

### **Acacia**

**Scientific Name:** *Acacia spp.*

**Country of Origin:** Africa

**Description:** Acacia is a water-soluble polysaccharide, multi-functional hydrocolloid that features a highly branched arabino-galactan-protein complex. It is derived from the sap of the Acacia tree. The sap is dried/aged for 1 year before it is processed and spray dried to form a powder. Ortho Molecular Products uses an *organic* Acacia powder.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Acerola Fruit Extract**

**Scientific Name:** *Malpighia glabra*

**Country of Origin:** Brazil

**Description:** Acerola fruit is commonly found on small treelike shrubs in South America. Dried acerola fruit is standardized to contain 17% of vitamin C (*see also Vitamin C*) and is also an excellent source of *flavonoids*, riboflavin, niacin, and beta carotene.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Activated Carbon**

**Description:** Activated carbon is a fine, porous material typically derived from coconut shells, olive pits, or hard and soft woods. Activated carbon is tasteless having had all impurities removed by hydro-acidic washes. Steam (using temps up to 982° C) activates the carbon and contributes to its large absorptive surface area.

**Precautions:** Activated carbon has the ability to absorb certain food nutrients and drugs and is contraindicated with prescribed medications. Darkened stools are commonly reported with ingestion of activated carbon. There are no known contraindications in those who are pregnant or nursing.

### **Activin® (Grape Seed Extract)**

**Scientific Name:** *Vitis vinifera*

**Country of Origin:** USA

**Description:** Activin® is derived through a special process called ActiPure®. ActiPure® uses natural water solvents for extraction of *oligomeric proanthocyanidins (OPC)* and gallic acid polyphenols. Activin® is from the seeds of California IH 636 red wine grapes, which are the richest source of *OPC's*

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Adrenal Concentrate**

**Description:** A dried powder concentrate of raw bovine suprarenal tissue. Ortho Molecular Products adrenal concentrate is from USDA inspected beef from countries (primarily Argentina) not known to have *BSE* and is tested negative for *E. coli* and *Salmonella spp.* (*see glandular therapy in glossary*).

**Precautions:** There are no known contraindications in those

who are pregnant or nursing.

**Aloe Vera Concentrate (Leaf Exudate 200:1)**

**Scientific Name:** *Aloe barbadensis*

**Country of Origin:** USA

**Description:** The aloe vera plant is a succulent from which aloe vera powder is derived using a spray dried process. A 200:1 concentrate, of the gelatinous material from the core of the long thick leaves is used. Aloe vera is typically used for its healing properties while its cousin, Cape aloe, is used for its laxative properties. *See Cape Aloe.*

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

**Alpha Chymotrypsin**

**Description:** An enzyme extracted from bovine pancreas. Ortho Molecular Products sources use only USDA inspected beef from countries (primarily Argentina) not known to have BSE. (*see glandular therapy in glossary*)

**Precautions:** Alpha chymotrypsin should not be taken by those who are pregnant or nursing.

**Amylase**

**Description:** Amylase is an enzyme derived from porcine pancreas. This enzyme is used in the hydrolysis of polysaccharides during digestion. (*See pancreatic enzymes in glossary*)

**Precautions:** Amylase should not be taken by those who are pregnant or nursing.

**Andrographis Paniculata Leaf Stem Extract**

**Scientific Name:** *Andrographis paniculata*

**Country of Origin:** China

**Description:** Commonly known as Chuan-Xin-Lian, andrographis contains andrographolides and arabinogalactan, the active components of this plant. Ortho Molecular Products uses a water solvent to obtain a 20% standard extract of andrographolides.

**Precautions:** *Andrographis* should not be taken by those who are pregnant or nursing.

**Angelica Sinensis**

See Dong Quai

**Anise**

**Scientific Name:** *Pimpinella anisum*

**Country of Origin:** India

**Description:** The fruit and seed are harvested as an antimicrobial and as an expectorant. The main active ingredient of anise is anethole.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

**Apple**

**Scientific Name:** *Malus sylvestris*

**Country of Origin:** North America

**Description:** *Drum-dried* , *organic* whole fruit powder, known

for its vitamin C content, fiber, pectin and *antioxidants*.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

#### **Apple Pectin**

**Scientific Name:** *Malus pumila*

**Country of Origin:** USA

**Description:** A source of soluble fiber. Pectin is highly concentrated in both apples and citrus fruits and is a nondigestible linear polysaccharide. Pectin works as a gelling agent sequestering bile acids.

**Precautions:** Apple pectin may inhibit absorption of micronutrients particularly zinc, copper, iron, and calcium. There are no known contraindications in those who are pregnant or nursing.

#### **Arabinogalactin Heartwood**

**Scientific Name:** *Larix laricina* (Eastern).

*Larix occidentalis* (Western)

**Country of Origin:** USA

**Description:** Derived from the Larch tree, the water soluble arabinogalactans are a good source of dietary fiber and acts a *prebiotic*.

**Precautions:** Arabinogalactin should not be taken by those on a low galactose diet or by those who are pregnant or nursing.

#### **Artichoke Leaf Extract**

**Scientific Name:** *Cynara scolymus*

**Country of Origin:** Spain and France

**Description:** While the head of this vegetable may be a dinner favorite, only the leaf is typically used medicinally. Ortho Molecular Products uses an extract of artichoke leaf *standardized* to contain 5% cynarin. Cynarin is the active component of the globe artichoke leaf and is used to support gallbladder function.

**Precautions:** Do not use in conditions of bile duct blockage or if there is a known sensitivity to any member of the chrysanthemum plant family. There are no known contraindications in those who are pregnant or nursing.

#### **Ascorbic Acid**

See Vitamin C

#### **Ashwagandha Root Extract**

**Scientific Name:** *Withania somnifera*

**Country of Origin:** India

**Description:** The root of this shrubby plant of the nightshade family, undergoes a 15:2, hydro-alcoholic extraction process. Ashwagandha root is standardized to contain 1.5% withanolids and 1% alkaloids which have *adaptogenic* properties. Common names include withania and winter cherry.

**Precautions:** Ashwagandha produces a sedative effect and should not be taken concurrently with other sedatives. Those with *hyperthyroid* condition should avoid

Ashwagandaha. Ashwagandaha should not be taken by those who are pregnant or nursing.

#### **Barberry Root Bark**

**Scientific Name:** *Berberis vulgaris*

**Country of Origin:** India

**Description:** The bark of barberry root has properties which increase bile flow, as a *cholagogue*.

**Precautions:** Caution is advised for those taking protein displacement medications. Barberry should not be taken by those who are pregnant or nursing.

#### **Bee Propolis Extract**

**Description:** Bee propolis is a 70% ethanol extracted pine resin collected and stored by bees. This sticky brown residue also known as bee glue has antimicrobial and antiinflammatory activities which are derived from its micronutrients of phenolics, terpenes and flavonoids. The flavonoids of greatest interest are caffeic acid phenethyl esters (CAPE).

**Precautions:** Persons with known sensitivities to pine trees or tree pollen should use caution. Bee propolis should not be taken by those who are pregnant or nursing.

#### **Beet Leaf**

**Scientific Name:** *Beta bulgaris*

**Country of Origin:** Europe

**Description:** The leafy green tops of beets are a rich source of folates, other B vitamins, choline, inositol, magnesium and betain.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

#### **Bentonite**

**Description:** A montmorillonite (aluminum silicate) clay, created by weathered volcanic ash, having absorptive properties. It assists in the removal of toxins and harmful metals by gelling with heavy metals as they pass from the colon.

**Precautions:** Bentonite should not be used concurrently with diuretics. Bentonite should not be taken by those who are pregnant or nursing.

#### **Berberine Sulfate**

**Scientific Name:** *Berberis aristata*

**Country of Origin:** India

**Description:** A chemical salt derived in part from the root *rhizomes* of *Berberis aristata*, (Indian barberry or Treeturmeric). Berberine has both mucolytic and antibiotic properties. It is often used in conjunction with other similar acting remedies.

**Precautions:** Berberine sulfate should not be taken by those who are pregnant or nursing.

#### **Betaine Trimethyl Glycine**

**Description:** Betaine trimethylglycine (TMG), is derived from trimethylamine chloroacetic acid. TMG is a sweettasting, ammonium compound which assists methyl donors such as SAME, folic acid and choline, in facilitating various necessary reactions. This form of betaine should not be confused with *Betaine HCL* which has a separate function.

**Precautions:** Betaine should not be used by those with conditions of gastrointestinal disease, (i.e. GERD, gastritis, and peptic ulcer) or those who are pregnant or nursing.

#### **Betaine HCl**

**Description:** Betaine HCl is made by chemical synthesis from chloroacetic acid, water and trimethylamine and neutralized with hydrochloric acid. This bitter-tasting form of betaine anhydrous is used as a digestive aid and delivery vehicle for HCL. Ortho Molecular Products uses *USP* grade betaine.

**Precautions:** Betaine should not be used by those with conditions of gastrointestinal disease, (i.e. GERD, gastritis, and peptic ulcer) or those who are pregnant or nursing.

#### **Bifidobacterium Spp.**

**Description:** Two bacterium species, *B. bifidum* and *B. lactis*, are described as gram negative, anaerobic, “y”-shaped rods. These species are used as probiotics to maintain an immune balance and modulate intestinal mucosal cells in order to restore or maintain healthy intestinal function. Unlike *E. coli* or *Clostridium*, Bifidobacteria do not metabolize toxic gases which cause illness.

**Precautions:** Persons with known immune disorders should not use Bifidobacterium. There are no known contraindications in those who are pregnant or nursing.

#### **Billberry Fruit Extract**

**Scientific Name:** *Vaccinium myrtillus*

**Country of Origin:** USA

**Description:** A low-lying shrub closely related to blueberry. The fruit has been found to contain flavonoids, anthocyanidin, and tannins. Ortho Molecular Products uses an extract that is *standardized* to contain 25% anthocyanidin.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

#### **Biotin**

**Recommended Daily Value:** 300 mcg

**Description:** Biotin is one of the essential B vitamins. Humans are unable to metabolize their own biotin; therefore, it must be obtained through food. Ortho Molecular Products biotin is *standardized* at 1% on a di-calcium phosphate homogenous blend. Biotin helps regulate glucose metabolism.

**Precautions:** Those who are pregnant or nursing are advised not to exceed the RDV

#### **Bismuth Citrate**

**Description:** A brittle, pink tinged metal, mined from ore.

Bismuth is combined with a hydrogen salt; citrate. Bismuth citrate is similar to the active ingredients (Bismuth subsalicylate) of Pepto-Bismol®

**Precautions:** Bismuth citrate should not be taken by those who are pregnant or nursing.

### **Black Cohosh Root Extract**

**Scientific Name:** *Cimicifuga racemosa*

**Description:** Black cohosh is a member of the buttercup family. The active biological in black cohosh is triterpene glycosides.

**Precautions:** Black cohosh should be strictly avoided by those with known liver disorders or on blood pressure medication since the duplicated effects of black cohosh root may result in dangerously low blood pressure. Black cohosh should not be taken by those who are pregnant or nursing.

### **Blackberry**

**Scientific Name:** *Rubus fruticosus*

**Country of Origin:** North America

**Description:** Blackberry has an abundance of flavonoids and tannins which have *antioxidant* and *astringent* properties. Blackberry and its attributes are preserved through *freeze-drying*. Ortho Molecular Products uses an *organic* blackberry powder.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Bladderwrack Leaf**

**Scientific Name:** *Fucus vesiculosus*

**Country of Origin:** France

**Description:** Bladderwrack is a seaweed found growing along many ocean coastal areas. Its fronds are a good source of iodine and have diuretic and anti-inflammatory properties. Its name is likely derived from blister-like vesicles or air “bladders” that grow along its fronds.

**Precautions:** Because of its high iodine content bladderwrack is not recommended for those with hyperthyroid conditions. Bladderwrack should not be taken by those who are pregnant or nursing.

### **Blueberry**

**Scientific Name:** *Vaccinium corymbosum*

**Country of Origin:** USA

**Description:** Ortho Molecular Products’ blueberries are heated and *drum-dried* to produce a consistent texture, they are also *organic*. Blueberries are known for their high *ORAC* values, providing *antioxidants* and other beneficial phytonutrients.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Borage Oil**

**Scientific Name:** *Borago officinalis*

**Country of Origin:** USA and the Netherlands

**Description:** The oil extracted from the borage seed is an

excellent source of GLA (gamma linolenic acid), a long chain polyunsaturated fatty acid. Borage oil is also a good source of oleic and linoleic acids.

**Precautions:** Caution is advised for those taking warfarin or other blood thinning medications. There are no known contraindications in those who are pregnant or nursing.

