

ImmunoMod-A™



Supports a healthy immune response in individuals with various autoimmune conditions

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ImmunoMod-A™ is specifically designed to help support a healthy, appropriate immune response for individuals with autoimmune conditions. Autoimmunity arises from an inappropriate immune response where, instead of only attacking invading pathogens or other potentially harmful antigens, the body misdirects its immunological forces against its own tissues and organs. Autoimmune diseases can affect almost any part of the body and are generally categorized as either systemic or organ-specific. The NIH estimates that 23.5 million people in the US, or approximately 8% of the population, suffer from some form of autoimmunity, 75% of which are women.¹

We now know that excessive chronic inflammation, which is seen in autoimmune conditions, is a pathophysiological contributor to many disease processes, including those leading to cancer and diabetes. Due to such things as age, chronically high levels of oxidative stress, infectious states, leaky-gut syndrome and exposure to various foods and environmental antigens, signaling proteins like NF- κ B – a family of transcription factors that controls the expression of many genes linked to inflammation and the immune responses – can become overexpressed. This provokes a pathological inflammatory cascade and subsequent immune imbalance through the overproduction of inflammatory cytokines. Inappropriate NF- κ B up-regulation can also cause interruptions to normal cell apoptosis, the expression of age-related genes, and ultimately an imbalance in T cell proliferation, contributing to the development of autoimmune conditions such as inflammatory bowel diseases (i.e., Crohn's and colitis), Graves' disease, rheumatoid arthritis, and systemic lupus erythematosus (SLE), among others.²⁻⁷

ImmunoMod-A™ has been formulated to help balance and modulate the overexpression of NF- κ B and its related downstream inflammatory cytokines, while also balancing an overstimulated immune response.

ImmunoMod-A™ may help support a healthy and balanced immune response in those suffering from autoimmune conditions including:

- **Rheumatoid Arthritis**
- **Inflammatory bowel diseases (i.e., Crohn's and colitis)**
- **Multiple Sclerosis**
- **Autoimmune Thyroiditis (i.e., Hashimoto's and Graves')**

Supplement Facts

Serving Size 4 capsules
Servings Per Container 30

Amount Per Serving	% Daily Value
Curcumin C3 Complex® (<i>Curcuma longa</i>)(rhizomes)(containing three curcuminoids: curcumin, bisdemethoxy curcumin, demethoxy curcumin)[standardized to contain 95% curcuminoids]	750 mg *
N-Acetyl Glucosamine	750 mg *
ParActin® (Bioactive 14-Neo-Andro Compound) (<i>Andrographis paniculata</i>)(stem and leaf) [standardized to contain 50% andrographolides]	250 mg *

*Daily Value not established.

Other Ingredients: Microcrystalline cellulose, vegetable stearate, silicon dioxide.



ParActin®

ParActin® is a special extract of the medicinal herb *Andrographis paniculata*. This annual herb has been widely used as part of Indian folk medicine and Ayurveda for centuries. In low doses (25-30mg) ParActin® acts as an immune stimulant, but at higher doses (150-250mg) it activates the peroxisome proliferator activated receptor gamma (PPAR γ) nuclear receptor. When activated, PPAR γ not only stimulates the expression of genes involved in energy homeostasis, specifically the metabolism of glucose and fatty acids, but also key regulators of the immune and inflammatory responses.⁸ By activating PPAR γ , inhibition of NF- κ B takes place which includes the reduced production of various downstream inflammatory cytokines such as tumor necrosis factor- α (TNF- α) and interleukin-1 β .⁹

In models of multiple sclerosis (MS), Paractin® was shown to act as an inhibitor of the T cell-mediated immune response. Inappropriate T cell activity (CD4+, CD8+ cells) and its associated myelin-specific autoimmune responses have been shown to be part of the pathogenesis of MS. Paractin® was shown to modulate and reduce disease-associated cytokines such as NF- κ B, inflammatory markers commonly associated with MS pathophysiology.¹⁰ In human case studies, individuals given Paractin® were found to experience a decrease in a variety of symptoms associated with MS, including speech ataxia, fatigue, depression and restless leg syndrome.¹¹

