microcirculatory disturbances and as a revered longevity tonic. It is considered one of the most effective herbs in the TCM herbal compendium for improving blood circulation and hemostasis.^{17,18}

Scientific research confirms the microcirculation-enhancing and longevity benefits of Notoginseng. The herb inhibits chronic cellular senescence, the process by which previously normal cells transform into "zombie cells," secreting an array of inflammatory mediators that damage nearby tissues.¹⁹ Cellular senescence damages the vascular endothelium,²⁰ so inhibition of this cellular process may preserve healthy blood circulation. Notoginseng saponins, phytochemicals that develop a foamy consistency when mixed with water, reduce white blood cell adhesion in venules, improving blood flow through these tiny veins.²¹ Notoginseng saponins also regulate blood flow in the brain after acute intracerebral hemorrhage, bleeding in the brain that can occur after a traumatic brain injury (TBI) or a stroke.²²

Ginkgo Leaf - Ginkgo leaf comes from the Ginkgo biloba tree, an evolutionarily ancient tree with distinctive fan-shaped leaves. Ginkgo leaf contains an array of phytochemicals, including bilobalide, ginkgolide A, ginkgolide B, and ginkgolide C, that have been shown to exert beneficial effects on the circulatory system.²³

Ginkgo extract has been found to correct impaired nitric oxide signaling in the endothelial lining of blood vessels and chronic beta-adrenergic signaling, restoring the balanced nervous system tone necessary for healthy blood circulation.²⁴ It also supports healthy blood viscosity inside the brain, improving cerebral blood flow; these effects may alleviate age-related cognitive dysfunction associated with impaired cerebral blood flow.²⁵

Cinnamon Bark Oil - Cinnamon bark oil is a warming, aromatic essential oil derived from *Cinnamomum cassia* bark. Cinnamon has been shown to lower blood lipids, suppress vascular smooth muscle growth, a critical process

in the progression of atherosclerosis, suppress platelet aggregation, and protect the vascular endothelium.²⁶

NITRIC OXIDE SUPPORT

L-Citrulline - L-citrulline is a neutral alpha-amino acid created by enzymes in the mitochondria that increases levels of L-arginine, another amino acid and precursor to nitric oxide.²⁷ Oral L-arginine supplementation is ineffective mainly due to the degradation of the amino acid in the gastrointestinal tract and liver. L-citrulline bypasses the absorption constraints posed by the gut and liver and consistently demonstrates an ability to raise plasma and tissue levels of L-arginine and NO. Through its effects on NO synthesis, L-citrulline supports healthy blood pressure²⁸ and improves peripheral blood flow and exercise performance.²⁹

RESTORATIVE BOTANICALS

He Shou Wu - He shou wu (*Polygonum multiflorum*) is a Chinese herb with a rich history of use for supporting the cardiovascular system. It contains a phytochemical called ^{2,3,5,4'}-Tetrahydroxystilbene-2-O-β-D-glucoside or TSG for short. TSG inhibits atherosclerosis by regulating lipid levels in the blood, relaxing blood vessels, and exerting antioxidant and anti-inflammatory effects within the vascular system.³⁰ The herb also protects against ischemia/reperfusion injury, a form of tissue damage that occurs when blood supply returns to tissues after anoxia or hypoxia.³¹ It also improves glucose metabolism and insulin resistance, addressing another underlying cause of circulatory system dysfunction.³²

Myrrh Resin - Myrrh resin is a sticky substance derived from the African myrrh tree, *Commiphora myrrha*. In TCM, myrrh resin is believed to vitalize and disperse static blood. Research indicates that myrrh protects the cardiovascular system from damage during inflammatory events by activating anti-inflammatory and antioxidant signaling pathways.³³

Boswellia Resin - Boswellia resin, the fragrant resin from the *Boswellia serrata* tree, has been used for millennia in Indian Ayurvedic medicine to treat chronic inflammatory illnesses.³⁴

In traditional herbal medicine, Boswellia resin is often combined with myrrh resin to improve blood circulation.³⁵ B-boswellic acid, a phytochemical found in Boswellia, ameliorates endothelial dysfunction caused by blood stasis.³⁶ It also improves blood glucose and lipid levels, protecting against the harmful effects of high blood sugar and lipid levels on the vascular endothelium.³⁷

PATENT PENDING

NANOSERUM PROGESTERONE+

Category: CALMING + SLEEP • HORMONES • LONGEVITY



Topical Replenishing Serum

SKU: Q-1171

SIZE: 30 ML

Progesterone+ Topical Replenishing Serum is a patent-pending, nanoemulsified, transdermal serum providing 8 mg of bioidentical progesterone per 2 pump dose. Our progesterone is derived from the plant sterol diosgenin, a natural compound used to synthesize bioidentical progesterone. Progesterone+ is delivered using proprietary lipid nanoemulsion technology for enhanced absorption of ingredients.^{1,2}

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

Supplement Facts

Other Ingredients: Water, butylene glycol (1,3 butanediol), ethanol, tocopherol, medium chain triglycerides, highly purified phospholipids, progesterone, hyaluronic acid, natural mixed tocopherols.

EDUCATION

Progesterone is a hormone derived from cholesterol that is produced in both male and female bodies. However, women have much higher levels of progesterone across their life cycles.

In premenopausal females, progesterone is mainly derived from the corpus luteum, an active endocrine gland within the ovary derived from cells of the ovarian follicle during the second half of the menstrual cycle, the luteal phase.³ In the post-menopausal period, women primarily make progesterone in their adrenal glands, and in much smaller amounts than in the premenopausal period.

PROGESTERONE PLAYS MANY VITAL ROLES IN FEMALE PHYSIOLOGY

Progesterone is involved in the initiation of ovulation and maintains a healthy, hospitable uterus during pregnancy. In menstruating women, it helps regulate the menstrual flow and helps improve bone mineral density by stimulating the activity of bone-building cells called osteoblasts.⁴ Progesterone exerts anti-inflammatory effects on the brain and the uterine tissue, inhibiting aberrant uterine cell proliferation in endometriosis.^{5,6} It also improves sleep quality by enhancing slow-wave sleep and facilitates detoxification via activation of the pregnane-X-receptor.^{7,8} Furthermore, metabolism of progesterone

in the body culminates in the production of bioactive metabolites, such as allopregnanolone. Allopregnanolone is a GABA agonist that exerts anxiolytic, antidepressant, and anti-stress effects.^{9,10}

Women may experience low progesterone levels for a few reasons. First, there is a natural decline in progesterone levels that occurs naturally through the aging process. Perimenopausal and menopausal women may experience symptoms of hormonal decline and imbalance including hot flashes, mood swings, urinary incontinence, hair loss, vaginal dryness, poor concentration, uterine fibroids, loss of libido, and an overall decline in health and quality of life. Data suggests that mean serum progesterone (and estradiol) concentrations are significantly lower among menopausal women reporting hot flashes compared to those not reporting hot flashes, and that higher levels of these hormones are associated with decreased odds of hot flashes.¹¹

Additionally, there are lifestyle factors that can impact progesterone levels and its relative balance with estrogen for both reproductive and menopausal age women. Chronic stress, suboptimal thyroid function, and excess body fat are all common contributors.^{12,13} Low progesterone in menstruating women may promote PMS symptoms by increasing intestinal permeability, enabling bacteria to translocate from the gut into systemic circulation and trigger an inflammatory response.¹⁴ Furthermore, when progesterone levels are too low in relation to estrogen in menstruating or pregnant women, problems related to estrogen dominance such as menstrual

irregularities, decreased fertility, miscarriage, early labor, and endometriosis may ensue.¹⁵

Excess estrogen can also induce a relative deficiency of progesterone. Estrogen may be elevated due to xenoestrogen exposure, poor gastrointestinal or liver health, or derived from excess body fat.^{16,17} This imbalance may cause breast tenderness, sleep disturbances, anxiety, depression, and vasomotor symptoms such as hot flashes in perimenopausal and menopausal women.¹⁸

Topical progesterone supplementation has been shown to significantly decrease moderate to severe vasomotor symptoms compared to placebo in early postmenopausal women, and does not cause a rebound increase in occurrence when treatment is discontinued.¹⁹

BIOIDENTICAL PROGESTERONE IS SUPERIOR TO NON-BIOIDENTICAL PROGESTINS

Progestins are non-bioidentical forms of progesterone; they are engineered to interact with progesterone receptors throughout the body. While progestins exert some of the same effects as progesterone, they are not equivalent in their actions. In fact, progestins come with a host of possible adverse effects, including an increased risk of blood clots, blood sugar dysregulation, headaches, depression, increased menstrual bleeding, and spotting between periods.²⁰ On the other hand, bioidentical progesterone is a manufactured progesterone identical in structure to the progesterone produced by the human body and has been shown to normalize hormone imbalances with fewer side-effects than synthetic progestins.²¹

NANOEMULSION
PURE DHEA

Category: **HORMONES • LONGEVITY**



Low-Dose DHEA

SKU: Q-1193

SIZE: 50 ML

Pure DHEA provides a highly bioavailable form of micronized DHEA designed to balance female hormones in the perimenopausal, menopausal, and postmenopausal years.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

Supplement Facts

Serving Size: 1 Pump (0.5mL)
Servings Per Container: 100

| | Amount Per Serving | % Daily Value |
|----------------------------------|-----------------------|------------------|
| DHEA (Dehydroepiandrosterone) | 5mg | ** |

**Daily Value not established

Other Ingredients: Glycerin, ethanol, tocopherol, medium chain triglycerides, highly purified phospholipids, water

EDUCATION

WHAT IS DHEA, AND HOW DOES IT IMPACT WOMEN?

Dehydroepiandrosterone, or DHEA, is a steroid hormone produced by the adrenal glands, ovaries, testes, and brain. DHEA is particularly vital for postmenopausal women because, as ovarian production of sex hormones declines, DHEA can step in as a precursor to testosterone and estrogen and support healthy hormone levels. Unfortunately, as we age, the female body's production of DHEA declines precipitously.

DHEA regulates blood sugar, immune function, bone integrity, cognition, mood, and skin health.^{1,2,3,4,5,6} Through these diverse effects, DHEA also supports healthy aging. Some of the body's DHEA is also converted into estrogen and testosterone, providing coverage for two of the body's major sex hormones. DHEA is synthesized from pregnenolone, the "mother

hormone" and predecessor to all of the body's steroid hormones, including cortisol, estrogen, progesterone, testosterone, and DHEA.

DHEA production peaks between the ages of 25 and 30 and declines after that, leading a broad age range of women to be low in this vital hormone. Low DHEA is associated with high blood sugar and insulin resistance, loss of libido, and a loss of muscle mass with age, known as sarcopenia.^{7,8,9} This constellation of physiological changes, in turn, accelerates biological aging.¹⁰ Restoration of healthy DHEA levels may counteract these physiological shifts, supporting hormonal balance and healthy biological aging in midlife women.¹¹

SUPPORTS HEALTHY BLOOD SUGAR REGULATION

In animal models simulating human female menopause, supplemental DHEA improves glucose regulation by increasing the ratio of p-Akt/Akt in pancreatic islet cells, where insulin is made, leading to more efficient insulin secretion.¹² DHEA may also accelerate glucose catabolism and improve glucose storage as glycogen.¹³

SUPPORT FOR A HEALTHY LIBIDO

Low levels of DHEA sulfate (DHEA-S), a metabolite of DHEA that circulates in greater relative concentrations than DHEA and is used to assess the body's DHEA levels, is associated with low sexual function in women.¹⁴ Conversely, DHEA replacement may enhance libido in women through its androgenic effects. DHEA replacement is associated with improved desire, arousal, and vaginal lubrication in premenopausal women dealing with compromised sexual function.¹⁵ Increasing DHEA levels may also indirectly improve

libido by correcting vaginal dryness, which is often cited by postmenopausal women as a reason for low libido.^{16,17}

IMPROVES MUSCLE MASS AND BONE DENSITY

Postmenopausal women with osteoporosis, a condition in which bones become weak and brittle, and sarcopenia, the age-related loss of skeletal muscle mass and strength, are more likely to have low levels of DHEA.⁹ Both osteoporosis and sarcopenia significantly increase the risk of bone fractures, which can vastly depreciate the quality of life in midlife and beyond. In postmenopausal women, 12 months of DHEA supplementation stimulated improvements in bone mineral density and an increase in osteocalcin, a protein hormone produced by osteoblasts that is a marker of bone formation.¹⁸

Supplemental DHEA may help maintain and even build lean body mass by bolstering total androgen levels. Once DHEA is delivered to skeletal muscle, it enhances

muscle protein synthesis and bone anabolism.¹⁹ DHEA may improve bone density by decreasing levels of IL-6, an osteolytic inflammatory cytokine, and increasing IGF-1 gene transcription.²⁰

SUPPORTS RESILIENT COGNITION AND MOOD

DHEA is a neurosteroid, a steroid hormone synthesized within the brain that modulates neuron signaling. Declining levels of DHEA with age may depreciate cognition and even drive neurodegenerative diseases such as Alzheimer's disease,^{21,22} by decreasing excessive glutamatergic neurotransmission, which can be excitotoxic to the brain.²³ Conversely, higher levels of DHEA are associated with more favorable markers of cognitive function, including better executive function, cognition, and working memory.²⁴ DHEA may also offer neuroprotective effects, support the growth of neurites (neuronal processes), and protect the brain from the harmful effects of excess cortisol.²⁵

LIPOSOMAL PURE PC®

Category: COGNITIVE SUPPORT • DETOX • LONGEVITY

Pure PC® delivers highly bioavailable phosphatidylcholine in a liposomal format for easy absorption into the bloodstream, rapidly replenishing cell membranes and supporting whole-body health.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

| Supplement Facts | | |
|--|--------------------|---------------|
| Serving Size: 5 mL (1 tsp) Servings Per Container: 24 | | |
| | Amount Per Serving | % Daily Value |
| Phosphatidylcholine (from purified soybean lecithin) | 650mg | ** |
| **Daily Value not established | | |
| Other Ingredients: Water, glycerin, ethanol, tocopherol | | |

prevent overt liver damage; they do not reflect choline intakes conducive to optimal health. An insufficient intake of choline, in turn, can contribute to a wide range of health concerns, including fatty liver, muscle damage, and cognitive dysfunction.^{1,7}

Furthermore, the increasing popularity of plant-based diets may further decrease choline intake because animal proteins, such as dark meat and eggs, are the most abundant sources of choline in the human diet.^{8,9} The low (or even absent) consumption of animal products in vegan and vegetarian diets puts individuals at an increased risk of choline deficiency. Postmenopausal women are also at an increased risk due to reduced estrogen levels, as estrogen production naturally increases choline production.⁵ Finally, genetic polymorphisms in PEMT are common, and further increase the risk of choline deficiency by hindering the conversion of phosphatidylethanolamine into phosphatidylcholine.¹⁰

Supplemental phosphatidylcholine¹¹ provides a rich source of readily available choline, and may help replenish levels of this vital nutrient.

PC SUPPORTS HEALTHY CELL MEMBRANES

Phospholipids are the fundamental building blocks of all cell membranes in the human body. Human cells contain four main phospholipids – phosphatidylserine, phosphatidylethanolamine, sphingomyelin, and phosphatidylcholine.¹¹ Of these phospholipids, phosphatidylcholine comprises the lion's share of the membrane.

Phosphatidylcholine has a hydrophilic ("water-loving") phosphate-containing head and two hydrophobic ("water-fearing") fatty acid tails. The amphiphilic properties

of phosphatidylcholine enable it to spontaneously form bilayers in aqueous solutions, including the aqueous internal environment of the human body. Phosphatidylcholine comprises the cell membranes of all cells in the body, creating a protective interface between the interior of the cell and its exterior environment, while also providing an anchoring point for membrane proteins. These membrane proteins participate in a variety of vital functions, including intercepting external signals from hormones and neurotransmitters and relaying these messages to the cell's genome, and selectively transporting nutrients and other molecules into the cell.¹²

A variety of lifestyle factors, including oxidative stress, infections, and the consumption of rancid dietary fats, cause a loss of host cell membrane integrity.^{13,14,15}

PC SUPPORTS COGNITIVE FUNCTION

Choline is a precursor for the synthesis of acetylcholine, an essential neurotransmitter in the brain, and at neuromuscular junctions. Phosphatidylcholine is a critical component of cell membranes, including the membranes of neuronal cells that facilitate neurotransmission and cognition.

Acetylcholine has been observed to decline in cognitive disorders such as Alzheimer's disease; in parallel, phosphatidylcholine levels are also diminished.^{16,17} Supplemental phosphatidylcholine may support healthy acetylcholine levels and maintain neuronal membrane integrity, preserving healthy neurotransmission. Higher intakes of phosphatidylcholine are associated with better cognitive performance in adulthood.¹⁸

PC SUPPORTS LIVER FUNCTION AND DETOXIFICATION

Phosphatidylcholine is critical for liver function. It comprises hepatic cell membranes, which must continually be renewed to successfully facilitate detoxification reactions. The liver also requires PC for packaging and eliminating lipids, triglycerides, and cholesterol to prevent harmful hepatic lipid accumulation. When PC is in short supply, hepatic cell membranes suffer damage from the free radicals generated during detoxification; lipids also accumulate in the liver, hindering detox and promoting inflammation.

Research suggests that high-dose phosphatidylcholine is a beneficial adjunct intervention for non-alcoholic fatty liver disease (NAFLD), normalizing the liver enzymes AST, ALT, and GGT, and improving ultrasonographic features of the disease.^{19,20} PC appears to alleviate fatty liver by replacing damaged phospholipids in hepatic cell membranes and by exerting antioxidant and anti-fibrotic effects on the liver.

Phosphatidylcholine has been shown to protect the liver against a variety of xenobiotics, including heavy metals and pharmaceuticals.^{21,22} PC deficiency may be a critical

step in the pathogenesis of mycotoxin-induced liver damage, suggesting that PC administration may be crucial for supporting the recovery of individuals who have been exposed to environmental mycotoxins.²³

Phosphatidylcholine is also a critical element of bile, a fluid made in the liver and secreted by the gallbladder that is essential for fat digestion and detoxification. PC insufficiency reduces bile flow, and may, therefore, slow down the elimination of mobilized toxins.²⁴

PC SUPPORTS METHYLATION

Methylation is a biochemical process by which a methyl group (-CH₃) is added to a substrate, transforming it into a new compound. Essentially, methylation serves as a cellular "switch," turning off and on a variety of vital biochemical processes, including neurotransmitter production, immune function, and detoxification. A variety of micronutrients are needed to keep methylation running smoothly, including folate, B12, and choline.²⁵ Choline deficiency significantly impairs DNA methylation with downstream adverse effects throughout the body. Conversely, supplying the body with sufficient choline supports methylation and healthy gene expression.

Phosphatidylcholine supplementation supports the reduction of homocysteine, a metabolite that can become elevated when methylation is impaired.²⁶ It may reduce homocysteine by downregulating PEMT expression, which is turned on when dietary choline is lacking.

PC ENHANCES CHOLESTEROL AND FAT METABOLISM

The amphiphilic properties of phosphatidylcholine are important not only for maintaining the structure of cell membranes, but they are also crucial for packaging lipids into very-low-density lipoproteins (VLDLs), and for transporting these lipoproteins throughout the body. When choline and phosphatidylcholine levels are low, lipids can accumulate in the liver, causing liver damage. Blood lipids can also become elevated, increasing the risk of cardiovascular disease. Phosphatidylcholine "greases the machinery" used in the processing, packaging, and distribution of cholesterol, supporting healthy cholesterol metabolism.^{27,28}

PURE PC IS IN THE FOLLOWING PROTOCOL SYSTEMS:

- Black Box® II



Cell Membrane Fortifier

SKU: Q-1009

SIZE: 120 ML

EDUCATION

PHOSPHATIDYLCHOLINE DELIVERS THE ESSENTIAL NUTRIENT CHOLINE

Phosphatidylcholine (PC) is a class of phospholipid that incorporates choline as a headgroup in its molecular structure. Phospholipids also contain fatty acids, glycerol, and phosphorous. Lecithin, the phosphorous aspect of phospholipids, are made up of PC, thus phosphatidylcholine and lecithin are terms that are used interchangeably, although they are different, and grades of phosphatidylcholine vary. PC is the predominant lipid building block of cellular membranes, both internal and external. PC also supports cognition and liver function, facilitates detoxification, supports methylation, and is an integral part of healthy cholesterol and fat metabolism.^{2,3,4,5,6}

While adequate intakes for choline have been estimated, these numbers are based merely on the dietary choline intake required to

QUINTON® NASAL SPRAYS

Category: IMMUNE HEALTH



SKU: Q-1202

SIZE: 100 ML

Quinton® Daily Nasal and Action Plus Sprays provide a hydrating nasal mist derived from mineral-rich cold microfiltered seawater, designed to support nasal and sinus passage wellness and healthy breathing. These products are natural, hypoallergenic, and preservative-free.

Quinton Daily Nasal Spray provides an isotonic solution with .9% sodium chloride, an osmolarity similar to blood plasma, tears, and sweat. The isotonic seawater solution was developed according to the original protocol of physiologist and biologist Rene Quinton, ensuring the chemical integrity of the mineral components naturally present in seawater.

Quinton Action Plus provides a hypertonic solution of approximately 2.1% sodium chloride. The raw seawater in this product also undergoes a cold microfiltration process, following René Quinton's original protocol. This process guarantees the integrity of the mineral components present in seawater, providing up to 78 minerals and trace elements from the periodic table in different proportions.*

100% NATURAL SEAWATER • UP TO 78 TRACE MINERALS & ELEMENTS • GLUTEN-FREE
INFORMED SPORT CERTIFIED • VEGAN • ZERO SUGAR

Ingredients

| | |
|--------------------|--------|
| Sea water | 60 mL |
| Water | 40 mL |
| Total net quantity | 100 ml |

Ingredients

| | |
|--------------------|--------|
| Water | 71 mL |
| Sea water | 29 mL |
| Total net quantity | 100 ml |

EDUCATION

Seawater is currently undergoing studies for its health benefits. A growing body of research indicates that seawater offers anti-inflammatory and immune system-regulating effects within the body.

Several of the health-promoting effects of seawater are attributable to its mineral content. Seawater is rich in sodium and magnesium, followed by potassium, calcium, and beneficial trace elements like selenium, zinc, and vanadium.¹ In addition, preclinical research shows that seawater can activate the immune system by supporting key populations of immune cells, including lymphocytes.² While more research is needed

to fully understand the effects of seawater on immune system parameters, these early results are promising.

Isotonic seawater is water extracted from the ocean diluted with spring water, creating a solution with a mineral content similar to body fluids such as blood plasma, tears, and sweat.³

Hypertonic seawater is water extracted from the ocean that contains approximately $\frac{2}{3}$ the salt of regular seawater. Due to its concentrated mineral content, it can be helpful for replenishing minerals inside the body and is recommended for more acute nasal passage needs.⁴

ISOTONIC AND HYPERTONIC SEAWATER FOR NASAL AND SINUS HEALTH

Nasal passages act as a crucial air conditioning system for the air that enters the respiratory tract, filtering out harmful particles from sources like air pollution and humidifying air. Together, these effects help protect the lower airway.⁵

Research shows that inflammation of the nasal and sinus passages has increased over the past decade, possibly due to increased

urbanization and air pollution exposure.^{6,7} Nasal and sinus inflammation and congestion can lead to head discomfort, swelling and pain in the face, difficulty breathing, and mouth breathing during sleep. Nasal hygiene and keeping the nasal passages and sinuses clean and moisturized may help mitigate inflammation and help restore your internal "A/C system."

