

# L-Theanine

Patented Ingredient Supports Calm and Relaxation\*



Available in 60 capsules and 120 capsules

## Discussion

Green tea, prepared from the *Camellia sinensis* plant, has been consumed since ancient times for its calming influence. Modern research has looked into this “ancient wisdom” and revealed that L-theanine, an amino acid found almost exclusively in green tea, has specific and positive effects on the brain and nervous system, especially the promotion of relaxation without drowsiness.\*

### Neurological and Brain Support

Human studies suggest that within 40 minutes of oral administration, L-theanine positively affected alpha waves in the brain, a phenomenon indicating relaxation.<sup>[1]</sup> An 8-week, randomized, double-blind, placebo-controlled study, based on the premise that L-theanine “possesses neuroprotective, mood-enhancing, and relaxation properties,”<sup>[2]</sup> suggested that 400 mg of L-theanine per day was found to be safe and effective. A double-blind counterbalanced study suggested that oral L-theanine positively influenced heart rate and salivary IgA levels, attenuated sympathetic nervous system activation, and positively supported individuals’ normal response to stress.<sup>[3]</sup> In examining L-theanine’s effect on cognition, a randomized, double-blind, placebo-controlled study of 91 subjects suggested that individuals taking a combination of L-theanine and green tea extract experienced significant increases in theta waves in several areas of the brain, indicative of increased cognitive alertness.\*<sup>[4]</sup>

In cell studies, L-theanine appears to support neuronal health despite the presence of environmental toxins that ordinarily would increase the vulnerability of nigral dopaminergic neurons and negatively affect their function. L-theanine also appears to support neurological health by exerting a positive and significant impact on neurotrophic factors in the brain and assisting cell-signaling activity.\*<sup>[5]</sup>

Research into animal neurochemistry suggests that L-theanine positively supports overall nervous system health and activity due to its positive effects on serotonin, dopamine, and GABA levels, as well as its modulation of excitatory and inhibitory neurotransmission.<sup>[6,7]</sup> L-theanine crosses the blood–brain barrier intact and may continue to

## Clinical Applications

- » Promotes Relaxation Without Drowsiness\*
- » Supports Nervous System Health and Function\*
- » May Support Blood Pressure Already Within the Normal Range\*
- » Supports Antioxidant and Detoxification Mechanisms\*
- » May Support Liver Health and Function\*

*L-Theanine* is a naturally occurring, unique amino acid found in green tea leaves. L-theanine has been found to reduce stress by promoting relaxation without drowsiness, easing nervousness due to overwork and fatigue, and reducing nervous irritability. Human studies suggest that it may also be useful in supporting concentration and in reducing negative side effects from caffeine. XYMOGEN’s L-Theanine (as Suntheanine®) is protected by several patents based on its positive effects.\*

balance neurochemistry by blocking glutamate transport, significantly reducing levels of extracellular glutamate and supporting the release of dopamine and glycine from neurons.\*<sup>[6,8,9]</sup>

### Hepatic, Detoxification, and Cardiovascular Support

Research studying ethanol metabolism and hepatic toxicity in animals suggests that administration of L-theanine increases liver alcohol dehydrogenase and aldehyde dehydrogenase activity, reducing blood ethanol concentration within 1 hour compared with controls. It is also suggested that L-theanine’s effect on cytochrome P450 2E1 activity, glutathione recovery, and antioxidant mechanisms supports healthy liver tissue and function.<sup>[10-12]</sup> L-theanine was observed to significantly inhibit hydrogen peroxide–induced cell death, and it may play an important role in the maintenance of liver health.<sup>[13]</sup> L-theanine, along with green tea polyphenols, was found to provide antioxidant activity that supports healthy LDL and oxidation levels and may subsequently support cardiovascular health.<sup>[14-16]</sup> Animal and human studies suggest that L-theanine supports healthy blood pressure in the normal range, in part because it moderates the negative side effects of caffeine.\*<sup>[1,17,18]</sup>

### L-theanine and Suntheanine®

Although theanine exists in both L- and D-forms, L-theanine is the preferred form because of its greater intestinal absorption and renal retention.<sup>[19]</sup> An analysis of 6 commercial products revealed that 5 of them contained poorly absorbed D-theanine along with L-theanine. Only Suntheanine, the brand in XYMOGEN’s L-Theanine, contained exclusively the preferred L-theanine enantiomer.<sup>[20]</sup> Suntheanine is multi-patent protected, including for its use in reducing anxiety and promoting relaxation. XYMOGEN’s L-Theanine provides 400 mg of Suntheanine L-theanine per 2-capsule dose.\*

\*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.

## L-Theanine Supplement Facts

Serving Size: 2 Capsules

	Amount Per Serving	%Daily Value
L-Theanine <sup>S1</sup>	400 mg	**
** Daily Value not established.		


**Other Ingredients:** Capsule (hypromellose and water), microcrystalline cellulose, ascorbyl palmitate, and medium-chain triglyceride oil.

**DIRECTIONS:** Take one to two capsules twice daily, or as directed by your healthcare professional.

Consult your healthcare professional prior to use. Individuals taking medication should discuss potential interactions with their healthcare professional. Do not use if tamper seal is damaged.

**STORAGE:** Keep closed in a cool, dry place out of reach of children.

**FORMULATED TO EXCLUDE:** Wheat, gluten, corn, yeast, soy, animal and dairy products, fish, shellfish, peanuts, tree nuts, egg, sesame, ingredients derived from genetically modified organisms (GMOs), artificial colors, and artificial sweeteners.

