

# Resolvins



THIS INFORMATION IS FOR PHYSICIANS AND OTHER LICENSED HEALTH CARE PRACTITIONERS ONLY. THE INFORMATION IS INTENDED TO ASSIST PRACTITIONER DECISION MAKING AS TO WHETHER OR NOT THESE PRODUCTS FIT THE NEEDS OF THEIR PATIENT. THE SCIENTIFIC INFORMATION AND DIETARY SUPPLEMENT PRODUCTS PROVIDED BY ALIGHT HEALTH FORMULAS ARE NOT INTENDED FOR USE BY CONSUMERS AS A MEANS TO CURE, TREAT, PREVENT, DIAGNOSE, OR MITIGATE ANY DISEASE OR OTHER MEDICAL CONDITION.

Alight's Resolvins features a concentrated amount of three specialized pro-resolving mediators which are involved in the process of a healthy inflammatory response. This synergistic combination of 18-hydroxyeicosapentaenoic acid, 17-hydroxydocosahexaenoic acid, and 14-hydroxydocosahexaenoic acid provides potent support for the restraining and resolution of inflammation.

These molecules, referred to as Resolvins, are part of a family of specialized pro-resolving mediators (SPMs) which play important roles in orchestrating the resolution of inflammation after a triggering event. Inflammation is a natural response to infection or injury, bringing with it factors necessary for repair and rejuvenation. A healthy inflammatory response involves an initial activation followed by an organized resolution and return to homeostasis, otherwise known as catabasis.

Unfortunately in some instances, the inflammatory process may become self-perpetuating and pathogenic in itself, as in the case of chronic inflammatory conditions, such as mast cell activation syndrome, a common sequelae from indoor mold exposure, and autoimmune diseases such as PANDAS/PANS.

This novel approach toward managing inflammation does not involve suppressing the entire inflammatory response, which may impede healing. Purely suppressive methods block the influx of reparative factors and reduce phagocytosis of apoptotic cells, which may result in an excess of cellular debris and microbial byproducts, as well as contribute to lymphatic stasis in an area triggered into an inflammatory response. In contrast, allowing the initial repair phase to occur, but then promoting and supporting resolution, allows for a more complete and supported healing process.

Specialized pro-resolving mediators (SPMs) are lipid mediator metabolites of naturally occurring omega-3 and omega-6 polyunsaturated fatty acids, biosynthesized de-novo in the blood, brain, and human breast milk. SPMs encompass a host of bioactive mediators, including Resolvins, that downregulate inflammation without compromising the immune response.

Supplement Facts	
Serving Size 1 softgel	
Amount Per Serving	% Daily Value
Calories	5
Total Fat	0.5 g 1%*
Active Fractionated Marine Lipid Concentrate	300 mg <sup>†</sup>
[standardized to 150 mcg Total Pro-Resolving Mediators (PRMs) - 18-hydroxyeicosapentaenoic acid (18-HEPE), 17-hydroxydocosahexaenoic acid (17-HDHA) and 14-hydroxydocosahexaenoic acid (14-HDHA)]	
*Percent Daily Values are based on a 2,000 calorie diet.	
<sup>†</sup> Daily Value not established.	

**Other Ingredients:** Olive oil, bovine gelatin, glycerine, purified water, natural lemon flavor, DeltaGold<sup>®</sup> tocotrienols.

**Contains fish (anchovy, squid, sardine, mackerel, and herring).**

DeltaGold<sup>®</sup> is a registered trademark of American River Nutrition, LLC and protected by US Patent No. 8,586,109.

## Recommended Use

Take one softgel per day or as directed by your health care practitioner. Does not contain gluten, dairy, soy protein or GMOs.

An article summarizing the actions of Resolvins by Valente et al in *Molecules* includes:

1. Inhibits the production of pro-inflammatory mediators, such as chemokines and cytokines.
2. Enhances scavenging of pro-inflammatory chemokines.
3. Promotes the recruitment of monocytes and phagocytes' clearance via the lymphatic system.
4. Limits polymorphonuclear cell migration and infiltration.

Tocotrienols have been added as a critical yet underappreciated adjunct, complimenting the mechanisms of SPMs in quelling inflammation, particularly in the nervous system. Tocotrienols are distinct molecules of vitamin E that contain an isoprenoid side chain. Animal models suggest improved cognition by ameliorating synaptic dysfunction. This is accomplished through mediation of excitatory neurotransmission and synaptic plasticity.

Tocotrienol supplementation modulates the inflammatory response and has potential metabolic modulating effects, including glucose homeostasis, through favorable alteration of the gut microbiota composition. While the gut microbiota in itself has effects on brain microglia, delta-tocotrienols have a distinct anti-inflammatory effect on primary microglia, which is important for neurological conditions involving microglial activation.

Tocotrienols also have mycotoxin-specific effects, including immunoprotective and genoprotective. Animal studies have shown that delta-tocotrienol's nephroprotective effects have resulted in restored glomerular filtration rate (GFR), absolute fluid reabsorption, and renal antioxidant enzyme activity after mycotoxin exposure, thereby improving blood pressure.