SALINE NASAL IRRIGATION (SNI)

Saline nasal irrigation (SNI) or cleansing the nasal passages and sinuses with pure salt water, is known to help people with nasal and sinus issues. SNI directly cleanses the mucosal surfaces inside the nasal passages and sinus cavity, supporting mucosal function and easier breathing.⁸ Seawater irrigation of the nasal passages and sinuses is a form of SNI that has been shown to offer significant benefits for nasal and sinus health.

SNI with isotonic seawater helps alleviate nasal obstruction and excessive secretion in children with nasal

and sinus inflammation and congestion.⁹ Isotonic seawater also aids in moisturizing the nasal passages and helping flush foreign particles from the nasal epithelium through mucociliary clearance. It even helps damaged nasal mucosal tissue.¹⁰

Both isotonic and hypertonic seawater are supportive for resolving nasal congestion and symptoms related to head congestion.¹¹ In addition, hypertonic seawater may also support post-operative tissue in individuals who have undergone sinus surgery by helping to reduce inflammation and swelling.¹²

Isotonic and hypertonic seawater saline solutions such as Quinton's® Daily Nasal and Action Plus Sprays support nasal and sinus symptoms through the mechanical action of saline fluid washing through nasal passages, helping to reduce the production and release of inflammatory cytokines from cells lining the nasal passages.



SKU: Q-1201

SIZE: 100 ML

QUINTON® HYPERTONIC & QUINTESSENTIAL® 3.3

Category: VITAMINS & MINERALS • PERFORMANCE



SKU: Q-1016

SIZE: BOX OF 30 / 10 ML AMPOULES



SKU: LQ-1135

SIZE: BOX OF 30 / 10 ML SACHETS



SKU: Q-1031

SIZE: 1 LITER

Quinton® Hypertonic and QuintEssential® 3.3 contain a nutrient-rich, raw marine fluid harvested from the depths of protected, plankton-rich ocean blooms. These products offer up to 78 essential minerals and rare trace elements. It is formulated at a hypertonic concentration that is three times the mineral concentration of our plasma and designed to support sympathetic tone, alertness, and stamina.*

100% NATURAL SEAWATER • UP TO 78 TRACE MINERALS & ELEMENTS • GLUTEN-FREE
INFORMED SPORT CERTIFIED • VEGAN • ZERO SUGAR

| Supplement Facts | | |
|---|--------------------|---------------|
| Serving Size: 1 Drinkable Ampoule (10mL) | | |
| Servings Per Box: 30 or Sachet | | |
| | Amount Per Serving | % Daily Value |
| Calcium | 4.4 mg | <1% |
| Magnesium | 11 mg | 3% |
| Sodium | 102 mg | 4% |
| Potassium | 3.7 mg | <1% |
| **Daily Value Not Established | | |
| Other Ingredients: Cold micro-filtered natural seawater. | | |

critical to health. Mild dehydration impairs brain function and mood while adequate hydration improves them.^{8,9,10,11} Dehydration also increases oxidative stress while rehydration reduces it during recovery from exercise.¹² Hydrating with trace minerals like those in marine plasma can be highly beneficial; trace elements are critical to everything from sugar metabolism to production of energy, hemoglobin synthesis and production, detoxification, and hundreds of enzyme reactions.¹³ A hypertonic solution is particularly recommended during peak athletic and endurance events. Hyponatremia (low plasma sodium) can be caused by excessive consumption of hypotonic fluids during heavy exercise.¹⁴ Sodium, such as that in a hypertonic solution, is beneficial during and after endurance events.^{15,16}

EDUCATION

HISTORY OF SEAWATER USE

The benefits of Seawater were first discovered by French biologist and physiologist René Quinton in the late 1800s. Quinton successfully used marine plasma infusions in thousands of patients to treat chronic conditions ranging from infectious disease to eczema, autoimmune diseases, allergies, cystitis, gastroenteritis and more.¹ Since that time, scientists have demonstrated the ability of seawater to benefit conditions ranging from dermatitis to eczema, dry eye syndrome, and rhinitis.^{2,3,4,5,6,7}

SEAWATER PROVIDES COMPREHENSIVE HYDRATION AND MINERALIZATION FOR THE HIGH-PERFORMANCE ATHLETE

Hydration and adequate mineralization are

Seawater is currently being used to optimize immune balance, improve antioxidant status, support healthy intestinal flora, reduce the symptoms of allergies, colds, skin conditions, sinusitis, and for GI dysfunction.²⁶ Lymphocytes cultivated with marine plasma solution show a greater intercellular production of important cytokines, including TNF- α , IL-2 and INF- γ .²⁷ Marine plasma has been shown to increase heart rate variability, a marker of well-being.^{28,29} It has been shown to increase immunological markers in human peripheral blood mononuclear cells (PBMC) and to markedly increase their survival time in comparison to saline solution or a traditional growth medium used in cell cultures.³⁰ In addition, dissolved organic matter (DOM) from deep seawater inhibits platelet aggregation and increases the expression of an anti-atherogenic molecule, heme oxygenase-1, with aspirin-like effects. When mice are fed DOM, the progression of atherosclerosis is slowed.³¹

SEAWATER SUPPORTS ENDURANCE AND STRENGTH

Seawater is safe for long-term use and has an anabolic effect on metabolism. It improves endurance and strength, and is recommended for high-performance physical and mental activity.*

QUINTON® HYPERTONIC & QUINTESSENTIAL® 3.3 IS IN THE FOLLOWING PROTOCOL SYSTEMS:

- Dr. Jill's Miracle Mold Detox
- 30-Day Reset Program

SEAWATER IS RICH IN NUCLEIC ACIDS AND RARE MINERALS

Seawater is far more complex than surface seawater we might wade, swim or surf in. The permanent upwelling of nutrients and rare minerals in marine plasma are metabolized in the vortices and spiral waves of plankton blooms, where phytoplankton and zooplankton colonies hundreds of miles wide give rise to a rich blend of bioactive molecules.^{22,23,24} The healing potential of water drawn from these vortices has not yet been fully elucidated, but analysis of ocean samples around the world reveal nucleic acids distinct from those of known species on earth, suggesting the sea is still a fertile source of unexplored molecules essential to life.²⁵

SEAWATER SUPPORTS HEALTHY IMMUNE FUNCTION AND HEART RATE VARIABILITY

QUINTON® ISOTONIC & QUINTESSENTIAL® 0.9

Category: CALMING + SLEEP • CARDIOMETABOLIC • VITAMINS & MINERALS • PERFORMANCE



SKU: Q-1015

SIZE: BOX OF 30
10 ML AMPOULES



SKU: LQ-1133

SIZE: BOX OF 30
10 ML SACHETS



SKU: Q-1030

SIZE: 1 LITER

Quinton® Isotonic and QuintEssential® 0.9 contain a nutrient-rich, raw marine fluid harvested from the depths of protected, plankton-rich ocean blooms and cold-sterilized to retain all its original healing properties. Offering highly bioavailable ionic mineral hydration, Quinton® Isotonic and QuintEssential® 0.9 contain up to 78 essential minerals and rare trace elements as well as nucleic acids, polysaccharides, phytochemicals, sugars, vitamins and anti-inflammatory compounds able to replenish cells.^{1,2,3} It supports parasympathetic tone and promotes the “rest, digest, repair and regenerate” cycle.⁴

100% NATURAL SEAWATER & PURE NATURAL SPRING WATER • UP TO 78 TRACE MINERALS & ELEMENTS
GLUTEN-FREE • INFORMED SPORT CERTIFIED • VEGAN • ZERO SUGAR

Supplement Facts

Serving Size: 1 Drinkable Ampoule (10mL)
Servings Per Box: 30 or Sachet

| | Amount Per Serving | % Daily Value |
|-----------|-----------------------|------------------|
| Calcium | 1.3 mg | <1% |
| Magnesium | 2.9 mg | <1% |
| Sodium | 28 mg | 1% |
| Potassium | 1.3 mg | <1% |

**Daily Value Not Established

Other Ingredients: Natural spring water, cold micro-filtered natural seawater

that of blood plasma¹², this mineral-rich fluid can restore and detoxify the extracellular matrix (ECM). The ECM is a highly dynamic, body-wide network of molecules that circulates fluid throughout the body and provides structural and biochemical support to every cell.¹³ The ECM is vital for maintaining homeostasis and was first identified by Alfred Pischinger in the 1800's.¹⁴ Scientists are now utilizing bioinformatics to study the biology of the ECM, with application to many diseases.^{15,16}

RICH IN NUCLEIC ACIDS AND RARE MINERALS

Marine plasma is far more complex than surface seawater we might wade, swim or surf in. The permanent upwelling of nutrients and rare minerals in marine plasma are metabolized in the vortices and spiral waves of plankton blooms, where phytoplankton and zooplankton colonies hundreds of miles wide give rise to a rich blend of bioactive molecules.^{17,18,19} The healing potential of water drawn from these vortices has not yet been fully elucidated, but analysis of ocean samples around the world reveal nucleic acids distinct from those of known species on earth, suggesting the sea is still a fertile source of unexplored molecules essential to life.²⁰

HEALTHY IMMUNE FUNCTION AND HEART RATE VARIABILITY

Quinton® marine plasma is currently being used to optimize immune balance, improve antioxidant status, support healthy intestinal flora, reduce the symptoms of allergies,

colds, skin conditions, sinusitis, and for GI dysfunction.²¹ Dry eye syndrome specifically responds to marine plasma washes, with a 68% decrease in symptoms for those using the solution as an eyewash five times daily—significantly better results than commercially available artificial tears.²² Lymphocytes cultivated with marine plasma solution show a greater intercellular production of important cytokines, including TNF-a, IL-2 and INF-γ.²³ Quinton® marine plasma has been shown to increase heart rate variability, a marker of well-being.^{24,25} It has been shown to increase immunological markers in human peripheral blood mononuclear cells (PBMC) and to markedly increase their survival time in comparison to saline solution or a traditional growth medium used in cell cultures.²⁶ In addition, dissolved organic matter (DOM) from deep seawater inhibits platelet aggregation and increases the expression of an anti-atherogenic molecule, heme oxygenase-1, with aspirin-like effects. When mice are fed DOM, the progression of atherosclerosis is slowed.²⁷

COMPREHENSIVE HYDRATION AND MINERALIZATION

Hydration and adequate mineralization are critical to health. Mild dehydration impairs brain function and mood while adequate hydration improves them.^{28,29,30,31} Dehydration also increases oxidative stress while rehydration reduces it during recovery from exercise.³² Hydrating with trace minerals like those in Quinton® marine plasma can be highly beneficial; trace elements are critical to everything from sugar metabolism to production of energy, hemoglobin synthesis and production, detoxification, and hundreds of enzyme reactions.³³

GENTLE ENOUGH FOR CHILDREN AND HYPERSENSITIVE PATIENTS

Quinton® Isotonic and QuintEssential® 0.9 are diluted to an isotonic concentration to conform to the ECM, and is gentle enough to be taken daily by children, older individuals, and those with hypersensitive or allergic constitutions. It can help

calm nervous or anxious states, support optimal immune function, balance digestive function and facilitate greater mental focus. In Oriental medicine it would be seen as having a cooling, sedating, balancing yin effect. In Ayurveda its quality would be called calming, like that of the moon. It is useful for yoga, meditation, sleep, and recovery after exercise.³⁴

BACTERIOLOGICALLY PURE, NATURALLY STERILE

“Water is life's mother and medium,” wrote Nobel prize-winning scientist Albert Szent-Györgyi. “We are still living in water. The ionic composition of our blood reflects the ionic composition of the primordial ocean.”³⁵ Szent-Györgyi also believed that “biology has forgotten water, or never discovered it.” Quinton® marine plasma remembers water, and delivers to each cell what biology forgot.

Both Quinton® Isotonic and QuintEssential® 0.9 packages offer 30 servings of 0.34 fl. oz. (10 ml) each. Quinton® and QuintEssential® are the same formula, however their packaging slightly differs. The Quinton® ampoule is entirely glass, while the QuintEssential® is a more travel-friendly sachet. Each 10 ml serving delivers 0.9% bioavailable, bacteriologically pure, naturally sterile minerals and trace elements reduced to isotonicity (0.9%) with spring water, pH 7.2. Because it undergoes only cold sterilization, all the marine-rich complexes in Quinton® Isotonic retain their original form and potency.

QUINTON® ISOTONIC & QUINTESSENTIAL® 0.9 IS IN THE FOLLOWING PROTOCOL SYSTEMS:

- Dr. Jill's Miracle Mold Detox

PATENTED
U.S. Patent Number 7,281,704

DR SHADE'S
THE ONE

Category: **CARDIOMETABOLIC • LONGEVITY • PERFORMANCE**



Mitochondrial Elixir

SKU: Q-1025

SIZE: 100 ML

Dr. Shade's The One is a liposomal blend of nutraceuticals and botanicals designed to support healthy mitochondrial function, metabolism, and stress resistance.* Our unique formulation includes Pyrroloquinoline Quinone (PQQ), resveratrol, CoQ10 as ubiquinone, DeltaGold® Tocotrienols, and thirteen time-honored adaptogenic botanicals.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE VEGAN

| Supplement Facts | | |
|--|-----------------------|------------------|
| Serving Size: 5 mL (1 tsp.) Servings Per Container: 20 | Amount Per Serving | % Daily Value |
| BioPQQ® (Pyrroloquinoline Quinone Disodium Salt) | 7mg | ** |
| CoQ10 (as Ubiquinone) | 30mg | ** |
| Resveratrol (from Japanese Knotweed root extract) | 15mg | ** |
| DeltaGOLD® Tocotrienols | 5mg | ** |
| Phosphatidylcholine (from purified sunflower seed and soybean lecithin) | 250mg | ** |
| Sun Horse Proprietary Liquid Adaptogenic Herbal Blend | 400mg | ** |
| Acai Berry, Gynostemma rhizome (Jiaogulan), Goji berry, Maca root, American Ginseng root, Schisandra fruit, Chinese Licorice root, Rhodiola root, Astragalus root, Reishi fruiting body, Catuaba Bark, Guarana seed, Ashwagandha root, Maple sap Syrup | | |
| **Daily Value not established | | |
| Other Ingredients: Water, glycerin, ethanol, tocopherols, medium chain triglycerides, natural citrus oils, natural mixed tocopherols | | |

EDUCATION

AN INTRODUCTION TO MITOCHONDRIAL METABOLISM

Every cellular process in our bodies links back to our mitochondria, our precious renewable biological batteries.¹ These tiny, critical organelles are intimately involved in energy production, hormone production, blood clotting, muscle contraction, cell life and cell death.² As many as a thousand mitochondria populate each cell in our body, continuously converting dietary calories into useable energy in the form of ATP (adenosine triphosphate). ATP is so important that the human body recycles it 1000 to 1500 times a day. Mitochondria also help regulate cellular proliferation, cellular differentiation, cell death (apoptosis), and the removal and recycling of damaged cells and organelles (autophagy and mitophagy).³

With such an enormous rate of energy production, mitochondria are vulnerable to damage. Through a process known as oxidative phosphorylation, they synthesize ATP but also generate high numbers of reactive oxygen species (ROS). These ROS serve as signaling molecules that regulate cellular function, but also can cause damage to our DNA.⁴ This leads to an extraordinarily high mutation rate in comparison to the nucleus of the cell.⁵

Mitochondria continuously divide over the course of our lifetime, producing fresh mitochondria through biogenesis. Mitochondrial biogenesis is highly responsive to both energy demand and environmental stimuli.⁶ In addition, as generators of cellular energy, mitochondria serve as first responders to environmental change and stress, and are vulnerable to environmental toxins and pollutants.⁷ Supporting mitochondria with innovative nutraceutical combinations may enhance and contribute to their efficient function and biogenesis, and induce cytoprotective pathways that can optimize health and preserve youthful, resilient metabolism.

PQQ ENHANCES MITOCHONDRIAL BIOGENESIS & OFFERS NEUROPROTECTION

Pyrroloquinoline quinone (PQQ) is an antioxidant nutrient with a proven ability to enhance mitochondrial biogenesis and metabolism through multiple pathways and transcription factors.^{8,9,10} PQQ stimulates expression of a master regulator molecule called PCG-1a (peroxisome proliferator-activated receptor gamma coactivator 1-alpha). PCG-1a then activates genes that promote mitochondrial

activity and upregulate cellular metabolism, as well as help regulate blood pressure, cholesterol, triglycerides, and energy metabolism.¹¹

PQQ enhances mitochondrial reproduction, protection, and repair. Dietary sources of PQQ modulate mitochondrial quantity and function, and everything from lipid metabolism to cardiac ischemia.¹² In animal studies, deficiency of dietary PQQ leads to stunted growth, reduced fertility and fewer mitochondria. Reintroducing PQQ to the diet increases the number of mitochondria as well as their metabolic efficiency.^{13,14} PQQ has exceptional redox recycling capacity and thus profound neuroprotective and neuroregenerative properties.¹⁵ PQQ induces Nrf2, our endogenous master antioxidant switch, which upregulates numerous genes involved in detoxification.¹⁶ The muscle richest in mitochondria is the heart, and PQQ protects it against muscle dysfunction and reduces lipid peroxidation.^{17,18}

UBIQUINONE (COQ10) OPTIMIZES MITOCHONDRIAL FUNCTION

Ubiquinone, the potent lipid antioxidant Coenzyme Q10, supports the ability of mitochondria to produce energy. An astonishing 95% of all cellular energy is dependent upon CoQ10.¹⁹ CoQ10 facilitates the transfer of electrons (energy) into ATP in the mitochondria. In fact, when CoQ10 has been added to aging mitochondria, their function improved markedly.²⁰ For example, CoQ10 has been shown to positively impact mitochondria function supporting age-related decline in female fertility and in the brain as it relates to aging and/or neurodegenerative conditions.^{21,22} Studies with the most famous "worm" in science—the incredibly tiny *C. elegans* that has a complete nervous system—show that CoQ10 can slow down aging and extend lifespan.²³ The highest CoQ10 concentrations are found in our most energy-intensive organs: the brain, heart, liver, and kidneys.²⁴

RESVERATROL SLOWS AGING AND CLEARS DAMAGED MITOCHONDRIA

Mitochondrial dysfunction is a key biomarker of aging.²⁵ Resveratrol is an antioxidant polyphenol exhibiting a unique range of anti-aging properties. Resveratrol activates the so-called "longevity" enzymes, the sirtuins, mimicking the beneficial effects of calorie restriction.²⁶ Like PQQ, resveratrol can stimulate mitochondrial biogenesis and promote mitochondrial respiration, while decreasing ROS and inflammation.^{27,28}

It increases nitric oxide production and benefits the heart, inhibits inflammatory cyclooxygenase, and may help break down beta-amyloid plaque.²⁹ It increases the activity of the antioxidant enzymes glutathione-peroxidase, S-transferase and S-reductase, superoxide dismutase, and catalase.³⁰ Resveratrol has been shown to improve mitochondrial function in liver and skeletal muscle cells, as well as induce the formation of new mitochondria in endothelial cells.³¹

Resveratrol has been shown to help stimulate mitochondrial biogenesis, an effect that is further enhanced when combined with exercise.³² Finally, resveratrol induces both autophagy and mitophagy, helping the body clear damaged cells and thereby reducing inflammation and protecting against oxidative damage.³³

TOCOTRIENOLS INCREASE ANTIOXIDANT ACTION

Tocotrienols are part of the vitamin E family and are well distributed in the lipid layers of the cell membrane. They offer unique antioxidant, neuroprotective, cholesterol-lowering and anti-inflammatory action.^{34,35} Tocotrienols stimulate our master antioxidant switch, Nrf2.³⁶ Delta and gamma tocotrienols sourced from annatto have been shown to lower total cholesterol, LDL, triglycerides and cytokines associated with cardiovascular disease.³⁷ It also effectively lowers nitric oxide⁴⁰ and offers more antioxidant action than alpha tocopherol or a mix of tocopherols and tocotrienols.³⁸

GLOBAL ADAPTOGENS ENHANCE STRESS RESISTANCE

Adaptogenic herbs have a long and celebrated reputation for supporting the body's response to conditions of high demand.³⁹ For example, American Ginseng Root (*Panax quinquefolius*) supports mental acuity and memory, and protects neurons from overactivity and toxicity.⁴⁰ Acai berry offers antioxidant and anti-inflammatory action.^{41,42} Himalayan Goji Berry (*Lycium barbarum*)—the "longevity" berry offers anti-aging, neuroprotective, and antioxidant benefits, and supports a balanced immune response.⁴³

DR. SHADE'S
THRIVAGEN

Category: **CARDIOMETABOLIC • HORMONES • LONGEVITY**



Harmonizing
Adaptogen Blend

SKU: Q-1043

SIZE: 50 ML

Thrivagen is an adaptogenic botanical formula designed to support female hormone balance.* This blend was initially crafted and refined by master herbalist Dan Moriarty of Sun Horse Energy for his wife, Mona. Thrivagen features adaptogens designed to support the unique needs of women, including Chaste tree berry, Shatavari, and Angelica archangelica. It is the second formula in the Sun Horse adaptogenic trinity, which also includes NanoMojo® (for men) and Ultra Energy® (for general use).

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

Supplement Facts

Serving Size: 1 mL (2 Pumps)
Servings Per Container: 50

| | Amount Per Serving | % Daily Value |
|--|-----------------------|------------------|
| Sun Horse Proprietary Liquid Adaptogenic Herbal Blend | 400mg | ** |
| Gynostemma rhizome (Jiaogulan), Lycium fruit (Himalayan Goji), Acai berry, Peruvian Maca, American Ginseng root, Schisandra fruit, Asian Licorice root, Rhodiola root, Astragalus root, Reishi fruiting body, Catuaba bark, Guarana seed, Shatavari, Ashwagandha root, Angelica Archangelica, Chaste tree berry, Maple sap Syrup | | |

**Daily Value not established

Other Ingredients: Glycerin, ethanol, water, tocopherol, highly purified phospholipids, acacia gum, natural mixed tocopherols

EDUCATION

ADAPTOGENS SUPPORT THE MODERN-DAY WOMAN

Adaptogenic herbs or adaptogens are botanicals that support the body's response to daily stressors while boosting overall health and vitality.* They have long been used in traditional medical systems, such as Ayurveda and Traditional Chinese Medicine (TCM), to support physiological balance and resilience while attenuating the "fight or flight" stress response and exhaustion. Modern scientific research shows that adaptogens act on multiple systems to fortify the body against stress, supporting long-term health and vitality.¹

The female endocrine system is a highly sensitive system that is susceptible to

disruption from ongoing, persistent stressors. The high demands placed on women, both in their personal and professional lives, takes a toll on the stress-response system and hormonal balance, causing symptoms such as fatigue, menstrual irregularity, and low mood. In fact, stress causes profound dysfunction of the hypothalamic-pituitary-ovary axis, a tightly-regulated system that governs female reproductive system health.² Furthermore, females show a more robust stress response in the hypothalamic-pituitary-adrenal axis, possibly due to the hormone estrogen and its effect on stress responsivity.^{3,4}

Several adaptogens can help the female body respond with resilience to daily stressors and support a positive mood, sharp cognition, and hormonal balance.

TIME-HONORED ADAPTOGENS SUPPORT RESILIENCE AND HORMONE BALANCE

Botanical medicine systems have long utilized female-specific adaptogens to help women manage stress, normalize their menstrual cycles, alleviate premenstrual discomfort, and support wellbeing during and after menopause.

