

# ActivNutrients® Phyto

Multivitamin/Mineral Formula With Added Antioxidant Support\*



Available in 90 capsules

## Discussion

ActivNutrients® Phyto provides enhanced antioxidant support through a special phytonutrient blend. The primary mechanisms of action of each ingredient unique to ActivNutrients Phyto are described below, followed by a discussion of the multivitamin and mineral components that provide the foundation for all the ActivNutrients formulations.\*

- **Astaxanthin** is a naturally occurring xanthophyll carotenoid with a distinctive molecular structure that allows it to scavenge and quench reactive oxygen species and free radicals in the inner and outer layers of the cell membrane.<sup>1</sup> Astaxanthin has been studied extensively for systemic benefits because of its strong antioxidant activity, which research has indicated is much greater than vitamins C and E, coenzyme Q10, green tea catechins, lutein, or other carotenoids.<sup>2</sup> Astaxanthin is receiving increasing attention as an effective molecule to prevent oxidative stress-mediated and age-related decline.<sup>\*1,2</sup>
- **CinSulin®** is a patented water extract of cinnamon. The unique proprietary extraction and dehydration process for manufacturing CinSulin results in a concentrated (10:1) extract that minimizes undesirable substances while retaining those that are health-promoting, such as type-A polyphenolic polymers.<sup>3</sup> Cinnamon has been used for hundreds of years as a flavor additive and in traditional Eastern medicine for its health-promoting qualities.<sup>4</sup> Cinnamon bark has high antioxidant activities due to the presence of polyphenols and volatile oil compounds, and cinnamon has been studied extensively for its roles in glucose uptake, glycogen synthesis, insulin action, and support for healthy blood lipid metabolism.<sup>\*4-6</sup>
- **Green Coffee Bean** extract contains polyphenols with strong antioxidant and free radical scavenging qualities that are associated with reducing oxidative stress and its complications.<sup>7,8</sup> The major polyphenols from green coffee beans are collectively known as chlorogenic acids; these components or their metabolites mediate many benefits associated with green coffee bean extract.<sup>8</sup> The effects of these phytonutrients on vascular health, body composition, and glycemic and lipid profiles are areas of interest for human research.<sup>\*8,9</sup>
- **Maca Root** has been used as a food and traditional medicine in the Andes of Peru for over 2,000 years.<sup>10</sup> Both classical practices and modern science endorse maca's vitality-, aphrodisiac-, and fertility-promoting qualities.<sup>10</sup> Characteristic of many folk medicines, maca has numerous applications. In animal studies, maca demonstrates antioxidant, neuroprotective, and antiviral activities.<sup>11</sup> Research attributes the benefits of maca root to its antioxidant compounds, such as phenols, sterols, glucosinolates, alkamides, and polysaccharides, as well as to its secondary metabolites, including macaene and macamide.<sup>\*10,11</sup>
- **Green Tea** leaves are a source of polyphenols known as catechins, with epigallocatechin-3-gallate (EGCG) being the most abundant and biologically active catechin in green tea leaves. Green tea extracts are considered more stable than pure EGCG because of the broad spectrum of antioxidant constituents in the extract.<sup>12</sup> In vitro research demonstrates that green tea polyphenols have direct antioxidant activity by scavenging reactive oxygen species or chelating transition metals.<sup>13</sup> Green tea polyphenols may also act indirectly by upregulating phase II antioxidant enzymes.<sup>13</sup> In vivo research shows that these polyphenols increase plasma antioxidant activity, suppress oxidative stress markers, and protect against degenerative processes.<sup>\*12,13</sup>
- **Rhodiola** is an adaptogenic herb used traditionally in Eastern Europe and Asia for centuries. Medical and pharmacological texts describe its use for immune, psychiatric, and neurological health. In healthy individuals, therapeutic doses have helped relieve fatigue and increase attention span, memory, and work productivity.<sup>14</sup> Rhodiola root is rich in salidroside and rosavin, phenolic compounds that have strong antioxidant properties. Research into Rhodiola's antioxidant activity has revealed its protective effects against oxidative damage in the nervous system and how it impacts memory and cognition by improving resistance to physical and emotional stress.<sup>\*14,15</sup>
- **Milk Thistle** seeds have been used for medicinal purposes for over 2,000 years. Silymarin, which consists of a mixture of flavonolignans and the flavonoid taxifolin, is the main active component of milk thistle.<sup>16</sup> Silymarin's primary site of action is in the liver, where it can play a role in maintaining healthy levels of fat peroxidation, moderating fibrous tissue formation, supporting healthy immune and inflammatory responses, and promoting protein synthesis and normal liver tissue regeneration.<sup>16</sup> Silymarin supports antioxidant activity, neutralizes toxins, and may have hepatoprotective effects.<sup>\*16-18</sup>
- **Rosemary** is an aromatic plant originating from the Mediterranean region and is the most common culinary herb cultivated worldwide. It is rich in phytochemicals with antioxidant attributes and cytokine-balancing properties.<sup>19,20</sup> The antioxidant properties of rosemary extract are