## Inflammation

As functional lipid mediators, Resolvins demonstrate promising results in reducing overall inflammation as well as neuroinflammation. Data suggest that SPMs are able to cross the blood-brain barrier, inhibit microglial activation, balance microglia M1/M2 polarizations, and decrease induced markers of inflammation, possibly as a result of their ability to downregulate NFκB signaling pathways. Their neuroprotective role involves altering the expression of pro-inflammatory genes, modulating macrophage function, and preserving brain-derived neurotrophic factor (BDNF) when under the influence of neuroinflammatory molecules.

In their immunoresolvent action, Resolvins prevent collateral tissue damage and promote tissue repair and regeneration. Their role in regulating the initiation and maintenance, as well as the resolution, of infectious inflammation and tissue regeneration, has resulted in reduced requirement for antibiotics in bacterial infections. This has been displayed in acute infection, but also dysbiotic conditions such as periodontitis.

The excess inflammation associated with periodontitis is suggested to be due to a failure of resolution of inflammation pathways. The pathogenesis is a result of complex interactions between the biofilm and the host response that results in dysbiosis of the microbiome and dysregulation of the inflammatory response. Resolvins quell the excess inflammation associated with plaque biofilm.

Alight's Resolvins stand out from the rest, because they aren't simply a rebranded or renamed fish oil supplement in order to capitalize on the upcoming trend. Alight's Resolvins product is unique in that it contains the highest concentration currently available of active fractionated marine lipids, standardized to 150mcg of total pro-resolving mediators.

The presence of tocotrienols assists the resolution of inflammation from toxins such as mycotoxins. The inflammation and hepatocellular damage from mycotoxin exposure has been correlated to the development of non-alcohol fatty liver disease, as well as hepatocellular carcinoma. A randomized, placebo controlled trial found that supplementation of the delta fraction of tocotrienols improved biochemical markers of hepatocellular injury and steatosis in patients with nonalcoholic fatty liver disease. Tocotrienols have also displayed anti-cancer effects.

## Immunity

SPMs such as Resolvins, are produced by, and act on, cells of the adaptive immune system, specifically macrophages, B cells, and T cells. They assist immune cells from continuing to respond to pro-inflammatory chemical mediators, such as cytokines and chemokines. Instead, they allow for a modified cellular response which promotes resolution.

Pro-resolving mediators function as endogenous regulators in restoring tissue homeostasis after an infection by not only dampening inflammation but also promoting host defense. SPMs enhance macrophage phagocytosis of apoptotic neutrophils and clear out other damaging byproducts, microbes, and debris at the site of inflammation.

Lymphatics play a critical role in the resolution of inflammation, and yet lymphatic impairment is a common impedance to healing in many chronic inflammatory diseases. SPMs can modulate leukocyte migration and function, alter cytokine/chemokine release, and modify autophagy, among other immune-related activities.

Critical to respiratory diseases often seen with mold exposure, which exhibit a disequilibrium in the levels of pro-inflammatory versus pro-resolving mediators, SPMs target inflammation resolution pathways thereby reducing lung inflammation.

In addition, tocotrienols promote anti-inflammatory macrophage polarization by inducing the inflammatory M1 phase to switch to the anti-inflammatory M2 phase, similar to the mechanisms by which SPMs attenuate chronic systemic inflammation. Molecular models show that delta-tocotrienols inhibit inflammation in lipopolysaccharide (LPS)-stimulated macrophages via mitogen-activated protein kinase (MAPK) and peroxisome proliferator-activated receptor (PPAR) signaling.

## Chronic Pain

Pre-clinical and clinical studies have demonstrated that SPMs play an essential role in the regulation and resolution of the inflammation associated with chronic pain, with particular benefit in neuropathic pain. The pathogenesis of neuropathic pain involves interactions between the immune and nervous systems, with rising interest in altered microglia signaling.

A 2023 review article in *Nature Reviews: Neurology* clarifies the role of the immune system in neuropathic pain, stating that “immune cells and their mediators are well-established promoters of neuroinflammation at each level of the neural pain pathway that contributes to pain hypersensitivity. However, emerging evidence indicates that specific subtypes of immune cells (including antinociceptive macrophages, pain-resolving microglia and T regulatory cells) as well as immunoresolvent molecules and modulators of the gut microbiota-immune system axis can reduce the pain experience and contribute to the resolution of neuropathic pain.”\*

Pain syndromes are reported in a number of conditions with associated neuroinflammation, such as biotoxin illness, chronic infections, and autoimmune diseases. For instance, symptom surveys report that children with PANDAS/PANS regularly experience hyperalgesia.

SPMs modulate neuroinflammation and therefore inhibit central and peripheral sensitization. They inhibit neuronal pathways via immunomodulation and regulation of nociceptor activity, affecting long-term potentiation.

A 2021 review article in *Frontiers in Pharmacology* states that evidence supports a synergy between SPMs and other signaling pathways, such as those mediated by transient receptor potential (TRP) channels and those triggered by opioid receptors. Numerous studies have demonstrated that SPMs antagonize the *in vivo* activity of pro-inflammatory eicosanoids and, overall, exert potent anti-hyperalgesic effects in a number of pain-associated paradigms of disease.

## Therapeutic Differences



Alight's Resolvins provides the highest concentration of pro-resolving mediators currently available.

SPMs lack the potential side effects associated with common anti-inflammatory drugs such as glucocorticoids, methotrexate, and aspirin, as they are endogenously produced. Therefore, they do not suppress immune function.

**For more information about Alight Health Formulas™, email [contact@alighthealthformulas.com](mailto:contact@alighthealthformulas.com).**

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