Maca Root

Maca root (*Lepidium meyenii*), also referred to as "Peruvian ginseng," is an herbaceous plant native to the high, forbidding Andes mountains of Peru. It has traditionally been used by Andean people as a tonic for stress, fatigue, fertility, and libido.⁸ In a double-blind, randomized clinical trial, two months of supplementation with maca root increased

estradiol, lowered cortisol and adrenocorticotropic hormone (ACTH), and alleviated menopausal symptoms in postmenopausal women. Excitingly, four months of maca supplementation improved bone density in these same women. Moreover, maca did not trigger any of the adverse symptoms associated with pharmaceutical hormone replacement therapy (HRT), such as increased blood pressure and body weight, depression, and mood swings.⁹ Maca has also been found to alleviate female sexual dysfunction caused by selective serotonin reuptake inhibitors (SSRIs), a class of drug commonly prescribed for depression.¹⁰ Maca does not contain any phytoestrogens or other plant-based hormones; instead, it exerts beneficial health effects by toning the hypothalamic-pituitary-ovarian (HPO) axis.⁸

Chinese Licorice

Chinese licorice root (*Glycyrrhiza uralensis*) is considered a "guide drug" used to enhance the efficacy of other ingredients in botanical formulas.¹¹ Chinese licorice root may potentiate the stress-reducing effects of adaptogens by modulating cortisol levels. Glycyrrhizic acid, a principal constituent of licorice root, inhibits the activity of the enzyme 11 β -hydroxysteroid dehydrogenase, preventing the conversion of cortisol into the inactive hormone cortisone. By supporting optimal levels of cortisol, neither too little nor too much, licorice root acts as a mild tonic for resilience and vitality.¹²

Shatavari

Shatavari (*Asparagus racemosus*) is an herbaceous member of the asparagus family that grows in tropical and subtropical parts of India. Shatavari is the primary rejuvenating tonic for females in traditional Indian Ayurvedic medicine, used to promote vitality, resilience, fertility, and longevity.¹³

Shatavari contains steroidal saponins that normalize ovulation and increase libido, and balance estrogen, follicle-stimulating hormone (FSH), and luteinizing hormone (LH) levels.¹⁴ In menopausal women with low estrogen, Shatavari phytoestrogens bind to empty estrogen receptor sites, stimulating beneficial estrogenic activity. In premenopausal women with excessive estrogen levels, Shatavari phytoestrogens may have an anti-estrogenic effect by preventing endogenous estrogen from occupying these receptors.¹³ Shatavari isoflavones offer antioxidant properties that may enhance fertility by quenching oxidative stress, a phenomenon that depreciates ovary physiology and oocyte quality.¹⁴

Ashwagandha

Ashwagandha root (*Withania somnifera*) is one of the most celebrated and well-studied adaptogens, used for millennia in Ayurvedic medicine. Ashwagandha decreases cortisol levels, increases parasympathetic nervous system activity, colloquially known as the "rest and digest"

response, and supports healthy body weight in adults under chronic stress.^{15,16,17} Ashwagandha has also been found to improve sexual function in healthy women.¹⁸ Finally, it reduces sleep latency and improves sleep quality, boosting the restorative quality of sleep.¹⁹

Angelica

Angelica root (*Angelica archangelica*), also known as Dong Quai in TCM, is a time-honored female tonic that can support feminine issues such as irregular menstruation, PMS, and hot flashes.²⁰ Dong Quai may be most effective when used in combination with other herbs that support the female endocrine system.²¹ Angelica also appears to support breast health, inhibiting the aberrant growth of breast cells.²² The exact mechanisms of action of Angelica on the female physiology remain unknown, as it does not appear to contain phytoestrogens.²³

Chaste Tree Berry

Chaste tree berry is a flowering plant native to the Mediterranean region that has long been utilized in traditional Western herbalism. Hundreds of years ago, chaste tree berry (*Vitex agnus-castus*) came into fashion among clergymen as a purported intervention for reducing sexual desire. In the light of modern-day science, it remains doubtful whether it worked for this purpose, as chaste tree berry primarily affects the female endocrine system.²⁴

Vitex alleviates symptoms of premenstrual syndrome, such as breast tenderness and migraines, by decreasing elevated prolactin, increasing the mRNA expression of progesterone receptors, and activating mu-opioid receptors.²⁵ Chaste tree berry may help alleviate menopausal symptoms by reducing prolactin and elevating dopaminergic tone in the central nervous system.²⁶

Rhodiola Root

Rhodiola rosea is a perennial flowering plant that grows in the Arctic regions of Asia, Europe, and North America. The root of this hardy little plant packs a powerful adaptogenic punch, boosting energy and fortifying the body against daily stressors.^{27,28}

Rhodiola extract attenuates the corticosterone response under conditions of acute mild stress, preventing excessive stimulation of the stress response system. It also alleviates physical and mental fatigue, enhancing stamina.^{29,30} Finally, *Rhodiola* also offers gentle immune system homeostasis, supporting the body's endogenous defenses against microbial stressors.³¹ *Rhodiola* has been identified as a natural selective estrogen receptor modulator, meaning it may have beneficial effects on cognitive dysfunction, cardiovascular health, and bone health concerns caused by low estrogen in menopause.³²

PATENT PENDING

POWDER
ULTRA BINDER®

Category: DETOX • GI



Universal Toxin Binder

SKU: Q-1029

SIZE: 120 GRAMS



SKU: S-3007

SIZE: BOX OF 20
4 GRAMS STICK PACKS

Ultra Binder® is a broad-spectrum blend of binding agents including bentonite clay, activated charcoal, chitosan, zeolite, and our proprietary mercury-binding complex, IMD®, combined with the GI soothing and fluidizing compounds acacia gum and aloe vera. This comprehensive formula is designed to adhere to toxins in the GI tract for their safe elimination from the body and supports detoxification from multiple contaminants including heavy metals, pesticides, herbicides, endocrine disruptors, drug residues, food additives, as well as mold and bacterial toxins.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO

| Supplement Facts | | |
|---|--------------------|---------------|
| Serving Size: 4 grams (1 rounded tsp.) Servings Per Container: 30 or 20 sticks | | |
| | Amount Per Serving | % Daily Value |
| Dietary Fiber | 1g | 4% |
| Fiber/Clay Proprietary Blend: | 1.36g | ** |
| Inavea™ Original (gum Arabic), Zeolite, Sodium Bentonite Clay | | |
| Proprietary Blend: | 2.64g | ** |
| Activated Charcoal, Chitosan, BiAloe® Aloe Vera leaf, Silica extract† | | |
| **Daily Value not established | | |
| ††Percent Daily Values are based on a 2,000 calorie diet. | | |

EDUCATION

ENDOTOXIN: AN OVERLOOKED CAUSE OF INFLAMMATION AND IMPAIRED DETOXIFICATION

Our bodies face a continuous onslaught of toxin exposure in our modern-day environment. The gastrointestinal system is a primary route of excretion for many of the toxins to which we are exposed. Factors that compromise the gut's ability to efficiently eliminate toxins can cause toxins to recirculate through the enterohepatic circulation, the movement of bile acids and toxins between the liver, bloodstream, and small intestine.¹ Endotoxin is a highly inflammatory lipopolysaccharide component of the cell wall of numerous gram negative bacteria that interferes with toxin elimination via the gut.¹ The inflammation from endotoxin shuts down key detoxification transporters and enzymes in the

liver and gut.^{3,4,5,6} Binders capture endotoxin and increase general detoxification capacity, both on a daily basis and in more intensive, focused regimens.

ACTIVATED CHARCOAL: A UNIVERSAL ANTIDOTE

Ultrafine, activated charcoal contains millions of tiny pores that capture and remove positively charged toxins in the gastrointestinal tract, and thus charcoal has long been considered a universal antidote in acute and chronic poisoning.^{7,8,9} Charcoal captures metals,¹⁰ bacterial endotoxin,¹¹ plant toxins and alkaloids, pharmaceuticals,¹² and gasses and vapors.¹³ Activated charcoal adsorbs bile salts, thereby lowering cholesterol.^{14,15} Charcoal's adsorbent properties have the ability to spare the kidneys by binding to urinary toxins.¹⁶ Charcoal is well tolerated and easily excreted in the feces.

CHITOSAN: A POWERFUL BINDER THAT SUPPORTS FRIENDLY FLORA AND IMMUNE FUNCTION

Chitosan is a water soluble polysaccharide derived from the hard outer skeleton of shellfish; the long-chain sugar is devoid of allergens and has been extensively studied for its ability to lower cholesterol, including LDL, and reduce obesity.^{17,18,19,20} It supports friendly flora such as bifidobacteria and lactobacilli, and may help reduce obesity by reducing phylum firmicutes (associated with weight gain). Chitosan is particularly useful in addressing chronic inflammatory response syndrome (CIRS), which is often activated by conjugated toxins from mold and algae, and

has been extensively described by Ritchie Shoemaker, MD.^{21,22}

BENTONITE CLAY: A BROAD-SPECTRUM ANTIMICROBIAL BINDER THAT AIDS DIGESTION

Bentonite clay made from volcanic ash known as "Montmorillonite" is a creamy grey color with an extremely soft and fine consistency. Due to the small particle size, bentonite clay has a vast surface area capable of binding to multiple harmful substances. Clay has extraordinary adsorptive properties and is rich in minerals, including silica, magnesium, sodium, calcium, iron, and potassium.²³ Clay is a broad-spectrum antimicrobial that binds mold toxins, heavy metals, microbes²⁴ and various chemicals.²⁵ Clay has been shown to specifically bind endotoxin and lipopolysaccharides.²⁶

ZEOLITE

Zeolite is a microporous mineral compound that occurs naturally in the earth's crust. The unique molecular structure of zeolite makes it a powerful "cation exchanger," or a substance capable of binding small molecules, including toxins such as heavy metals and organophosphate pesticides.²⁶ Zeolite has also been found to improve the health of the intestinal microenvironment and support balanced immune function.

SILICA EXTRACT: NATURAL ELIMINATION OF METALS THROUGH THE INTESTINES

Mercury is perhaps the most well-recognized toxic heavy metal in the environment and perhaps the most complex one. Industrial plants, coal burning, incinerators, and chlor-alkali facilities have historically released copious amounts of mercury into the atmosphere, resulting in widespread contamination of oceans, soil, and air. Mercury is also a primary component of dental amalgams, which reside in the teeth of more than 100 million Americans.

Thiol resins, such as thiol-functionalized silica, are highly specific mercury binders. Thiol resins optimize the natural elimination of metals through the intestine while quenching metal-induced free radicals, providing multifaceted support for heavy metal detoxification.²⁷

ALOE VERA AND ACACIA GUM: SOLUBLE, FLUIDIZING SUBSTANCES TO IMPROVE GUT MOTILITY AND HEALTH

Aloe vera contains a glucose-rich, mannose-containing oligosaccharide called acemannan that is soothing to gastric mucosa,²⁸ supports the growth of beneficial gut bacteria,²⁹ and supports the immune system and tissue repair.^{30,31,32} Aloe also contains other polysaccharides and phenols that function as antioxidants³³ and reduce side effects of constipation normally associated with binders.³⁴

Acacia gum has a long history of use in normalizing gut motility and function. It is packed with soluble fiber—95%-that offers unique benefits.³⁵ Fermentation of acacia gum in the gut by resident flora yields health-promoting metabolites such as short chain fatty acids, which can stimulate the growth of lactic acid bacteria (lactobacilli and bifidobacteria).^{36,37,38} Acacia gum is well tolerated even at higher doses.

ULTRA BINDER® POWDER OR STICK PACKS IN THE FOLLOWING PROTOCOL SYSTEMS:

- PushCatch® Liver Detox
- Advanced PushCatch® Detox System
- GI Detox
- 30 Day Reset Program
- Black Box® II
- Bio-Age Reset
- Bio-Age Activate

CAPSULES
ULTRA BINDER®

Category: DETOX • GI



Universal Toxin Binder

SKU: Q-1165

SIZE: 120 CAPSULES

Ultra Binder® Capsules are a comprehensive combination of activated charcoal, chitosan, zeolite, modified citrus pectin, bentonite clay, Quicksilver Scientific's proprietary thiol-functionalized silica, and aloe vera leaf, designed to support detoxification and elimination of toxins from the body.* Our universal binder formula is conveniently packaged in capsules for mess-free, easy dosing.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO

| Supplement Facts | | |
|--|--------------------|---------------|
| Serving Size: 1.8 grams (4 Capsules) Servings Per Container: 30 | | |
| | Amount Per Serving | % Daily Value |
| Dietary Fiber | 0g | 0% |
| Proprietary Blend: | 1.8g | ** |
| Activated Charcoal, High Density Chitosan, Zeolite, PectaSol-C® Modified Citrus Pectin, Silica Extract†, BiAloe® Aloe Vera Leaf, Sodium Bentonite Clay | | |
| **Daily Value not established | | |
| ††Percent Daily Values are based on a 2,000 calorie diet. | | |
| Other Ingredients: Plant-derived cellulose capsule | | |

†IMD (Proprietary thiol-functionalized silica)

EDUCATION

FOR SUCCESSFUL DETOXIFICATION, ADDRESS THE ENTEROHEPATIC CIRCULATION

The small and large intestines comprise a "superhighway" through which toxins can be eliminated from the body. However, this powerful superhighway also harbors "off-ramps," or junctions between intestinal cells that can allow toxins to exit the intestine, enter systemic circulation, and recirculate throughout the body. The biological system that enables toxins to be reabsorbed in the gut and recirculated between the gut, blood, liver, and bile is called the "enterohepatic circulation." If we do not intervene in the vicious cycle of the enterohepatic circulation, toxins will tend to be reabsorbed and redistributed throughout the body rather than eliminated promptly.

BINDERS ADDRESS INFLAMMATION AND DETOXIFICATION

Binders, which adhere to toxins in the gastrointestinal tract and prevent them from being reabsorbed, are thus an essential strategy for downregulating inflammation and facilitating detoxification. In fact, according to animal research, the binding of toxins in the gastrointestinal tract increases general detoxification capacity. However, binders must capture an array of toxins, and different natural binders have different affinities and capacities for toxin removal.¹³

A variety of natural binders have been found to effectively bind toxins, ushering them out of the body via the stool. Potent natural binding agents include activated charcoal, chitosan, bentonite clay, silica, zeolite, and modified citrus pectin.

ACTIVATED CHARCOAL: A UNIVERSAL ANTIDOTE

Ultrafine, activated charcoal contains millions of tiny pores that capture and remove positively charged toxins in the gastrointestinal tract.¹⁴ Thus charcoal has long been considered a universal antidote in acute and chronic poisoning.^{15,16} Charcoal effectively binds metals, bacterial endotoxin, plant toxins, pharmaceuticals, gases, and vapors, among other substances.¹⁷ Activated charcoal can also bind onto cholesterol in a manner similar to the drug cholestyramine.¹⁸ During detoxification, charcoal's absorbent properties spare the delicate kidneys by binding to urinary toxins, such as urea and indoxyl sulfate, thus limiting kidney damage.¹⁹ In addition, charcoal is well tolerated and readily excreted in the feces.

CHITOSAN: A POWERFUL BINDER THAT SUPPORTS FRIENDLY FLORA AND IMMUNE FUNCTION

Chitosan is a water-soluble polysaccharide derived from the hard outer skeleton of shellfish; the long-chain sugar is devoid of allergens and has been extensively studied to lower cholesterol, including LDL cholesterol to reduce obesity.^{20,21,22,23}

The positive charge of chitosan oligosaccharides binds with negatively charged microbial membranes, providing antibacterial and antifungal properties.^{24,25,26} It also increases mineral absorption,²⁷ supports the growth of beneficial gut bacteria,²⁸ modulates inflammatory responses,^{29,30} and improves the function of key antioxidant enzymes, such as superoxide dismutase (SOD) and catalase (CAT).³¹ Chitosan is particularly useful in addressing chronic inflammatory response syndrome (CIRS), which is often activated by conjugated toxins from mold and algae and has been extensively described by Ritchie Shoemaker, MD.

BENTONITE CLAY: A BROAD-SPECTRUM ANTIMICROBIAL BINDER THAT AIDS DIGESTION

Bentonite clay made from volcanic ash known as "Montmorillonite" is a creamy grey color with a soft and fine consistency. Due to the small particle size, bentonite clay has a vast surface area capable of binding to multiple harmful substances. In addition, clay has extraordinary absorptive properties and is rich in minerals, including silica, magnesium, sodium, calcium, iron, and potassium.³² Clay is a broad-spectrum antimicrobial that binds mold toxins, heavy metals, microbes, and various chemicals.³³ Clay has been shown to specifically bind endotoxins and lipopolysaccharides.

SILICA HELPS ELIMINATE METALS THROUGH THE GUT

Thiol-functionalized silica extract delivers sulfur-based thiol groups, which bind and eliminate heavy metals in the intestine while quenching free radicals.³⁴ It also enhances phase III detoxification, a system of transporters that ushers mobilized toxins out of the body.

Thiol-functionalized silica does not enter the bloodstream and thus does not cause redistribution or surge of mobilized metals in the body that could potentially harm the liver or kidneys. Instead, it intercepts methylmercury and other metals trapped in enterohepatic circulation, binding them and escorting them out of the intestines. It thus allows organ and tissue-bound mercury to safely drain into the blood at a natural rate.

ZEOLITE

Zeolite is a microporous mineral compound that occurs naturally in the earth's crust. The unique molecular structure of zeolite makes it a powerful "cation exchanger," or a substance capable of binding small molecules, including toxins such as heavy metals and organophosphate pesticides.³⁵ Zeolite has also been found to improve the health of the intestinal microenvironment and support balanced immune function.

PECTASOL-C® MODIFIED CITRUS PECTIN

Modified citrus pectin is a soluble dietary fiber derived from the white fleshy inner portion of citrus peels. Supplementation with modified citrus pectin reduces the body burden of several toxic metals, including lead, arsenic, and cadmium. It also alleviates inflammation, an important barrier to effective detoxification.³⁶ PectaSol-C® is an enzymatically modified form of citrus pectin that is exceptionally effective at mopping up metals in the gut and ushering them out of the body via stool.

ALOE VERA

Aloe vera leaf contains polysaccharides that soothe the intestine, addressing inflammation that can hinder successful detoxification. Aloe vera also supports the growth of beneficial gut bacteria responsible for maintaining a healthy gut ecosystem, exerts immunomodulatory activity,³⁷ and dampens intestinal free radical activity.^{38,39}

ULTRA BINDER® POWDER OR STICK PACKS IN THE FOLLOWING PROTOCOL SYSTEMS:

- PushCatch® Liver Detox
- Advanced PushCatch® Detox System
- GI Detox
- 30 Day Reset Program
- Black Box® II
- Bio-Age Reset
- Bio-Age Activate

SENSITIVE FORMULA
ULTRA BINDER®

Category: DETOX • GI



Universal Toxin Binder

SKU: Q-1066

SIZE: 120 GRAMS

Ultra Binder® Sensitive Formula is a low sulfur blend of binding agents including bentonite clay, activated charcoal, chitosan, and zeolite, combined with the GI soothing and fluidizing compounds acacia gum and aloe vera. This broad-spectrum binder combination is designed to adhere to toxins in the GI tract for their safe elimination from the body and supports detoxification from multiple contaminants including pesticides, herbicides, endocrine disrupters, drug residues, food additives, as well as mold and bacterial toxins.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO

| Supplement Facts | | |
|--|--------------------|---------------|
| Serving Size: 4 grams (1 rounded tsp.) Servings Per Container: 30 | | |
| | Amount Per Serving | % Daily Value |
| Dietary Fiber | 1g | 4% |
| Fiber/Clay Proprietary Blend: | 1.36g | ** |
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| Proprietary Blend: | 2.64g | ** |
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CHITOSAN: A POLYFUNCTIONAL BINDERS THAT ADDRESSES BIOTOXINS

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ALOE VERA AND ACACIA GUM IMPROVE GUT HEALTH & INHIBIT CONSTIPATION

Aloe vera contains a glucose-rich, mannose-containing oligosaccharide called acemannan that is soothing to gastric mucosa,²⁸ supports the growth of beneficial gut bacteria,²⁹ and supports the immune system and tissue repair.^{30,31,32} Aloe also contains other polysaccharides and phenols that function as antioxidants³³ and reduce side effects of constipation normally associated with binders.³⁴

Acacia gum has a long history of use in normalizing gut motility and function. It is packed with soluble fiber—95%—that offers unique benefits.³⁵ Fermentation of acacia gum in the gut by resident flora yields health-promoting metabolites such as short chain fatty acids, which can stimulate the growth of lactic acid bacteria (lactobacilli and bifidobacteria).^{36,37,38} Acacia gum is well tolerated even at higher doses.

