

# 5-HTP

## A Brain Serotonin Precursor

### DESCRIPTION

5-HTP, provided by Douglas Laboratories®, contains 50 mg of natural L-5-Hydroxytryptophan (5-HTP) extracted from seeds of the Griffonia plant in each vegetarian capsule.

### FUNCTIONS

Serotonin, an important brain neurotransmitter, is key in the regulation of appetite, mood, and melatonin production. The presence of serotonin in the brain is associated with a balanced emotional state. This is achieved in part by decreasing the activity of certain excitatory hormones, including dopamine and noradrenaline. Serotonin also acts as a satiety signal in the brain, thereby naturally regulating food intake.

Additionally, as a precursor of melatonin, serotonin is involved in regulating sleep patterns.

Serotonin is unable to cross the blood-brain barrier and is therefore synthesized in the brain.

Tryptophan, an essential amino acid, is a precursor for the synthesis of serotonin. Tryptophan crosses the blood-brain barrier and is converted to L-5-Hydroxytryptophan (5-HTP), which in turn is converted into serotonin. Unfortunately, tryptophan faces many obstacles during its journey into brain tissue. First, dietary intake directly affects body levels of tryptophan, as the body can not produce it endogenously. High protein diets often provide greater amounts of tryptophan, yet higher carbohydrate diets appear to enhance tryptophan uptake into the brain. Secondly, tryptophan must compete with other amino acids for entry into the brain. Finally, tryptophan may be taken up by other tissues for protein or niacin synthesis, and thus is not exclusively for use by the brain.

As a metabolic intermediate in the conversion of tryptophan into serotonin, 5-HTP can also serve as a precursor of serotonin. 5-HTP offers a number of advantages over tryptophan. 5-HTP is derived naturally from the seeds of the Griffonia plant, unlike tryptophan which is produced synthetically or through bacterial fermentation. 5-HTP crosses into

the brain more readily than tryptophan as it is able to cross the blood-brain barrier without competition for uptake. 5-HTP is significantly more effective than tryptophan; one 50 mg capsule of 5-HTP is roughly equivalent to 500 mg of tryptophan. Finally, research studies have shown 5-HTP to be safe at levels as high as 900 mg. As a result, 5-HTP is a safe and effective means of increasing brain serotonin levels.

### INDICATIONS

5-HTP capsules may be a useful nutritional supplement for individuals wishing to obtain the benefits of this well-documented plant extract.

### FORMULA (5HTP)

Each vegetarian capsule contains:

L-5-Hydroxytryptophan.....50 mg

### SUGGESTED USE

One to two capsules per day, between meals or as directed by a physician. Vitamin B6 is necessary for the conversion of 5-HTP to serotonin; thus, to derive optimal benefits of 5-HTP, one must ensure an adequate intake of vitamin B6.

### SIDE EFFECTS

No adverse effects have been reported.

### STORAGE

Store in a cool, dry place, away from direct light. Keep out of reach of children.

### REFERENCES

Agren H, Reibring L, Hartvig P, et al. Low brain uptake of L-[11C]5-hydroxytryptophan in major depression: a positron emission tomography study on patients and healthy volunteers. *Acta Psychiatr Scand* 1991;83(6):449-455.

Babal K. The fall and rise of tryptophan. *Nutrition Science News* 1998;3(2):60-64.

Blundell JE. Serotonin and appetite. *Neuropharmacology* 1984;23(12B):1537-1551

Byerley WF, Risch SC. Depression and serotonin metabolism:

rationale for neurotransmitter precursor treatment. *J Clin Psychopharmacol* 1985;5(4):191-206.

Cahill GM, Besharse JC. Circadian regulation of melatonin in the retina of *Xenopus laevis*: limitation by serotonin availability. *J Neurochem* 1990;54(2):716-719.

Cowley G, Underwood, A. A little help from serotonin. *Newsweek* Dec. 29, 1997/Jan. 5, 1998;78-81.

Goldbloom DS, Garfinkel, PE, Katz, R, Brown, GM. The hormonal response to intravenous 5-hydroxytryptophan in bulimia nervosa. *J Psychosom Res* 1996;40(3):289-297.

Ju CY, Tsai CT. Serotonergic mechanisms involved in the suppression of feeding by 5-HTP in rats. *Chin J Physiol* 1995;38(4):235-240.

Namboodiri MA, Sugden D, Klein DC, Mefford IN. 5-hydroxytryptophan elevates serum melatonin. *Science* 1983;221(4611):659-661.

Nicolodi M, Sicuteri F. Fibromyalgia and migraine, two faces of the same mechanism. Serotonin as the common clue for pathogenesis and therapy. *Adv Exp Med Biol* 1996;398:373-379.

Nolen WA, van de Putte JJ, Dijken WA, Kamp JS. L-5HTP in depression resistant to re-uptake inhibitors. An open comparative study with tranylcypromine. *Br j Psychiatry* 1985;147:16-22.

Richter-Levin G, Segal M. Serotonin, aging, and cognitive functions of the hippocampus. *Rev Neurosci* 1996;7(2):103-113.

van Praag HM. Management of depression with serotonin precursors. *Biol Psychiatry* 1981;16(3):291-310.

van Praag HM, Kahn RS. L-5-hydroxytryptophan in depression and anxiety. *Schweiz Rundsch Med Prax* 1988;77(34A):40-46.

van Praag HM. Serotonin precursors in the treatment of depression. *Adv Biochem Psychopharmacol* 1982;34:259-286.

van Vliet IM, Slaap BR, Westenbergh HG, Den Boer JA. Behavioral, neuroendocrine, and biochemical effects of different doses of 5-HTP in panic disorder. *Eur Neuropsychopharmacol* 1996;6(2):103-110.

Zmilacher K, Battagay R, Gastpar M. L-5-hydroxytryptophan alone and in combination with a peripheral decarboxylase inhibitor in the treatment of depression. *Neuropsychobiology* 1988;20 (1) :28-35.

**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.**

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