### **Boron**

**Description:** A lesser known micronutrient that is complexed with glycine. The reaction results in a 1:1 molar ratio of amino acid to mineral. Boron's effect on vitamin D supports efficient uptake of calcium and phosphate. Ortho Molecular Products uses a 10% boron complex

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Broccoli Powder Extract**

**Scientific Name:** *Brassica oleracea var. Italica*

**Country of Origin:** USA and China

**Description:** Broccoli powder is a *freeze-dried* extract of the broccoli plant. Broccoli is a member of the cabbage family with highly branched un-flowered heads, and an excellent source of folic acid and *antioxidants*.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Bromelain**

**Scientific Name:** *Ananas comosus*

**Country of Origin:** India and Thailand

**Description:** Bromelain is a proteolytic enzyme derived from the stem of pineapple. The activity of bromelain enzymes is measured in GDU's. Ortho Molecular Products Bromelain contains 2,400 Gelatin Digesting Units (*see Supplemental Facts box Facts*). Bromelain enzymes assist in hydrolyzing protein into oligopeptides and amino acids.

**Precautions:** Persons with known sensitivities to any part of pineapple should use caution. There are no known contraindications in those who are pregnant or nursing.

### **Brussels Sprout**

**Scientific Name:** *Brassica oleracea*

**Country of Origin:** USA

**Description:** Ortho Molecular Products Brussels sprouts are *freeze-dried* to remove the moisture but not the nutrients. Brussels sprouts have *antioxidant* properties due to the activities of carotenoids, glucosinolates, sinigrin, and both soluble and insoluble fibers.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Buchu Leaf Extract**

**Scientific Name:** *Agathosma betulina* or *Baromsma betulina*

**Country of Origin:** Zaire

**Description:** Buchu leaf is wildcrafted from southern Africa's buchu shrubs and extracted in a 4:1 starter material to finished product ratio. The leaf contains essential oils and

flavonoids for urinary tract health.

**Precautions:** Buchu is for limited term use. There are no known contraindications in those who are pregnant or nursing.

### **Bugleweed**

**Scientific Name:** *Lycopus virginicus*

**Country of Origin:** USA

**Description:** The arial portion of this low-lying perennial weed is collected during its active flowering period to obtain its active ingredient. Bugleweed is wildcrafted and has a slight minty smell when crushed.

**Precautions:** Bugleweed should not be used in conditions of hypothyroid activity or by those who are pregnant or nursing.

### **Butchers Broom**

**Scientific Name:** *Ruscus aculeatus*

**Country of Origin:** Europe

**Description:** Butchers broom, a low-lying evergreen shrub of the lily family, is standardized to contain 10% ruscogenins, through a hydro-alcoholic extraction process. The plant contains vasoconstrictive properties.

**Precautions:** Because butchers broom is rich in saponins, it is recommended for limited term use due to possible intestinal irritation. There are no known contraindications in those who are pregnant or nursing.

### **Calcium**

**Recommended Daily Value:** 1000 mg

**Description:** Calcium is an essential mineral mined from limestone which is used in everyday bodily function. Calcium has several absorption pathways therefore different calcium compounds are available.

**Precautions:** Caution is advised for those with hypercalcemia. There are no known contraindications in those who are pregnant or nursing.

### **Cape Aloe**

**Scientific Name:** *Aloe ferox*

**Country of Origin:** South Africa

**Description:** Derived from leaf exudate of a South African succulent are emodin anthrones and rhein anthrones. Anthrones have purgative and laxative properties. The uses of cape aloe should not be confused with those of Aloe vera. (*see Aloe vera*)

**Precautions:** As a laxative, it is meant for short-term use. Long term users have reported darkened intestinal tracts (melanosis coli). Aloe's ability to prevent water absorption makes it contraindicated for use with diuretics or in conditions of acute inflammatory intestinal disease. Ingestion of aloe is not recommended for children under 12 or for those who are pregnant or nursing.

### **Caprylic Acid**

*See Sodium Caprylate*

### **Caraway**

**Scientific Name:** *Carum carvi*

**Country of Origin:** Typically Europe

**Description:** Caraway achenes (seed) contain carvone and limonene, essential oils which give caraway its characteristic smell and taste. Properties of these oils are known to discourage bacterial growth in the gut microflora, and are said to be *carminative*.

**Precautions:** Persons with known sensitivities to any part of caraway should use caution. There are no known contraindications in those who are pregnant or nursing.

### **Carrot**

**Scientific Name:** *Daucus carota sativus*

**Country of Origin:** China and Germany

**Description:** Carrot powder is *drum-dried* or air-dried at low temperatures to preserve valuable carotenoids, like betacarotene, which give the carrot its renowned orange color.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Cellulase**

**Description:** Cellulase is derived from the fermentation of *Trichodema longibrachiatum* fungi. Cellulase's enzyme activity is measured in CU's/g. Ortho Molecular Products use 4,000 CU/g. Cellulase is used to break-down plant fiber and as a *carminative* agent.

**Precautions:** Cellulase should not be taken by those who are pregnant or nursing.

### **Centella Asiatica Purified Triterpenes**

**Scientific Name:** *Centella asiatica*

**Country of Origin:** Switzerland

**Description:** *Centella asiatica* contains 36% asiaticoside and 54% genines. Centella is a wet-land plant and most widely used for vein support.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Chamomile**

See German Chamomile Flower

### **Chaste Berry Extract**

**Scientific Name:** *Vitex agnus-castus*

**Country of Origin:** Balkan countries and Turkey

**Description:** Chaste berry aka vitex was once used as an anaphrodisiac. Ortho Molecular Products uses a 10:1 hydroalcoholic extract of the dried berry. Chaste berry is typically used to maintain hormone balance.

**Precautions:** Caution is advised for those taking dopamine regulators. Chaste berry should not be taken by those who are pregnant or nursing.

### **Co Enzyme Q-10**

**Description:** Co Q-10 serves as a part of the electron chain transport system within mitochondria. CoQ-10 in oil form provides the greatest absorption and is protected by added vitamin E from *oxidation*. Co Q-10 is derived from fermented sugar cane or tobacco leaves.

**Precautions:** CoenzymeQ-10 should not be taken by those who are pregnant or nursing.

### **Colostrum**

**Description:** Colostrum is the first mammary fluid provided to newborns mammals immediately after birth. Colostrum provides some immunity and growth factors and protects the GI tract from microorganisms. Bovine colostrum is very similar to human colostrum yet provides an increased amount of immunoglobulins (IgG) and growth factor. Ortho Molecular Products' spray-dried colostrum is obtained within 24 hrs. of parturition and provides a minimum of 30% IgG.

**Precautions:** Persons with known sensitivities to bovine colostrum (or whey) should use caution. Colostrum should not be taken by those who are pregnant or nursing.

### **Conjugated Linolenic Acid**

**Description:** CLA (conjugated linolenic acid) is a cis9 trans11; cis12 trans10 isomer of linolenic acid from safflower oil. The cis9 trans11 portion is noted for muscle development while the cis12 trans10 prevents lipogenesis (fat storage) in the connective tissue around bodily organs. Ortho Molecular Products uses CLA containing >80% CLA in a 50/50 blend of both *isomers*.

**Precautions:** CLA has been associated with gastrointestinal upset. CLA should not be taken by those who are pregnant or nursing.

### **Copper**

**Recommended Daily Value:** 2 mg

**Description:** Copper is an essential trace mineral. It is *chelated* to L-lysine amino acid molecules in a formula that yields 10% Cu by weight. Copper is involved in a number of growth factors including development of red and white blood cells, iron transport, bone enhancement, and heart contractility.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Coriander Seed**

**Scientific Name:** *Coriandrum sativum*.

**Country of Origin:** Canada

**Description:** Coriander is the fruit (seed) of the cilantro plant and is one of the major constituent of curry powder.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Cramp Bark**

**Scientific Name:** *Viburnum opulus*

**Country of Origin:** USA

**Description:** As the name of the shrub implies, cramp bark is

used to relieve cramping, specifically to the pelvic area including, bowel, bladder and uterine cramping. Only the bark and small branches are used.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Cyanocobalamin**

See Vitamin B<sub>12</sub>

### **D-Calcium Pantothenate**

See Pantothenic Acid

### **Deglycyrrhized Licorice Root Extract**

**Scientific Name:** *Glycyrrhiza glabra*

**Country of Origin:** USA

**Description:** Deglycyrrhized licorice (DGL) is an extract from the root of 3 to 4 year old licorice plants having had both glycyrrhizinic and glycyrrhithinic acids removed. A counter-current hot water extraction method produces licorice liquor which is then filtered and spray dried. DGL provides protective and antimicrobial properties to the gastric mucosal lining. DGL is used to speed the healing process of peptic ulcers without producing the associated side effects of licorice extracts.

**Precautions:** DGL should not be taken by those who are pregnant or nursing.

### **Delta Tocopherols**

**Description:** One of four natural forms of vitamin E, differing by having a single methyl group. Delta tocopherols are grouped into mixed tocopherols. For more information and a precautionary statement see *Mixed Tocopherols*.

### **DHA**

**Description:** Docahexaenoic acid (DHA) is a long chain, *omega-3 fatty acid* containing 22 carbons and 6 double bonds and is obtained from the oils of anchovy, mackerel, and sardines. (See *Fish Oil Concentrate* for more information and precautionary statements)

### **DHEA**

**Description:** Dehydroepiandrosterone, (DHEA) is a naturally occurring steroid hormone produced from cholesterol mostly by the adrenals. Ortho Molecular Products' DHEA is derived from diosgenin a steroid sapogenin isolated from wild yams. DHEA is a precursor to the formation of several hormones produced in the body including, estrogen, and testosterone. Ortho Molecular Products uses a micronized DHEA powder.

**Precautions:** DHEA may have hormone associated side effects such as breast enlargement in men or facial hair growth in women. DHEA should not be taken by those who are pregnant or nursing.

### **DIM**

**Description:** Diindolymethane (DIM) is a dimer form of

Indole-3-carbonole. Though DIM occurs naturally, it is in extremely small amounts. Ortho Molecular Products uses synthetically produced DIM (C<sub>17</sub>H<sub>14</sub>N<sub>2</sub>) providing 99% DIM.  
**Precautions:** There are no known contraindications in those who are pregnant or nursing.

#### **Dong Quai Root Extract**

**Scientific Name:** *Angelica sinensis*

**Country of Origin:** China

**Description:** Also called the “female ginseng”, dong quai is best known for its smooth muscle antispasmodic properties. Like ginseng, it is the root that contains the plants medicinal activities, which are derived from coumarins, flavonoids as well as ligustilide. Water solvents are used to extract a *standard* 1% of ligustilide from dong quai root.

**Precautions:** Due to dong quai’s coumarin content, caution is advised for those who taking warfarin or other blood thinners. dong quai should not be taken by those who are pregnant or nursing.

#### **Echinacea angustifolia**

**Scientific name:** *Echinacea angustifolia*

**Country of Origin:** USA

**Description:** The root of this plant, also called the narrow leafed cone flower, is used to enhance the immune system. An *organic* Echinacea is used.

**Precautions:** Those with known immune disorders should not use *Echinacea*. There are no known contraindications in those who are pregnant or nursing.

#### **Echinacea purpurea**

**Scientific name:** *Echinacea purpurea*

**Country of Origin:** USA

**Description:** The purple cone flower is the most commonly used species of Echinacea. The leaf portion is used as a prophylaxis for cold or flu. Ortho Molecular uses a 16:1 extract of the whole herb and an *organic* liquid extract.

**Precautions:** Those with known immune disorders should not use *Echinacea*. There are no known contraindications in those who are pregnant or nursing.

#### **Elder Flower/Elderberry**

**Scientific Name:** *Sambucus nigra flora*

**Country of Origin:** Bulgaria

**Description:** The flower of the elder tree is the fragrant predecessor to the elderberry. The dried flower is used to increase sweating in order to relieve the body of minor pollutants.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

#### **Eleuthero (Siberian Ginseng) Root**

**Scientific Name:** *Eleutherococcus senticosus*

**Country of Origin:** China

**Description:** Eleuthero is not a true ginseng and differs chemically from its cousins. Eleuthero, is a woody shrub and

like panex, (see *Panax Ginseng* for more information), it has similar activities which are derived from the root. Eleuthero is considered an *adaptogen*. Eleuthero is standardized to contain 0.8% of both B and E eleutherosides via a water extraction process.

**Precautions:** Caution is advised for those who are on blood pressure regulating drugs. There are no known contraindications in those who are pregnant or nursing.

#### **EPA**

**Description:** Eicosapentenoic acid (EPA) is a 20 carbon, 5 double bond, *omega 3 fatty acid* chain derived from the oils of anchovy, mackerel, and sardines. (See *Fish Oil Concentrate* for more information and precautionary statements).