ULTRA BINDER® SENSITIVE IS IN THE FOLLOWING PROTOCOL SYSTEMS:

- Dr. Jill's Miracle Mold Detox Box
- GI Detox Box
- Qube® 2.0 Professional Detoxification System
- PreTox System

DR. SHADE'S
ULTRA ENERGY®

Category: **CARDIOMETABOLIC • LONGEVITY**



Universal
Adaptogen Blend*

SKU: Q-1089

SIZE: 50 ML

Ultra Energy® is a liposomal blend of thirteen adaptogenic botanicals from diverse reaches of the globe including China, Siberia, and South America. This universal formulation was developed to support a healthy stress response and energy levels in both men and women.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE VEGAN

Supplement Facts

Serving Size: 1 mL (2 Pumps)
Servings Per Container: 50

| | Amount Per Serving | % Daily Value |
|--|--------------------|---------------|
| Sun Horse Proprietary Liquid Adaptogenic Herbal Blend | 400mg | ** |
| Acai Berry, Gynostemma rhizome (Jiaogulan), Goji berry, Maca root, American Ginseng root, Schisandra fruit, Chinese Licorice root, Rhodiola root, Astragalus root, Reishi fruiting body, Catuaba Bark, Guarana seed, Ashwagandha root, Maple sap Syrup | | |

**Daily Value not established

Other Ingredients: Glycerin, ethanol, water, tocopherol, highly purified phospholipids, acacia gum, natural mixed tocopherols

EDUCATION

The term “adaptogen” was first proposed by Soviet scientists in the 1940’s to describe botanicals that help the body maintain homeostasis under stressful conditions, while also enhancing health and vitality.² Adaptogens bolster our health by modulating the HPA axis, a network of signaling molecules and endocrine organs that mediate the physiological stress response;² improving mitochondrial function and cellular energy production;^{3,4} enhancing sleep quality;^{5,6,7} modulating brain function;¹ and upregulating molecules that help the body adapt to stress, such as heat shock proteins (HSP).⁸

GLOBALLY-SOURCED ADAPTOGENS SUPPORT RESILIENCE AND VITALITY

Acai Berry

Acai berries are dark purple, grape like fruits that grow on acai palm trees native to the

tropical rainforests of South America. Acai is rich in antioxidant phytochemicals called anthocyanins. Acai anthocyanins have been found to protect the brain against oxidative stress, strengthen cognition, and alleviate exercise-induced muscle damage, making this little berry a powerful tool for supporting the body’s innate antioxidant defense systems.^{9,10}

Gynostemma rhizome (Jiaogulan)

Gynostemma (Gynostemma pentaphyllum) is a time-honored staple in TCM for remedying “Spleen Qi deficiency,” a condition characterized by fatigue, muscle atrophy, and generalized weakness.¹¹ Today, research indicates that Gynostemma rhizome has potent blood-sugar-lowering effects; Gynostemma helps support metabolic health, a critical component of physical health and resilience.¹²

Gynostemma rhizome contains polysaccharides with anti-inflammatory, energizing, and neuroprotective properties.¹³ Recently, Gynostemma triterpenes have been found to enhance muscle cell synthesis, supporting the traditional applications of this botanical as a tool for strengthening the body.¹⁴

Goji Berry

Goji berry (Lycium barbarum) are small ruby-colored berries with a rich history of use in TCM, and an ever-expanding collection of modern research supports their health benefits. Goji enhances the storage of muscle and liver glycogen, providing a ready supply of fuel for exercising muscles, supporting exercise endurance.¹⁵ Goji polysaccharides help protect the body against man-made stressors, such as ionizing radiation and toxic chemicals, and natural stressors like ultraviolet light.^{16,17,18} Goji can also modulate the immune system and boost levels of antioxidant enzymes such

as superoxide dismutase and glutathione peroxidase.^{19,20} Interestingly, Goji may be most effective for enhancing immune function when administered in a liposomal delivery system.²¹

Maca Root

Maca root (Lepidium meyenii), also referred to as “Peruvian ginseng,” is an herbaceous plant native to the high, forbidding Andes mountains of Peru. It has traditionally been used by Andean people as a tonic for stress, fatigue, fertility, and libido.²² Research shows that maca can increase sperm count and motility, thereby boosting male fertility, while also inhibiting abnormal prostate cell proliferation.^{23,24} In women, maca may alleviate menopausal symptoms, such as low mood and anxiety, by balancing sex hormone levels.²⁵

Maca appears to support hormonal balance by enhancing the expression of estrogen receptor-beta (ERβ), thereby counteracting hyperandrogenism.²⁴ Maca also promotes the optimal function of the hypothalamus and pituitary glands, balancing the entire hormonal system.²²

American Ginseng Root

American ginseng (Panax quinquefolius) is an herbaceous plant native to the lush forests of eastern North America. Like its cousin, Asian ginseng, Panax quinquefolius is a member of the ginseng genus. However, while Asian ginseng is energizing and activating, American ginseng offers cooler, more calming effects. Historically, American ginseng was utilized by Native American tribes and early American eclectic physicians for rejuvenating the nervous system and supporting energy and strength.²⁶

While scientific research on American ginseng is still in its infancy, the primary bioactive constituents of the plant, ginsenosides, are believed to exert their benefits by elevating levels of cAMP, a signaling molecule involved in cellular energy production.²⁶

Schisandra Fruit

Schisandra berries (Schisandra chinensis), referred to as the “Five Flavored Fruit,” have long been used in TCM for supporting liver function and hormonal health. Schisandra reduces the expression of c-FOS, a marker of neuronal activity associated with psychological stress and excessive HPA axis activity.²⁷ Schisandrin B, a primary constituent of schisandra berries, upregulates the Nrf2 and MAPK antioxidant signaling pathways thereby increasing the body’s defenses against environmental stressors. Finally, schisandra has been shown to improve physical endurance and cognitive function.²⁸

Chinese Licorice Root

Chinese licorice root (Glycyrrhiza uralensis) has a host of physiological effects, one of the most pronounced is its impact on cortisol levels. Glycyrrhizic acid, a principal constituent of licorice root, inhibits the activity of the enzyme 11β-hydroxysteroid dehydrogenase, preventing the

conversion of cortisol into the inactive hormone cortisone.²⁹

Rhodiola Root

Rhodiola rosea is a perennial flowering plant that grows in the Arctic regions of Asia, Europe, and North America. The root of this plant packs a powerful adaptogenic punch, boosting energy and fortifying the body against daily stressors.³¹

Rhodiola extract attenuates the corticosterone response under conditions of acute mild stress, preventing excessive stimulation of the stress response system. It also alleviates physical and mental fatigue, enhancing stamina.^{30,31} Finally, Rhodiola also offers gentle immune system support, bolstering the body’s endogenous defenses against microbial stressors.³²

Astragalus Root

Astragalus root (Astragalus membranaceus) is a time-honored member of the TCM herbal compendium, traditionally used as a medicine for convalescent individuals and for strengthening the whole body. Research indicates that Astragalus can alleviate stress-induced deficits in learning and memory, boost cognition, and regulate immune function, a crucial facet of the body’s stress-response system.^{33,34}

Reishi

Reishi (Ganoderma lucidum) is an adaptogenic mushroom that has been used to support wellbeing for thousands of years in China and Japan. In traditional herbal medicine, it is used to support energy, mood, and concentration. Recent research suggests it may support brain health throughout the lifespan and promote optimal immune system activity.^{35,36}

Ashwagandha Root

Ashwagandha (Withania somnifera) is one of the most celebrated adaptogens, used for millennia in Indian Ayurvedic medicine. It is well-studied in human clinical trials, where it has been found to reduce serum cortisol levels, improve sleep quality, and support a calm mind.^{37,38} Exciting research suggests Ashwagandha may also support thyroid health when stress has compromised the function of the thyroid gland and may improve cognition.^{39,40}

Catuaba Bark and Guarana Seed

Catuaba bark (Erythroxylum catuaba) is popularly used as an aphrodisiac and central nervous system stimulant in Brazil; these applications are attributed to its stimulatory effects on nitric oxide production.⁴¹ Guarana seed, on the other hand, is a potent caffeine-containing stimulant that also boosts mitochondrial biogenesis and cellular energy production.⁴²

PATENTED
 (U.S. Patent Number 10,172,489)

NANOFORMULATED
ULTRA VITAMIN®

Category: **CARDIOMETABOLIC • IMMUNE HEALTH • VITAMINS & MINERALS**



Patented Daily Vitamin

SKU: Q-1024

SIZE: 100 ML

Ultra Vitamin® is a multi-vitamin formula that combines the Quicksilver Scientific Methyl B Complex with vitamins A, C, D3, E, K1, K2, and the carotenoids lutein, zeaxanthin, and lycopene. Together, these nutrients provide comprehensive support for methylation, antioxidant balance, immune, cardiovascular, and cognitive health.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

| Supplement Facts | | |
|---|--------------------|---------------|
| Serving Size: 5 mL (1 tsp) Servings Per Container: 20 | Amount Per Serving | % Daily Value |
| Vitamin A (as Retinol, Beta Carotene) | 2100mcg RAE | 233% |
| Vitamin C (as Sodium Ascorbate) | 100mg | 111% |
| Vitamin D (as Cholecalciferol) (D3) | 62.5mcg (2500 IU) | 313% |
| Vitamin E (as Natural Mixed Tocopherols, Tocopherol) | 23mg | 153% |
| Vitamin K (as K2 (MK7), K1 (Phytonadione)) | 90mcg | 75% |
| Thiamin (Vitamin B1) (Thiamine HCl) | 12mg | 1000% |
| Riboflavin (as Riboflavin-5-Phosphate) | 3.6mg | 277% |
| Niacin (as Niacin, Niacinamide) | 10mg | 63% |
| Vitamin B6 (as Pyridoxine HCl) | 6.7mg | 394% |
| Folate (as Calcium Folate) | 850mcg DFE | 213% |
| Vitamin B12 (as Methylcobalamin) | 500mcg | 20833% |
| Biotin | 500mcg | 1667% |
| Pantothenic acid (as Calcium d-Pantothenate) | 22.5mg | 450% |
| Sodium (as Sodium Ascorbate) | 10mg | <1% |
| Trimethylglycine (as betaine) | 20mg | ** |
| Proprietary Blend | 363mg | ** |
| <small>Highly purified phospholipids, liquid Milk Thistle seed extract, Tocotrienols (from annatto), Lycopene, Zeaxanthin, Lutein</small> | | |
| **Daily Value not established | | |
| Other Ingredients: Water, glycerin, ethanol, EDTA (as preservative), natural citrus oils, natural flavoring | | |

precursors. Methylated B12 assists in the conversion of homocysteine to methionine, inhibiting homocysteine-induced inflammation. TMG donates methyl groups to unmethylated molecules, facilitating the entire cycle.⁷

Together, these critical nutrients keep methylation moving along without creating a methyl folate “trap,” a scenario in which folate and methylated B12 are unable to join together, resulting in impaired methylation. Unfortunately, research indicates that many people do not consume enough methylation nutrients in their diets, including vitamin B6.⁸ Supplementation with these nutrients may provide valuable “nutritional insurance” for optimal methylation.*

B vitamins aren’t just essential for methylation; they are also critical cofactors in mitochondrial energy metabolism, neurotransmitter synthesis, and neuronal function.^{9,10}

VITAMIN C SUPPORTS ANTIOXIDANT BALANCE, IMMUNITY, AND EPIGENETIC REGULATION

Vitamin C is a water-soluble vitamin that supports the body’s antioxidant defenses and detoxification pathways, enhances immunity, and modulates gene expression.^{11,12,13} Vitamin C levels are stringently regulated by the body, making it difficult to achieve therapeutic blood levels of this nutrient.¹⁴ Sodium ascorbate, a mineral salt of ascorbic acid is often used for vitamin C supplementation as it is better tolerated than ascorbic acid. Utilizing liposomal delivery for vitamin C has been shown to not only increase bioavailability, but further reduces potential for adverse gastrointestinal effects.¹⁵

EDUCATION
BIOAVAILABLE B VITAMINS OPTIMIZE METHYLATION

Methylation is the epigenetic mechanism by which a methyl group (CH3) is added to a DNA molecule, modifying gene expression. Proper methylation is crucial for brain function, cardiovascular health, hormonal balance, and body weight regulation.^{1,2,3,4} The micronutrients critical for methylation include folate, vitamin B2 (riboflavin 5’-phosphate), vitamin B6 (pyridoxine hydrochloride), methylated vitamin B12, and trimethylglycine (TMG), also known as betaine.^{5,6} Vitamin B2 is a cofactor for methylenetetrahydrofolate reductase (MTHFR), an enzyme that converts precursor molecules into active 5-methyl THF, the form of folate critical for methylation. B6 is a cofactor for serine hydroxymethyltransferase, the enzyme that creates 5-methyl THF

FAT-SOLUBLE SYNERGY

Vitamin K

Vitamin K2 plays critical roles in bone metabolism, cardiovascular health, and dental health.^{16,17} It carboxylates osteocalcin, a protein found in bone and dentin. Via carboxylation-independent mechanisms, vitamin K2 attenuates chronic inflammatory disease processes, including cardiovascular disease and osteoarthritis, by inhibiting the generation of damaging reactive oxygen species (ROS). In vitro, vitamin K2 has also been found to inhibit inflammation caused by lipopolysaccharide (LPS), a bacterial byproduct that is increased in states of intestinal permeability.¹⁷

Vitamin E

The vitamin E family includes two groups of compounds, tocopherols and tocotrienols. While tocopherols are the most commonly used form of vitamin E in multivitamins, tocotrienols have superior antioxidant properties and demonstrate beneficial effects on lipid homeostasis and brain health that are not observed with tocopherol forms of vitamin E.^{18,19}

Vitamin D

Vitamin D has long been appreciated for its critical role in regulating bone formation and integrity.²⁰ However, research continues to reveal its fascinating pleiotropic effects on human health. Vitamin D3 supports cardiovascular health, protects against periodontitis and dental caries, promotes a healthy gut microbiota, and supports cognitive health.^{21,22,23,24} Nearly 40 percent of Americans are deficient in vitamin D.²⁵ However, this figure vastly underestimates the true prevalence of vitamin D deficiency because the cutoff point is set quite low, with deficiency designated as a vitamin D level of 20 ng/mL or lower.²⁶

Vitamin A

The vitamin A family is comprised of preformed vitamin A, which includes retinol, retinol, and retinoic acid, and vitamin A precursors called carotenoids. The conversion of carotenoids to active vitamin A varies widely from one person to another, making dietary consumption and supplementation with preformed vitamin A a smart decision.²⁷

Vitamin A is crucial for the maintenance of resilient gut health and immunity.^{28,29} It also supports healthy vision and skin by regulating photoreceptor function and epithelial cell turnover, respectively.^{30,31}

The vitamin D receptor (VDR) binds to the retinoid X receptor (RXR), activated by vitamin A, to form a transcription factor that regulates gene expression. Vitamins D and A thus work together to modulate gene expression.³² Vitamins D and K, in turn, have synergistic effects on bone and cardiovascular health.³³ The fat-soluble vitamins, therefore, work synergistically to support whole-body health.*

CAROTENOIDS PROVIDE ANTIOXIDANT SUPPORT FOR THE BODY

Carotenoids act as antioxidants by activating Nrf2, a cellular regulator of antioxidant production.^{34,35,36} Lutein and zeaxanthin cross the blood-retina barrier, protecting against ocular diseases such as age-related macular degeneration (AMD) and cataracts.³⁷ These carotenoids may also play a role in optimal cognitive function. Lycopene may support cardiovascular health by inhibiting the proliferation of rogue cells implicated in cancer development.³⁸

LIPOSOMAL VITAMIN C

Category: IMMUNE HEALTH • VITAMINS & MINERALS



Antioxidant Support

SKU: Q-1033

SIZE: 120 ML

Vitamin C (L-ascorbic acid) provides highly bioavailable vitamin C as L-ascorbic acid, designed to support the body's antioxidant defenses, immune function, and healthy connective tissue.*

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • VEGAN

| Supplement Facts | | |
|--|--------------------|---------------|
| Serving Size: 5 mL (1 tsp) Servings Per Container: 24 | | |
| | Amount Per Serving | % Daily Value |
| Vitamin C (from Sodium Ascorbate) | 1,000mg | 1,111% |
| Sodium | 125mg | 5% |
| **Daily Value not established | | |
| Other Ingredients: Water, glycerin, ethanol, highly purified phospholipids, natural mixed tocopherols, natural citrus oils | | |

EDUCATION

VITAMIN C: A CRUCIAL ANTIOXIDANT NUTRIENT

Vitamin C is a powerful water-soluble nutrient with pleiotropic functions; it fortifies the body against oxidative stress, regulates immunity, and serves as a cofactor in the biosynthesis of connective tissue, among many other roles. Liposomal delivery methods improve vitamin C bioavailability, enhancing delivery of this critical nutrient to cells.¹

VITAMIN C REDUCES OXIDATIVE STRESS

Vitamin C is a potent reducing agent, meaning it readily donates electrons to recipient molecules that are electron-deficient (also referred to as free radicals), stabilizing their biochemical structure and inhibiting a chain reaction of oxidative stress. Vitamin C's ability to terminate these harmful chain reactions makes it one of the body's most

crucial antioxidants. In fact, vitamin C is the body's primary non-enzymatic, water-soluble antioxidant in blood plasma and tissues.

Vitamin C's antioxidant properties influence numerous physiological processes:

- Protects lipids, proteins, DNA, and RNA from free radical damage
- Recycles the fat-soluble antioxidant vitamin E²
- Boosts endogenous levels of glutathione, the body's master detoxifier³

VITAMIN C PROTECTS AND REPAIRS TISSUES

Vitamin C was discovered in the 1930s when scientist Albert Szent-Gyorgyi elucidated its role in the prevention of scurvy, a condition caused by vitamin C deficiency and characterized by weakness, fatigue, and connective tissue breakdown.⁴ Thanks to Szent-Gyorgyi's groundbreaking work, we came to realize vitamin C's pivotal role as a cofactor for enzymes involved in collagen biosynthesis. Today, our understanding of vitamin C and its implications in connective tissue health has expanded further. Vitamin C plays vital roles in the maintenance and repair of collagenous tissues, including skin, bones, cartilage, ligaments, and tendons.⁵ It also protects against UV light-induced photodamage by inhibiting aberrant epigenetic alterations in skin tissue.⁴

VITAMIN C FORTIFIES THE IMMUNE SYSTEM

Vitamin C stimulates the production and function of white blood cells, particularly neutrophils, lymphocytes, and phagocytes.⁶

It is a necessary cofactor for neutrophil motility, the process by which neutrophils are deployed to tissues to combat infection.⁷ Vitamin C also

shortens the duration and severity of the common cold. Importantly, doses of vitamin C greater than 100-200 mg per day are required to quench the inflammation and meet the metabolic demand caused by infection; such levels are difficult to achieve with conventional oral vitamin C.

VITAMIN C SUPPORTS COGNITION

Emerging research indicates a link between vitamin C status and cognitive function, with a significant association between plasma vitamin C concentration and performance on tasks involving attention, focus, and working memory.⁸

Vitamin C influences cognitive function by regulating neuronal differentiation and myelin formation, modulating catecholaminergic neurotransmission, and balancing excitatory and inhibitory brain activity. The brain is also highly vulnerable to damage from free radicals due to its dense concentration of polyunsaturated fatty acids and high rates of cellular metabolism; the antioxidant activities of vitamin C play a critical role in protecting delicate brain tissue from such damage, thereby inhibiting harmful brain oxidative stress.⁹ The effects of vitamin C on the brain suggest it may have protective effects in a variety of neuropsychiatric and neurodegenerative disorders, including Alzheimer's disease, Parkinson's disease, multiple sclerosis, depression, and anxiety.¹⁰

VITAMIN C REGULATES EPIGENETICS AND ABERRANT CELL GROWTH

Emerging research indicates that vitamin C is involved in epigenetic regulation, the process by which intrinsic and environmental signals modulate gene expression and activity independent of gene sequence.¹¹ Vitamin C regulates the epigenome by functioning as a cofactor for dioxygenase enzymes, which catalyze reactions that demethylate DNA and histones.¹²

The epigenetic effects of vitamin C may be particularly beneficial for modulating cancer development, progression, and response to pharmaceutical treatments. Vitamin C sensitizes cancerous cells to bromodomain and extra-terminal inhibitors (BETi) used in the treatment of triple-negative breast cancer and melanoma and sensitizes colorectal cancer cells to the chemotherapeutic agents 5-fluorouracil, oxaliplatin, and irinotecan.^{13,14,15}

VITAMIN C PROVIDES CARDIOVASCULAR PROTECTION

Vitamin C at doses greater than 500 mg per day has been found to support blood vessel integrity and combat vascular free radical damage, improving endothelial function.^{16,17} Vitamin C sufficiency is also associated with reduced cardiovascular disease risk factors, including hypertension, C-reactive protein, IL-6, and fasting blood glucose.^{18,19}

Vitamin C may also be beneficial for individuals with pre-existing heart disease or who need to undergo heart surgery. Clinical trials have found that vitamin C reduces biomarkers of oxidative stress and improves microcirculation in angioplasty patients while also attenuating myocardial reperfusion injury in people who have undergone cardiopulmonary bypass surgery.^{20,21}

WHY SUPPLEMENT WITH VITAMIN C?

According to data from the U.S. NHANES survey, Vitamin C deficiency is the fourth most prevalent nutrient deficiency in the United States.²² While vitamin C is abundant in fruits and vegetables, it is rapidly degraded in produce upon harvesting.²³ Further nutrient losses occur during storage and cooking, leaving us with foods significantly depleted of their original vitamin C content.²⁴ This means even the best of eaters may not be consuming enough vitamin C to support optimal health.

THE BENEFITS OF LIPOSOMAL VITAMIN C

According to the clinical research, high levels of vitamin C must be achieved for its optimal antioxidant, immune, and other health benefits to be realized.²⁵ However, oral vitamin C demonstrates stringent pharmacokinetics, with doses greater than 500 mg per day resulting in fractionally less intestinal absorption of the nutrient and increased excretion in the urine. The term "bowel tolerance" refers to the point at which intestinal vitamin C transporters have become saturated, leaving unutilized vitamin C in the intestine and causing an influx of water that produces diarrhea and abdominal cramps. The problems with vitamin C pharmacokinetics and bowel tolerance limit the utility of conventional oral vitamin C supplements. Liposomal delivery systems bypass absorption constraints in the intestine, significantly enhancing the bioavailability and cellular delivery of vitamin C.¹

VITAMIN C IS IN THE FOLLOWING PROTOCOL SYSTEMS:

- PreTox System

LIPOSOMAL VITAMIN C+ ELDERBERRY

Category: IMMUNE HEALTH • VITAMINS & MINERALS



Immune + Antioxidant Support

SKU: Q-1149

SIZE: 100 ML

Liposomal Vitamin C+ Elderberry is a blend of vitamin C (L-ascorbic acid) and the time-honored botanical black elderberry (*Sambucus nigra*), designed to support healthy immune function. Vitamin E in the form of highly bioavailable delta-tocotrienols rounds out our formula, providing further antioxidant and immune system support.*

CGMP CERTIFIED • GMO FREE • TESTED ALLERGEN FREE • TESTED GLUTEN FREE

Supplement Facts

Serving Size: 5 mL (1 tsp.)
Servings Per Container: 20

| | Amount Per Serving | % Daily Value |
|---|--------------------|---------------|
| Vitamin C (as sodium ascorbate) | 1000mg | 1111% |
| Sodium | 125mg | 5% |
| ElderCraft® European Black Elderberry Extract (<i>Sambucus nigra</i> L.), (contains 3.2 grams of black elderberry herb equivalent) | 100 mg | ** |
| DeltaGOLD® Tocotrienols | 8 mg | ** |

**Daily Value not established

Other Ingredients: Water, glycerin, ethanol, highly purified phospholipids, tocopherols, citric acid, natural citrus oils

it readily donates electrons to electron-deficient recipient molecules (also referred to as free radicals), stabilizing their biochemical structure and inhibiting a chain reaction of oxidative stress. Vitamin C's ability to terminate these harmful chain reactions makes it one of the body's most crucial antioxidants. In fact, vitamin C is the body's primary non-enzymatic, water-soluble antioxidant in blood plasma and tissues. The potent antioxidant properties of vitamin C make it a valuable ally for optimal immune function.⁵

The antioxidant properties of vitamin C are invaluable in the battle against pathogenic bacteria and viruses. In the process of fighting pathogens, immune cells called neutrophils undergo an "oxidative burst," a rapid release of reactive oxygen species used in the immunological defense against pathogens.⁶ While these free radicals have an essential purpose – to activate the innate immune response and directly destroy invading pathogens such as RNA viruses – they have the unintended consequence of damaging the host's cells and organs, including the heart and lungs.^{7,8,9} Vitamin C attenuates pathogen-induced free radical damage, protecting cells from harm while the immune system is hard at work eradicating infection.¹⁰

Vitamin C also boosts the activity of other antioxidants vital to the immune system. It recycles the fat-soluble antioxidant vitamin E and increases endogenous levels of glutathione, the body's premier antioxidant that also fine-tunes the innate immune response to viral infections.^{10,11,12}

Respiratory Health

Vitamin C protects the lungs during severe

respiratory infections. Vitamin C also increases the resistance of chicken tracheal cells to infection with the avian coronavirus.^{13,14} It also shortens the duration of convalescence from bacterial pneumonia, a common consequence of severe viral respiratory infections.¹⁵

Inhibits Virus-Induced Inflammation

Viruses activate the NLRP3 inflammasome, a multiprotein complex that plays a crucial role in innate immunity and the production of pro-inflammatory cytokines.¹⁶ Excessive NLRP3 activation contributes to a phenomenon called a "cytokine storm," an overproduction of immune cells and their activating products, cytokines. Cytokine storms occur in the end stages of severe infections, causing symptoms such as acute lung inflammation and fluid buildup in the lungs. The cytokine storm can thus, severely sicken, and sometimes kill, patients.¹⁷ Attenuation of NLRP3 inflammasome activity may inhibit excessive inflammation in viral infections. Vitamin C inhibits the NLRP3 inflammasome¹⁸ and may thus help inhibit virus-induced inflammation.