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well-established and primarily attributed to phenolic compounds, including diterpenes, triterpenes, carnosic acid, ursolic acid, and rosmarinic acid. Carnosic and rosmarinic acids demonstrate the most prevalent physiological effects and interact with multiple molecular targets.\*<sup>19,20</sup>

- **Bitter Gourd** has a rich history of use in traditional and folk medicine. Its fruit has a unique phytochemistry with bioactive components, including terpenoids, glycosides, flavonoids, alkaloids, tannins, and numerous saponins. These components are responsible for a wide range of activities, including antioxidant, cytokine balancing, free radical scavenging, and moderating NF- $\kappa$ B and TNF- $\alpha$  cascades.<sup>21,22</sup> These mechanisms confer protection to cellular and organ function.<sup>21</sup>
- **Artichoke** has been cited as a medicine since ancient times, primarily regarding its use for digestive and liver health.<sup>23,24</sup> Modern research has validated these historic uses.<sup>23</sup> Polyphenolic compounds, such as cynarin, chlorogenic acid, and flavonoids, have been documented as artichoke's active principles and are present mainly in the leaves. In vitro research demonstrated that artichoke leaf extract's antioxidant potential is due to the radical scavenging and metal ion–chelating effects of its unique blend of polyphenol constituents.\*<sup>23</sup>

### ActivNutrients—Foundation Formula Discussion

Adequate nourishment is the foundation for overall health and wellness, and good nutrition typically translates into a stronger immune system and better health. The human body uses dietary proteins, fats, and carbohydrates, known as macronutrients, to provide the energy (calories) needed to fuel physiological functions. Vitamins and minerals, known as micronutrients, are needed in much smaller quantities. Unlike their macro counterparts, micronutrients don't give you energy, but they do participate in converting food to energy; building and repairing tissues and DNA; manufacturing neurotransmitters, hormones, and other modulators in the body; breaking down and detoxifying xenobiotics and medications; and maintaining growth, reproduction, and health.\*<sup>25-27</sup>

According to the Dietary Guidelines for Americans 2020-2025 (DGA) and additional data from the USDA and other agencies and organizations, the American diet lacks micronutrients.<sup>28-30</sup> Mass food production, storage techniques, poor food choices, and nutrient-depleting preparation methods may be contributing to this deficit. Furthermore, the percent daily values (%DV) for micronutrients are based on the minimum amount needed to meet the basic need of a healthy person of a specific age and gender group. The %DV is not always indicative of the amount needed for optimal functioning of all individuals, especially those who are chronically ill.\*<sup>27,29,31</sup>

When considering where American diets fall short in nutrients, the DGA shows that low intakes of potassium, dietary fiber, calcium, and vitamin D are a public health concern.<sup>28</sup> Other nutrients that have notably low intakes or require increased intake subsequent to life stage include vitamins A, B6, B12, C, E, and folate; the minerals magnesium and iron; and choline.<sup>28,32,33</sup> Data from the National Health and Nutrition Examination Surveys (NHANES) suggest a pervasive deficiency in A, C, D, E, and zinc—nutrients linked to immune health.<sup>30</sup> Inadequate intake of most of these nutrients is attributable to an overall unhealthy eating pattern due to low intakes of nutrient-rich foods such as vegetables, fruits, whole grains, and dairy that contain these nutrients.<sup>28</sup> In cases when food is not enough for an individual to get adequate micronutrients, multivitamin/mineral supplements are recognized as being of value to help fill dietary nutritional shortfalls.\*<sup>26,30,31,34-36</sup>