#### **Evening Primrose Seed Oil**

**Scientific Name:** *Oenothera biennis*

**Country of Origin:** USA

**Description:** Evening primrose oil (EPO) is an excellent source of gamma-linolenic acid (GLA) containing 9% GLA . GLA acts as a precursor to certain types of prostaglandins (PGE<sub>1</sub>). EPO also is a good source of linolenic acid and contains small amounts of oleic, palmitic and stearic acids as well.

**Precautions:** Caution is advised for those taking warfarin or other blood-thinning medications or have a bleeding disorder. EPO should not be taken by those who are pregnant or nursing.

#### **Fennel Seed Extract**

**Scientific Name:** *Foeniculum vulgare*

**Country of Origin:** India/Egypt

**Description:** Fennel is a close relation to celery, dill and, anise. Ortho Molecular Products uses cryogenically ground fennel seeds at temperatures below 20° F to preserve heat sensitive volatile components. The seed of fennel is used to soothe minor spasms of the throat and gut.

**Precautions:** Persons with known sensitivities to fennel or celery should use caution. Fennel seed extract should not be taken by those who are pregnant or nursing.

#### **Fig Fruit**

**Scientific Name:** *Ficus carica*

**Country of Origin:** USA

**Description:** The fig is a fruit made up of several tiny flowers, unlike most fruit; the flower is internal and never seen upon the branches of a fig tree. Fig is an excellent source of dietary fiber, typically 5 grams of fiber can be provided in a 1 ½ cup serving. Figs are also a significant source of calcium, potassium and iron.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

#### **Fish Oil Concentrate**

**Description:** Fish oil concentrate consists of oils from mackerel, sardines and anchovy from the cold deep waters off

the coast of Peru where there are few environmental impurities. Fish oil from cold water fish are an excellent source of eicosapentaenoic (EPA) and docosahexaenoic (DHA) acids; types of *omega-3 fatty acid*. The American Heart Association recognizes that consuming *omega-3* benefits healthy hearts as well as hearts at risk of CVD. Ortho Molecular Products' fish oil concentrate provides over 700 mg of *omega-3 fatty acids* as EPA and DHA manufactured to USP standards. *Also see DHA and EPA.*

**Precautions:** Caution is advised for those taking warfarin or other blood thinning medications. Mild gastric upset and fishy after taste have been noted. There are no known contraindications in those who are pregnant or nursing.

### **Flax Seed Oil**

See Organic Flaxseed Oil

### **5-HTP**

**Description:** 5-hydroxytryptophen (5-HTP) is a by-product of 5-hydroxytryptamine which is formed by the breakdown of the amino acid L-tryptophen, and can be found in miniscule amounts in foods like turkey and cheese. The best source of 5-HTP is from the seeds of *Griffonia simplicifolia* and is the source of Ortho Molecular Products' 5-HTP which is *standardized* to contain 95% 5-HTP.

**Precautions:** Caution is advised for those taking MAOIs, SSRIs or other antidepressants. 5-HTP should not be taken by those who are pregnant or nursing.

### **Fo-ti Root**

**Scientific Name:** *Polygonum multiflorum*

**Country of Origin:** China

**Description:** The plant root has been used for centuries in China for various ailments. The active properties of fo-ti have yet to be identified.

**Precautions:** Fo-ti has stool softening capabilities and should not be used during bouts of diarrhea. There are no known contraindications in those who are pregnant or nursing.

### **Folic Acid**

**Recommended Daily Value:** 400 mcg

**Description:** Folates are part of the class of vitamin B complexes and can be found naturally in many of our dark green, leafy, vegetables or synthetically derived and referred to as folic acid. Folic acid in research has shown greater bioavailability than folate.

**Precautions:** Consumption of higher than recommended daily values of folic acid may mask vitamin B<sub>12</sub> deficiencies. Those who are pregnant or nursing should not exceed the 400 mcg recommended daily value of folic acid.

### **GABA**

**Description:** Gamma Amino Butyric Acid (GABA) is an inhibitory neurotransmitter. GABA (chemical formula, C<sub>4</sub>H<sub>9</sub>NO<sub>2</sub>) is synthetically derived. In the presence of GABA, neurons will hyperpolarize or essentially become negatively

charged requiring a much larger impulse for the neuron to fire. This property of GABA makes it useful in reducing nerve-induced muscle tension or cramping.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Gamma Linolenic Acid**

**Description:** Gamma Linolenic acids (GLA) are *omega-6 fatty acids*. The most common sources of GLA are borage oil, containing 17-25% GLA and Evening Primrose oil, which contains 7-10% GLA. For more information and precautionary statements *see; Borage Oil and Evening Primrose Oil*

### **Gamma Oryzanol**

**Description:** Though gamma oryzanol oil can be found in the bran of many cereal grains, the most common source of gamma oryzanol is from rice bran and germ. Gamma oryzanol is a molecular dimer made up of plant sterols and ferulic acid esters.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Gamma Tocopherols**

**Description:** One of four natural forms of vitamin E derived from grain and seed sources such as sunflower seed and soybeans. For more information and a precautionary statement *see Mixed Tocopherols*.

### **German Chamomile Flower**

**Scientific Name:** *Matricaria recutita*

**Country of Origin:** Egypt

**Description:** German chamomile is a member of the Asteraceae (daisy) family. Ortho Molecular Products' Chamomile is cultivated and cut at flowering time, and is steam treated. Chamomile is known for its calming properties.

**Precautions:** Persons with known sensitivities to arnica, ragweed, feverfew, tansy or other species of the Asteraceae family should use caution. There are no known contraindications in those who are pregnant or nursing.

### **Ginger Root**

**Scientific Name:** *Zingiber officianale*

**Country of Origin:** China

**Description:** This perennial native to Asia is traditionally used for nausea and digestive upset. Ginger root is *freeze-dried* and ground into a powder to preserve the volatile components.

**Precautions:** Caution is advised for those taking warfarin or other blood thinning medications. There are no known contraindications in those who are pregnant or nursing.

### **Ginger Root Extract**

**Scientific Name:** *Zingiber officianale*.

**Country of Origin:** China

**Description:** This perennial native to Asia is traditionally used for nausea and digestive upset. Ginger root extract contains 5% gingerols one of the active components in the root. Gingerol is similar to the active ingredient in chili peppers, capsaicin.

**Precautions:** Caution is advised for those taking warfarin or other blood thinning medication. There are no known contraindications in those who are pregnant or nursing.

### **Ginkgo Biloba Leaf Extract**

**Scientific Name:** *Ginkgo biloba*

**Country of Origin:** Japan

**Description:** The fan-shaped leaves of the Ginkgo tree have long been used for its medicinal properties in the Orient. The leaf's antioxidant properties as studied in recent research, is proven to be important for cognitive function and related aging concerns. The active components of ginkgo are ginkgolides (terpenic lactones) and flavonglycosides. Ortho Molecular Products uses a *standardized* extract which contains 6% terpenic lactones and 24% flavonglycosides.

**Precautions:** Caution is advised for those taking warfarin or other blood thinning medication. There are no known contraindications in those who are pregnant or nursing.

### **Glucosamine Sulfate**

**Description:** Glucosamine is an amino monosaccharide sugar used as a precursor in the synthesis of proteoglycans, glycolipids and glycosaminoglycans (GAGs). GAGs are important components of joint cartilage; explaining the positive outcome for its use in osteoarthritic patients. Ortho Molecular Products delivers glucosamine as a potassium salt (sulfate). Glucosamine is derived from shrimp exoskeleton.

**Precautions:** Glucosamine sulfate should not be taken by those who are pregnant or nursing.

### **Glutamic Acid**

**Description:** Glutamic acid is the anion of glutamate which is a non essential amino acid typically found within animal protein. Glutamate has several important roles; the metabolism of protein, the synthesis of amino acids, and glutamate also serves in ridding the body of ammonium. Ortho Molecular Products glutamic acid is derived from molasses.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Glycine USP**

**Description:** Glycine is a non essential amino acid, synthesized by our bodies and readily found in minute quantities in our food. Glycine is the smallest proteinogenic amino acid allowing it to be used in building numerous other molecules. One third of the amino acids in collagen use glycine. Ortho Molecular Products' glycine is chemically synthesized to *USP* standards.

**Precautions:** Some glycine is converted into ammonia; therefore, caution is advised for those diagnosed with liver

damage or anuria. Glycine should not be taken by those who are pregnant or nursing.

### **Goldenrod**

See Sweet Goldenrod

### **Goldenseal Root**

**Scientific Name:** *Hydrastis canadensis*

**Country of Origin:** USA

**Description:** The root of the perennial goldenseal plant has been a popular all-around remedy for centuries. Rampant deforestation has caused this plant to be listed as a CITES endangered species and is now, mainly cultivated on herb farms. Its medicinal activity is due to the berberine alkaloids; hydrastine, canadine, and berberine. These alkaloids appear to have antibacterial, antifungal and antiparasitic qualities. Goldenseal is standardized to contain 5% alkaloids.

**Precautions:** The alkaloids of goldenseal are very potent so limited term use of the single ingredient is recommended. Goldenseal should not be taken by those who are pregnant or nursing.

### **Gotu Kola Extract**

**Scientific Name:** *Centella asiatica*.

**Country of Origin:** India

**Description:** Gotu Kola is a wet-land plant widely used by herbalist around the world. Its activities include improving blood circulation especially to the legs, reducing inflammation and strengthening extracellular matrices.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Grapefruit Seed Extract**

**Scientific Name:** *Citrus paradisi*

**Country of Origin:** USA

**Description:** Citricidal™ is a trademarked name given to the extract of seeds and spongy, white, flesh of the inner rind of grapefruit. The flavonoids of this extract are considered to have antimicrobial properties.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Green Tea Extract**

**Scientific Name:** *Camellia sinensis*

**Country of Origin:** China

**Description:** Tea (black) is a common beverage which is fully oxidized having undergone some fermentation. Green tea, on the other hand, is processed with minimal oxidation and its health benefits have been known in China and Japan for centuries. Its greatest activities lie in the unoxidized portion of the green tea leaf which includes a variety of polyphenols.

**Precautions:** Caution is advised for those taking warfarin or other blood thinning medication. Green tea leaf extract should not be taken by those who are pregnant or nursing.

### **Guar Gum**

**Scientific Name:** *Cyamopsis tetragonoloba*

**Country of Origin:** India

**Description:** Guar gum is the extraction of galactomannan of the large guar bean seed. Guar gum is mainly an indigestible fiber which is able to bind lipids and water in the intestines for efficient removal.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Guggul Resin**

**Scientific Name:** *Commiphora mukul*

**Country of Origin:** India

**Description:** Guggul is the resinous exudates of *C. mukul*, a thorny shrub native to India. Within the resin lie guggulsterones considered to have an affect on cholesterol, metabolism and in proper thyroid function.

**Precautions:** Persons with known liver or inflammatory bowel disorder should use caution. Guggul resin should not be taken by those who are pregnant or nursing.

### **Gymnema Leaf Extract**

**Scientific Name:** *Gymnema sylvestre*

**Country of Origin:** India

**Description:** A native Indian climbing plant, it has been historically used in blood glucose regulation. Gymnema is rich in saponins, which are extracted through a hydroalcoholic process. A minimum of 25% crude gymnemic acid is one of the saponins extracted. The plant is wildcrafted during the months of Oct. Nov. and Dec. The activities of Gymnema are currently not well understood.

**Precautions:** Caution is advised for those who must monitor blood glucose levels. There are no known contraindications in those who are pregnant or nursing.

### **Hawthorn Leaf and Flower Extract**

**Scientific Name:** *Crataegus laevigata* (Syn. *C. oxyacantha*)

**Country of Origin:** Chile

**Description:** The flower and leaf of the thorny hawthorn shrub are used as a *cardiotonic*. Hawthorn contains the *flavonoid* hyperoside as well as *oligomeric procyanidins* (OPC); and of particular interest is the flavonoid vitexin-2 rhamnoside. Ortho Molecular Product's hawthorn is standardized to contain 1.8% vitexin-2 rhamnosides and 1.2% hyperoside.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Hesperidin**

**Scientific Name:** *Citrus sinensis*

**Country of Origin:** China

**Description:** The flavanone glycoside, hesperidin, can be found in the soft, white, inner pulp and peel of lemons and oranges and is the most prevalent *bioflavonoid* in lemons and oranges. Because of hesperidin's relationship with vitamin C, hesperidin was once considered vitamin P.