Antiviral Immune Response

Finally, vitamin C is an essential factor in the antiviral immune response to viral respiratory infections, such as influenza H3N1, through increased production of interferon- α/β .²⁰ It also stimulates phagocytosis, neutrophil chemotaxis, and T cell development and maturation, all crucial processes for fighting pathogenic bacteria and viruses.²¹

ELDERBERRY

Elderberry (*Sambucus nigra*) is a small, dark purple berry with a long history of use in traditional herbal medicine as an aid to the immune system. We use the Haschberg variety European black elderberry in this formula, which is known for its high potency in anthocyanin flavonoids.

Elderberry is an immunomodulator, meaning it balances immune activity. This characteristic enables it to help the immune system fight harmful microbes while inhibiting excessive pathogen-induced inflammation. Elderberry inhibits the entry of viruses into cells and prevents viral replication; it has a mild inhibitory effect on viral invasion at the early stage of infection but is considerably stronger in the later phases of infection.²² It coordinates a more efficient immune response against viruses through the induction of cytokines such as IL-6 and IL-8. Furthermore, its antioxidant

anthocyanins may quench excessive inflammation triggered by a viral infection and, finally, promotes the growth of beneficial gut bacteria, many of which have immune-enhancing properties.^{23,24,25} A meta-analysis of RCTs has also found that elderberry supplementation effectively treats upper respiratory symptoms, which are frequently caused by viruses.²⁶ In fact, one study found that overseas travelers using elderberry for ten days before traveling and up to five days after arrival, experienced a two-day shorter duration of cold symptoms (on average), along with noticing a reduction in symptom severity.²⁷

Elderberry Supports Redox Potential, and Antiviral Defenses

Viruses have been found to alter the redox status of host cells, triggering a profound increase in reactive oxygen species (ROS) and a shortage of antioxidants to neutralize them.²⁸ If allowed to continue unabated, altered host cellular redox status can cause a significant inflammatory response, referred to as a "cytokine storm," causing severe cell and tissue damage. Elderberry anthocyanins have been found to improve cellular redox status, and may therefore also support immune balance through this unique mechanism.²⁹

VITAMIN E

Vitamin E is a fat-soluble antioxidant that protects the polyunsaturated fatty acids in cell membranes from oxidative damage, which can be triggered by microbial infections.* It increases white blood cell proliferation, immunoglobulin levels, natural killer cell activity, and antibody activity, thus supporting broad-spectrum immune function.^{30,31} In our formula, we use a unique form of vitamin E called DeltaGold® tocotrienols, which offers fifty times the antioxidant activity of tocopherols, the form of vitamin E used in many competitor supplements.³²

LIPOSOMAL DELIVERY SYSTEMS ENHANCE ANTHOCYANIN AND VITAMIN C BIOAVAILABILITY

Many plant anthocyanins have poor bioavailability, limiting their therapeutic effects in the body.³³ Research indicates that nano-sized and liposomal delivery systems enhance the bioavailability and stability of anthocyanins, including those in elderberry.^{34,35,36}

EDUCATION

TURNING TO NATURE FOR POWERFUL SEASONAL IMMUNE SUPPORT

VITAMIN C

Vitamin C (ascorbic acid) offers multifaceted benefits to the immune system, supporting cellular integrity⁵, antioxidant status,^{10,11,12} and respiratory function during viral infection.^{13,14}

Supports Barrier Integrity

The epithelial cells of the skin, lungs, and gastrointestinal tract serve as a first-line defense against microbial invaders, including viruses responsible for respiratory infections such as colds and flu. Vitamin C supports epithelial barrier integrity, enhancing the function of these central defense systems.⁵

Antioxidant Properties

Vitamin C is a potent reducing agent, meaning

VITAMIN C WITH R-LIPOIC ACID

Category: DETOX • IMMUNE HEALTH



Antioxidant +
Detox Support

SKU: Q-1003

SIZE: 50 ML

Vitamin C with R-Lipoic Acid is a liposomal blend of two potent antioxidants, vitamin C and the bioactive "R" form of Lipoic acid, designed to support healthy immune function and detoxification. Each 2 mL serving (4 pumps) provides clinically applicable amounts of these nutrients for broad antioxidant and detoxification effects.

TESTED ALLERGEN FREE • TESTED GLUTEN FREE • TESTED NON-GMO • TESTED SOY PROTEIN FREE
VEGAN

Supplement Facts

Serving Size: 2 mL (4 pumps)
Servings Per Container: 25

| | Amount Per Serving | % Daily Value |
|---|-----------------------|------------------|
| Vitamin C (from European Sodium Ascorbate) | 500mg | 556% |
| Sodium (from Sodium Ascorbate) | 65mg | < 3% |
| Lipoic Acid (from Sodium R-Lipoate) | 20mg | ** |
| Phosphatidylcholine (from purified soybean lecithin) | 134mg | ** |

**Daily Value not established

Other Ingredients: Water, glycerin, ethanol, natural citrus oils

Lipoic acid has been called a universal antioxidant, both fat- and water-soluble, and able to neutralize reactive oxygen species both inside and outside cells.² Lipoic acid functions as a mitochondrial antioxidant, supporting glutathione, ubiquinol, Vitamin C and Vitamin E.⁵ It plays a critical role in mitochondrial energy metabolism. Lipoic acid is particularly effective in offsetting free radical peroxidation of membrane phospholipids.⁶ It supports vitamin C, glutathione, vitamin E and CoQ10.^{7,8} It is associated with elevated cell resistance to oxidative challenge.⁹ Lipoic acid has also been shown to regulate the transcription of genes associated with antioxidant and anti-inflammatory pathways, including the potent master antioxidant switch, Nrf2.¹⁰

SUPPORTS OPTIMAL COLLAGEN PRODUCTION

Vitamin C offers powerful support of collagen throughout the body, providing support to tissues such as tendons and ligaments, muscles, skin, bones, cartilage, spine and teeth. Vitamin C increases collagen protein synthesis and stimulates DNA repair in skin cells.¹¹ It may facilitate wound healing, which increases the need for collagen synthesis.^{12,13} Tendon, bone and muscle healing after injury has been increased with vitamin C.¹⁴ Vitamin C can also be beneficial to skin, limiting oxidative photo-damage and wrinkling by increasing type I and type III procollagen messengers.¹⁵ Topical vitamin C also increases collagen production, and decreases wrinkling and apparent roughness of skin.¹⁶ Vitamin C reduces UV-related damage and lipid peroxidation, decreases pro-inflammatory cytokines, and protects against cell death.¹⁷

SUPPORTS HEALTHY IMMUNE FUNCTION

Vitamin C supports both the innate and adaptive immune system as well as our epithelial barrier function against pathogens. It accumulates in immune cells such as neutrophils, and can enhance many of our body's immune defenses, including generation of reactive oxygen species and microbial killing. It is utilized to help clear old neutrophils from infected sites as well.¹⁸ Vitamin C has also been shown to shorten the duration of the common cold.¹⁹

Lipoic acid has been shown to downregulate levels of inflammatory cytokines such as IL-1B and IL-6/20, as well as interferon gamma, IL-4, TGF beta and other cytokines.²¹ Lipoic acid has been shown to regenerate glutathione by enhancing Nrf2 (nuclear factor erythroid 2-related factor) activity, which acts as a sensor for electrophilic stress and is known as our endogenous antioxidant switch.^{22,23} By regenerating glutathione, lipoic acid supports both phase I and phase II detoxification.^{24,25}

EDUCATION

OFFERS BROAD ANTIOXIDANT ACTION

Vitamin C is an essential micronutrient that cannot be synthesized by humans and must be obtained through diet or supplementation; it is the fourth most common nutrient deficiency in the United States.¹ Vitamin C has multiple critical functions due to its ability to donate electrons. It is a classic and potent antioxidant that acts both directly, by neutralizing peroxy radicals, and indirectly, by restoring the antioxidant capacity of vitamin E.² Vitamin C has been shown to effectively scavenge free radicals such as superoxide and singlet oxygen. Vitamin C protects cell membranes against lipid peroxidation by quenching free radicals generated in the aqueous phase, preventing their damaging effects on lipid membranes.^{3,4}



QUICKSILVER SCIENTIFIC® PROTOCOLS

30 DAY RESET PROGRAM

SKU: QB-3073

IDEAL FOR:

Patients who are looking for a comprehensive wellness protocol inclusive of diet, lifestyle, exercise & mindset support

PROTOCOL LENGTH:

1 Month

RECOMMENDED FREQUENCY:

Once a year

Quicksilver Scientific is here to support you and your patients with our powerful 30 Day Reset program - helping them align with their goals to start fresh from the inside out.

Never has it been more important or felt so good to know that you can help your patients control something that can last a lifetime: wellness. This is it: an inspiring 4-week program designed to pair our groundbreaking detox, energy, and longevity formulas with the nutrition education and lifestyle tools they need to take back their wellness.

The 30 Day Reset program starts whenever your patients are ready. Whether they already use our industry-leading liposomal products and want to continue the good work, or are new to the Quicksilver community and are interested in a science-based wellness protocol, everybody can appreciate this foundational reset.

We're here to give you everything you need to support your patients, from the proper dosing and intent behind the six supplements included, to awesome, effective lifestyle supports like easy exercise ideas, self-care tips, and a holistic approach for driving their health forward. Welcome to the 30 Day Reset. The progress — and the fun — starts now!



- x1 - 100 mL - AMPK Charge+*
- x1 - 50 mL - NAD+ Gold*
- x1 - 50 mL - Methyl Charge+*
- x1 - 120 grams - Ultra Binder* Powder
- x1 - 30 sachets - QuintEssential* 3.3
- x1 - 30 Tablets - H2 Elite*

INSTRUCTIONS

Please have your patient follow the dosage schedule below, taking liposomal products in order from top to bottom. The "A.M." dose is best taken first thing in the morning about 1 hour before food; the "P.M." dose can be taken 1 hour before dinner or 2 hours after dinner.

DOSING SCHEDULE

| PRODUCT | A.M. | 30 MINUTES LATER | P.M. | 30 MINUTES LATER |
|-----------------------------|-----------------------------|------------------|---------|------------------|
| AMPK Charge+* | ½ tsp | | ½ tsp | |
| NAD+ Gold* | 2 pumps | | 2 pumps | |
| Methyl Charge+* | 1 pump | | 1 pump | |
| Ultra Binder* | | ½ tsp | | ½ tsp |
| QuintEssential* 3.3 Sachets | 1 sachet | | | |
| H2 Elite* | 1 tablet dissolved in water | | | |

* Make sure to drink adequate water when taking charcoal-containing supplements

If Your Patient is Taking Medications, Please Read: Because Ultra Binder contains activated charcoal and other substances which may affect the absorption of medications, it should be taken at least two hours before or after prescription medications.

NUTRITION RECOMMENDATIONS

Nutrition is one of the most effective tools for rebooting the body. Optimizing your patient's diet can do wonders to support detoxification, metabolic health, and energy. Over the next 30 days, we recommend having your patient try one of the following nutritional approaches to complement the 30 Day Reset Program.

Option 1: Eating Low-Carb

A high-carbohydrate diet is a norm in the Western world, where processed foods and refined sugars are abundant. However, high-carb intake doesn't do our metabolic health any favors and can cause our energy levels to nosedive.

Alternatively, a low-carbohydrate diet fine-tunes your body's metabolic machinery, supporting AMPK activation, healthy blood sugar control, enhanced fat-burning, and balanced energy levels. These beneficial health effects make a low-carb diet an excellent nutrition plan during the 30 Day Reset Program.

Ideally, each meal you eat on a low-carb diet should be comprised of:

- 55-70% healthy fats
- 20-30% protein
- 10-15% carbohydrates

Check out the Low-Carb Meal Plan for foods to include, foods to limit, and delicious recipes that you can prepare and eat throughout the month.

Option 2: Consider Keto

A ketogenic or "keto" diet is a low-carb, moderate-protein, high-fat diet that trains your metabolism to use stored fat, dietary fat, and ketone bodies for energy production. Ketone bodies, also known as "ketones," are small, water-soluble compounds that are metabolized like fats and can be used for energy by every cell type. The metabolic adaptations and ketones produced when eating a ketogenic diet support detoxification, a clean-burning metabolism, and enhanced energy production.

The common macronutrient breakdown per meal when practicing a keto diet looks like:

- 60-80% healthy fats
- 15-30% protein
- 5-10% carbohydrates

Check out the Keto Meal Plan for delicious recipes that you can prepare and enjoy throughout the month.

INTERMITTENT FASTING

Fasting is a perfect companion to a low-carb or ketogenic diet. Fasting is one of the most powerful ways to enhance the AMPK pathway. It also activates autophagy, your body's cellular "housecleaning" system, which promotes healthy cell cycles and deep cellular detoxification.

There are several intermittent fasting (IF) approaches. However, many people find the 16:8 approach the most realistic and achievable for their lifestyle. This approach to IF involves fasting for 16 hours (overnight) and eating within an 8 hour time window each day. Because much of the fasting time occurs while you sleep, the 16:8 approach is a great way to start — and sustain — this valuable longevity practice.

Another benefit of IF is that it pairs perfectly with AMPK Charge+. Taking AMPK Charge+ while fasting will help amplify the benefits of IF, including fat burning, autophagy, detox and more!* You can find guidelines on how to practice IF on the program landing page.

EXERCISE RECOMMENDATIONS

Physical activity is essential for optimal metabolic health and will up-level your patients health transformation on the 30 Day Reset. To make it easy, we've taken a deep dive into the research and narrowed down the most ideal routines for supporting metabolic health during this program. The best combo is a mix of moderate and intense cardio, plus strength training each week. Feel free to have your patients try any (or all!) of our recommendations - or encourage them to follow their favorite exercise routines throughout the program.

Morning "Fasted Cardio"

WHAT: Try some gentle fasted cardio — cardiovascular activity performed in a fasted state, in which no food has been consumed for at least 10 hours. This can shift metabolism in a positive direction, supporting healthy blood-sugar levels and helping you burn body fat for fuel.

HOW: Three times a week, have them try taking a 30-minute walk, light run, or bike ride before eating breakfast.

Post-Meal Walks

WHAT: Research shows that taking a walk 30-45 minutes after a meal can support blood-sugar balance by directing circulating blood sugar to working muscles, reducing glucose in the bloodstream.

HOW: Many people find that it is convenient to go for a moderate walk after lunch during the work week but do try walking twice a week after any meal whenever it fits in your schedule.

HIIT (High Intensity Interval Training)

WHAT: No discussion of metabolic health and exercise would be complete without high-intensity interval training, or alternating short periods of intense anaerobic activity with less intense recovery periods.

HOW: Have your patient start with one 30-minute session the first week, building up to 4-5 30-minute sessions weekly if this is their preferred form of exercise. You can find sample HIIT workouts on our program landing page for options.

Strength Training

WHAT: Strength training builds muscle, creating a "vacuum" for taking up glucose from the blood supporting healthy blood sugar levels. Having a higher proportion of muscle to fat mass ratio on your patients frame can also boost your metabolism.

HOW: Begin incorporating 2-3 20-minute strength training sessions into your patient's physical activity routine each week. Bodyweight exercises (i.e., pushups), resistance bands, and handheld weights work well. Alternate days between upper and lower body workouts.

Weekly Goal Chart

Keep in mind that your patients can gradually work up to this physical activity level and continue building momentum beyond the end of this program. Optimizing their exercise routine takes time and consistency, but it will be well worth the effort and help them achieve the fullest expression of their metabolic health on the 30 Day Reset!

| MODERATE CARDIO | INTENSIVE WORKOUT | STRENGTH TRAINING |
|--|--------------------------------------|--|
| (Fasted and after meals) Try for 2.5 hours a week | (HIIT) Aim for 2-2.5 hours a week | 3 times a week for 20 min (this can be combined w/ HIIT training) |

KEEPING YOU ACCOUNTABLE & ON TRACK

One of the toughest aspects of staying with any new routine is maintaining accountability. That's why we're providing you with a handy Accountability Tracker to keep your patient's motivation — and spirits — high during the 30 Day Reset.

Each week, have your patient download and digitally update or print out the tracker and fill it out each week. Over the next 30 days, as your patients try new supplements, experience their effects, and incorporate lifestyle shifts to make it all stick, this is their journal — a simple place to record their numbers, thoughts, and, we hope, plenty of ah-ha moments. As always, we're here for you and your patients.

Feel free to reach out to our dedicated team at any time - for any reason at resetsupport@quicksilverscientific.com



**SCAN FOR RESOURCES
AND TO LEARN
MORE ABOUT THE 30
DAY RESET PROGRAM**

ADVANCED PUSHCATCH®

DETOX SYSTEM

SKU: QB-3094

IDEAL FOR:

Patients that are generally healthy and looking for a thorough, foundational detoxification program

PROTOCOL LENGTH:

1 month for base protocol with 1 month intensive protocol add on

RECOMMENDED FREQUENCY:

2x a year

The Advanced PushCatch® Detox System is a comprehensive and streamlined toxin removal program designed to support the efficient removal of multiple toxins by supporting the body's natural detoxification capabilities.*

Liver Sauce® supports the movement and excretion of stored toxins using powerful nutraceuticals, bitter herbs, and plant compounds. Liposomal Glutathione offers additional antioxidant defense and immune stabilization, while high dose phosphatidylcholine in Membrane Mend™ aids toxin export and cell membrane function. Targeted kidney-centric phytonutrients found in Kidney Care help nourish kidneys and help stimulate lymphatic drainage to eliminate toxins via urinary excretion.*

None of our detoxification protocols are complete without including binding agents. Within the Advanced PushCatch® system is our broad-spectrum Ultra Binder® formula, bringing a combination of binding agents together to effectively “catch” toxins in the GI tract for safe removal.



- x2 - 50mL - Liposomal Glutathione
- x2 - 100mL - Dr Shade's Liver Sauce®
- x2 - 100mL - Kidney Care
- x2 - 100mL - Membrane Mend®
- x2 - box of 20 sachets - Ultra Binder® Stick Packs

BASE PROTOCOL INSTRUCTIONS

Product Cycling: 5 days on, 2 days off or 10 days on, 4 days off

Protocol Length: 1 month

Number of Kits Needed: 1

Instructions: Have patient take 1 tsp each of Dr. Shade's Liver Sauce®, Kidney Care, and Membrane Mend®, and 5 pumps of Liposomal Glutathione twice daily. They should hold each dose in the mouth for 30-90 seconds before swallowing. Ideally, they would take these on an empty stomach. The patient should mix 1 Ultra Binder® stick pack in 8 ounces of filtered water 30 minutes after taking the liquid products. They should wait another 30 minutes before eating.

DOSING SCHEDULE - BASE PROTOCOL

| PRODUCT | A.M. | 30 MINUTES LATER | P.M. | 30 MINUTES LATER |
|----------------------------|---------|-----------------------|---------|-----------------------|
| Dr. Shade's Liver Sauce® | 1 tsp | | 1 tsp | |
| Liposomal Glutathione | 5 pumps | | 5 pumps | |
| Kidney Care | 1 tsp | | 1 tsp | |
| Membrane Mend® | 1 tsp | | 1 tsp | |
| Ultra Binder® Stick Packs* | | 1 pack mixed in water | | 1 pack mixed in water |

* Make sure to drink adequate water when taking charcoal-containing supplements

INTENSIVE PROTOCOL INSTRUCTIONS

Product Cycling: 5 days on, 2 days off or 10 days on, 4 days off

Protocol Length: 1 month

Number of Kits Needed: 2

Instructions: Have your patient take 2 tsp each of Dr. Shade's Liver Sauce®, Kidney Care, and Membrane Mend®, and 10 pumps of Liposomal Glutathione twice daily. They should hold each dose in the mouth for 30-90 seconds before swallowing. Taking on an empty stomach is recommended. They patient should then mix 2 Ultra Binder® stick packs in 8-12 ounces of filtered water 30 minutes after taking the liquid products. They should wait another 30 minutes before eating.

DOSING SCHEDULE - INTENSIVE PROTOCOL

| PRODUCT | A.M. | 30 MINUTES LATER | P.M. | 30 MINUTES LATER |
|----------------------------|----------|------------------------|----------|------------------------|
| Dr. Shade's Liver Sauce® | 2 tsp | | 2 tsp | |
| Liposomal Glutathione | 10 pumps | | 10 pumps | |
| Kidney Care | 2 tsp | | 2 tsp | |
| Membrane Mend® | 2 tsp | | 2 tsp | |
| Ultra Binder® Stick Packs* | | 2 packs mixed in water | | 2 packs mixed in water |

* Make sure to drink adequate water when taking charcoal-containing supplements

If Your Patient is Taking Medications, Please Read: Because Ultra Binder® contains activated charcoal and other substances which may affect the absorption of medications, it should be taken at least two hours before or after prescription medications.

AN AGE OPTIMIZATION PROGRAM BIO-AGE REVERSAL

SKU: QB-3087

IDEAL FOR:

Patients who are looking for a comprehensive longevity protocol.

FULL PROGRAM LENGTH:

3 months or individual 1-month modules can be used

RECOMMENDED FREQUENCY:

1x a year

The Bio-Age Reversal program is a 3-part, comprehensive dietary supplement system taking you step by step through a deep, cellular detoxification protocol, a metabolic recalibration protocol, and a mitochondrial and cellular optimization protocol – all vital facets to longevity.

Quicksilver Scientific's Bio-Age Reversal program is based on founder Dr. Christopher Shade's Longevity Wheel – a revolutionary and systematized age optimization model addressing multiple underlying aging mechanisms at a biological level. Using well-researched compounds and our Quicksilver Delivery Systems® for peak bioavailability, Dr. Shade has formulated multiple longevity products to comprehensively target all spokes of the wheel to help redefine the way you age.*

BIO-AGE REVERSAL PROGRAM STUDY

This 40-person clinical study in collaboration with Specialty Med Training and TruDiagnostics evaluated the Bio-Age Reversal Program's ability to slow and reverse the pace of aging through the measurement of epigenetic aging markers.

Findings

- ◆ Reversal of Biological Age by an average 0.95 years using the DNAmAge clock, $p=0.0001^*$
- ◆ Significant slowing of the rate of biological aging using the DunedinPace algorithm, $p=0.0002^*$

DR. SHADE'S LONGEVITY WHEEL

The Bio-Age Reversal program and its protocols are based on Dr. Shade's Longevity Wheel, a comprehensive system for strategic dietary supplementation to address multiple underlying age mechanisms at a biological level. The spokes of the wheel are interconnected and support age optimization in a dynamic way.*

Protection + Repair*

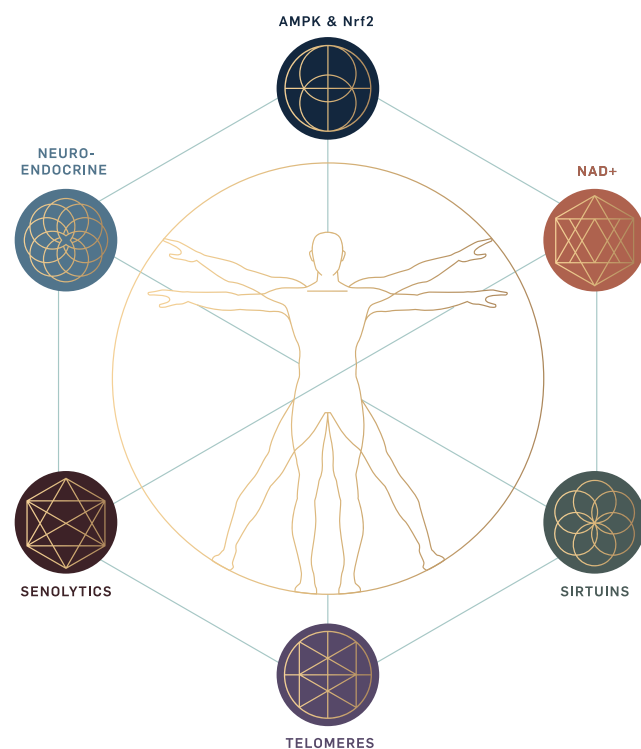
AMPK | Nrf2 | Telomeres | Senolytics

- ◆ Metabolic health and function
- ◆ Detoxification
- ◆ Antioxidant activity
- ◆ DNA integrity
- ◆ Address cellular senescence

Power + Elevate*

NAD+ | Sirtuins | Neuroendocrine

- ◆ Enhance energy output
- ◆ Support for regenerative programs
- ◆ Mitochondrial biogenesis
- ◆ Hormonal balance
- ◆ Stress resilience
- ◆ Vitality



MONTH 1: BIO-AGE RESET PROTOCOL

WHAT IS THE BIO-AGE RESET?