ActivNutrients Phyto is designed to meet the foundational nutrition needs for a variety of protocols and life stages. This formula provides:

**A Balanced Profile** Vitamins and minerals work cooperatively when present in sufficient amounts. However, imbalances between micronutrients can disrupt this synergistic relationship, possibly leading to instances of competitive intestinal absorption or displacement at the metabolic/cellular level, which can produce relative excesses and insufficiencies. For this reason, ActivNutrients Phyto features a balanced nutrient profile that includes calcium and magnesium, vitamins C and E, bioactive folate, bioactive vitamin B12, B vitamin complex, beta-carotene, and trace elements.\*

**Bioavailable Nutrient Forms** The micronutrients are provided in bioactive forms so that they can be adequately absorbed and utilized. ActivNutrients Phyto contains a full complement of Albion® patented mineral chelates and complexes. Albion is a recognized world leader in mineral amino acid chelate nutrition and manufactures highly bioavailable nutritional mineral forms that are validated by third-party research

and clinical studies. ActivNutrients Phyto also contains natural vitamin E, clinically shown to be more bioavailable than synthetic dl-alpha-tocopherol, as well as mixed tocopherols to more closely approximate how much vitamin E an individual might gain when consuming healthful foods.<sup>37,38</sup> The folate source in ActivNutrients Phyto is methyltetrahydrofolate (5-MTHF)—the most bioactive form of folate<sup>39</sup>—in the form of Quatrefolic®, which has greater stability, solubility, and bioavailability over calcium salt forms of 5-MTHF. Supplementing with bioactive 5-MTHF facilitates the bypassing of steps in folate metabolism. This may be especially beneficial to individuals with genetic variations in folate metabolism.<sup>40,41</sup> Vitamins B2, B6, and B12 are provided in metabolically active forms.\*

**Support for Energy Production and Stress Response** ActivNutrients Phyto provides generous levels of B vitamins, which serve as prime coenzymes in glycolysis and oxidative phosphorylation and as cofactors in amino acid and lipid metabolism.<sup>42-44</sup> Sufficient levels of the B vitamins are critical for energy production and cell growth and division, and they have many other essential roles in the body, including support for nervous system function.<sup>45</sup> The balanced presence of B vitamins is essential to their cooperative functioning and are excellent for individuals with stressful lifestyles.\*

**Antioxidant Protection** Vitamins E and C, selenium, zinc, beta-carotene, and trace elements provide broad-spectrum antioxidant activity.<sup>46,47</sup> Their combined presence supports their ability to regenerate each other and maintain consistent levels of antioxidant activity both intra- and extracellularly.\*

**Detoxification Support** Xenobiotics, including environmental pollutants and medications, must undergo biotransformation into molecules that can be easily excreted from the body. Detoxification of xenobiotics is a complex process that requires micronutrients, phytonutrients, energy, and adequate antioxidant support for safe and effective completion.<sup>47-49</sup> There are significant levels of bioavailable riboflavin, niacin, folate, and B12 present in ActivNutrients Phyto to support phase I detoxification. Beta-carotene, vitamin C, tocopherols, selenium, zinc, and manganese are present to support tissues when reactive intermediates are formed between phase I and phase II detoxification.\*

**ActivNutrients Phyto** offers foundational multivitamin and mineral support designed to compensate for dietary nutritional shortfalls and nourish optimal wellness. A select combination of ingredients has been added for enhanced support of antioxidant mechanisms.\*

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**ActivNutrients® Phyto Supplement Facts**