**Precautions:** Hesperidin should not be taken by those who

are pregnant or nursing

### **Hibiscus Flowers**

**Scientific Name:** *Hibiscus sabdariffa*

**Country of Origin:** China

**Description:** Only the showy blossoms of this small bushy annual are used medicinally. It is said to impart a fruity, yet tart flavor, most likely due to its high content of fruit acids and hibiscic acid. Hibiscus also contains anthocyanins and flavonoids which may be the reason for its favorable activity on colds and respiratory inflammation.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Hops Strobile**

**Scientific Name:** *Humulus lupulus*

**Country of Origin:** Bulgaria

**Description:** Hops strobiles are the cone-like fruit of *H. lupulus* which contain bitter resins used for centuries in end stage beer brewing. These bitter resins contain volatile oils, humulone, lupulone, and flavonoid glycoside (i.e. rutin, tannin and phenolic acid). Hops are known for its relaxing or calming effect.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Horse Chestnut Seed Extract**

**Scientific Name:** *Aesculus hippocastanum*

**Country of Origin:** Poland

**Description:** Horse chestnut is a tree common to the temperate zones of North America and Eurasia which produces nut like seeds. It is the seed from which the saponin, aescin is derived. Aescin helps tone veins and capillaries. Ortho Molecular Products' horse chestnut contains 20% aescin, and uses a hydro-alcoholic extraction processes.

**Precautions:** Caution is advised for those taking warfarin or other blood thinning medication. There are no known contraindications in those who are pregnant or nursing.

### **Horsetail Grass**

**Scientific Name:** *Equisetum arvense*

**Country of Origin:** Bulgaria

**Description:** Also known as shavegrass, scouring rush, or bottlebrush. Horsetail contains silica which the plant uses to strengthen its cell walls. The silica in horsetail is used to strengthen our nails and hair and to remove excess fluid.

**Precautions:** Caution is advised for those with edema due to impaired renal or cardiac function. There are no known contraindications in those who are pregnant or nursing.

### **Huperzine Alkaloids**

**Scientific Name:** *Huperzia serrata*

**Country of Origin:** China

**Description:** Huperzine alkaloids are extracted by water from Chinese club moss. These alkaloids act as strong

acetylcholinesterase inhibitors and are currently being researched for their effects on dementia related disorders. Ortho Molecular Products, huperzine extract is standardized to contain 1% huperzine alkaloids.

**Precautions:** Persons taking acetylcholinesterase inhibitors or cholinergic drugs should use caution due to huperzine's ability to compound the effects of these drugs. Huperzine alkaloids should not be taken by those who are pregnant or nursing.

### **I3C (Indole 3 Carbinol)**

**Description:** Indole 3 carbinol (I3C) is a compound naturally derived from certain cruciferous vegetables, upon ingestion. It has been considered to be an important compound to explain the disease preventative activity of cruciferous plants. Purified I3C from commercial synthesis are used to permit higher doses for supplementation and clinical trials.

**Precautions:** I3C should not be taken by those who are pregnant or nursing

### **Inositol**

**Description:** Inositol ( $C_6H_{12}O_6$ ) is part of the B-complex family. Though not itself a vitamin, it is an important component of cell membranes and is used to make inositol triphosphate. Inositol has lipotropic properties and can be found in a variety of foods especially cereal grains. The ingestion of caffeinated beverages and a few other products can deplete our stores of inositol. Inositol is derived from rice husks.

**Precautions:** Inositol should not be taken by those who are pregnant or nursing.

### **Inositol Hexaniacinate**

**Description:** Inositol hexaniacinate is an inositol molecule synthetically attached to a six molecule ring of niacin and not derived directly from a plant source. (*See Inositol*)

**Precautions:** Inositol Hexaniacinate should not be taken by those who are pregnant or nursing.

### **Iodine**

**Recommended Daily Value:** 150.0 mcg

**Description:** Iodine is an essential trace element taken up from foods such as meat and dark green vegetables. Iodine functions as a precursor in the synthesis of thyroid hormones, and is necessary for growth and metabolism. Since the 1920's, sodium has been fortified with iodine to prevent the prevalence of goiter and child retardation as a result of iodine deficiencies. Today, those at risk for developing iodine deficiency diseases are vegans and those on sodium restricted diets.

**Precautions:** Persons with hyperthyroidism, autoimmune thyroiditis or children with cystic fibrosis should use caution. Daily iodine intake should not exceed 175 mcg for those who are pregnant or 200 mcg for those who are nursing.

**Potassium Iodide USP:** Contains 75.6% iodine and 23% potassium, formulated to *USP* standards.

**Iodine From Kelp:** Kelp, *Ascophyllum nodosum*, AKA, brown seaweed or knotty wrack, is an excellent source of iodine. This source is slow-dried at low temperatures and provides 0.165% Iodine. *A. nodosum* is harvested in the North Atlantic Ocean.

### **Ipriflavone**

**Description:** Ipriflavone is synthetically produced to simulate genistein, a soya plant extract. As a phytoestrogen derivative, ipriflavone has been clinically shown to improve bone mineral density, but is not known to have other detrimental estrogen-like effects.

**Precautions:** Those taking theophylline, tolbutamide, or nifedipine should use caution. Ipriflavone should not be taken by those who are pregnant or nursing.

### **Iron**

**Recommended Daily Value:** 18.0 mg

**Description:** Iron is a trace element essential to both electron and oxygen transport. Iron supplementation is used to treat hypochromic anemia, iron-deficient learning problems as well as Plummer-Vinson syndrome. Iron is not readily absorbed nor is it readily excreted. This feature helps prevent oxidative stress from a toxic build-up of iron. Ortho Molecular Products uses Ferrochel® a patented amino acid *chelate* plus iron formulation that provides improved bioavailability and safety from iron toxicity.

**Precautions:** Persons with hemochromatosis, hemosiderosis, or having known sensitivities to iron containing supplements should use caution. Daily iron intake should not exceed the recommended daily value of 18.0 mg for those who are pregnant or nursing.

### **Jujube seed Extract**

**Scientific Name:** *Ziziphus spinosa*

**Country of Origin:** China

**Description:** The jujube drupe (fruit) grows on a shrub-like tree, which is a member of the buckthorn family. *Ziziphus spinosa* is also known as sour jujube. The seed of this drupe contains titerpene saponins used as a mild sedative without producing side effects. Ortho Molecular Products uses a water extraction of jujube seeds which contain 2% titerpene saponins as betulinic acid.

**Precautions:** Jujube seed extracts should not be taken by those who are pregnant or nursing.

### **Kale**

**Scientific Name:** *Brassica oleracea*

**Country of Origin:** USA

**Description:** Kale is a headless variety of cabbage, with large curly or plain leaves. Like many brassica, it is well known for being rich in Vitamins A, C and K, folic acid, iron, and calcium. Kale and its attributes are preserved by *freeze-dryng*.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

## **Kiwi**

**Scientific Name:** Cultivars of *Actinidia chinensis*

**Country of Origin:** China

**Description:** Kiwi fruit is considered a cultivar, i.e. a hybrid of *Actinidia* species and *A.deliciosa*. The woody vine is native to China and once called Chinese gooseberry. Kiwi is rich in vitamins A, C, and E as well as potassium. Kiwi also contains a protein dissolving enzyme called actinidin. Ortho Molecular Products uses a *freeze-dried* kiwi powder.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

## **L-Arginine USP**

**Description:** L- arginine is an amino-acid typically synthesized in the kidneys. Greater amounts of L-arginine may be required during growth, stress and physical trauma. L-arginine is derived from the sugars of corn to *USP* standards.

**Precautions:** Persons with argininemia, herpes simplex virus, renal or hepatic failure should use caution. L-arginine should not be taken by those who are pregnant or nursing.

## **L-Carnitine (L-Tartrate)**

**Description:** L-carnitine is a conditionally essential amino acid, synthesized in the kidneys and liver from L-lysine and L-methionine. Niacin, iron, vitamin B<sub>6</sub> and vitamin C are important cofactors in the synthesis of L-carnitine. Small amounts of L-carnitine can be derived from red meats and only a few plant sources (particularly avocado), or produced by bacteria via fermentation of soy. L-tartrate, a naturally occurring *antioxidant*, can be used in the effective delivery of L-carnitine. Ortho Molecular Products uses a 2:1 L-carnitine / L-tartrate ratio in which L-carnitine is derived from the gamma butyrobetaine found in vegetables.

**Precautions:** Those with pre-existing seizure activity should use caution. L-carnitine should not be taken by those who are pregnant or nursing.

## **L-Cysteine HCL Monohydrate USP**

**Description:** L-cysteine is a sulfur containing amino acid used in the body to build protein molecules, glutathione, taurine, coenzyme A, and inorganic sulfur. It is typically found in very small amounts in many protein molecules of both plant and animals. Sufficient quantities of L-cysteine are typically produced by our bodies but those suffering from metabolic syndrome, the elderly, premature infants and smokers may benefit from supplemented amounts of Lcysteine. Hydrolysis of human hair is the source from which Ortho Molecular Products obtains L-cysteine to create *USP* grade L-cystein HCl monohydrate.

**Precautions:** Those with a pre-existing propensity for producing kidney stones should use caution. L-cysteine should not be taken by those who are pregnant or nursing.

## **L-Glutamine USP**

**Description:** L-glutamine is a conditionally essential

proteogenic (protein producing) and glycogenic (glucose producing) amino acid. L-glutamine can convert to either protein or glucose during times of stress, trauma, illness or injury especially cell injury to the lining of the gut. Ortho Molecular Products obtains L-glutamine amino acids from the fermentation of USA grown, corn sugar to *USP* standards.

**Precautions:** L-glutamine should not be taken by those who are pregnant or nursing

### **L-Glutathione**

**Description:** Glutathione is a non-protein thiol of the tripeptide, L-gamma-glutamyl-L-cysteinyl glycine. It is found most often in a reduced state due to the presence of glutathione reductase, which quickly reduces any oxidized glutathione. This constant redox reaction acts as an intracellular *buffer*. In fact the ratio of oxidative to reduced glutathione is used to determine cellular toxicity. Glutathione is used as a cofactor in the detoxification of xenobiotics, and as an *antioxidant*, protecting cells from stress-related oxidative damage. Ortho Molecular Products derives glutathione from the sugar of corn.

**Precautions:** L-glutathione should not be taken by those who are pregnant or nursing.

### **L-Lysine HCL**

**Description:** Lysine is an essential amino acid that must be ingested via the diet. Meat, eggs and dairy products are the best sources of L-lysine. Ortho Molecular Products derives L-lysine from sugar cane and is also *USP* grade.

**Precautions:** Those with the rare hyperlysinemia/hyperlysinuria genetic disorder should avoid L-lysine HCL. L-lysine should not be taken by those who are pregnant or nursing.

### **L-Methionine USP**

**Description:** Methionine is one of the 20 essential amino acids and as such must be taken in through our diet. The best sources for methionine are high protein foods such as meats, eggs and milk but small amounts can be obtained from plant material. Methionine is used in our body to synthesize several of our non-essential amino acids such as: SAMe, Lcysteine, and taurine. L-Methionine is commercially synthesized to *USP* standards.

**Precautions:** Persons with homocystinuria, neoplastic disease, schizophrenia, acute hepatic failure, or renal failure should use caution. L-methionine should not be taken by those who are pregnant or nursing.

### **L-Proline USP**

**Description:** L-proline is considered one of the 20 proteinogenic amino acids; however, unlike the other amino acids it lacks the "amine" backbone (-NH<sub>2</sub>) and is correctly considered a secondary amine. This property of L-proline allows it to act as a hydrogen acceptor giving its structure

more rigidity. The structure of L-proline gives collagen its predominate secondary structure which contributes to Lproline's important association with connective tissue. Lproline is derived from corn sugars to *USP* standards.

**Precautions:** L-proline should not be taken by those who are pregnant or nursing.

### **L-Theanine**

**Description:** L- theanine is a non-proteinogenic amino acid that easily crosses the blood/brain barrier. Naturally Ltheanine makes up half of the total free amino acids found in green tea leaves; however extracting pure L-theanine from tea leaves is a difficult process. Ortho Molecular Products uses Suntheanine®, a 99% pure theanine which is fermented L-glutamine produced in Japan.

**Precautions:** L-theanine should not be taken by those who are pregnant or nursing.

### **L-Tyrosine USP**

**Description:** This amino acid is important in the formation of proteins and acts as a precursor for thyroxine and triiodothyronine thyroid hormones as well as a precursor to melanin production and to the catecholamines. Those with phenylketonuria must get L-tyrosine from their diet, because they lack the enzyme needed to synthesize L-tyrosine from L-phenylalanine. L-tyrosine is synthesized from duck feathers to *USP* standards.

**Precautions:** Persons with alkaptonuria or tyrosinemia and persons using MAO inhibitors should use caution. Ltyrosine should not be taken by those who are pregnant or nursing.