The Reset protocol is a detoxification protocol that dives deeply into cell health, metabolism, and age management.* Bio-Age Reset sets the stage for resilient health and graceful aging by activating Nrf2, a transcription factor that engages the body's natural detoxification and antioxidant capabilities. The purpose of this protocol is to support whole-body, cellular-level removal of accumulated toxins, help improve antioxidant activity, and aid in the clearing of microbial imbalances that can impede detoxification.* Using our patent-pending Quicksilver Delivery System technology, the most well-researched compounds and nutraceuticals are delivered to your cells to kick off your longevity journey to support lifelong health.*



- x2 - boxes - PushCatch® Liver Detox
- x1 - 100mL - Dr. Shade's Liver Sauce®
- x1 - box - Ultra Binder® Stick Packs
- x2 - 100mL - Glutathione Complex
- x2 - 50mL - Cat's Claw Elite®

INSTRUCTIONS

Have your patient follow a pulse dosing schedule of 10 days on, 4 days off for a total of 28 days.

Tip: Your patient should take all liposomes on an empty stomach and hold in the mouth 30-90 seconds before swallowing. Ultra Binder should be taken 30 minutes after liposomes. They should wait another 30 minutes after taking Ultra Binder before eating or taking medications.

BIO AGE RESET DOSING

| PRODUCT | A.M. | 30 MINUTES LATER | P.M. | 30 MINUTES LATER |
|---------------------------|---------|------------------------|---------|------------------------|
| PushCatch®: Liver Sauce® | 1 tsp | | 1 tsp | |
| Glutathione Complex | 1 tsp | | 1 tsp | |
| Cat's Claw Elite® | 5 pumps | | 5 pumps | |
| PushCatch®: Ultra Binder® | | 1 sachet in 8 oz water | | 1 sachet in 8 oz water |

* Make sure to drink adequate water when taking charcoal-containing supplements

MONTH 2: BIO-AGE ACTIVATE PROTOCOL

WHAT IS BIO-AGE ACTIVATE?

Longevity research tells us that biological aging starts at the cellular level, long before you see visible signs of aging in the mirror. The products and formulations that make up this protocol were carefully curated to support and target the many mechanisms, pathways, and molecules that play a role in cellular health and function to support you from the inside out.*

This protocol supports:

- Activation of the AMPK pathway for a healthier, more flexible metabolism*
- Increased cellular levels of the foundational longevity molecule, NAD+*
- Nourishment of cellular and organelle membranes*
- A deeper level of cellular detoxification called autophagy*
- The activation of longevity genes called sirtuins*
- Healthy telomeres*



- x1 - 100mL - NAD+ Platinum®
- x2 - 100mL - AMPK Charge®
- x2 - 100mL - Liposomal Glutathione
- x2 - 100mL - Membrane Mend®
- x2 - box of 30 sachets - Ultra Binder® Stick Packs

INSTRUCTIONS

Have your patient follow a pulse dosing schedule of 10 days on, 4 days off. Repeat protocol twice for a total of 28 days

| BIO AGE ELEVATE DOSING | | | | |
|------------------------|---------|------------------------|---------|------------------------|
| PRODUCT | A.M. | 30 MINUTES LATER | P.M. | 30 MINUTES LATER |
| AMPK Charge+® | 1 tsp | | 1 tsp | |
| NAD+ Platinum® | ½ tsp | | ½ tsp | |
| Liposomal Glutathione | 5 pumps | | 5 pumps | |
| Membrane Mend® | 1 tsp | | 1 tsp | |
| Ultra Binder® | | 1 sachet in 8 oz water | | 1 sachet in 8 oz water |

* Make sure to drink adequate water when taking charcoal-containing supplements

MONTH 3: BIO-AGE ELEVATE PROTOCOL

WHAT IS BIO-AGE ELEVATE?

A clean-burning metabolism supports much more than weight- it also supports healthy blood sugar levels, energy, and brain function. The Bio-Age Elevate protocol nurtures these aspects of wellness by supporting the AMPK pathway, a central regulator of metabolism, energy production, and the body's natural cellular "housekeeping" system.*

This protocol will also help ramp up mitochondrial health and energy by supporting cellular levels of NAD+, arguably one of the most important molecules in longevity.*

Biohacking your age wouldn't be complete without supporting healthy methylation, sirtuin activation, cellular senescence, and nourishing cells and their membranes with foundational, building block lipids and nutrients.*

You already take great care of your health and Bio-Age Elevate will only level up your age management game.



- x1 - 100mL - NAD+ Platinum®
- x2 - 100mL - AMPK Charge®
- x2 - 100mL - Membrane Mend®
- x1 - 100mL - Ultra Vitamin®

INSTRUCTIONS

Have your patient follow a pulse dosing schedule of 10 days on, 4 days off. Repeat protocol twice for a total of 28 days.

| BIO AGE ACTIVATE DOSING | | | | |
|-------------------------|-------|------------------|-------|------------------|
| PRODUCT | A.M. | 30 MINUTES LATER | P.M. | 30 MINUTES LATER |
| AMPK Charge+® | 1 tsp | | 1 tsp | |
| NAD+ Platinum® | ½ tsp | | ½ tsp | |
| Ultra Vitamin® | 1 tsp | | | |
| Membrane Mend® | 1 tsp | | 1 tsp | |

* Make sure to drink adequate water when taking charcoal-containing supplements

BLACK BOX® II

SKU: S-2027

IDEAL FOR:

Patients who are looking to support their natural processes of detoxification from hormones, plastic-related compounds, mold toxins, herbicides & pesticides, & metals

PROTOCOL LENGTH:

1 Month

RECOMMENDED FREQUENCY:

As Needed

We live in a toxin-filled world, and unfortunately, it's virtually impossible to avoid all toxins. Sadly, our health can be seriously affected by pesticides, herbicides, mold toxins, heavy metals, plastics, and various types of volatile organic chemicals. Even the hormones and neurotransmitters made by our body can be toxic if they accumulate or if they are not metabolized fully. Fortunately, the human body is designed to naturally clear toxins, but sometimes it needs support.

The 4-week BLACK BOX II protocol is designed to support the body's natural processes of detoxification from multiple contaminants.



- x1 - 50mL - Methyl-B Complex
- x3 - 50mL - Nanoemulsified DIM
- x2 - 50mL - Dr. Shade's Bitter X
- x2 - bottles 120 gram - Ultra Binder® powder
- x2 - 100mL - Pure PC®
- x2 - 50mL - Liposomal Glutathione

BLACK BOX II PRODUCTS:

1. **Micellized Pure PC®** delivers phosphatidylcholine, the main component of cellular membranes and a component of healthy bile flow, a key support for the liver and brain during active detoxification.*
2. **Nanoemulsified DIM** acts to open up the body's endogenous antioxidant and detoxification systems, calm immune system reactivity, and support healthy hormone metabolism.*
3. **Liposomal Methyl B-Complex** provides B vitamins necessary for cellular metabolism and detoxification reactions. The liver has a high demand for B vitamins during active detoxification.*
4. **Liposomal Glutathione** delivers the body's core antioxidant and detoxification compound and is one of the anchors of the system.
5. **Dr. Shade's Bitter X** is the next generation of drainage remedies, herbal and homeopathic remedies for enhancing liver and kidney excretion. Bitter X contains herbs known for increasing bite flow, including myrrh and gentian, in our QuickSilver Delivery Systems® format. Bile flow is intimately linked to toxin flow, and this stimulation helps "push" toxins to the GI tract where they

can be bound and eliminated. Bitter X also supports toxin transporters in the kidneys to encourage toxin elimination into urine.

6. Finally, **Ultra Binder®** delivers a comprehensive blend of toxin binders, chosen for their overlapping specificities, to efficiently bind many different classes of toxins in the GI tract.*

The products are staged in our "Push-Catch" design, where the liposomal products are taken first to accelerate detoxification reactions in the liver, including bitters to stimulate bile (and toxin) flow from the liver to the small intestine.* The Ultra Binder then follows to "catch" and bind the toxins so they can be safely eliminated without being reabsorbed.*

INSTRUCTIONS

Please have your patient follow the dosage schedule below, taking liposomal products in order from top to bottom. The "A.M." dose is best taken first thing in the morning about 1 hour before food; the "P.M." dose can be taken 1 hour before dinner or 2 hours after dinner.

| DOSING SCHEDULE - WEEK 1 (DAYS 1-7) | | | | |
|-------------------------------------|---------|------------------|---------|------------------|
| PRODUCT | A.M. | 30 MINUTES LATER | P.M. | 30 MINUTES LATER |
| Pure PC® | ½ tsp | | ½ tsp | |
| Nanoemulsified DIM | 2 pumps | | 2 pumps | |
| Methyl B-Complex | 1 pump | | 1 pump | |
| Liposomal Glutathione | 2 pumps | | 2 pumps | |
| Dr. Shade's Bitter X | 2 pumps | | 2 pumps | |
| Ultra Binder®* | | 1 tsp with water | | 1 tsp with water |

* Make sure to drink adequate water when taking charcoal-containing supplements

| DOSING SCHEDULE - WEEK 2 (DAYS 8-14) | | | | |
|--------------------------------------|---------|------------------|---------|------------------|
| PRODUCT | A.M. | 30 MINUTES LATER | P.M. | 30 MINUTES LATER |
| Pure PC® | 1 tsp | | 1 tsp | |
| Nanoemulsified DIM | 4 pumps | | 4 pumps | |
| Methyl B-Complex | 2 pumps | | 2 pumps | |
| Liposomal Glutathione | 4 pumps | | 4 pumps | |
| Dr. Shade's Bitter X | 4 pumps | | 4 pumps | |
| Ultra Binder®* | | 1 tsp with water | | 1 tsp with water |

* Make sure to drink adequate water when taking charcoal-containing supplements

DOSING SCHEDULE - WEEKS 3 & 4 (DAYS 15-28)

| PRODUCT | A.M. | 30 MINUTES LATER | P.M. | 30 MINUTES LATER |
|-----------------------|---------|------------------|---------|------------------|
| Pure PC® | 1 tsp | | 1 tsp | |
| Nanoemulsified DIM | 6 pumps | | 6 pumps | |
| Methyl B-Complex | 2 pumps | | 2 pumps | |
| Liposomal Glutathione | 4 pumps | | 4 pumps | |
| Dr. Shade's Bitter X | 4 pumps | | 4 pumps | |
| Ultra Binder® | | 1 tsp with water | | 1 tsp with water |

* Make sure to drink adequate water when taking charcoal-containing supplements

Note: Because Ultra Binder® contains activated charcoal and other substances which may affect the absorption of medications, it should be taken at least two hours before or after prescription medications. Ultra Binder® can be taken 30 to 60 minutes before or after other supplements and food, with longer spacing being optimal.

Disclaimer: This system is not intended to diagnose or treat any disease. The dosing schedule below is designed to serve as a guide, and should not supplant guidance concerning the use of these supplements provided by your healthcare practitioner.



DR. JILL'S MIRACLE MOLD DETOX

SKU: PL-JILL-2001

IDEAL FOR:
Patients needing a comprehensive mold detoxification program

PROTOCOL LENGTH:
1 Month

RECOMMENDED FREQUENCY:
As needed

Mold toxicity can be a considerable problem for many people and detoxing mold from the body is challenging. Dr. Jill Carnahan teamed up with Dr. Christopher Shade and Quicksilver Scientific® to create an effective yet gentle, comprehensive 30-day mold detox kit. This protocol encourages effective detoxification by combining Dr. Shade's Liver Sauce® (a nanoemulsified blend of bile-moving bitter herbs, mast cell stabilizers, milk thistle, and R-Lipoic acid) with liposomal glutathione, B vitamins, and pure phosphatidylcholine. The addition of NAD+ Gold™ plays a crucial role in supercharging ATP to support recovery while improving mitochondrial health and function. Quinton® sea minerals are included to support remineralization and electrolyte balance. To avoid recirculation of toxins, Ultra Binder® Sensitive Formula completes phase III of detoxification by 'catching' toxins in the GI tract for safe elimination from the body.



- x1 - 100mL - Dr. Shade's Liver Sauce®
- x1 - 100mL - Glutathione Complex
- x1 - 50mL - NAD+ Gold®
- x2 - 120mL - Ultra Binder® Sensitive
- x1 - box of 30 Sachets - Quintessential® 3.3 Hypertonic
- x1 - box of 30 Sachets - Quintessential® 0.9 Isotonic

INSTRUCTIONS

Please have your patient follow the dosage schedule, taking liposomal products in order from top to bottom. The "A.M." dose is best taken first thing in the morning about 1 hour before food; the "P.M." dose can be taken 1 or more hours before dinner.

For the Highly Sensitive: Start your patient with half the recommended dosing and work up to full dose if well tolerated.

Repeat 30 Day Protocol as Needed: For mold exposure, this protocol may need to be followed for 4-6 months.

DOSING SCHEDULE WEEK 1-4

Twice per day on an empty stomach. Cycle 5 days on and 2 days off

| PRODUCT | A.M. | 30 MINUTES LATER | P.M. | 30 MINUTES LATER |
|----------------------------------|----------|----------------------|----------|----------------------|
| Quintessential® Hypertonic 3.3 | 1 sachet | | | |
| Quintessential® Isotonic 0.9 | | | 1 sachet | |
| Glutathione Complex | ½ tsp | | ½ tsp | |
| Dr. Shade's Liver Sauce® | ½ tsp | | ½ tsp | |
| NAD+ Gold® | 2 pumps | | 2 pumps | |
| Ultra Binder® Sensitive Formula* | | 1 tsp mixed in water | | 1 tsp mixed in water |

* Make sure to drink adequate water when taking charcoal-containing supplements

ADD-ON PRODUCTS

DOSAGE

| | |
|-----------------|--|
| H2 Elite® | 2 tablets three times a day |
| Microb-Manager™ | Add 1 softgel to your AM and midday protocol |

Note: Because Ultra Binder® contains activated charcoal and other binding agents, it may affect the absorption of medications. Because of this, it should be taken at least two hours before or after prescription medications. Ultra Binder can be taken 30 to 60 minutes before or 2 hours after other supplements and food.

Disclaimer: This system is not intended to diagnose or treat any disease. The dosing schedule is designed to serve as a guide and should not supplant guidance concerning the use of these supplements provided by your healthcare practitioner.

GI DETOX BOX

SKU: S-2028

IDEAL FOR:
Patients struggling with dysbiosis and other GI issues

PROTOCOL LENGTH:
8 Weeks

RECOMMENDED FREQUENCY:
As needed.

The G.I. DETOX BOX supports a healthy balance of flora and immune function in the gastrointestinal tract and beyond and can be used as a stand-alone therapy or preparation for systemic detoxification. This combination of products delivers supportive natural substances to the gastrointestinal tract where they act locally to rebalance the microbial population, restore mucosal health and function, simultaneously encouraging elimination of toxins both from the gastrointestinal tract and systemically.*



- x4 - 50mL - Dr. Shade's Bitter X
- x4 - 120 grams - Ultra Binder® Sensitive Formula
- x3 - 120mL - Artemisinin Emulsion

1. Artemisinin Emulsion provides artemisinin, the primary active constituent of the plant *Artemisia annua*, also known as sweet wormwood or Qinghaosu. Artemisinin may impact the flora of the digestive system, genitourinary tract, and beyond with broad microbial-balancing properties.*

2. Dr. Shade's Bitter X enhances the body's natural elimination process in the liver, gallbladder, and kidneys by introducing herbs that boost their normal function, pushing the cellular and blood-borne toxins out through the urine or via the bile into the digestive tract.* Dr. Shade's Bitter X supports healthy bile flow, which is critical for healthy gastrointestinal function and flora balance.*

3. Ultra Binder® Sensitive Formula delivers a comprehensive blend of toxin binders, chosen for their overlapping specificities, to efficiently mop up debris in the gut. The binders in this combination capture and eliminate many different toxins, including endotoxin, from the gastrointestinal tract.*

INSTRUCTIONS

Please have your patients follow the dosage schedule below. This protocol takes 2 months to complete and has 2 successive stages in which dosages of supplements are progressively increased to encourage deeper effects.

As detailed, products should be taken for 10 days straight and then a break should be taken for 4 days in which other supportive supplements can continue to be taken. It can alternatively be done in cycles of 5 days on and 2 days off, but the 10/4 day cycling encourages deeper action.

Artemisinin can be moved to other parts of the day, but should be taken on an empty stomach, and at least one hour before Ultra Binder®. Essentially, your patients need a one-hour period between the Artemisinin and the binder, and then about 30 minutes after the binder before eating.

DOSING SCHEDULE - MONTH 1: 2 cycles of 10 days "on" and 4 days "off"

| PRODUCT | A.M. | 30 MINUTES LATER | P.M. | 30 MINUTES LATER |
|---------------------------------|---------|------------------|---------|------------------|
| Dr. Shade's Bitter X | 4 pumps | | 4 pumps | |
| Artemisinin Emulsion | 1 tsp. | | | |
| Ultra Binder® Sensitive Formula | | 1 tsp with water | | 1 tsp with water |

* Make sure to drink adequate water when taking charcoal-containing supplements

ADD-ON PRODUCTS

Take additional supportive supplements as listed below for 4 days

| PRODUCT | DOSAGE | |
|-------------------|------------------|----------------------|
| Quinton® Isotonic | A.M. - 1 ampoule | Mid A.M. - 1 ampoule |

DOSING SCHEDULE - MONTH 2: 2 cycles of 10 days "on" and 4 days "off"

| PRODUCT | A.M. | 30 MINUTES LATER | P.M. | 30 MINUTES LATER |
|---------------------------------|---------|------------------|---------|------------------|
| Dr. Shade's Bitter X | 6 pumps | | 6 pumps | |
| Artemisinin Emulsion | 2 tsp. | | | |
| Ultra Binder® Sensitive Formula | | 2 tsp with water | | 2 tsp with water |

* Make sure to drink adequate water when taking charcoal-containing supplements

ADD-ON PRODUCTS

Take additional supportive supplements as listed below for 4 days

| PRODUCT | DOSAGE | |
|-------------------|------------------|----------------------|
| Quinton® Isotonic | A.M. - 1 ampoule | Mid A.M. - 1 ampoule |

MERPROTECT®

SKU: S-2030

IDEAL FOR:
Preparing patients for
amalgam removal

PROTOCOL LENGTH:
1 Week

**RECOMMENDED
FREQUENCY:**
During amalgam
removal

The MerProtect® Protocol is designed to support the body in detoxifying and eliminating mercury and other metals released during removal of "silver" dental amalgams. Dental amalgam is a mixture of 50% elemental mercury, along with a powdered alloy of silver, tin, and copper.

The MerProtect® Protocol supports our powerful internal protective and antioxidant defenses, and promotes detoxification using targeted nutraceuticals. These compounds help usher toxic metals from your cells and to the GI tract where they are picked up by binding agents for safe excretion from the body.

This protectionary protocol lasts one week - with doses to be taken before, during and after amalgam removal.



• x1 - 73 grams - AmalgaClear®

• x1 - 100 mL - Glutathione Complex

INSTRUCTIONS

Please follow the dosage schedule below, taking Glutathione Complex first and AmalgaClear® second, in matched doses. A dosing cycle consists of one teaspoon of Glutathione Complex held 30 seconds before swallowing; followed 30 minutes later by one teaspoon of AmalgaClear® stirred into four to eight ounces of water.

DOSING SCHEDULE - DAY 1-2 (2 Doses Per Day Before Amalgam Removal)

| PRODUCT | A.M. | 30 MINUTES LATER | P.M. | 30 MINUTES LATER |
|---------------------|-------|------------------|-------|------------------|
| Glutathione Complex | 1 tsp | | 1 tsp | |
| AmalgaClear® | | 1 tsp in water | | 1 tsp in water |

* Make sure to drink adequate water when taking binders.

DOSING SCHEDULE - DAY 3 (Amalgam Removal Day - 4 Doses Per Day)

| PRODUCT | A.M. | 30 MIN. LATER | MID-DAY | 30 MIN. LATER | P.M. | 30 MIN. LATER | BEFORE BED | 30 MIN. LATER |
|---------------------|-------|----------------|---------|----------------|-------|----------------|------------|----------------|
| Glutathione Complex | 1 tsp | | 1 tsp | | 1 tsp | | 1 tsp | |
| AmalgaClear® | | 1 tsp in water | | 1 tsp in water | | 1 tsp in water | | 1 tsp in water |

* Make sure to drink adequate water when taking binders. If procedure is late in the day, then: on rise, midday, surgery, evening/bed).

DOSING SCHEDULE - Day 4-7 (3 Doses Per Day After Amalgam Removal)

| PRODUCT | A.M. | 30 MIN. LATER | MID-DAY | 30 MIN. LATER | P.M. | 30 MIN. LATER |
|---------------------|-------|----------------|---------|----------------|-------|----------------|
| Glutathione Complex | 1 tsp | | 1 tsp | | 1 tsp | |
| AmalgaClear® | | 1 tsp in water | | 1 tsp in water | | 1 tsp in water |

* Make sure to drink adequate water when taking binders.

PRETOX SYSTEM

GENTLE TOXIN DRAINAGE + CLEARING

SKU: QB-3095

IDEAL FOR:
Patients who are sensitive or detox first-timers

PROTOCOL LENGTH:
1 Month

RECOMMENDED FREQUENCY:
Use on its own up to 4x a year or as a primer before one of our formal detoxification programs.

This gentle detoxification protocol can be used as a stand-alone drainage and clearing detox, or as a place to start when preparing the body for one of Quicksilver Scientific's more comprehensive detox programs.



- x2 - 50mL - Dr. Shade's Bitter X
- x2 - 100mL - Kidney Care
- x2 - 120mL - Liposomal Vitamin C
- x2 - 100mL - Membrane Mend®
- x2 - 120 grams - Ultra Binder® Sensitive Formula

The protocol includes the herbal-based Bitter X and Kidney Care formulations for bile production, lymphatic flow, and urinary clearance. Vitamin C is included as an antioxidant for free-radical quenching without pushing cellular detox the way supplemental glutathione might.*

Membrane Mend® brings nourishing phosphatidylcholine (PC) to support bile flow and help rebuild cell membranes, and the fat-soluble antioxidants astaxanthin and tocotrienols to fortify them.*

None of our detoxification protocols are complete without binding agents. Included in the PreTox System is our Ultra Binder® Sensitive Formula to effectively "catch" the mobilized contaminants in the GI tract for their final removal from the body.*

WHY A PRETOX?