In patients with rheumatoid arthritis (RA), ParActin® inhibited NF-κB, reducing pro-inflammatory cytokines such as Interleukin 2, Interferon γ, TNF-α, and COX 2; all inflammatory markers associated with disease progression. ParActin® also reduced pain and stiffness, normalized hematocrit, hemoglobin and C-reactive protein, and reduced IgG and IgM anticardiolipin autoantibodies in those with early stage RA.^{12, 13} Anticardiolipin antibodies have been associated with a variety of autoimmune conditions such as RA, Sjögren syndrome, SLE, scleroderma, and psoriatic arthritis, as well as venous and arterial thrombotic events. This type of antibody is directed against cardiolipin, an important component of the inner mitochondrial membrane.^{14, 15}



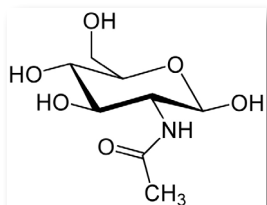
Curcumin

Curcumin is a polyphenolic compound extracted from the spice turmeric. In Ayurvedic medicine, turmeric and curcumin have been used, among other things, for their anti-inflammatory properties. Curcumin possesses inhibitory effects on cyclooxygenase-1 (COX-1), cyclooxygenase-2 (COX-2), lipoxygenase (LOX), TNF- α, interferon gamma (IFN-gamma), inducible nitric oxide synthase (iNOS), and NF-κB, in addition to demonstrating powerful antioxidant effects. Additionally, by modulating cytokine and chemokine production, curcumin consequently impacts the balance of Th-1 and Th-2 T helper cells further downstream.

It is primarily through these mechanisms of action that curcumin has been shown in human and animal studies to positively impact the signs and symptoms of those suffering from a variety of autoimmune conditions including colitis, RA, SLE and Sjogren's syndrome.¹⁶⁻²⁰

Mechanisms of Action

- Activates the peroxisome proliferator activated receptor gamma (PPARγ) nuclear receptor
- Acts as an anti-inflammatory agent by inhibiting NF-κB and subsequent downstream cytokine production including TNF-α, Il-2, and IFN-γ, as well as the COX-1, COX-2, and 5-LOX enzymes involved in fatty acid metabolism and inflammation
- Modulates Th1/Th2 balance



N-Acetyl-Glucosamine

Glucosamine is a derivative of glucose which can be converted in cells to N-acetyl glucosamine (GlcNAc). Researchers have found it to act as an immunosuppressive agent through a variety of mechanisms. Glucosamine is an efficacious agent that can suppress the activation of T-cells and dendritic cells, two crucial cells involved in the immune response. Oral GlcNAc inhibits T-helper 1 (Th1) and T-helper 17 (Th17) responses and attenuates the clinical severity of experimental models of MS.²¹

When GlcNAc was used in children with chronic inflammatory bowel disease, biopsies revealed histological improvements and a significant increase in epithelial and lamina propria (basement membrane) glycosaminoglycans and intracellular GlcNAc, as well as restoration of the epithelial barrier (i.e., repairing leaky-gut).²²

In mouse models of MS and autoimmune diabetes, researchers found that GlcNAc inhibited T cell receptor signaling, T cell proliferation and Th1 differentiation. The research showed that naturally occurring GlcNAc molecules attach to T cell receptors and these GlcNAc "branches" form a lattice on the cell surface that prevents the receptors from clustering near the antigens. Less clustering means less antigen binding and less activation of Th1 cells, reducing the autoimmune reaction.²³

How to Take

Take two capsules twice per day, or as directed by your health care practitioner.

*For a list of references cited in this document, please visit the product landing page at:
http://mkt.s.designsforhealth.com/techsheets/ImmunoMod-A_References.pdf*