### **Lactobacillus**

**Description:** Lactobacillus species are gram positive, nonspore forming, bacilli. These bacteria are commonly found in the human gut (mainly the colon) and vagina. Lactobacillus species are used as probiotics to help maintain a healthy gut microflora. Though some lactobacillis are cultured on dairy or soy, the proteins associated with these cultures are not included in probiotic products. Persons with sensitivities to the commonly identified allergens, may use lactobacillus.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

**L. acidophilus:** L. acidophilus efficiently ferments glucose into lactic acid. Its presence typically increases blood leucocytes and peritoneal mucosa.

**L. paracasei:** L. paracasei has been shown to protect against *Salmonella typhimurium* and *Escherichi coli* by increasing IgA production along mucosal surfaces.

**L. plantarum:** L. Plantarum decreases gut permeability to invasions of *E. coli* and modulates inflammatory responses and strengthens the immune system.

**L. rhamnosus:** L. rhamnosus has the ability to *chelate* iron, scavenge superoxide anions and inhibits

lipid peroxidation.

### **Lactoferrin**

**Description:** Lactoferrin is an iron-binding protein used to discourage microbial growth while enhancing the immune system. Lactoferrin is found in colostrum and is the source from which infants receive iron. Ortho Molecular Products uses Bioferrin®, a proprietary bovine lactoferrin product. Bioferrin® is a bioactive protein extracted from low iron whey using proprietary fractionation processes.

**Precautions:** Lactoferrin should not be taken by those who are pregnant or nursing.

### **Lady's Mantle**

**Scientific Name:** *Alchemilla xanthochlora*

**Country of Origin:** Europe

**Description:** Lady's mantle is a tiny bush that has a wide variety of uses due to its astringent properties. Its primary use is for menorrhagia (an excessive menstrual flow). The aerial portion of the plant is picked during flowering and dried.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Lecithin**

**Description:** Lecithin is a mixture of lipids found naturally contained in cell membranes. Lecithin is the commercial name for phosphatidylcholine which is produced in the liver and is metabolized into fatty acids, choline, and glycerol. Lecithin is derived from soy grown in the USA and is a GMO-free product.

**Precautions:** Persons with malabsorption disorders or antiphospholipid-antibody syndrome should use caution. There are no known contraindications in those who are pregnant or nursing.

### **Lemon Balm**

**Scientific Name:** *Melissa officinalis*

**Country of Origin:** Morocco

**Description:** Lemon balm gets its name from the lemon-like smell and taste the leaves have prior to flowering. Early physicians held lemon balm in high regard, most likely because it held antiseptic and mildly sedative properties. Lemon balm leaf is standardized to contain 5% rosmarinic acid.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Licorice Root Extract**

**Scientific Name:** *Glycyrrhiza glabra*

**Country of Origin:** Puerto Rico

**Description:** Licorice has been used since ancient times as a flavor enhancer, sweetener and as a medicine. The active component responsible for its medicinal activities is a triterpenoid saponin called glycyrrhizic acid.

**Precautions:** Persons using diuretics, digitalis, quinidine

and procainamide should use caution due to the possibility for increased potassium loss. Licorice should not be taken by those who are pregnant. Those who are nursing and all others are cautioned not to exceed the recommended dosage.

### **Lipase**

**Description:** Lipase is one of the enzymes extracted from bovine pancreas, though it can be found in several tissues throughout the body. The basic role of lipase is to hydrolyze triglycerides into free fatty acids and glycerol.

**Precautions:** Those with pancreatic insufficiencies should use caution. Lipase should not be taken by those who are pregnant or nursing.

### **Lipoic Acid**

**Description:** Lipoic acid, otherwise known as alpha lipoic acid or thioctic acid, is a water insoluble *antioxidant* synthesized in mitochondria. It contains a disulfide bond that works as an electron transporter and chelator. The reduced metabolite of lipoic acid is dihydrolipoic acid (DHLA). Both lipoic acid and DHLA work as reactive oxygen species scavengers. Ortho Molecular Products' lipoic acid is solvent free.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Lithium**

**Description:** Lithium naturally occurs as a lithium salt such as lithium carbonate or lithium orotate. Lithium orotate has been shown to cross the blood-brain barrier more readily which is beneficial since lithium is often used in mood disorders. Ortho Molecular Products uses lithium orotate, which contains 9% lithium.

**Precautions:** Those who are pregnant or nursing are cautioned not to exceed the recommend daily dose.

### **Lutein**

**Description:** Lutein is one of several compounds in the carotenoid family. Lutein is transported throughout the blood and plasma in the form of high-density lipoproteins (HDL) and appears to accumulate in the macula of the human retina along with its nearly identical geometric isomer, zeaxanthin. Ortho Molecular Products obtains lutein from marigold petals (*Tagetes erecta*) which are harvested in Mexico and standardized to contain 20% lutein and 1% zeaxanthin.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Lycopene**

**Description:** Lycopene is a carotenoid compound from tomatoes. Lycopene is given the distinction of having the highest *antioxidant* activity of all the carotenoids. Lycopene, like all carotenes are excellent free-radical scavengers. Ortho Molecular Products uses Lycobeads®, a proprietary product standardized to contain 5% lycopene and stabilized with

vitamin E to protect against *oxidation*.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Lysozyme**

**Description:** Lysozymes are enzymes found in milk whey, egg whites and bodily secretions such as tears and saliva. They serve as important antimicrobials and the body's first line of defense against disease.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Magnesium**

**Recommended Daily Value:** 400 mg

**Description:** Magnesium is a very abundant alkaline earth metal and essential dietary element. Our body includes magnesium in well over 300 metabolic reactions. It is the second most abundant cation used within the cell.

**Precautions:** Persons with renal failure, atrioventricular blockages or myasthenia gravis should use caution. Those who are pregnant or nursing should not exceed the recommended daily value of magnesium.

### **Malic Acid**

**Description:** Malic acid is an intermediate in the energyproducing cycle in cells known as the Krebs cycle.

**Precautions:** Malic acid should not be taken by those who are pregnant or nursing.

### **Manganese Chelazome**

**Recommended Daily Value:** 2.0 mg

**Description:** Manganese chelazome is a manganese *chelation* by two glycine molecules providing for greater absorption. Manganese chelazome is 16% manganese. Manganese is an essential trace mineral for humans. Manganese is needed in several enzymatic reactions and acts as an *antioxidant*. It is also needed for proper bone and cartilage formation.

**Precautions:** Manganese should not be taken by those with liver failure. Those who are pregnant or nursing are advised not to exceed the RDV.

### **Marshmallow Root**

**Scientific Name:** *Althaea officinalis*

**Country of Origin:** Bulgaria and Poland

**Description:** Marshmallow is a wetland plant in which the wildcrafted root is used to soothe inflamed mucous membranes in the gut, lungs, and urinary tract. Marshmallow root also is used for immune health.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Mastic Gum Extract**

**Scientific Name:** *Pistacia lentiscus*

**Country of Origin:** Greece

**Description:** Mastic gum is found in the Mediterranean region and is used to protect the stomach. The resin of the

mastic gum tree has antibacterial properties and is shown to inhibit *H. pylori*.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Melatonin**

**Description:** Melatonin is the key hormone in the pineal gland of animals. It is responsible for setting the timing of mammalian circadian rhythms as well as adjusting to seasonal changes. Melatonin is fully synthesized and not derived from any pineal gland source.

**Precautions:** Melatonin may cause nausea, diarrhea, morning grogginess, and depression. Melatonin should not be taken by those who are pregnant or nursing, or children.

### **Methylcobalamin**

See Vitamin B<sub>12</sub>

### **Methylsulfonylmethane (MSM)**

**Description:** Methylsulfonylmethane, or dimethyl sulfone, is abbreviated MSM. Ortho Molecular Products uses OptiMSM®, a brand of MSM that is distilled to allow pure MSM to be isolated. Sulfur is needed by the body for the proper formation of hair, nails, and connective tissue, such as collagen.

**Precautions:** MSM should not be taken by those who are pregnant or nursing.

### **Milk Thistle Seed Extract**

**Scientific name:** *Silybum marianum*

**Country of Origin:** Bulgaria, Poland, and Romania

**Description:** Milk thistle seed extract contains an active component known as silymarin. Silymarin is generally used for liver health. Ortho Molecular Products uses a milk thistle seed extract that is standardized to contain 80% silymarin.

**Precautions:** Caution is advised for those taking major tranquilizers such as Haldol, Serentil, Stelazine, and Thorazine. Caution is also advised for those taking blood pressure medications. There are no known contraindications in those who are pregnant or nursing.

### **Mixed Tocopherols**

**Description:** Mixed tocopherols are a combination of the four tocopherols; alpha, beta, delta and gamma. While alphatocopherol is the only one recognized as “vitamin E” for labeling, the more abundant gamma and its beta and delta cousins are also potent *antioxidants*. Ortho Molecular Products uses only the natural “d” forms.

**Precautions:** Caution is advised for those taking warfarin or other blood-thinning medications or have a blood clotting disorder or bleeding peptic ulcer. There are no known contraindications in those who are pregnant or nursing.

### **Molybdenum**

**Recommended Daily Value:** 75 mcg

**Description:** Molybdenum is an essential trace mineral for humans. It is found in the earth's crust in small quantities. Molybdenum is a cofactor for four enzymes in humans, xanthine dehydrogenase, xanthine oxidase, sulfite oxidase, and aldehyde oxidase. Sulfite oxidase converts sulfite to sulfate. Ortho Molecular Products' molybdenum is *chelated* to two glycine molecules and is 2.5% molybdenum.

**Precautions:** Caution is advised for those with hyperuricemia and/or gout. Those who are pregnant or nursing are advised not to exceed the RDV.

### **Montmorillonite**

See Trace Minerals 74

### **Motherwort**

See Organic Motherwort

### **N-Acetyl D-Glucosamine**

**Description:** N-acetyl D-glucosamine is an acetylated form of glucosamine. NAG is a normal intermediate between glucosamine and the molecules that make up cartilage and synovial fluid. NAG is also the precursor to mucin, one of the components lining the gut wall and other mucus membranes. NAG is derived from crab and shrimp shells.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **N-Acetyl L-Carnitine HCL**

**Description:** N-acetyl L-carnitine is a form of L-carnitine which is thought to be able to cross into our brains more effectively than L-carnitine. For this reason N-acetyl L-carnitine is typically used for cognitive function.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **N-Acetyl L-Cysteine**

**Description:** NAC is the N-acetyl derivative of the protein amino acid L-cysteine. NAC is used as an *antioxidant* and has mucolytic activity. NAC is derived from human hair and is *USP* grade material.

**Precautions:** Nausea, diarrhea, vomiting and headaches have been reported. NAC should not be used by those who are pregnant or nursing.

### **Nattokinase**

**Description:** Nattokinase is a fibrinolytic enzyme extracted from a traditional Japanese soy based food called Natto. Nattokinase closely resembles plasmin and has been shown to dissolve blood clots. Ortho Molecular Products provides nattokinase in a small softgel. Each softgel contains 1,000 fibrinolytic units.

**Precautions:** Caution is advised for those taking warfarin or other blood thinning medications. There are no known contraindications in those who are pregnant or nursing.

### **Nettles Root Extract**

**Scientific name:** *Urtica dioica*

**Country of Origin:** Bulgaria

**Description:** Nettles root is used for men's prostate health. Only the root of the plant has prostate benefits, the above ground portions are used for different medicinal purposes. Ortho Molecular Products uses nettles root powder which is *standardized* to contain 30 ppm scopoletin.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Niacinamide**

**Recommended Daily Value:** 20 mg

**Description:** Niacinamide is one of two principal forms of nicotinic acid, also known as vitamin B<sub>3</sub>. Niacinamide is critical in the co-enzyme nicotinamide adenine dinucleotide (NAD). NAD is involved in a number of process in the body including, energy production, the synthesis of fatty acids, signal transduction, and maintenance of the genome. Ortho Molecular Products uses two different kinds of niacinamide, one is a *USP* grade containing 98% niacinamide, the other is a coated niacinamide which is 33% niacinamide.

**Precautions:** Those who are pregnant or nursing are advised not to exceed the RDV.

### **Niacin**

**Recommended Daily Value:** 20 mg

**Description:** Niacin is also referred to as nicotinic acid or vitamin B<sub>3</sub>. Niacin is most widely known for its use in cholesterol health. Niacin is also one of the few natural ingredients that will increase HDL cholesterol. Ortho Molecular Products uses a *USP* grade Niacin. (Also see *Time Release Niacin*)

**Precautions:** *Flushing* occurs in 3-12% of the population and is dose dependant. Smaller initial doses and avoidance of hot drinks after niacin ingestion can help reduce this effect. Liver enzymes should be checked and monitored, especially in patients using 1500 mg or more a day. Certain diabetic and metabolic syndrome patients may see a change in fasting blood sugar with the use of niacin. Niacin should not be taken by those who are pregnant or nursing.