In our heavily industrialized world, detoxification is a necessary part of optimal wellness and there are many benefits to making this part of a regular health routine. However, engaging in a formal detoxification program can be intimidating at first, especially for those who are new to detox, have delicate systems, complex health issues, or have had negative reactions with previous detoxes.

"Drainage" is a term historically used by European biomedical and naturopathic healing traditions to describe a process of using herbal extracts and/or homeopathics to gently increase lymphatic, bile, and urinary flow to help clear circulating toxins and help revitalize "stuck" or "blocked" organs of elimination. These gentle detoxification methods support the clearance of those toxins already in circulation without stimulating the movement of stored toxins from cells and tissues. Quicksilver adopted this revered drainage methodology for the PreTox System.

INSTRUCTIONS

Patient should take 5 pumps of Dr. Shade's Bitter X, and 1 tsp of Kidney Care, Membrane Mend®, and Vitamin C twice daily on an empty stomach. They should hold each product in the mouth for 30-90 seconds before swallowing. Then, they should mix 1 tsp of Ultra Binder® Sensitive Formula in 8 ounces of filtered water 30 minutes after taking the liquid products. They should wait another 30 minutes before eating.

PRETOX PRODUCTS + DOSING

| PRODUCT | A.M. | 30 MINUTES LATER | P.M. | 30 MINUTES LATER |
|---------------------------------|---------|----------------------|---------|----------------------|
| Dr. Shade's Bitter X | 5 pumps | | 5 pumps | |
| Kidney Care | 1 tsp | | 1 tsp | |
| Membrane Mend® | 1 tsp | | 1 tsp | |
| Liposomal Vitamin C | 1 tsp | | 1 tsp | |
| Ultra Binder® Sensitive Formula | | 1 tsp mixed in water | | 1 tsp mixed in water |

* Make sure to drink adequate water when taking charcoal-containing supplements

If Your Patient is Taking Medications, Please Read: Because Ultra Binder® Sensitive Formula contains activated charcoal and other binding agents which may affect absorption, it should be taken at least two hours before or after prescription medications.

PUSHCATCH® LIVER DETOX

SKU: S-2029

IDEAL FOR:

Patients looking for a simple, accessible detoxification protocol

PROTOCOL LENGTH:

Flexible based on goals

RECOMMENDED FREQUENCY:

2-4x a year or as needed

The PushCatch® Liver Detox is a versatile, two-step cleansing protocol designed to support elimination of toxins while minimizing their redistribution and reabsorption. Liver detoxification is essential for proper health, but improperly designed protocols can result in toxin redistribution, not elimination. Our powerful formulation and delivery chemistry derives from Dr. Shade's extensive research into detoxification pathways. His specialized "push and catch" system pushes toxins with a liposomal blend of bitters buttressed by powerful detoxifying nutraceuticals. The catch captures toxins in the gut with a broad-spectrum constellation of binders that are blended with uniquely soothing prebiotic fibers. The toxins can then be safely eliminated by the body. This system is highly flexible and can be used as a gentle, daily standalone detox, or as an intensive program.

The PushCatch® Liver Detox integrates two unique Quicksilver Scientific® products: Dr. Shade's Liver Sauce®: A premier liver support combination that simultaneously supports all phases of detoxification and toxin elimination. Contains a blend of four classic drainage botanicals with a potent effect on bitter receptors, along with a synergistic medley of powerful phytonutrients to control inflammatory response and amplify detoxification. Ultra Binder®: A comprehensive, broadspectrum binder that works across the gut to intercept and neutralize an array of toxins. Because binders can be constipating, soothing and fluidizing acacia gum and aloe vera are included in the blend.



- x1 - 100mL - Dr. Shade's Liver Sauce®
- x1 - 20 packets - Powder Ultra Binder®

HOW DOES PUSH CATCH WORK?

1. Improperly designed detox protocols can result in recirculation of toxins throughout the body. The 'push catch' model of detoxification was developed by Quicksilver Scientific® and Dr. Shade to work with the body's natural detoxification system and encompasses all three phases of detoxification which include: activation, conjugation, filtration and binding of toxins in the GI tract. **PHASE I & II, "PUSH":** The potent nutrients and bitter phytonutrients help activate critical biochemical pathways like Nrf2 to 'push' toxins from the cell to the blood, liver and kidneys.*

PHASE III, "CATCH": Healthy bile flow supports the movement of toxins through the liver and kidneys for excretion. Binding agents like charcoal and bentonite clay intercept or 'catch' toxins in the intestines for removal, minimizing recirculation.*

2. HIGHLY BIOAVAILABLE PRODUCTS

Quicksilver Scientific® has been a cutting-edge leader in the development of practitioner-grade detoxification products and protocols for over a decade, specializing in highly bioavailable dietary supplements using proprietary nanoparticle delivery technology. Nanoparticle delivery, also more commonly referred to as liposomal delivery, allows for the efficient cellular absorption of ingredients, bypassing digestion and first-pass metabolism.

3. BIOSYNCHRONOUS-ACTIVATION®

Our delivery technology enhances the bioavailability, absorption, and timely delivery of ingredients. When removing toxins from the body, this delivery + timing creates a cohesive activation of detoxification pathways and is what we call Biosynchronous-Activation®. For example, our Liver Sauce® formula combines the powerful detoxification compounds R-lipoic acid, milk thistle, DIM, quercetin, luteolin, and the bitter herbs dandelion, solidago, gentian, and myrrh in a nanoparticle for rapid and simultaneous cellular absorption ingredients.* This sets the stage for a safe, dependable cycle of detox.

Traditional detoxification programs that use capsules or powders are unable to cohesively activate detoxification pathways due to the slow and variable metabolism of ingredients. This can result in a patchwork detox cycle, increasing the risk for redistribution of toxins, creating unwanted detox symptoms and diminished outcomes.

PROTOCOL INSTRUCTIONS*

FLEXIBLE AND SCALABLE: The body has built-in, highly evolved defense mechanisms that include adaptation, habituation, and a constant recalibration towards homeostasis. Botanicals and phytonutrients that facilitate detoxification, drainage, and elimination can be highly effective, but over time, the body may become less responsive to these compounds.

The PushCatch® Liver Detox protocol includes four protocol options of varying intensity levels making this system flexible, scalable, and adaptable to individual needs. As well, cycled dosing is recommended in each of the protocols. This cycled dosing provides breaks or rest periods to allow the body to reset each week.

PRODUCT CYCLING: Choose between 5 days on, 2 days off or 10 days on, 4 days off.

PROTOCOL LENGTH: Each level is 4 weeks in length. Choose a starting level that best fits your health goals. You may choose to complete your detox after 4 weeks, or continue on to the next level(s) for a longer, deeper detox experience.

Alternatively, PushCatch® Liver Detox is so flexible that you can even do a 2 or 3 day weekend detox and feel the benefits.

INSTRUCTIONS: Use the dosage chart for the protocol level you are following. Take the Liver Sauce® on an empty stomach. Hold in the mouth for 30-90 seconds before swallowing.

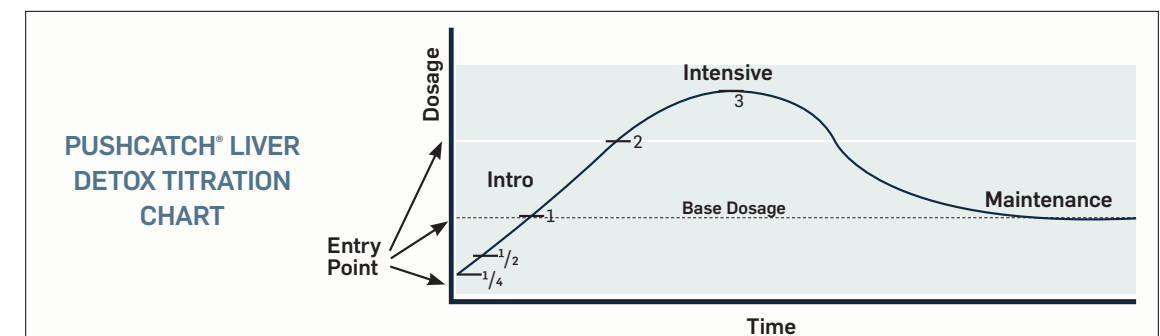
30 minutes later, mix the Ultra Binder® in 8 ounces of filtered water and drink. Wait another 30 minutes before eating.

IF TAKING MEDICATIONS, PLEASE READ: Because Ultra Binder® contains activated charcoal and other substances which may affect the absorption of medications, it should be taken at least two hours before or after medications.

*We recommend working with a qualified practitioner for guidance.

HOW TO TITRATE DOSING

A thorough detoxification protocol often builds in intensity over several weeks to months. This is accomplished by starting at lower doses and increasing or titrating up slowly over time.



As a scalable system, you have the option to start at varying levels of intensity. For those that may have sensitive systems, it may benefit to start at a very low dose - ¼ to ½ tsp for a few days or weeks before titrating up to the recommended dose of 1 tsp.

Depending on your goals, you may also choose to stay at the same sensitive dose throughout the initial 4 weeks.

DOSING CHART - LEVEL 1 (Base & Maintenance Cycle)

5 days on, 2 days off - 1 box per month

(dosage can be titrated down to quarter doses for sensitive individuals)

| PRODUCT | A.M. | 30 MINUTES LATER | | |
|--------------------------|-------|-------------------------|--|--|
| Dr. Shade's Liver Sauce® | 1 tsp | | | |
| Ultra Binder® ** | | 1 stick pack with water | | |

**Make sure to drink adequate water when taking charcoal-containing supplements.

DOSING CHART - LEVEL 2 (Beginners Detox Cycle)

5 days on, 2 days off or 10 days on, 4 days off twice a day - 2 boxes per month

| PRODUCT | A.M. | 30 MINUTES LATER | P.M. | 30 MINUTES LATER |
|--------------------------|-------|-------------------------|-------|-------------------------|
| Dr. Shade's Liver Sauce® | 1 tsp | | 1 tsp | |
| Ultra Binder® ** | | 1 stick pack with water | | 1 stick pack with water |

**Make sure to drink adequate water when taking charcoal-containing supplements.

DOSING CHART - LEVEL 3 (Intermediate Detox Cycle)

10 days on, 4 days off - 3 times a day - 3 boxes per month

| PRODUCT | A.M. | 30 MIN. LATER | MID-DAY | 30 MIN. LATER | P.M. | 30 MIN. LATER |
|-------------------------|-------|-------------------------|---------|-------------------------|-------|-------------------------|
| Dr. Shade's Liver Sauce | 1 tsp | | 1 tsp | | 1 tsp | |
| Ultra Binder® ** | | 1 stick pack with water | | 1 stick pack with water | | 1 stick pack with water |

**Make sure to drink adequate water when taking charcoal-containing supplements.

DOSING CHART - LEVEL 4 (Advanced Intensive Detox Cycle)

10 days on, 4 days off - 3 times a day - 3 boxes for 14 day protocol

| PRODUCT | A.M. | 30 MIN. LATER | P.M. | 30 MIN. LATER | P.M. | 30 MIN. LATER |
|-------------------------|-------|--------------------------|-------|--------------------------|-------|--------------------------|
| Dr. Shade's Liver Sauce | 2 tsp | | 2 tsp | | 2 tsp | |
| Ultra Binder® ** | | 2 stick packs with water | | 2 stick packs with water | | 2 stick packs with water |

**Make sure to drink adequate water when taking charcoal-containing supplements.

POWER OF PUSHCATCH®

Independent Study from Texas Center for Lifestyle Medicine

- 103 patients with NAFLD (non-alcoholic fatty liver disease)
- 92 also had biliary sludge
- 12 had gallstones
- Using Quicksilver's PushCatch® Liver Detox system along with IFM diet for 30-60 days
- 100% compliance

Results:

- 82% of patients showed improvements in liver parenchyma
- 75% of patients showed improvement of biliary sludge
- 3 out of 12 patients had complete elimination of gallstones
- 9 out of 12 patients had improvement in gallstone size



Push Catch Independent Review

Introduction:

The purpose of this study is to look at whether the Ultimate Detox System by PrimeMyBody, and manufactured by Quicksilver Scientific is able to help with biliary flow, gallstone elimination, and/or liver parenchyma changes.

Methods:

103 patients were screened for fatty liver on ultrasound based on either isolated elevated ALT. None of the 103 patients drank alcohol more than once a week. Out of the 103 patients screened, all of them had fatty liver diseases in some form (grades 1-3). 92 patients also had biliary sludge. 12 had incidental findings of gallstones.

The Push Catch Detox were provided to the patient for all 173 patients. Furthermore, they were instructed to follow one of the two diets: The Anti-Candida Diet and the Mito Food Plan. Both diets are provided by the Institute of Functional Medicine.

Results:

Ultrasounds were done again at anywhere between 30 days to 62 days to look for improvement. Compliance of the push catch was at 100%.

Fatty liver improvements: 85 patients out of the 103 patients showed improvement in liver parenchyma (82%)

Biliary sludge: 69 patients out of the 92 patients had improvements or resolution of biliary sludge. (75%)

Gallstones: out of the 12 patients who had gallstones, 3 had complete elimination of gallstones while the rest of the 9 all and improvements in size. The largest stone found was 1.73cm which reduced down to 1.14cm on a 32 day follow up ultrasound.

Conclusions:

The Ultimate Detox system appears to be useful in the improvement of hepatic steatosis, cholelithiasis, and biliary sludge. However, more data is needed to control for dietary effects since all patients were placed on diets.

QUBE® 2.0

PROFESSIONAL DETOXIFICATION SYSTEM

SKU: QB-3072

IDEAL FOR:

Patients tackling multiple toxins, including metals and mold. Titration-based protocol for a deeper detoxification experience

PROTOCOL LENGTH:

9 Weeks

RECOMMENDED FREQUENCY:

As needed based on patient profile

Qube® 2.0 is Quicksilver Scientific's professional-only full spectrum, complete detoxification system, integrating the latest scientific breakthroughs to support the body's detoxification, regeneration, and longevity pathways. The Qube 2.0 protocol addresses a broad range of contaminants, including heavy metals, environmental toxins, excess hormone levels, endocrine disruptors, plasticizers, pesticides, solvents, fine particulate pollution, toxic metabolites of alcohol and mold, endotoxin, and free radicals generated by electromagnetic and oxidative stress.*



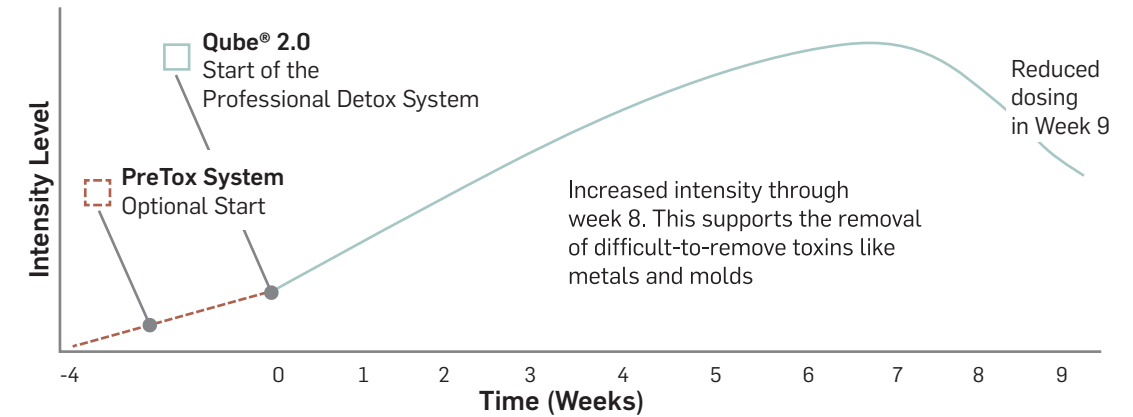
- x3 - 50 mL - Cat's Claw Elite®
- x4 - 100 mL - Glutathione Complex
- x2 - 100 mL - NAD+ Platinum®
- x5 - 100 mL - Dr. Shade's Liver Sauce®
- x2 - 9 gram - IMD® Intestinal Cleanse
- x3 - 120 mL - Liposomal EDTA w/RLA
- x3 - 120 gram - Ultra Binder® Sensitive Formula
- x2 - 60 capsules - CBD Synergies-PN
- x4 - 100 mL - Kidney Care

Qube® 2.0 also offers direct precursor support of critical longevity and rejuvenative pathways that regulate metabolism, growth and energy. Optimizing cellular NAD+, an ancient, highly conserved signaling molecule, and supporting critical methylation cycles with key B vitamins, supports ATP production, mitochondrial health, and the activation of longevity genes. This additionally enhances the systemic ability to rebuild, repair, and regenerate - foundations of detoxification and longevity.*

This comprehensive detoxification system offers supplemental central nervous system support to mitigate blockages to detox, targeting parasympathetic tone and modulating both the inflammatory and immune responses with ingredients like full spectrum hemp extract, curcumin, Boswellia, glutathione, quercetin, luteolin, and DIM.*

Infection, be it latent or active can also be a barrier to detoxification. This is addressed with a combination of the Amazonian herb cat's claw, the fatty acid monolaurin, vitamin D, and key essential oils including lemon balm, to help calm the system, support healthy immune activity, and help reduce antigen load.*

QUBE® 2.0 TITRATION SCHEDULE



INSTRUCTIONS

Please have your patient follow the dosage schedule below.* Note that dosages vary throughout the weeks as this is a titration-style protocol. The patient should take all liquid products twice daily on an empty stomach. They should hold each product in the mouth for 30-90 seconds before swallowing.

The patient should mix binders in 8 ounces of filtered water 30 minutes after taking the liquid products and then wait another 30 minutes before eating.

Note: It is important to drink adequate water when taking charcoal-containing supplements.

If Your Patient is Taking Medications, Please Read: Because Ultra Binder® contains activated charcoal and other binding agents which may affect absorption, it should be taken at least two hours before or after prescription medications.

Product Cycling: 5 days on, 2 days off or 10 days on, 4 days off

Protocol Length: 9 weeks

DOSING SCHEDULE - WEEKS 1-2

| PRODUCT | A.M. | 30 MIN. LATER | P.M. | 30 MIN. LATER | BEDTIME |
|--------------------------|---------|------------------|---------|------------------|------------|
| Dr. Shade's Liver Sauce® | ½ tsp | | ½ tsp | | |
| Kidney Care | ½ tsp | | ½ tsp | | |
| Glutathione Complex | ½ tsp | | ½ tsp | | |
| Cat's Claw Elite® | 5 pumps | | 5 pumps | | |
| IMD® (Binder) | | 1 scoop in water | | 1 scoop in water | |
| Ultra Binder® SF | | 1 tsp in water | | 1 tsp in water | |
| CBD Synergies-PN | | | | | 2 capsules |

OPTIONAL PRODUCT CONSIDERATIONS + DOSING

| | | | | | |
|-------------------|-----------|-----------|---------|--|--|
| Quinton® Isotonic | 1 ampoule | 1 ampoule | | | |
| CBD Synergies-AX+ | 4 pumps | | 4 pumps | | |

DOSING SCHEDULE - WEEKS 3-4

| PRODUCT | A.M. | 30 MIN. LATER | P.M. | 30 MIN. LATER | BEDTIME |
|--------------------------|---------|------------------|---------|------------------|------------|
| Dr. Shade's Liver Sauce® | 1 tsp | | 1 tsp | | |
| Kidney Care | 1 tsp | | 1 tsp | | |
| Glutathione Complex | 1 tsp | | 1 tsp | | |
| Liposomal EDTA with RLA | 1 tsp | | 1 tsp | | |
| Cat's Claw Elite® | 5 pumps | | 5 pumps | | |
| NAD+ Platinum® | 1/2 tsp | | 1/2 tsp | | |
| IMD® (Binder) | | 1 scoop in water | | 1 scoop in water | |
| Ultra Binder® SF | | 1 tsp in water | | 1 tsp in water | |
| CBD Synergies-PN | | | | | 3 capsules |

OPTIONAL PRODUCT CONSIDERATIONS + DOSING

| | | | | | |
|-------------------|------------|--|------------|--|--|
| Quinton® Isotonic | 1 ampoule | | 1 ampoule | | |
| Microb-Manager® | 2 capsules | | 2 capsules | | |
| CBD Synergies-AX+ | 4 pumps | | 4 pumps | | |

DOSING SCHEDULE - WEEKS 5-6

| PRODUCT | A.M. | 30 MIN. LATER | P.M. | 30 MIN. LATER | BEDTIME |
|--------------------------|---------|-------------------|---------|-------------------|------------|
| Dr. Shade's Liver Sauce® | 1 tsp | | 1 tsp | | |
| Kidney Care | 1 tsp | | 1 tsp | | |
| Glutathione Complex | 1 tsp | | 1 tsp | | |
| Liposomal EDTA with RLA | 1 tsp | | 1 tsp | | |
| Cat's Claw Elite® | 5 pumps | | 5 pumps | | |
| NAD+ Platinum® | ½ tsp | | ½ tsp | | |
| IMD® (Binder) | | 2 scoops in water | | 2 scoops in water | |
| Ultra Binder® SF | | 1 tsp in water | | 1 tsp in water | |
| CBD Synergies-PN | | | | | 3 capsules |

OPTIONAL PRODUCT CONSIDERATIONS + DOSING

| | | | | | |
|-------------------|------------|--|------------|--|--|
| Quinton® Isotonic | 1 ampoule | | 1 ampoule | | |
| Microb-Manager® | 2 capsules | | 2 capsules | | |
| CBD Synergies-AX+ | 4 pumps | | 4 pumps | | |

DOSING SCHEDULE - WEEKS 7-8

| PRODUCT | A.M. | 30 MIN. LATER | P.M. | 30 MIN. LATER | BEDTIME |
|--------------------------|---------|-------------------|---------|-------------------|------------|
| Dr. Shade's Liver Sauce® | 2 tsp | | 2 tsp | | |
| Kidney Care | 1 tsp | | 1 tsp | | |
| Glutathione Complex | 1 tsp | | 1 tsp | | |
| Liposomal EDTA with RLA | 1 tsp | | 1 tsp | | 1 tsp |
| NAD+ Platinum® | 1/2 tsp | | 1/2 tsp | | |
| IMD® (Binder) | | 3 scoops in water | | 3 scoops in water | |
| Ultra Binder® SF | | 1 tsp in water | | 1 tsp in water | |
| CBD Synergies-PN | | | | | 3 capsules |

OPTIONAL PRODUCT CONSIDERATIONS + DOSING

| | | | | | |
|-------------------|------------|--|------------|--|--|
| Quinton® Isotonic | 1 ampoule | | 1 ampoule | | |
| Microb-Manager® | 2 capsules | | 2 capsules | | |
| CBD Synergies-AX+ | 4 pumps | | 4 pumps | | |

DOSING SCHEDULE - WEEK 9

| PRODUCT | A.M. | 30 MIN. LATER | P.M. | 30 MIN. LATER | BEDTIME |
|--------------------------|-------|----------------|-------|----------------|------------|
| Dr. Shade's Liver Sauce® | 1 tsp | | 1 tsp | | |
| Kidney Care | 1 tsp | | 1 tsp | | |
| NAD+ Platinum® | ½ tsp | | ½ tsp | | |
| Ultra Binder® SF | | 1 tsp in water | | 1 tsp in water | |
| CBD Synergies-PN | | | | | 2 capsules |

OPTIONAL PRODUCT CONSIDERATIONS + DOSING

| | | | | | |
|-------------------|-----------|--|-----------|--|--|
| Quinton® Isotonic | 1 ampoule | | 1 ampoule | | |
| CBD Synergies-AX+ | 4 pumps | | 4 pumps | | |

Testing

HEAVY METALS TESTING

An ever-growing body of research indicates that heavy metal exposure plays an important role in the chronic disease epidemic sweeping the globe. The assessment of one's body burden of heavy metals and implementing effective detoxification strategies is essential for maintaining optimal health in our modern world.

