Detoxification Support

Koshland Pharm
Custom Compounding Pharmacy

Clinical Applications

- Provides Micronutrients, Phytonutrients, and Cofactors that Support Detoxification of Xenobiotics and Xenoestrogens*
- Supports Healthy Estrogen Metabolism*
- Supports Antioxidant Mechanism and Glutathione Production*

Detoxification Support *is a comprehensive formula designed to support phase I and phase II liver detoxification of environmental pollutants, endocrine disruptors, estrogen metabolites, xenoestrogens, and other toxins. Detoxification Support also supports antioxidant activity throughout the detoxification process. Micronutrients, phytonutrients, and activated cofactors provide additional support for energy production, cellular protection, and liver function during crucial metabolic biotransformation processes.**

All Formulas Meet or Exceed cGMP Quality Standards

Discussion

Xenobiotics (chemicals foreign to a living organism) have the potential to disrupt metabolism and negatively affect cellular health.[1-3] Classes of xenobiotics include pesticides, petroleum-based plastic compounds, industrial chemicals, and xenoestrogens. Detoxification Support comprises an array of compounds to support detoxification and elimination of these potentially toxic molecules. Man-made xenoestrogens (including BPA, DDT, and DES), act as endocrine disruptors and can alter hormonal function in sensitive tissues including breast, uterus, cervix, and prostate.[4,5] Xenoestrogens at very low levels are believed to disrupt neurotransmitter balance, glucose homeostasis, normal reproduction, and healthy metabolism.[5] Detoxification of xenobiotics is a complex process that requires micronutrients, phytonutrients, energy, and adequate antioxidant support for safe and effective completion.*[6]

Antioxidant and Detoxification Support Several nutrients support antioxidant activity, both phases of detoxification, and the health and function of the liver (the major site of detoxification). **Milk thistle extract** contains silymarin, a compound found to limit the entry of hepatotoxins, donate sulfhydryl groups for detoxification, and increase hepatic glutathione by over 35%.[7] Its action in the liver reduces fat peroxidation and fibrous tissue formation, supports a normal immune and inflammatory response, promotes protein synthesis and tissue regeneration, and supports glucuronidation and glutathione levels.[8] **Alpha-lipoic acid** is both water- and fat-soluble. It supports glutathione metabolism, helps regenerate antioxidant vitamins C and E, and helps maintain the ratio of reduced-to-oxidized CoQ10 in mitochondria.[7] The redox couple of lipoic acid and dihydrolipoic acid stabilizes NF-kappaB transcription and may help support healthy immune functions in the body.[9,10] **Methylselenocysteine (MSC)** is considered a well-tolerated form of the trace element selenium and may support normal cell-life regulation.[11] Selenium provides antioxidant support via glutathione peroxidase and manganese superoxide dismutase (MnSOD) activity.[12] **N-acetyl-cysteine (NAC)** may significantly increase glutathione in the body, which, in turn, is incorporated into crucial antioxidant and detoxification enzymes. Glutathione supports antioxidant activity, phase II detoxification, and the normal breakdown of metabolites, toxins, and other compounds. NAC supports phase II sulfation reactions as well.[7] **Calcium D-glucarate** has been added to support glucuronidation. **5-methyltetrahydrofolate (5-MTHF)** is present as Quatrefolic® (a stable, bioavailable form of folate) to support methylation, energy generation, and phase I and phase II activity.*

Phytonutrients A variety of phytonutrients support antioxidant activity in the body. **Green tea catechins** have been found to assist in free-radical scavenging, support detoxification through modification of phase I and phase II enzymes, and support normal cell-life regulation via multiple signaling pathways.[13,14] Bioflavonoids, including **resveratrol, quercetin**, and the highly absorbable FlavitPURE™ form of **dihydroquercetin (DHQ)**, support phase I detoxification as well as intermediary antioxidant protection.[1] **Pterostilbene**, a highly absorbable, methylated form of resveratrol, is thought to work together with quercetin in supporting normal cell-life regulation.[15] Turmeric extract provides curcumin, a phytonutrient valued for its promotion of antioxidant activity, support of metabolic detoxification, and modulation of cytokine production.[16,17] BioPerine®, a patented form of piperine from **black pepper**, has been added to enhance the absorption of nutrients, particularly curcumin.*[18]