### **Olive Leaf Extract**

**Scientific name:** *Olea europaea*

**Country of Origin:** Spain

**Description:** Olive leaf contains oleuropein which is a bitter monoterpene *glycoside*, and the main component in olive leaf extracts. Ortho Molecular Products olive leaf extract is *standardized* to contain 20% oleuropein.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Onion:**

**Scientific name:** *Allium cepa*

**Country of Origin:** Peru and China

**Description:** The onion powder used is *freeze-dried*.

**Precautions:** There are no known contraindications in those

who are pregnant or nursing.

#### **Oregano Leaf Extract**

**Scientific name:** *Origanum vulgare ssp. Hirtum*

**Country of Origin:** Various Mediterranean countries

**Description:** Oregano is most widely known for its use as a spice in cooking. In folk medicine oregano was used to treat bloating, menstrual complaints, urinary tract problems, and arthritis. Oregano, like thyme, contains thymol and carvacrol. Ortho Molecular Products uses a 10:1 extract powder.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

#### **Organic Flax Seed Oil**

**Scientific name:** *Linum usitatissimum*

**Description:** Flax seed oil contains high amounts of essential fatty acids, containing between 50-60% linolenic acid (*omega-3*) and between 15-25% linoleic acid (*omega-6*). Ortho Molecular Products provides 1000 mg organic flax seed oil in a softgel capsule.

**Precautions:** Caution is advised for those taking warfarin or other blood thinning medications. Flax seed oil should not be taken by those who are pregnant or nursing.

#### **Organic Motherwort Leaf**

**Scientific name:** *Leonorus cardiaca*

**Country of Origin:** USA

**Description:** Motherwort has small amounts of cardiac *glycosides* and is used as a heart tonic by many. Motherwort is also used for menstrual cycle issues as it has a relaxing effect on smooth muscles.

**Precautions:** Motherwort should not be taken by those who are pregnant or nursing.

#### **Ox Bile Extract**

**Description:** Bile is the liquid produced by the liver and stored in the gall bladder, and is used to increase the digestion of fatty acids. Ox bile extract is often times used in digestive aids, as it has been shown to increase digestion.

**Precautions:** Ox bile extract should not be taken by those who are pregnant or nursing.

#### **PABA**

**Description:** Para-aminobenzoic acid (PABA) is a non essential amino acid, once considered a B vitamin. PABA is an intermediate in the synthesis of folic acid in bacteria. Ortho Molecular Products uses *USP* grade PABA.

**Precautions:** PABA should not be taken by those who are pregnant or nursing.

#### **Paeonia lactiflora Root Powder**

**Scientific name:** *Paeonia lactiflora*

**Country of Origin:** USA and China

**Description:** *Paeonia lactiflora* is a herbaceous perennial plant with fragrant flowers. Historically, peony root is used

to help with menstrual disorders.

**Precautions:** Peony root should not be taken by those who are pregnant or nursing.

### **Panax Notoginseng Root**

**Scientific name:** *Panax pseudoginseng* var *notoginseng*

**Country of Origin:** China and USA

**Description:** *Panax notoginseng* root is used in traditional Chinese medicine. *Panax notoginseng* has been shown to speed up the clotting process, and is used traditionally for bleeding disorders.

**Precautions:** Panax should not be taken by those who are pregnant or nursing. Note: This is not the traditional tonic *Panax ginseng*.

### **Pancreatin**

**Description:** Pancreatin is the enzymatic substance taken from the pancreas, specifically from pigs. Pancreatin is usually characterized by protease, amylase, and lipase activities.

**Precautions:** Pancreatin should not be taken by those who are pregnant or nursing.

### **Pancrelipase**

**Description:** Pancrelipase is a lipase derived from the porcine pancreas. Pancrelipase breaks down fats in the small intestines.

**Precautions:** Pancrelipase should not be taken by those who are pregnant or nursing.

### **Pantethine**

**Description:** Pantethine is the stable dimer form of pantothenic acid and when ingested is converted into pantothenic acid and cysteamine. It is the cysteamine that gives pantethine its lipid lowering properties. Ortho Molecular Products uses Pantestin® branded pantethine.

**Precautions:** Pantethine should not be taken by those who are pregnant or nursing.

### **Pantothenic Acid**

**Recommended Daily Value:** 10 mg

**Description:** Pantothenic acid, sometimes called vitamin B<sub>5</sub>, is an essential nutrient. It is the chief precursor to coenzyme A (CoA). CoA plays a large role in the metabolism of fatty acids, cholesterol, amino acids, vitamins A and D, and more. Ortho Molecular Products uses the calcium salt of the disomer of pantothenic acid, known as d-calcium pantothenate, which is 87% pantothenic acid and 7% calcium.

**Precautions:** Those who are pregnant or nursing are advised not to exceed the RDV.

### **Papain**

**Scientific name:** *Carica papaya*

**Country of Origin:** India

**Description:** Papain is a protease enzyme derived from

papaya. Papain is used in a wide variety of enzyme formulas including those for digestive aids and inflammation. Papain is one of the most stable plant enzymes and is active in a wide pH range (3-11).

**Precautions:** Papain should not be taken by those who are pregnant or nursing.

### **Passion Flower**

**Scientific name:** *Passiflora incarnata*

**Country of Origin:** China and India

**Description:** The dried flowers and fruiting parts of the passion flower are used in herbal medicine. Passion flower has a calmative and sedative effect. Passion flower contains many constituents including, alkaloids (mainly harman), flavonoids, *glycosides*, sugars and sterols. Harman, as well as some of the flavonoids have been reported as tranquilizing agents. Ortho Molecular Products uses a passion flower extract that is *standardized* to contain 3.5% flavanoids.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Pau D'Arco Inner Bark**

**Scientific name:** *Tabebuia impetiginosa*

**Country of Origin:** Brazil

**Description:** Pau D'Arco is a tree found in the rainforests of South America. The active compounds found in the inner bark are called naphthaquinones. Ortho Molecular Products uses a 5:1 extract of Pau D'Arco. Pau D'Arco is used primarily as an antifungal agent.

**Precautions:** Pau D'Arco should not be taken by those who are pregnant or nursing.

### **Pepsin**

**Description:** Pepsin is the principal digestive enzyme of gastric juices. It digests proteins at peptide bonds only, and is active in the low pH of the stomach. Ortho Molecular Products uses pepsin derived from porcine sources.

**Precautions:** Pepsin should not be taken by those who are pregnant or nursing.

### **Phosphatidylserine**

**Description:** Phosphatidylserine is a fat soluble phospholipid which helps maintain the integrity of every cell membrane in the body. It is found in high concentrations in the brain and nervous tissue. Phosphatidylserine helps support brain function, the nervous system, and helps modulate during high cortisol output. Ortho Molecular Products uses a softgel form of phosphatidylserine which is derived from soybeans.

**Precautions:** Phosphatidylserine should not be taken by those who are pregnant or nursing.

### **Phosphorous**

**Recommended Daily Value:** 1000 mg

**Description:** Phosphorous is an essential mineral in humans. It is essential in the building of bones and bone structure.

Phosphorous also makes up the structure of cell membranes, nucleotides, and nucleic acids.

**Precautions:** Phosphorus is contraindicated in those with hyperphosphatemia and in those with severely impaired renal function. Gastrointestinal disturbances may occur. Those who are pregnant or nursing are advised not to exceed the RDV.

#### **Plant Sterol Esters**

**Description:** Plant sterols are a mixture of phytosterols and phytostanols, compounds that are chemically similar to cholesterol and inhibit cholesterol absorption. Ortho Molecular Products uses plant sterols derived from soy.

**Precautions:** Gastrointestinal disturbances may occur. Plant sterols should not be taken by those who are pregnant or nursing.

#### **Pollen Extract**

**Scientific Name:** *Zea mays* (corn pollen) and *Secale cereale* (rye pollen)

**Country of Origin:** USA

**Description:** Graminex™ G60 is a proprietary, non-solvent, extract of flower pollen, which leaves the “hull” of the pollen grain behind. Within a tiny pollen grain lies a storage of concentrated nutrients which typically is used to develop the seed and produce a seedling. There are two fractions within each pollen grain, a lipophilic (fat-soluble) and hydrophilic (water soluble) fraction. Ortho Molecular Products uses the water soluble fraction.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

#### **Policosanol**

**Scientific name:** *Saccharum officinarum*

**Country of Origin:** China

**Description:** Policosanol is the general term for a group of long-chain, primarily aliphatic saturated alcohols derived from sugar cane wax. Policosanols have been used in cholesterol management.

**Precautions:** Caution is advised for those taking warfarin or other blood thinning medications. Policosanols should not be taken by those who are pregnant, nursing, or children.

#### **Potassium**

**Recommended Daily Value:** 3500 mg

**Description:** Potassium is an essential mineral used to regulate sodium, calcium, and a number of other nutrients. Potassium plays an important role in the transmission of nerve impulses, contraction of muscles, energy production, the synthesis of nucleic acids, and maintains regular blood pressure.

**Precautions:** Potassium should not be taken by those who have hyperkalemia. Gastrointestinal disturbances may occur with potassium supplementation. Potassium should not be taken by those who are pregnant or nursing.

### **Pregnenolone**

**Description:** Pregnenolone is a biological precursor for adrenal cortisol, dehydroepiandrosterone, and progesterone and is synthesized in the cells of the adrenal gland and in the central nervous system. Pregnenolone is used to enhance cognitive function. Ortho Molecular Products uses micronized pregnenolone derived from wild yam diosgenin .

**Precautions:** Pregnenolone should not be taken by those who are pregnant, nursing, or children.

### **Protykin® Root Extract**

**Scientific name:** *Polygonum cuspidatum*

**Country of Origin:** India

**Description:** Resveratrol is found in red wines, grapes, mulberries, and in high concentrations in the root of *P. cuspidatum*. Resveratrol is a phytoalexin, an antibiotic, which is produced by some plants as a response to an attack on the plant by a fungus or other pathogen. Ortho Molecular Products uses a potent 200:1 extract which contains 50% resveratrol.

**Precautions:** Resveratrol should not be taken by those who are pregnant or nursing.

### **Prune**

**Scientific name:** *Prunus domestica*

**Country of Origin:** USA

**Description:** Dried prunes contain concentrated amounts of nutrients like beta carotene and B vitamins. Prunes are high in fiber content, and are often eaten to maintain bowel regularity.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Psyllium Seed Husks**

**Scientific name:** *Plantago ovata*

**Country of Origin:** India

**Description:** The psyllium seed husk contains the soluble fiber portion of the plant and is composed of polysaccharides called xylans. Psyllium seed husk is used as a dietary laxative and has also been shown to help manage cholesterol.

**Precautions:** Persons with bowel obstruction or a disease that causes narrowing of the digestive tract, should avoid psyllium. Because psyllium causes a swelling action, it is recommended that at least 5 ounces of fluid be taken for every teaspoon of psyllium. There are no known contraindications in those who are pregnant or nursing.

### **Psyllium Seed**

**Scientific name:** *Plantago ovata*

**Country of Origin:** India

**Description:** Psyllium seed is used as a dietary laxative and in some cereals. The psyllium seed contains the bioactive mucilage polysaccharide that gives psyllium its laxative properties.

**Precautions:** Persons with bowel obstruction or a disease that causes narrowing of the digestive tract, should avoid

psyllium. Because psyllium causes a swelling action, it is recommended that at least 5 ounces of fluid be taken for every teaspoon of psyllium. There are no known contraindications in those who are pregnant or nursing.

### **Pygeum Bark Extract**

**Scientific name:** *Pygeum africanum*

**Country of Origin:** Cameroon

**Description:** Pygeum is an evergreen tree, with the bark containing its medicinal properties. Pygeum bark extract contains a number of naturally occurring sterols, Ortho Molecular Products uses a pygeum bark extract that is *standardized* to contain 25% phytosterols. Pygeum bark extract is used primarily for prostate health.

**Precautions:** Pygeum should not be taken by those who are pregnant or nursing.

### **Pyridoxine**

See Vitamin B<sub>6</sub>

### **Pyridoxal 5-Phosphate**

See Vitamin B<sub>6</sub>

### **Quercetin**

**Scientific name:** *Dimorphandra* or *Sophora japonica*

**Country of Origin:** Brazil (*Dimorphandra*) or China (*Sophora japonica*)

**Description:** Quercetin is a potent flavonoid. Quercetin has been shown to have an effect on a variety of biological systems in the body. It has the ability to prevent mast cells from degranulating during an allergic response, which in turn prevents the release of histamine and a number of other inflammatory mediators. Quercetin also has *antioxidant* activities, and is an inhibitor to the enzyme hyaluronidase (an enzyme that breaks down connective tissue).