For many years, the "challenge test" was considered the gold standard for assessing a patient's body burden of heavy metals. This test involves administering a synthetic chelating agent, such as DMPS, and subsequent collection of urine over the following 24 hours. Advocates of the challenge test state that the amount of heavy metals measured in the collected urine reveals one's body burden of metals. At first glance, this reasoning seems perfectly rational. However, documented evidence indicates that challenge testing is not scientifically validated for assessing chronic heavy metal exposures and may cause harm to the patient by redistributing metals to sensitive tissues and organs. According to the American College of Medical Toxicology, heavy metals challenge testing is appropriate only when there has been a known significant exposure to a toxic metal with symptoms consistent with exposure or as part of biomonitoring for occupational exposure to heavy metals.

Challenge testing is not appropriate for assessing chronic exposure and body burden, particularly in the case of mercury, for several reasons:

- Challenge testing only detects transient peaks of mercury in the blood. It is not sensitive enough to detect ambient levels of the metal. The detected level may also be skewed in people with renal insufficiency because the test dumps a large amount of mercury into the urine.
- There is no standardization of challenge conditions for the challenge test, leading to wildly different results from one patient to the next.
- The challenge test can cause the redistribution of mercury and other heavy metals into tissues and organs and deplete the body of essential minerals.
- Challenge testing does not differentiate between the various forms of mercury, including methylmercury and inorganic mercury. It thus does not allow the clinician to distinguish the source of a patient's mercury exposure.
- The ubiquity of heavy metal exposure in our modern society and the lack of efficacious methods for assessing one's body burden of these metals served as the impetus for Dr. Shade's development of the Quicksilver Scientific Mercury Tri-Test and Blood Metals

Panel. These tests utilize patented mercury speciation and inductively coupled plasma/mass spectroscopy technology to accurately ascertain one's body burden of heavy metals and guide practitioner treatment decisions.



SCAN THIS CODE TO LEARN MORE ABOUT TESTING

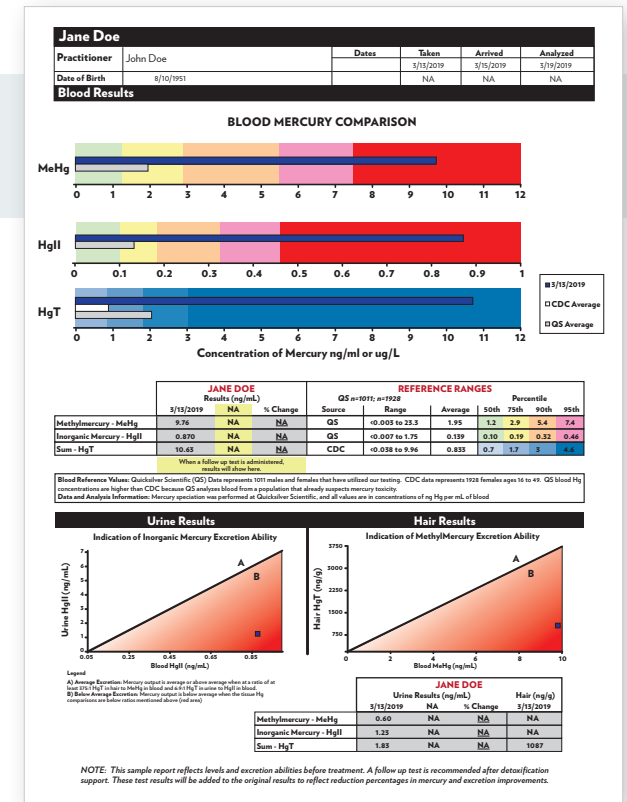
MERCURY TRI-TEST®

Due to the problems posed by toxic metals challenge testing, there has long been a need in the medical community for an innovative, scientifically validated test for assessing mercury body burden. Quicksilver Scientific has fulfilled this need with our ground-breaking Mercury Tri-Test (MTT). MTT uses a patented mercury analysis technique to separate the biologically relevant forms of mercury - methyl and inorganic mercury – from hair, urine, and blood samples. We are the only clinical lab in the world that offers mercury speciation analysis.

THE MTT OFFERS MULTIPLE BENEFITS OVER CHALLENGE TESTING:

- The test's high sensitivity allows for the detection of ambient levels of mercury, unlike challenge tests that only detect transient peaks in mercury.
- The test's propriety mercury speciation technology gives patients and practitioners an understanding of the source of mercury exposure. The methylmercury level reflects mercury exposure from fish consumption. In contrast, the inorganic mercury level reflects exposure from dental amalgams, airborne exposure from coal-fired power plants and other industrial sources, and demethylation from ingested fish.
- The test provides a measure of the magnitude of mercury exposure.
- The test provides information on the individual's ability to excrete each form of mercury.

Together, these features make the MTT superior to heavy metal challenge tests without putting the body at risk for heavy metal redistribution or essential metals depletion.



Clinical Advisory Team



DALE WHITE, L.AC
CLINICAL ADVISOR

Dale White is a California State Licensed Acupuncturist with over 40 years of clinical health care experience in Acupuncture, Herbal Medicine, Homeopathy, Functional Medicine and Nutrition. He has worked in a wide variety of institutional clinical settings including for the mentally ill, AIDS, and a hospital chronic pain clinic as well as maintaining a private practice.

Mr. White did his undergraduate studies in pre-med, psychology and mathematics at Seattle Central Community College and The Evergreen State College in Washington State. He completed a Masters in TCM at the American College of Traditional Chinese Medicine in San Francisco CA in 1990 and has Diplomate status with the National Board of Acupuncture Orthopedics. In 2001 he began studies in Functional Medicine including blood chemistry, detoxification, endocrinology, and brain chemistry. He has completed certification training programs in Japanese Classical Meridian Therapy, Toyo Hari, Western Herbal studies, Biological Detoxification, various Functional Medicine Modules, Homotoxicology and Biopuncture as well as non-certificate programs in European Drainage Homeopathy, German Biological Medicine and Darkfield Microscopy.

In 2015, Dale joined Dr. Christopher Shade as a Clinical Consultant for Quicksilver Scientific, providing physician education on test interpretation, products and protocols.



MATT REDDY, ND
CLINICAL ADVISOR

Dr. Matt Reddy received his Doctorate of Naturopathic Medicine from National University of Natural Medicine in Portland, Oregon in 2002. He holds a Bachelor of Science degree in Biology from the University of Colorado and was a professor of Biology and Pathology at Southwest Acupuncture College from 2005-2013. His private practice, Reddy Natural Medicine, is in Louisville, CO, where he focuses on digestive health, liver and gallbladder disease, detoxification and metabolic disease.

Dr. Reddy joined Quicksilver Scientific as a clinical consultant in 2018 to provide clinical and educational support to practitioners from around the world.



CAROL PETERSEN, RPH, CNP
CLINICAL ADVISOR

Carol Petersen is an accomplished compounding pharmacist with decades of experience helping patients improve their quality of life through bioidentical hormone replacement therapy. She graduated from the University of Wisconsin School of Pharmacy and is a Certified Nutritional Practitioner.

Her passion to optimize health and commitment to compounding is evident in her involvement with organizations including the International College of Integrated Medicine and the American College of Apothecaries, the Academy of Anti-Aging Medicine (A4M), American Pharmacists Association, and the Alliance for Pharmacy Compounding. She was also the founder and first chair of the Compounding Special Interest Group with the American Pharmacists Association.

She chairs the Integrated Medicine Consortium, an umbrella group for complementary medicine organizations. She co-hosts a radio program "Take Charge of your Health" in the greater New York area. She is on the Medical Advisory Board for the Centre for Menstrual Cycle and Ovulation Research (CeMCOR.ca). She also writes and edits for A4M's website www.worldhealth.net.



MINDY PELLEGRINO, MNT
HEAD OF EDUCATION

Mindy is the Head of Content Strategy and Education at Quicksilver Scientific, the super-premium dietary supplement brand specializing in nanoformulated delivery technology serving both consumers and practitioners since 2006. In this role, she is responsible for crafting game-changing protocols, programs and education based on the science and innovation of Quicksilver's founder and CEO, Dr. Christopher Shade.

Mindy has been deeply seeded in the wellness industry for over a decade and in this space, she has worn the hats of group fitness instructor, functional nutritionist, business owner, and dietary supplement product specialist.

She holds an MA in Organizational Management, and is a certified Master Nutrition Therapist.

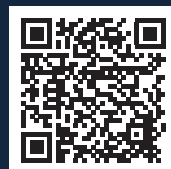
Practitioner Education

Quicksilver Scientific prides itself on being an 'education first' organization, offering premium educational content to support practitioners in multiple formats. As a valued customer, we want you to be well equipped to comfortably integrate our products and protocols into your practice.

Educational Events

QUICKSILVER ADVANCED LEARNING SEMINARS

Our Advanced Learning Seminars are in-person, regional trainings to help you become an expert in detoxification, longevity and more. Learn from Dr. Shade, our QS practitioner ambassadors, and special guests on how to successfully incorporate and apply QS products and protocols in practice. These events offer convenience and collaboration to our practitioner community in a comfortable learning environment near you.



IN-PERSON • REGIONAL

VIRTUAL LEARNING

DR SHADE WEBINARS

Dr. Shade hosts free educational webinars on a variety of functional medicine and QS product-related topics. Dive deep into cutting edge science and biochemistry with these engaging monthly lectures.

CLINICAL INSIGHTS LUNCH AND LEARNS

These regional-based afternoon webinars offer a more intimate setting and are hosted by our clinical and education teams in partnership with some of our leading practitioners. These webinars offer practical education on Quicksilver products and their applications, and case study reviews to better support your practice.



VIRTUAL

COLORADO FUNCTIONAL FORUM

CFF's are community-oriented events dedicated to educating practitioners on a variety of topics delivered by various professionals in the functional medicine space. CFF's are held in the evenings with lectures ranging from 60-90 minutes. They are held locally at Quicksilver's headquarters in Louisville, CO and live-streamed so anyone can join.

IN-PERSON • VIRTUAL

Trainings



QUICKSILVER SCIENTIFIC INSTITUTE (QSI)

QSI is a virtual, self-paced education platform providing clinically-relevant trainings to our practitioners. Each course offers a certification and a convenient way for you to gain expertise in using Quicksilver products and protocols in practice.

Receive Certifications in:

- Quicksilver's Detoxification Foundations + Delivery Technology
- Menopause Hormone Literacy + Quicksilver Hormone Replenishing System

Benefits of becoming a Certified Quicksilver Practitioner include:

- Opportunity to be featured on our website as a preferred Quicksilver practitioner.
- Continuing education to help elevate your practice.
- Special discounts to exclusive QS sponsored practitioner events.
- Invitation to participate in clinical research, focus groups...and more!

VIRTUAL • SELF-PACED



Resources

ONLINE PRACTITIONER PORTAL

On our website, we have an exclusive, practitioner-only section that allows easy access to educational materials. There you will find an abundance of education including:

- Past webinar recordings
- Heavy metals testing resources
- Whitepapers
- Patient and Technical Sheets
- Product videos for practitioners and patients
- Clinical tools to benefit and support your practice

EDUCATIONAL EMAILS

We're fanatics about education and utilize email as a primary source of sending information to you. We send a monthly newsletter that is chock full of educational assets, upcoming events and important information. We also send several other emails during the month that are primarily focused on teaching you about our products, ingredients, delivery systems and more.

CLINICAL CONSULTS

We offer practitioners complimentary clinical consultations for lab reviews and product and protocol support. To schedule time with one of our clinical consultants reach out to your account manager or contact customer experience to schedule at call.

Company Information



CUSTOMER SERVICE

Our Customer Experience team is here to help whenever you need it. Simply email support@quicksilverscientific.com or call 1.303.531.0861



INTERNATIONAL ORDERS OR DISTRIBUTORS



SHIPPING INFORMATION



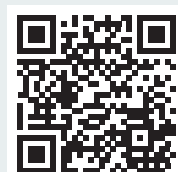
STORAGE GUIDELINES



SOCIAL LINKS



PRODUCT REFERENCES



Ingredient Cross Reference List

A

ACACIA GUM

AmalgaClear® 24

ACAI BERRY

NanoMojo® 146
The One 162
Thrivagen 164
Dr. Shade's Ultra Energy® 172

ACTIVATED CHARCOAL

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Ultra Binder® Sensitive Formula 170
Ultra Binder® Stick Packs 166

ADIPIC ACID

H2 Elite® 90

AHIFLOWER®

Membrane Mend™ 124

ALOE VERA LEAF

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ALOE VERA LEAF, BIALOE®

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Dr. Shade's Ultra Energy® 172

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Longevity Elite® 112

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NanoMojo® 146
The One 162
Thrivagen 164
Dr. Shade's Ultra Energy® 172

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Membrane Mend® 124

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BILBERRY FRUIT EXTRACT

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BIOTIN*See Vitamin B7***BLACK WALNUT HULL**

| | |
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| Biocidin® LSF | 34 |
|---------------|----|

BOSWELLIA EXTRACT

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| Microb-Manager® | 132 |

BOSWELLIA RESIN EXTRACT

| | |
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| Performance Cardio+ | 148 |
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| Broad Spectrum Hemp Extract | 44 |
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| Full Spectrum Bliss | 80 |
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| CBD Synergies-SP+ | 58 |
| Full Spectrum Bliss | 80 |

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| Ultra Binder® Capsules | 168 |
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|-------|----|

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DANDELION ROOT EXTRACT

| | |
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| Clear Way Cofactors® | 60 |
|----------------------|----|

DANDELION AERIAL PARTS

| | |
|---------------------------|----|
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|---------------------------|----|

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| DHEA+ | 70 |
|-------|----|

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DHEA DEHYDROEPIANDROSTERONE

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E**ECHINACEA ANGUSTIFOLIA ROOT**

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| Biocidin® LSF | 34 |
|---------------|----|

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G

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GINSENG PLUS® PANAX NOTOGINSENG ROOT EXTRACT

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GINSENG, AMERICAN

Longevity Elite® 112

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GINSENG PLUS® PANAX NOTOGINSENG ROOT EXTRACT

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I

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see Silica or Thiol

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JUNIPER OIL

Kidney Care 106

K

L

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Quintessential® 3.3 158
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MK7

See Vitamin K

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MONOLAURIN

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MYRRH

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Dr. Shade's Liver Sauce® 110

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Dr. Shade's Bitters® No.9 40

MYRRH RESIN EXTRACT

Cardio Elite 46
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N

NATTOKINASE

Clear Way Cofactors® 60

NIACIN

See Vitamin B3

NIACINAMIDE

See Vitamin B3

NMN

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NONI FRUIT EXTRACT

Biocidin® LSF 34

NOTOGINSENG

See Ginseng (Ginseng Plus® Panax Notoginseng)

O

OREGANO OIL

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P

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see Vitamin A

PANTOTHENIC ACID

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Glutathione Complex 88
NanoMojo® 146

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Clear Way Cofactors® 60

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Quintessential® 3.3 158

Quinton® Hypertonic 158

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PQQ, BIOPQQ®

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DHEA+ 70

Longevity Elite® 112

PROGESTERONE

Progesterone+ 150

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AMPK Charge +™ 26

CBD Synergies-PN 56

Immune Charge +® Throat Spray 98

Immune Charge +® Zinc Ionophore 100

Keto Before 6® 104

Microb-Manager® 132

PYRIDOXAL-5-PHOSPHATE*See Vitamin B6***PYRIDOXINE HYDROCHLORIDE***See Vitamin B6***Q****QUERCETIN DIHYDRATE**

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Clear Way Cofactors® 60

Hista-Aid® 92

Immune Charge +® Throat Spray 98

Immune Charge +® Zinc Ionophore 100

Keto Before 6® 104

Dr. Shade's Liver Sauce® 110

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Biocidin® LSF 34

REISHI FRUITING BODY

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Dr. Shade's Ultra Energy® 172

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AMPK Charge +™ 26

Keto Before 6® 104

Longevity Phyto Caps 116

NAD+ Platinum® 140

The One 162

RETINOL*see Vitamin A***RHAMNOX™ 100 GREEN SEAWEED**

Cardio Elite 46

RHODIOLA ROOT

NanoMojo® 146

The One 162

Thrivagen 164

Dr. Shade's Ultra Energy® 172

RIBOFLAVIN-5-PHOSPHATE*See Vitamin B2***R-LIPOIC ACID**

Clear Way Cofactors® 60

EDTA with RLA 74

S**SAW PALMETTO FRUIT**

NanoMojo® 146

SCHISANDRA FRUIT

NanoMojo® 146

The One 162

Thrivagen 164

Dr. Shade's Ultra Energy® 172

SEAWATER

Quinton® Nasal Sprays 160

SELENIUM

Clear Way Cofactors® 60

SHATAVARI

Thrivagen 164

SEA WATER, COLD MICROFILTERED NATURAL

Quintessential® 0.9 160

Quintessential® 3.3 158

Quinton® Hypertonic 158

Quinton® Isotonic 160

SHIITAKE MUSHROOM EXTRACT

Biocidin® LSF 34

SILICA

AmalgaClear® 24

Ultra Binder® Stick Packs 166

SILICA EXTRACT

Ultra Binder® 166

Ultra Binder® Capsules 168

Ultra Binder® Stick Packs 166

SILYMARIN

See Milk Thistle Seed Extract

SKULLCAP HERB EXTRACT

CBD Synergies-AX+ 52

CBD Synergies-AX Gummies 54

CBD Synergies-SP+ 58

LipoCalm® 108

SODIUM

Quintessential® 0.9 160

Quintessential® 3.3 158

Quinton® Hypertonic 158

Quinton® Isotonic 160

SODIUM ASCORBATE*See Vitamin C***SODIUM STEARYL FUMARATE**

H2 Elite® 90

SOLIDAGO GIGANTEA

Dr. Shade's Bitter X 38

Dr. Shade's Bitters® No.9 40

Dr. Shade's Liver Sauce® 110

STINGING NETTLE AERIAL PARTS

NanoMojo® 146

T**TARTARIC ACID**

H2 Elite® 90

TEA TREE OIL

Biocidin® LSF 34

THEACRINE

NanoFuel® 144

THEANINE (L-THEANINE)*See L-Theanine***THIAMINE***See Vitamin B1***THIOL-FUNCTIONALIZED SILICA, SILICA EXTRACT**

IMD® Intestinal Cleanse 94

TOCOFERSOLAN*See Vitamin E***TRANS PTEROSTILBENE EXTRACT**

Longevity Phyto Caps 116

TRIBULUS AERIAL PARTS

NanoMojo® 146

TRIMETHYLGLYCINE

Glutathione Complex 88

Methyl B-Complex 128

| | |
|-----------------|-----|
| Methyl Charge+® | 130 |
| NAD+ Gold® | 136 |
| NAD+ Platinum® | 140 |
| Ultra Vitamin® | 174 |

TURMERIC OIL

| | |
|---------------------------------|-----|
| CBD Synergies-PN | 56 |
| Immune Charge +® Zinc Ionophore | 100 |
| Longevity Phyto Caps | 116 |
| Microb-Manager® | 132 |

U

UBIQUINONE

See CoQ10 (Ubiquinone)

V

VITAMIN A

| | |
|------------------|-----|
| Immune Charge +® | 96 |
| Ultra Vitamin® | 174 |

VITAMIN B12

| | |
|---------------------|-----|
| Glutathione Complex | 88 |
| Methyl B-Complex | 128 |
| Methyl B-12 | 126 |
| Methyl Charge+® | 130 |
| NAD+ Platinum® | 140 |
| Ultra Vitamin® | 174 |

VITAMIN B2

| | |
|---------------------|-----|
| Glutathione Complex | 88 |
| Methyl B-Complex | 128 |
| Methyl Charge+® | 130 |
| NAD+ Platinum® | 140 |
| Ultra Vitamin® | 174 |

VITAMIN B3 NIACIN

| | |
|---------------------|-----|
| Glutathione Complex | 88 |
| Methyl B-Complex | 128 |
| Ultra Vitamin® | 174 |

VITAMIN B5 PANTOTHENIC ACID

| | |
|---------------------|-----|
| Glutathione Complex | 88 |
| Methyl B-Complex | 128 |

| | |
|----------------------|-----|
| Ultra Vitamin® | 174 |
| Clear Way Cofactors® | 60 |

VITAMIN B6

| | |
|----------------------|-----|
| Clear Way Cofactors® | 60 |
| Glutathione Complex | 88 |
| Methyl B-Complex | 128 |
| Methyl Charge+® | 130 |
| Ultra Vitamin® | 174 |

VITAMIN B7

| | |
|---------------------|-----|
| Glutathione Complex | 88 |
| Methyl B-Complex | 128 |
| Ultra Vitamin® | 174 |

VITAMIN B9

| | |
|---------------------|-----|
| Glutathione Complex | 88 |
| Methyl B-Complex | 128 |
| Methyl Charge+® | 130 |
| Ultra Vitamin® | 174 |

VITAMIN C

| | |
|-----------------------|-----|
| AmalgaClear® | 24 |
| Hista-Aid® | 92 |
| Immune Charge+® | 96 |
| Ultra Vitamin® | 174 |
| Vitamin C | 176 |
| Vitamin C+ Elderberry | 178 |

VITAMIN D3

| | |
|-------------------|-----|
| Cat's Claw Elite® | 50 |
| D3K2 | 64 |
| Immune Charge +® | 96 |
| Ultra Vitamin® | 174 |

VITAMIN E

| | |
|-------------------|-----|
| Cat's Claw Elite® | 50 |
| CBD Synergies-AX+ | 52 |
| CBD Synergies-SP+ | 58 |
| Immune Charge+® | 96 |
| Membrane Mend® | 124 |
| The One | 162 |
| Ultra Vitamin® | 174 |

VITAMIN K

| | |
|------------------|----|
| Immune Charge +® | 96 |
|------------------|----|

| | |
|----------------|-----|
| Ultra Vitamin® | 174 |
|----------------|-----|

W

WHITE WILLOW BARK

| | |
|---------------|----|
| Biocidin® LSF | 34 |
|---------------|----|

X

Y

Z

ZEOLITE

| | |
|---------------------------------|-----|
| Ultra Binder® | 160 |
| Ultra Binder® Capsules | 158 |
| Ultra Binder® Sensitive Formula | 158 |
| Ultra Binder® Stick Packs | 160 |

ZHI GAN CAO ROOT EXTRACT

| | |
|------------------|-----|
| Longevity Elite® | 112 |
|------------------|-----|

ZHU LING FRUITING BODY EXTRACT

| | |
|-------------|-----|
| Kidney Care | 106 |
|-------------|-----|

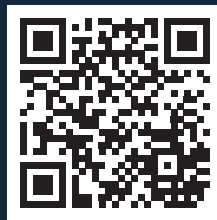
ZINC

| | |
|---------------------------------|-----|
| Immune Charge +® Throat Spray | 98 |
| Immune Charge +® Zinc Ionophore | 100 |

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Christopher Shade, PhD, founder and CEO of Quicksilver Scientific, continues to be a driving force of development and innovation in Functional and Integrative Medicine, creating high-efficacy detoxification systems for wellness and longevity by employing high-bioavailability delivery systems for nutraceuticals and whole-plant extracts.