**BENEFITS OF INGREDIENTS**

- To support neuron health especially during neuroinflammation, as it relates to nutritional balance.
- Provides nutrients that have shown neuroprotective properties especially against activated microglia
- Provides a rich source of targeted antioxidants for nutritional support

**USE OF PRODUCT**

This product is designed to provide key nutritional ingredients that have demonstrated benefits during microglia activation as it relates to nutritional support. It may also be used to provide a rich source of targeted antioxidants to support brain tissue health.

Use for:
- elderly
- cases in which nutritional intervention has shown to be effective
- nutritional support during immune response

**OTHER PRODUCTS TO CONSIDER**

Other nutritional formulations can be used in conjunction with NeuroFlam® (K46) to support its neuroprotective properties. Neuro-PTX® (K47) is formulated with the main nutrients and natural compounds that have been shown to provide neuronal mitochondria support and potentially provide a protective influence on neuronal health. Oxygenation to the brain and neurons enhances antioxidant and nutrient delivery as well as nourishes neurons with oxygen and glucose necessary for healthy function. NeurO2® (K45) is a broad-spectrum formulation of several herbs that support microcirculation to the brain.

**KEY INGREDIENTS**

**RESEARCH COMMENTARY**

The research information presented here should not be construed as claims regarding performance of this product.

**APIGENIN** is a bioflavonoid found in parsley, artichoke, basil, and celery. It has very powerful neuroinflammation quenching and neuroprotective properties. Research has demonstrated that the compound can modulate the expression of cytokine, nitric oxide, prostaglandin, lipopolysaccharide-induced, and mitogen protein kinase activation of the microglia cells during neuroinflammatory processes. Apigenin has demonstrated the ability to inhibit microglial proliferation by modulating cell cycle progression and apoptosis. Apigenin has also demonstrated the ability to protect neuronal cells from artery occlusion.1 2 3 4

**LUTEOLIN** is a bioflavonoid found in celery and green peppers and has been shown to block inflammatory responses in the brain by inhibiting microglia activation. Several different cellular microglial-activating pathways have been shown to be inhibited by luteolin, including cytokine signaling pathways, lipopolysaccharide-induced, nitric oxide-mediated, and phosphorylation pathways. Luteolin has demonstrated the ability to protect neurons from inflammation-induced injury through inhibition of microglia activation.5 6 7 8

**DIRECTIONS**

Take 1-3 capsules, 3 times a day, or as directed by your healthcare professional.

**BAICALEIN** (5,6,7-trihydroxyflavone), a flavonoid, has been shown to have anti-inflammatory and antioxidant properties on the brain microglia system.9 It has a long history of safe administration to humans and has been found to easily cross the gastrointestinal tract and the blood-brain barrier by membrane permeability assays.10 Baicalein has demonstrated neuroprotective properties to dopaminergic neurons implicated in the pathogenesis of Parkinson’s. Animal subjects given MPTP (a dopamine neurotoxin) in combination with baicalein demonstrated decreased neuronal damage and microglia activation.11 Another study reported that baicalein may attenuate methamphetamine-induced dopamine transporter loss by inhibiting the neutrophil increase and the...
lipid peroxidation caused by neutrophil-derived reactive oxygen species in the striatum. It has also been published that baicalein prevents 6-hydroxydopamine-induced dopaminergic dysfunction through an antioxidative action. Baicalein has been reported to protect cortical neurons from beta-amyloid (25-35) induced toxicity. It has demonstrated to ameliorate inflammatory processes of diabetic retinopathy and have inhibitory activity against neuron loss in diabetic retinas. Baicalein has been found to protect neuronal mitochondria damage and swelling promoted by chronic cerebral hypoperfusion and has been suggested as a potential support agent for dementia caused by decreased blood flow to the brain. Traumatic brain injury triggers a complex series of inflammatory responses that contribute to secondary damage. Post-injury treatment with baicalein improved functional and histological outcomes and reduced proinflammatory cytokines in traumatic brain injury.

RESVERATROL a polyphenolic compound found in grapes and wine, has been reported to reduce the activation of microglia in numerous studies. Activated microglia produce excessive nitric oxide, leading to neuronal inflammation. Resveratrol has demonstrated nitric oxide attenuating properties on microglia cells. Resveratrol has potent antioxidant effects on nitrosative and oxidative stress activity derived from microglia cell activation.

Curcumin has been found to inhibit the amyloid peptide-induced chemokine gene expression and suggested that it may represent a therapeutic aid to ameliorate the inflammation and progression of Alzheimer’s.  

Research on resveratrol has found that it inhibits lipopolysaccharide-induced nitric oxide and TNF-alpha production in microglia by blocking phosphorylation and suggested as potential support compound for neurodegenerative conditions.

RUTIN is a citrus flavonoid found in plants and has powerful antioxidant activity. It attaches to the iron ion Fe2+, preventing it from binding to hydrogen peroxide and becoming a free radical. Rutin has demonstrated the ability to quench lipid peroxidation. It has demonstrated the ability to modulate microglia inflammatory mediators TNF-alpha and nitric oxide. It has been found to protect against toxicant-induced hippocampal injury by suppression of microglia activation of inflammatory cytokines.

CATECHIN Catechins are polyphenolic antioxidant plant metabolites that are abundant in various tea leafs. They have been shown to protect microglia cells and neurons from DNA damage by oxidative stress by increasing their expression of DNA repair by the enzyme polymerase and by translocation of NF-kappaB.

Catechins have been reported to posses divalent metal chelating, antioxidant, and anti-inflammatory activities, to penetrate the brain barrier and to protect neuronal death in a wide array of cellular and animal models of neurological disorders. They appear to have both iron-chelating and antioxidant effects. One study demonstrated the catechin is a potent inhibitor of microglia activation and thus is a useful candidate for alleviating microglia-mediated neuronal injury.

CURCUMIN are antioxidant compounds found in the Indian curry spice of turmeric and have been found to modulate microglia neuroinflammation. Curcumin has demonstrated the ability to protect dopaminergic neurons against lipopolysaccharide-induced neurotoxicity in animal neuron/glia culture. Curcumin has been found to have neuroprotective effects by blocking the production of pro-inflammatory and cytotoxic mediators such as nitric oxide, TNF-alpha, IL-1 alpha, IL-6 and NF-kappaB by activated microglia.

Curcumin has been found to inhibit the amyloid peptide-induced chemokine gene expression and suggested that it may represent a potential therapeutic aid to ameliorate the inflammation and progression of Alzheimer’s.

REFERENCE INFO