**Precautions:** Quercetin should not be taken by those who are pregnant or nursing.

### **Radish Root**

**Scientific name:** *Raphanus sativus niger*

**Country of Origin:** Germany

**Description:** Developed strictly for medicinal purposes, the black radishes' meaty root provides a rich supply of sulfur, potassium, iron and magnesium.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Raspberry**

**Scientific name:** *Rubus Idaeus*

**Country of Origin:** USA

**Description:** Raspberry is a tart red berry that grows on a prickly bush. Ortho Molecular Products uses *organic* raspberries that are *freeze-dried*.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

**Red Wine Concentrate**

**Description:** Red wine concentrate is made from California red wines. It contains 25% polyphenols and 8% anthocyanins. The red wine is fermented, lactic acid controlled and alcohol is removed. Red wine is being used as an *antioxidant* and may contain some chemoprotective properties.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

**Resveratrol**

See Protykin

**Rhodiola Rosea Root 5:1**

**Scientific name:** *Rhodiola rosea*

**Country of Origin:** China

**Description:** *Rhodiola rosea* is plant found in high altitudes of Europe and Asia. It has been used for centuries in Russian medicine as an *adaptogenic* herb. *Rhodiola rosea* contains rosavins, which give it its adaptogenic properties. Ortho Molecular uses *Rhodiola rosea* root 5:1 extract which contains 1% rosavins.

**Precautions:** Caution is advised for those with bipolar disorder. There are no known contraindications in those who are pregnant or nursing.

**Riboflavin**

See Vitamin B<sub>2</sub>

**Rice Bran**

**Scientific name:** *Oryza sativa*

**Country of Origin:** USA

**Description:** Rice bran is the outer coating of the rice kernel. It is a good source of fiber and contains some vitamins and protein content.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

**Rose Hips**

**Scientific name:** *Rosa canina*

**Country of Origin:** Chile

**Description:** The ovoid fruits of the rosebush are known as rose hips. Rose hips can contain up to 1.25% vitamin C. The use of rose hips has primarily been for its vitamin C and flavonoid content.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

**Rutin**

**Scientific name:** *Dimorphandra mollis* and *Dimorphandra gardneriana*

**Country of Origin:** Brazil

**Description:** Rutin is a flavonoid *glycoside* with quercetin as the flavonoid portion and rutinose as the sugar portion.

Rutin is most widely noted for its *antioxidant* properties.

Rutin also has the ability to decrease capillary permeability and fragility.

**Precautions:** Rutin should not be taken by those who are

pregnant or nursing.

### **Saccharomyces boulardii**

**Description:** *S. boulardii* is a unique variant of *S. cerevisiae*, a brewers yeast, but is not a new species of the genus *Saccharomyces*. *S. boulardii* is widely used in the treatment and prevention of antibiotic associated diarrhea, much like bacterial probiotics. The *S. boulardii* used is identical to the original strain studied (*S. cerevisiae* Hansen CBS5926).

**Precautions:** Persons with known immune disorders should not use *S. boulardii*. There are no known contraindications in those who are pregnant or nursing.

### **Sage**

**Scientific name:** *Salvia officinalis*

**Country of Origin:** Germany

**Description:** Sage has traditionally been used as a seasoning. It has a long history of broad medical uses. Present day, sage is used to soothe sore throats and as an anti-bacterial agent.

**Precautions:** Sage should not be taken by those who are pregnant or nursing.

### **SAMe**

**Description:** SAMe (S-Adenosyl L-Methionine) is formed from bacteria fermentation which yields L-Methionine and Adosine. Ortho Molecular Products uses SAMe in an *enteric coated* tablet form, which contain 200 mg of SAMe.

**Precautions:** SAMe should not be taken in conjunction with other anti-depressants. SAMe should not be taken by those who are pregnant or nursing.

### **Saw Palmetto Fruit Extract**

**Scientific name:** *Serenoa repens*

**Country of Origin:** USA

**Description:** Saw palmetto is a dwarf palm plant, the berry of the plant is used for its role in men's prostate health. The saw palmetto fruit extract used contains 45-55% fatty acids.

**Precautions:** Caution is advised for those taking hormonal medications or adrenergic drugs. Saw palmetto should not be taken by those who are pregnant or nursing.

### **Schizandra Berry**

**Scientific name:** *Schizandra chinensis*

**Country of Origin:** China

**Description:** Schizandra is a bush like plant which grows small pink flowers. Schizandra is most widely used as an *adaptogen*. Ortho Molecular uses Schizandra which is extracted through a water method, *standardized* to contain 9% schizandrins.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Selenium**

**Recommended Daily Value:** 70 mcg

**Description:** Selenium is an essential trace mineral, found in

varying amounts in soil. Selenium is an important *antioxidant* in the body and closely interacts with vitamin E. It also has involvement in glutathione metabolism.

**Precautions:** Those who are pregnant or nursing are advised not to exceed the RDV.

### **Shepherd's Purse**

**Scientific name:** *Capsella bursa-pastoris*

**Country of Origin:** USA

**Description:** Shepherd's purse is a small white flowering plant and is wild crafted in the United States. Shepherd's purse is primarily used to help those with heavy bleeding during menstruation. It is also used to help with PMS.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Skullcap Root Extract**

**Scientific name:** *Scutellaria baicalensis*

**Country of Origin:** China

**Description:** Skullcap root extract is extracted through a pressure reiteration in a closed system and is *standardized* to contain 30% flavones as baicalin. *S. baicalensis* has shown to have *antioxidant* and anti-inflammatory properties and differs from the more popular skullcap *S. lateriflora*.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Siberian Ginseng**

See Eleuthero Root

### **Silymarin**

See Milk Thistle Seed Extract

### **Sodium Ascorbate**

See Vitamin C

### **Sodium Caprylate**

**Description:** Sodium caprylate is a stable form of caprylic acid, which is derived from coconuts. Caprylic acid is best known for its use as an antifungal agent. It has been shown to be very effective against *Candida albicans*. Caprylic acid penetrates and destabilizes the yeast cell walls.

**Precautions:** Sodium caprylate may cause herxheimer reaction due to the rapid killing of organisms in which yeast toxins, cell particles, and antigens are absorbed. The liver becomes congested and flu-like symptoms may occur. Sodium caprylate should not be taken by those who are pregnant or nursing.

### **Sodium Phosphate**

See Phosphorous

### **Spinach**

**Scientific name:** *Spinacia Oleracea*

**Country of Origin:** USA

**Description:** Spinach is a dark green leafy vegetable that is

high in minerals and vitamins. The spinach used is *freeze-dried*.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Spirulina**

**Scientific name:** *Arthrospira plantensis*

**Country of Origin:** China

**Description:** Spirulina is a blue-green algae. Ortho Molecular Products uses an *organic* spirulina. Often times spirulina is referred to as a “green food” and contains high amounts of protein, carotenoids, and GLA.

**Precautions:** Persons with known sensitivities to spirulina should use caution. Spirulina should not be taken by those who are pregnant or nursing.

### **St John’s Wort Flower Extract**

**Scientific name:** *Hypericum perforatum*

**Country of Origin:** Europe and South America

**Description:** St. John’s Wort is a perennial herb with many bright yellow flowers. It is most widely known for its antidepressant effects.

Most extracts of St. John’s Wort are *standardized* for hypericin, one of many active components in St. John’s Wort. Ortho Molecular Products St. John’s Wort is *standardized* to contain 0.3% hypericin and 3% hyperforin.

**Precautions:** Caution is advised for those taking MAO inhibitors. St. John’s Wort should not be taken with other drugs/supplements that increase serotonin. There are no known contraindications in those who are pregnant or nursing.

### **Sterol Esters**

See Plant Sterols

### **Stevia Leaf Extract**

**Scientific name:** *Stevia rebaudiana*

**Country of Origin:** China

**Description:** The leaves of the stevia plant contain its sweet properties. Stevia is a natural sweetener that is commonly used in place of artificial sugar substitutes. Stevia is 30 times sweeter than sugar and does not contain any calories.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Stinging Nettles Leaf**

**Scientific name:** *Urtica dioica*

**Country of Origin:** Hungary

**Description:** Stinging nettles leaf is processed through a steam process and only the leaves are used. Recently, nettles leaf has been shown to inhibit both LOX and COX, which makes it a useful agent for allergic rhinitis.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Strawberry**

**Scientific name:** *Fragaria virginiana*

**Country of Origin:** USA, China, Chili, and Argentina

**Description:** Ortho Molecular Products uses *organic* strawberry powder which is *freeze dried*.

**Precautions:** Persons with known sensitivities to strawberries should use caution. There are no known contraindications in those who are pregnant or nursing.

### **Streptococcus thermophilus**

**Description:** *Streptococcus thermophilus* is a gram positive facultative anaerobe, it is also classified as a lactic acid bacteria. *S.thermophilus* is found in most dairy products, and is used as a starter culture to manufacture many dairy items. *S. thermophilus* is also used as a probiotic to help maintain a healthy gut microflora.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Strontium Citrate**

**Description:** Strontium is an earth mineral with biological properties similar to calcium. Research has shown that strontium reduces bone resorption and increases bone formation. Strontium citrate contains 30% strontium and is a mineral which is mined. Strontium is then reacted with citric acid (a product which is fermented from corn) and precipitated to form strontium citrate.

**Precautions:** Because strontium and calcium compete for absorption, it is recommended strontium be taken away from calcium supplementation. There are no known contraindications in those who are pregnant or nursing.

### **Sweet Wormwood**

**Scientific name:** *Artemesia annua*

**Country of Origin:** Germany

**Description:** The aerial portions of wormwood contain its medicinal properties. Wormwood has traditionally been used for a number of gastrointestinal ailments. Present day wormwood is recognized for its ability to help aid in digestion and help eliminate small parasite infections.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

### **Taurine**

**Description:** Taurine is a conditionally essential amino acid, synthesized in the body from methionine and cysteine. It is found in high amounts in the brain and in skeletal and smooth muscles. Taurine is synthesized from ethanolamine.

**Precautions:** Taurine should not be taken by those who are pregnant or nursing.

### **Thiamin HCl**

**Recommended Daily Value:** 1.5 mg

**Description:** Thiamin (vitamin B<sub>1</sub>) is a water soluble vitamin and is metabolized to thiamine triphosphate (TPP) in the body. TPP functions as a cofactor for several enzymes. Thiamin hydrochloride is prepared by the reaction of 4-amino-5-aminomethylene-2-methylpyrimidine with carbon

disulfide and is 89% vitamin B1. Thiamin HCl is also *USP* grade material.

**Precautions:** Those who are pregnant or nursing are advised not to exceed 3 mg per day.

#### **Thyme Extract 5:1**

**Scientific name:** *Thymus vulgaris*

**Country of Origin:** Egypt

**Description:** Thyme has a wide variety of medicinal uses and is most widely known for its culinary use. Thymol is the active ingredient that gives thyme its medicinal properties. Ortho Molecular uses a 5:1 extract of thyme.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

#### **Thymus**

**Description:** Thymus is derived from bovine sources. It is a bi-lobed gland situated above the heart.

**Precautions:** Thymus should not be taken by those who are pregnant or nursing.

#### **Time Release Niacin**

**Recommended Daily Value:** 20 mg

**Description:** Time release niacin is a unique wax matrix niacin tablet which allows for maximum benefit with the least side effects. Time release niacin is derived from crude virgin oil.

**Precautions:** *Flushing* occurs in 3-12% of the population. Liver enzymes should be monitored in patients taking 1500 mg or more of niacin. Certain diabetic and metabolic syndrome persons may see a change in fasting blood sugar. Those who are pregnant or nursing are advised not to exceed the RDV.

#### **Tomato**

**Scientific name:** *Lycopersicon esculentum*

**Country of Origin:** USA

**Description:** The tomato is the fleshy fruit of the viny tomato plant. Tomato's contain lycopene along with *antioxidants* and *bioflavonoids*.

**Precautions:** There are no known contraindications in those who are pregnant or nursing.

#### **Trace Minerals 74 (Montmorillonite)**

**Description:** Montmorillonite is a clay mineral complex. Montmorillonite is often consumed because it contains 74 trace minerals, and added to supplements for this reason.

**Precautions:** Montmorillonite should not be taken by those who are pregnant or nursing.

#### **Troxerutin**

**Scientific name:** *Sophora japonica*

**Country of Origin:** Japan

**Description:** Troxerutin is a derivative of rutin. It has been widely used in Europe to help with venous disorders. Troxerutin is thought to enhance vein and capillary stability .

**Precautions:** Troxerutin may cause gastrointestinal disturbances. Troxerutin should not be taken by those who are pregnant or nursing.

### **Trypsin**

**Description:** Trypsinogen is formed in the pancreas. Trypsin is a proteolytic enzyme formed from trypsinogen, when it is cleaved by the actions of peptidase. Trypsin is derived from bovine pancreas and acts as a digestive aid in the intestines.

