

# Protocol for Nutritional **CELLULAR IMMUNITY** Support

Practitioner Information - Protocol For Life Balance™ Supplements

Cellular immunity plays a significant role in the maintenance of health. A balance of immunomodulators (many of which occur naturally in special foods available as additions to the diet) and redox and Phase 1 and 2 regulators, such as glutathione, is important. The individual components below can be combined as a protocol for more complete support.

## AHCC®

This patented mushroom (Basidiomycete) mycelia extract is known as Active Hexose Correlated Compound or AHCC®. According to clinical research, as well as numerous non-clinical studies, AHCC® supports immune system function through its ability to enhance macrophage and NK (Natural Killer) cell activity. It enhances immune surveillance by regulating both innate and adaptive immune responses, including under immunosuppressive conditions (1, 2). Studies have shown protection of hepatic and renal, as well as endocrine function in the face of oxidative stress (3, 4). AHCC®, further, acts as a prebiotic and supports regulation of inflammatory responses in the bowel (5).

### Cautions and interactions

None known.

## Brocco Immune™

Brocco Immune™ contains sgs™-100 Broccoli Concentrate from seed and supplies chemoprotective sulfur compounds that support the body's natural detoxification mechanisms. Glucoraphanin and sgs™-100 (sulforaphane glucosinolate) are potent modulators of the body's immune defense system through effects on Phase 1 and 2 detoxification enzymes. Phase 1 enzymes make many toxins more water-soluble in preparation for their elimination from the body, but in the process can increase their toxicity. Phase 2 enzymes bind and remove these now soluble toxins. Thus, the Phase 1 and 2 enzyme systems must be in balance to protect health. Broken down during digestion, sulforaphane and glucoraphanin are converted to isothiocyanates (ITCs). These compounds can inhibit the rate at which Phase 1 enzymes make toxins more soluble for elimination — but thereby also more active — while at the same time inducing the detoxification activities of Phase 2 enzymes (6, 7).

### Cautions and interactions

None known.

## N-Acetyl Cysteine

N-Acetyl Cysteine (NAC) is a stable form of the non-essential amino acid L-cysteine. It is a sulfur-containing amino acid that acts as a stabilizer for the formation of protein structures, and is also necessary for the formation of glutathione. NAC may decrease plasma homocysteine via elevated urinary excretion. (8, 9) Molybdenum and selenium are essential trace minerals that facilitate the production of several important enzymes.

### Cautions and interactions

Supplemental NAC should be avoided by nursing mothers and should only be used by pregnant women if prescribed. N-acetylcysteine clearance is reduced in those with chronic liver disease as well as in pre-term newborns. NAC may intensify headaches in those taking nitrates for the treatment of angina (10). Although the incidence of cystine renal stones is low, they do occur. Those who do form renal stones, particularly cystine stones, should avoid NAC supplements (10). NAC may interact with many pharmaceutical medications including ACE inhibitors (medications commonly used to treat high blood pressure) and immunosuppressive medications (azathioprine, cyclophosphamide, prednisolone, or prednisone). In addition, although NAC may interact with nitroglycerin and isosorbide, this combination may also increase the risk of side effects such as severe headaches and may lead to abnormally low blood pressure. Laboratory and animal studies have suggested that NAC may be safely used with both cisplatin and doxorubicin.

These statements have not been evaluated by the FDA. These products are not intended to diagnose, treat, cure or prevent any disease.

## Alpha Lipoic Acid

*alpha*-lipoic acid (ALA) is an antioxidant that is naturally manufactured in the human body. It has been called the "universal antioxidant" because of its versatility—it helps scavenge an unusually wide array of cell-damaging free radicals in both water and lipid environments (4). ALA works in conjunction with vitamins C and E and some other antioxidants, "recycling" them and making them more effective. Beyond its direct antioxidant function, ALA helps to boost glutathione levels. Glutathione possesses its own antioxidant activities and is a critical component in cellular and hepatic detoxification mechanisms. Lastly, *alpha*-lipoic acid is a co-factor in the multi-enzyme complex that catalyzes the last stage of glycolysis. Of all the nutritional glucose modulators available, *alpha*-lipoic acid is the most powerful, versatile, and extensively tested.

### Cautions and interactions

Blood hormone levels and thyroid function tests should be monitored in people on thyroid hormones who concomitantly are supplementing *alpha*-lipoic acid because very high intakes of ALA (usually at or above 400 mg/day) may interfere with the conversion of exogenous T4 to T3 (5). In an animal model, chronic supplementation with extremely high doses of *alpha*-lipoic acid increases the requirement for biotin, but this has not been observed in humans. Because it may affect insulin sensitivity, blood glucose levels should be monitored closely when *alpha*-lipoic acid supplementation is added to diabetes treatment regimens. *alpha*-Lipoic acid may be used if taking certain medications, including adriamycin, cisplatin, cyclophosphamide and cyclosporine A (11, 12).

## Curcumin 95% Extract

Powerfully supports normal control of inflammatory processes and regulates healthy cell proliferation (13, 14). Through several mechanisms, curcumin supports colon health, exerts neuroprotective activity, and helps to maintain a healthy cardiovascular system.

### Cautions and interactions

Should be avoided by individuals with liver disease. Due to curcumin's possible stimulating effects on the gallbladder, individuals with gallbladder disease should use curcumin only on the advice of a physician.

## Additional Support

### GliSODin®, EGCg, Vitamin C-1000, Selenium

GliSODin® may increase super oxide dismutase (S.O.D.). Green tea EGCg (epigallocatechin gallate) and Vitamin C are also useful water-soluble antioxidants. Selenium can be used in conjunction to support glutathione production.

References available at [www.protocolforlife.com](http://www.protocolforlife.com)

<b>AHCC®</b> (Suggested: 2 three times daily)	_____ <b>X</b> _____
<b>Brocco Immune™</b> (Suggested: 2 daily)	_____ <b>X</b> _____
<b>NAC</b> (Suggested: 2 daily)	_____ <b>X</b> _____
<b>Alpha Lipoic Acid, 250 mg</b> (Suggested: 2 daily)	_____ <b>X</b> _____
<b>Curcumin, 95% Extract</b> (Suggested: 1-3 daily, with meals)	_____ <b>X</b> _____
<b>Additional Support Products:</b>	
<b>GliSODin®</b> (Suggested: 1 three times daily)	_____ <b>X</b> _____
<b>EGCg</b> (Suggested: 2 daily)	_____ <b>X</b> _____
<b>Vitamin C-1000</b> (Suggested: 1 three times daily)	_____ <b>X</b> _____
<b>Selenium</b> (Suggested: 2 daily)	_____ <b>X</b> _____

Please note the instructions, cautions and interactions on each product package, and begin each new product separately, in turn. Use only under the supervision of a qualified health practitioner.