 <sup>S1</sup> Suntheanine<sup>®</sup> is a registered trademark of Taiyo International, Inc. U.S. and International patents pending. U.S. patent Nos. 6831103, 6589566, 6297280.



## References

1. Juneja LR, Chu D-C, Okubo T, et al. L-theanine – a unique amino acid of green tea and its relaxation effect in humans. *Trends Food Sci Technol*. 1999;10:199-204. [http://dx.doi.org/10.1016/S0924-2244\(99\)00044-8](http://dx.doi.org/10.1016/S0924-2244(99)00044-8).
2. Ritsner MS, Miodownik C, Ratner Y, et al. L-theanine relieves positive, activation, and anxiety symptoms in patients with schizophrenia and schizoaffective disorder: an 8-week, randomized, double-blind, placebo-controlled, 2-center study. *J Clin Psychiatry*. 2011 Jan;72(1):34-42. [PMID: 21208586]
3. Kimura K, Ozeki M, Juneja LR, Ohira H. L-Theanine reduces psychological and physiological stress responses. *Biol Psychol*. 2007 Jan;74(1):39-45. [PMID: 16930802]
4. Park SK, Jung IC, Lee WK, et al. A combination of green tea extract and L-theanine improves memory and attention in subjects with mild cognitive impairment: a double-blind placebo-controlled study. *J Med Food*. 2011 Apr;14(4):334-43. [PMID: 21303262]
5. Cho HS, Kim S, Lee SY, et al. Protective effect of the green tea component, L-theanine on environmental toxins-induced neuronal cell death. *Neurotoxicology*. 2008 Jul;29(4):656-62. [PMID: 18452993]
6. Yokogoshi H, Kobayashi M, Mochizuki M, et al. Effect of theanine, r-glutamylethylamide, on brain monoamines and striatal dopamine release in conscious rats. *Neurochem Res*. 1998 May;23(5):667-73. [PMID: 9566605]
7. Nathan PJ, Lu K, Gray M, et al. The neuropharmacology of L-theanine (N-ethyl-L-glutamine): a possible neuroprotective and cognitive enhancing agent. *J Herb Pharmacother*. 2006;6(2):21-30. Review. [PMID: 17182482]
8. Yamada T, Terashima T, Okubo T, et al. Effects of theanine, r-glutamylethylamide, on neurotransmitter release and its relationship with glutamic acid neurotransmission. *Nutr Neurosci*. 2005 Aug;8(4):219-26. [PMID: 16493792]
9. Kakuda T, Hinoi E, Abe A, et al. Theanine, an ingredient of green tea, inhibits [3H] glutamine transport in neurons and astroglia in rat brain. *J Neurosci Res*. 2008 Jun;86(8):1846-56. [PMID: 18293419]
10. Sadzuka Y, Inoue C, Hirooka S, et al. Effects of theanine on alcohol metabolism and hepatic toxicity. *Biol Pharm Bull*. 2005 Sep;28(9):1702-6. [PMID: 16141543]
11. Li G, Ye Y, Kang J, et al. L-Theanine prevents alcoholic liver injury through enhancing the antioxidant capability of hepatocytes. *Food Chem Toxicol*. 2012 Feb;50(2):363-72. [PMID: 22019691]
12. Sugiyama T, Sadzuka Y. Theanine, a specific glutamate derivative in green tea, reduces the adverse reactions of doxorubicin by changing the glutathione level. *Cancer Lett*. 2004 Aug 30;212(2):177-84. [PMID: 15279898]
13. Li G, Kang J, Yao X, et al. The component of green tea, L-theanine protects human hepatic L02 cells from hydrogen peroxide-induced apoptosis. *European food research & technology (Internet)*. 2011;233(3):427-35. <http://cat.inist.fr/?aModele=afficheN&cpsid=24465632>. Accessed March 28, 2012.
14. Yokozawa T, Dong E. Influence of green tea and its three major components upon low-density lipoprotein oxidation. *Exp Toxicol Pathol*. 1997 Dec;49(5):329-35. [PMID: 9455677]
15. Dufresne CJ, Farnworth ER. A review of latest research findings on the health promotion properties of tea. *J Nutr Biochem*. 2001 Jul;12(7):404-421. [PMID: 11448616]
16. NutriScience. Suntheanine<sup>®</sup> (Introduction). <http://www.l-theanine.com/intro.htm>. Accessed March 29, 2012.
17. Rogers PJ, Smith JE, Heatherley SV, et al. Time for tea: mood, blood pressure and cognitive performance effects of caffeine and theanine administered alone and together. *Psychopharmacology (Berl)*. 2008 Jan;195(4):569-77. [PMID: 17891480]
18. NutriScience Innovations. Suntheanine<sup>®</sup>. <http://www.nutriscienceusa.com/npSuntheanine.htm>. Accessed March 29, 2012.
19. Desai MJ, Gill MS, Hsu WH, et al. Pharmacokinetics of theanine enantiomers in rats. *Chirality*. 2005 Mar;17(3):154-62. [PMID: 15704209]
20. Desai MJ, Armstrong DW. Analysis of derivatized and underivatized theanine enantiomers by high-performance liquid chromatography/atmospheric pressure ionization-mass spectrometry. *Rapid Commun Mass Spectrom*. 2004;18(3):251-6. [PMID: 14755608]

Additional references available upon request

All XYMOGEN<sup>®</sup> Formulas Meet or Exceed cGMP Quality Standards.

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DRS-186  
Rev. 09/05/23