**Precautions:** Trypsin should not be taken by those who are pregnant or nursing.

### **Turmeric Root Extract**

**Scientific name:** *Curcuma longa*

**Country of Origin:** India

**Description:** Turmeric is a herb in the ginger family. Turmeric contains a compound called curcumin, which has been shown to inhibit leukotrienes and gives turmeric its anti-inflammatory properties. Ortho Molecular Products turmeric is *standardized* to contain 95% curcumin.

**Precautions:** Turmeric should not be taken by those who have gall stones or hyperacidity. Turmeric should not be taken by those who are pregnant or nursing.

### **Uva Ursi Leaf Extract**

**Scientific name:** *Arctostaphylos uva-ursi*

**Country of Origin:** Spain

**Description:** Uva Ursi is a viny plant that grows along the ground, it contains a compound called arbutin and this compound gives the leaves its medicinal properties. Arbutin soothes mucous membranes in the urinary tract during inflammation. Ortho Molecular Products' uva ursi is *standardized* to contain 20% arbutin.

**Precautions:** Uva ursi may cause nausea and gastrointestinal disturbances. Caution is advised for those taking blood pressure medication. Uva ursi should not be taken by those who are pregnant or nursing.

### **Valerianic Acids**

**Scientific name:** *Valeriana officinalis*

**Country of Origin:** Eastern Europe

**Description:** Valerian root contains many active compounds, including valepotriate, valerosidatum, valerianic acid, volatile oils and others.

Ortho Molecular Products valerian root contains 0.8% valerianic acid is extracted and carefully dried at temperatures below 40 degrees, protecting the volatile oils.

**Precautions:** Valerian root can cause nausea and gastrointestinal disturbances. You should not use valerian root while driving or operating heavy machinery. Valerian root should not be taken by those who are pregnant or nursing.

### **Vanadyl Sulfate**

**Description:** Vanadium is considered one of the trace

minerals. Vanadyl sulfate contains 19% vanadium. Most of the benefits associated with vanadyl sulfate or vanadium, is its ability to mimic or enhance the functions of insulin.

**Precautions:** High doses of vanadium may cause gastrointestinal disturbances and nausea. Vanadyl sulfate should not be taken by those who are pregnant or nursing.

### **Vinpocetine**

**Scientific name:** *Voacanga africana*, *Vinca minor*, *Crioceras longiflorus*

**Country of Origin:** West Africa

**Description:** Vinpocetine is a derivative of tabersonine, an alkaloid of the *Voacanga africana* seeds, which is an evergreen tree. Vinpocetine is widely used in Europe to enhance cognitive function. It has been shown to increase cerebral blood flow, provide neuroprotection, and more recently is being used as an *antioxidant*.

**Precautions:** Persons taking warfarin should have their international normalized ratios monitored. Vinpocetine should not be taken by those who are pregnant or nursing.

### **Vitamin A**

**Recommended Daily Value:** 5000 IU

**Description:** Vitamin A is a fat soluble vitamin, best known as retinol. Vitamin A also plays a crucial role in the development of bone, growth, brain development and helps maintain the immune system. Vitamin A is also used as an *antioxidant*.

**Precautions:** Those who are pregnant or nursing are advised not to exceed the RDV.

#### **Vitamin A as Betatene® Natural Mixed**

**Carotenoids:** Betatene® Natural Mixed Carotenoids contain 95,500 IU/g of vitamin A and is derived from an algae species known as *Dunaliella salina*. Beta-carotene is the precursor to retinol and to vitamin A.

**Vitamin A as Palmitate:** A stable salt form of the vitamin all-trans-retinol. Vitamin A as palmitate contains 500,000 IU/g. All-trans-retinol occurs naturally in the form of fatty acid esters and is the principal form found in many dietary supplements.

### **Vitamin B2**

**Recommended Daily Value:** 1.7 mg

**Description:** Riboflavin is an essential nutrient in human nutrition and plays a large role in the production of energy. It is the precursor of flavin mononucleotide (FMN) and flavin adenine dinucleotide (FAD). FMN and FAD are cofactors for a group of proteins called flavoenzymes, which catalyze a number of important biochemical functions in the body. Riboflavin also has *antioxidant* properties.

**Precautions:** Riboflavin absorption is increased in hypothyroidism and decreased in hyperthyroidism. Those who are pregnant or nursing are advised not to exceed 3.4 mg per day.

**Riboflavin USP:** Riboflavin is 96% vitamin B2 and

is *USP* grade. Riboflavin *USP* is derived from beet molasses. Riboflavin is the precursor to riboflavin-5'-phosphate and flavin adenine dinucleotide (FAD).

**Riboflavin 5 Phosphate:** Riboflavin-5'-phosphate is 73% vitamin B<sub>2</sub>, meets *USP* standards, and is made by the fermentation of *Bacillus subtilis*.

### **Vitamin B6**

**Recommended Daily Value:** 2 mg

**Description:** Vitamin B<sub>6</sub> is the term for a group of three related compounds, pyridoxine, pyridoxal and pyridoxamine and their phosphorylated (the addition of a phosphate (PO<sub>4</sub>) group) derivatives. Vitamin B<sub>6</sub> plays a large role in the body including the metabolism of amino acids and glycogen, and the synthesis of nucleic acids and hemoglobin.

**Precautions:** Nausea and vomiting may occur with high doses of vitamin B<sub>6</sub>. Those who are pregnant or nursing are advised not to exceed 20 mg of vitamin B<sub>6</sub> per day.

**Vitamin B6 as Pyridoxine HCl:** Pyridoxine HCl is produced by the reaction of substituted oxazol with dioxepene compound and is 79% vitamin B<sub>6</sub>. Ortho Molecular Products uses both *USP* and FCC grade pyridoxine HCl.

**Vitamin B6 as Pyridoxal 5' Phosphate:** P5P is 60% vitamin B<sub>6</sub> and is derived from pyridoxine HCl. P5P is the active form of vitamin B<sub>6</sub>. P5P is a cofactor in approximately 100 different enzymatic reactions.

### **Vitamin B12**

**Recommended Daily Value:** 6 mcg

**Description:** Vitamin B<sub>12</sub> is a name for a group of essential nutrients containing cobalt. There are four different cobalamins: cyanocobalamin, hydroxocobalamin, methylcobalamin, and 5-deoxyadenosylcobalamin (adenosylcobalamin). Vitamin B<sub>12</sub> works along side folate to synthesize DNA and RNA. It also helps support the nervous system and the production of energy.

**Precautions:** Persons with Leber's optic atrophy should not use cyanocobalamin. Those who are pregnant or nursing are advised not to exceed the RDV.

**Cyanocobalamin:** Cyanocobalamin is one of two principal forms of Vitamin B<sub>12</sub>. It is predominately used for food fortification and in dietary supplements.

**Methylcobalamin:** Methylcobalamin is derived from fermenting aspergillus. Methylcobalamin is a coenzyme form of B<sub>12</sub>. Methylcobalamin is a cofactor for the enzyme methionine synthase, which along with folate allows for the conversion of homocysteine to methionine.

### **Vitamin C**

**Recommended Daily Value:** 60 mg

**Description:** Vitamin C is an essential nutrient for humans.

Vitamin C is a cofactor to enzymes important in the manufacture of collagen. It plays a large role in the transportation, storage, and absorption of iron. Vitamin C is also a very important *antioxidant*, quenching free radicals and is thought to play an important role in cardiovascular and immune health.

**Precautions:** High doses of vitamin C may cause gastrointestinal disturbances. Those who are pregnant or nursing are advised not to exceed the RDV.

**Vitamin C as Acerola Fruit Extract:** See Acerola Fruit Extract

**Vitamin C as Ascorbate:** Ascorbate refers to vitamin C that is in a salt form. The vitamin C content may vary depending on which mineral it is attached to. Examples include calcium ascorbate and magnesium ascorbate.

**Vitamin C as Ascorbic Acid USP:** Ascorbic acid is derived from sorbose from corn, but does not contain any of the corn proteins; therefore, it does not have corn allergies associated with it. Ascorbic acid contains 98% Vitamin C. Ascorbic acid is the main water soluble *antioxidant* of the body. Ortho Molecular Products uses *USP* grade material.

**Vitamin C as Sodium Ascorbate USP:** Sodium ascorbate consists of one molecule of ascorbate and one atom of sodium. Sodium ascorbate is 85% vitamin C. Sodium ascorbate is known as non-acidic vitamin C. When put into water, sodium ascorbate has a neutral pH.

### **Vitamin D3 (as Cholecalciferol)**

**Recommended Daily Value:** 400 IU

**Description:** Vitamin D is a fat-soluble vitamin and is the only conditional vitamin in humans. It can be obtained in two ways, the first is through exposure to sunlight and the second is from diet. The major function of vitamin D is as a regulator of calcium. Cholecalciferol is converted to active forms by hydroxylation, which then play crucial roles in the absorption, metabolism, and cellular use of calcium. Vitamin D<sub>3</sub> as cholecalciferol is derived from lanolin, sheep wool's fat, and contains 100,000 IU per gram vitamin D.

**Precautions:** Caution is advised for those taking digoxin or any cardiac *glycoside*. Hypercalcemia in those on digoxin may cause cardiac arrhythmias. Those who are pregnant or nursing are advised not to exceed the RDV.

### **Vitamin E**

**Recommended Daily Value:** 30 IU

**Description:** Vitamin E is a lipid-soluble *antioxidant* in humans. Vitamin E is a family of compounds of the tocopherol and tocotrienol type. There are four major forms of vitamin E, alpha, beta, gamma, and delta tocopherol. Tocopherols are mainly used as *antioxidants* while tocotrienols are used in cardiovascular health. Vitamin E is derived from nut, seed, and grain sources such as soybean and sunflower seeds. (*see Alpha Tocopherol and Mixed Tocopherol*)

*for more information)*

**Precautions:** Caution is advised for those taking warfarin or other blood thinning medications. Those who are pregnant or nursing are advised not to exceed the RDV.

### **Vitamin K (as Phytonadione)**

**Recommended Daily Value:** 80 mcg

**Description:** Vitamin K is a fat-soluble set of molecules involved in the process of blood clotting.

Three forms of biologically active vitamin K are known, they are menadione, phylloquinone, and menaquinone-7. Ortho Molecular Products uses Vitamin K<sub>1</sub>, phytonadione. Vitamin K is produced when phytol and menadiol-mono-acetate undergo a condensation reaction.

**Precautions:** Persons taking warfarin should not consume high amounts of Vitamin K without the supervision of their health care professional. Those who are pregnant or nursing are advised not to exceed the RDV.

### **Vitex**

See Chaste Berry

### **Wheat Grass Juice Powder**

**Scientific name:** *Triticum durum*

**Country of Origin:** USA

**Description:** Wheat grass is the young green plant grown to produce cereal, otherwise known as “cereal grass”. Ortho Molecular Products’ wheat grass juice powder is *organic* and in a 33:1 concentration.

**Precautions:** Persons with known sensitivities to wheat grass should use caution. Caution is advised for those taking warfarin or other blood thinning medications.

### **Wormwood**

See Sweet Wormwood

### **Yarrow Flowers**

**Scientific name:** *Achillea millefolium*

**Country of Origin:** Bulgaria

**Description:** Yarrow is a flowering plant found in Europe with small white, pink or purple flowers. Yarrow has been used to help lighten heavy bleeding and soothe pelvic cramps during menstruation.

**Precautions:** Persons with known sensitivities to yarrow should use caution. Yarrow flowers should not be taken by those who are pregnant or nursing.

### **Zinc**

**Recommended Daily Value:** 15 mg

**Description:** Zinc plays an important role in over 50 different proteins and enzymes in humans. These are critical for the immune system and cellular metabolism. Zinc also plays an important part in the health of the prostate.

**Precautions:** With large doses, upset stomach and nausea may occur. Continual intake of high doses of zinc can lead to copper deficiency. Those who are pregnant or nursing are

advised not to exceed the RDV.

**Zinc Amino Acid Chelate:** Zinc amino acid *chelate* is zinc that has been *chelated* to glycine. This zinc is also taste free and contains 10% zinc.

**Zinc Chelazome:** Zinc is *chelated* to two glycine amino acids. This allows the zinc to enter through the intestinal wall as an amino acid rather than a metal cation, which is better absorbed by the body. Zinc chelazome contains 20% zinc.

**Zinc Undecylenate:** Best known for its anti-fungal properties, undecylenic acid is a monounsaturated fatty acid derived from castor bean oil.

Undecylenate salts have been shown to be four times more effective than undecylenic acid alone. Zinc undecylenate contains 15.14% zinc. Those who are pregnant should not take undecylenic acid, nursing mothers may take small doses.