Xenoestrogen Metabolism Detoxification Support provides **diindolymethane (DIM)** and **glucoraphanin** as SGS™. DIM promotes healthy estrogen metabolism and creates a better balance of estrogen metabolites (2-OH, 4-OH, 16-alpha-OH) through phase I cytochrome P450 enzyme induction and promotion of 2-hydroxylation.[19,20] The action of DIM is complemented by glucoraphanin, which supports long-term antioxidant activity and phase II detoxification of less-desirable estrogen metabolites and xenoestrogens.[21,22] Glucoraphanin and its metabolite sulforaphane are found to be effective, long-acting, indirect antioxidants and significant inducers of phase II detoxification enzymes.[23,24] These actions may help support healthy estrogen balance and may be crucial for the health of estrogen-sensitive tissue.*

***These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.**

Distributed By:
Koshland Pharmacy, Inc.
301 Folsom St Suite B
San Francisco, CA 94105

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Supplement Facts

Serving Size: 2 Capsules
Servings Per Container: 60

	Amount Per Serving	%DV
Folate (as Quatrefolic® (6S)-5-methyltetrahydrofolic acid, glucosamine salt)	200 mcg	50%
Calcium (naturally occurring)	75 mg	8%
Selenium (as methylselenocysteine)	15 mcg	21%
Calcium-D-Glucarate	250 mg	**
Green Tea Aqueous Extract (*Camellia sinensis*)(leaf) (80% polyphenols, 60% catechins, 30% EGCG, 6% caffeine)	250 mg	**
Alpha-Lipoic Acid	100 mg	**
N-Acetyl-L-Cysteine	100 mg	**
Milk Thistle Extract (*Silybum marianum*)(seed)(80% silymarin)	100 mg	**
DIM (diindolylmethane)	75 mg	**
Quercetin (as quercetin dihydrate)(from *Sophora japonica*)(bud)	50 mg	**
Turmeric Extract (*Curcuma longa*)(rhizome)(95% curcuminoids)	50 mg	**
trans-Resveratrol (as *Polygonum cuspidatum* root extract)	18.5 mg	**
trans-Pterostilbene (pTeroPure®)	15.5 mg	**
Glucoraphanin (from broccoli extract)(*Brassica oleracea italica*)(seed)(truebroc™)	15 mg	**
Dihydroquercetin (from Larch Tree Extract)(*Larix dahurica*, *Larix gmelinii*, *Larix sibirica ledeb.*, *Larix cajanderi*, *Larix czekanowskii*, *Larix russica*, *Larix sukaczewii*)(saw logs)(DHQvital™)	5 mg	**
Black Pepper Extract (*Piper nigrum*)(fruit)(BioPerine®)	5 mg	**

** Daily Value (DV) not established.

Other Ingredients: HPMC (capsule), tricalcium phosphate, stearic acid, magnesium stearate, and silica.

Quatrefolic® is a registered trademark of Gnosis S.p.A. Produced under US Patent 7,947,662.

Produced under US patent 5,725,895; 5,968,505; 5,968,567; 6,177,122; and 6,242,018 licensed from Brassica Protection Products LLC; truebroc is a trademark of Brassica Protection Products LLC.

pTeroPure is a trademark of ChromaDex, Inc. BioPerine is a registered trademark of Sabinsa Corp. BioPerine is protected by US patents 5,536,506; 5,744,161; 5,972,382; and 6,054,585.

DHQvital is a trademark of Berg Imports, LLC.

Directions

Take two capsules daily, or as directed by your healthcare practitioner.

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

Does Not Contain

Wheat, gluten, yeast, soy, animal or dairy products, fish, shellfish, peanuts, tree nuts, egg, ingredients derived from genetically modified organisms (GMOs), artificial colors, artificial sweeteners, or artificial preservatives.

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Koshland Pharmacy, Inc.
301 Folsom St Suite B
San Francisco, CA 94105

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