DESCRIPTION
The lithium salt of orotic acid (lithium orotate) improves the specific effects of lithium many-fold by increasing the uptake of lithium.

Based on intraperitoneal injections in a rat study, higher brain concentrations of lithium were obtained when lithium orotate was injected I.P. The study reported: “Furthermore, the 24-hour brain concentration of lithium after lithium orotate was approximately three times greater than that after lithium carbonate. These data suggest the possibility that lower doses of lithium orotate than lithium carbonate may achieve therapeutic brain lithium concentrations and relatively stable serum concentrations.” Another study evaluated lithium orotate absorption in laboratory animals and showed the brain and blood serum concentrations of lithium orotate remained stable in the serum for up to 24 hours post-administration. Brain concentrations were also 3 times higher than found in the animals given lithium carbonate.

Many clinicians have found lithium orotate to be effective in individuals seeking to improve mental health and well-being. Since lithium is a naturally occurring mineral, there is a growing opinion amongst nutritionally oriented physicians that lithium augmentation for nutrient deficient diets should be a consideration as clinically indicated.

Lithium has been used with success in a variety of situations other than mood support, including alcohol metabolism, headaches as well as for promoting eye health and visual function.

MECHANISM OF ACTION
The chronic administration of lithium helps to support healthy mood by modulating NMDA (N-methyl-D-aspartate) receptors in the brain; NMDA receptors are stimulated by the excitatory neurotransmitter glutamate. Abnormally stimulated glutamatergic neurotransmission pathways contribute to exaggerated mood fluctuations and suboptimal neural health. Long term lithium administration (7 days or more) has been shown to inhibit calcium uptake by the NMDA glutamate receptor. Adequate intracellular calcium concentrations are necessary because calcium serves as a ‘second messenger’ when cells receive signals from outside stimuli.

Lithium also alters sodium transport and interferes with other ion exchange mechanisms, altering nerve conduction. Lithium can replace sodium in extracellular fluid. During the process of depolarization, lithium has an extremely rapid intracellular influx; however, lithium is not effectively removed by the sodium pump which prevents the cellular re-entry of potassium. As a result, lithium alters the electrolyte distribution across the neuronal membrane, leading to a fall in membrane potential and decreased nerve excitability.

Lithium’s Mood-Balancing Properties
The orotate form of lithium is used by doctors to help stabilize and equilibrate mood. It is helpful in making the highs and lows less as research suggests lithium works to reduce mood swings and enhance feelings of well-being, when taken regularly.

Lithium Orotate Compared to Other Lithium Salts
Lithium is available in several forms; the most common are the lithium carbonate and lithium citrate forms. Because of the poor bioavailability of lithium carbonate and citrate, high dosages of these forms of lithium are normally required (2,400 mg-3,600 mg per day) to achieve the desired benefits.

Research suggests the lithium salt of orotic acid (lithium orotate) may be more bioavailable than the carbonate and citrate forms. Because of this improved bioavailability, lower doses of lithium orotate than either lithium carbonate or lithium citrate may be used in the clinical setting to achieve beneficial concentrations and relatively stable serum concentrations.

*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.

Information contained in this Product Technical Sheet is for educational purposes only and is not intended to provide personal medical advice. Such advice should be obtained from a medical professional. Reproduction of any part of this work is prohibited. © 2011 Complementary Prescriptions, LLC, the medical division of Vitamin Research Products®.
Brain Protective
A 2007 summary article by Howland, reported that lithium was shown to have the ability to possess both neuroprotective and neurotrophic cellular effects in the brain, suggesting it may be “brain healthy” for patients with decreased effect and useful for patients looking to support neural health. Clinical researchers have reported that lithium inhibits beta-amyloid secretion, and also prevents damage caused by beta-amyloid protein once it’s been formed. Generally speaking, as more beta-amyloid protein accumulates in the brain, brain function may be adversely affected.

A further protective mechanism attributed to lithium is decreasing the over activation of a brain cell protein called tau protein that also contributes to neuronal degeneration as does the formation of neurofibrillary tangles.

Headaches
As Dr. Jonathan Wright reports, “One study examined lithium’s effects on 19 men with cluster headaches.” Eight had rapid improvement, an average 85 percent reduction, in their “headache index” in just two weeks. Four individuals had both cluster headaches and psychiatric symptoms; these four had almost complete elimination of their headaches. The remaining seven had only a slight benefit.” This suggests lithium may also have value in reducing symptoms associated with occasional headaches.

REFERENCES