Serving Size: 2 Capsules

	Amount Per Serving	%Daily Value
Vitamin A (as natural beta-carotene and retinyl palmitate)	380 mcg	42%
Vitamin C (as sodium ascorbate, potassium ascorbate, zinc ascorbate, and calcium ascorbate)	40 mg	44%
Vitamin D3 (cholecalciferol)	0.85 mcg (34 IU)	4%
Vitamin E (as d-alpha tocopheryl succinate)	20 mg	133%
Thiamin (as thiamine mononitrate)	3 mg	250%
Riboflavin (as riboflavin 5'-phosphate sodium)	3 mg	231%
Niacin (as niacinamide and niacin)	10 mg	63%
Vitamin B6 (as pyridoxal 5'-phosphate)	3 mg	176%
Folate (as (6S)-5-methyltetrahydrofolic acid, glucosamine salt) <sup>S1</sup>	110 mcg DFE	28%
Vitamin B12 (as methylcobalamin)	85 mcg	3,542%
Biotin	170 mcg	567%
Pantothenic Acid (as d-calcium pantothenate)	30 mg	600%
Iodine (as potassium iodide)	15 mcg	10%
Magnesium (as di-magnesium malate) <sup>S2</sup>	15 mg	4%
Zinc (as zinc bisglycinate chelate) <sup>S2</sup>	2 mg	18%
Selenium (as selenium glycinate) <sup>S2</sup>	15 mcg	27%
Manganese (as manganese bisglycinate chelate) <sup>S2</sup>	0.05 mg	2%
Chromium (as chromium nicotinate glycinate chelate) <sup>S2</sup>	85 mcg	243%
Molybdenum (as molybdenum glycinate chelate) <sup>S2</sup>	5 mcg	11%
Proprietary Phytonutrient Blend	346.5 mg	**
Green Coffee Extract ( <i>Coffea arabica</i> , <i>Coffea robusta</i> ) (seed) (15% total chlorogenic acids), Organic Maca ( <i>Lepidium meyenii</i> ) (root), Green Tea Aqueous Extract ( <i>Camellia sinensis</i> ) (leaf) (30% EGCG), Rhodiola Extract ( <i>Rhodiola rosea</i> ) (root) (3% rosavins), Milk Thistle Extract ( <i>Silybum marianum</i> ) (seeds) (30% silybins), Rosemary Extract ( <i>Rosmarinus officinalis</i> ) (leaf) (5% rosmarinic acid), Bitter Gourd Extract ( <i>Momordica charantia</i> ) (fruit), Artichoke Extract ( <i>Cynara scolymus</i> ) (leaf) (7% caffeoylquinic acids), Cinnamon 10:1 Aqueous Extract ( <i>Cinnamomum cassia</i> ) (bark) <sup>S3</sup> , Astaxanthin <sup>S4</sup>		
Mixed Tocopherols	10 mg	**
Inositol	5 mg	**
Vanadium (as vanadium nicotinate glycinate chelate) <sup>S2</sup>	125 mcg	**
** Daily Value (DV) not established.		

**Other Ingredients:** Capsule (hypromellose and water), hydroxypropyl cellulose, potassium glycinate, di-calcium malate, ascorbyl palmitate, silica, dicalcium phosphate dihydrate, calcium silicate, and choline dihydrogen citrate.

**DIRECTIONS:** Take two capsules daily, or use as directed by your healthcare professional.

Consult your healthcare professional before use. Individuals taking medication should discuss potential interactions with their healthcare professional. Do not use if tamper seal is damaged.

**STORAGE:** Keep closed in a cool, dry place out of reach of children.

**FORMULATED TO EXCLUDE:** Wheat, gluten, yeast, soy protein, dairy products, fish, shellfish, peanuts, tree nuts, egg, sesame, ingredients derived from genetically modified organisms (GMOs), artificial colors, and artificial sweeteners.

S1. Quatrefolic® is a registered trademark of Gnosis S.p.A. Produced under U.S. patent 7,947,662.

S2. Albion® is a registered trademark of Balchem Corporation or its subsidiaries.

S3. CinSulin® is registered trademark of Tang-An Medical Co., Ltd. U.S. patent 6,200,569.

S4. Zanthin® is a registered trademark of Valensa International.

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