

Coleus Extract

A Standardized Ayurvedic Extract

DESCRIPTION

Coleus Extract vegetarian capsules, provided by Douglas Laboratories, contain 250 mg of *Coleus forskohlii* leaf extract, standardized to a minimum of 10% forskolin.

FUNCTIONS

In its native India, coleus has been used in the ancient medical system of Ayurveda for centuries. Ayurvedic traditions recommend coleus to aid the health of the heart, respiratory system, and digestive tract, among other uses.

Coleus forskohlii is the only plant known to contain the diterpenoid forskolin. Forskolin activates adenylate cyclase, which in turn activates cyclic adenosine monophosphate (cAMP), an intracellular second messenger responsible for inducing the cellular response to hormonal activation. Because forskolin effectively activates cAMP, it has been used in numerous research studies to explore the mechanisms and effects of cAMP.

Within the body, hormones bind to extracellular membrane receptors on their target cells. Following hormone-receptor binding, adenylate cyclase is activated from the inner cellular membrane. Adenylate cyclase catalyzes the conversion of adenosine triphosphate (ATP) to cAMP. This conversion fosters the activation of cAMP-dependent enzymes. The cAMP-dependent enzymes in turn activate or inhibit the specific enzymes within the cell, thereby eliciting the response associated with the binding hormone. Catecholamines, adrenocorticotrophic hormone, and vasopressin are among the many hormones that elicit action via the cAMP second messenger system.

Forskolin activates adenylate cyclase, thereby increasing cAMP levels without direct hormonal stimulation. By activating cAMP, forskolin can direct the activation of the many, diverse cAMP-activated enzymes.

Laboratory and clinical studies have documented several benefits of forskolin. Forskolin has cardiac inotropic properties in that it appears to help strengthen heart muscle contractability. Forskolin promotes vasodilation, thereby decreasing peripheral vascular resistance. Compounds in coleus including, but not limited to, forskolin, provide further benefit to the cardiovascular system by inhibiting platelet aggregating factor. Forskolin has also been shown to promote bronchodilation, in part by helping to relax airway smooth muscles and by inhibiting histamine and leukotriene release.

Other research studies suggest forskolin may stimulate

lipolysis by increasing adipose cell cAMP levels. Forskolin may also stimulate the release of thyroid hormone and potentiate glucose-mediated insulin release.

INDICATIONS

Coleus Extract capsules may be a beneficial nutritional supplement for individuals who wish to obtain the natural properties of this standardized botanical extract.

FORMULA (#99247)

Each vegetarian capsule contains:

Coleus forskohlii leaf, dried extract
min. 10% forskolin 250 mg

SUGGESTED USE

1 to 2 capsules daily as a dietary supplement or as directed by a physician.

SIDE EFFECTS

No adverse side effects have been reported with oral administration of coleus extract.

STORAGE

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

REFERENCES

- Adnot S et al. Forskolin: a powerful inhibitor of human platelet aggregation. *Biochemical Pharmacology* 1982;31:4071-4074.
- Baumann G et al. Cardiovascular effects of forskolin (HL 362) in patients with idiopathic congestive cardiomyopathy – a comparative study with dobutamine and sodium nitroprusside. *J Cardiovasc Pharmacol* 1990;16(1):93-100.
- Bhat SV et al. The antihypertensive and positive inotropic diterpene forskolin: effects of structural modifications on its activity. *Journal of Med Chem* 1983;26:486-492.
- de Souza NJ, Dohadwalla AN, Reden J. Forskolin: a labdane diterpenoid with antihypertensive, positive inotropic, platelet aggregation inhibitory, and adenylate cyclase activating properties. *Med Res Rev* 1983;3(2):201-19.
- Kreutner RW et al. Bronchodilator and antiallergy activity of forskolin. *European Journal of Pharmacology* 1985;111:1-8.
- Laurberg P. Forskolin stimulation of thyroid secretion of T4 and T3. *FEBS Letters* 1984;170:273-275.
- Laurenza A, Sutkowski EM, Seamon KB. Forskolin: a specific stimulator of adenylyl cyclase or a diterpene with multiple sites of action? *Trends Pharmacol Sci* 1989;10(11):442-7.
- Linder E, Dohadwalla AN, bhattacharya BK. Positive inotropic and blood pressure lowering activity of a diterpene derivative isolated from *Coleus forskohlii*: forskolin. *Arzneimittel forschung* 1978;28:284-289.
- Marone G et al. Inhibitor of IgE-mediated release of histamine and peptide

leukotriene from human basophil and mast cells by forskolin. *Biochem Pharmacol* 1987;36(1):13-20.

Okuda H, Morimoto C, Tsujita T. Relationship between cyclic AMP production and lipolysis induced by forskolin in rat fat cells. *Journal of Lipid Research* 1992;33:225-231.

Mulhall JP et al. Intracavernosal forskolin: role in management of vasculogenic impotence resistant to standard 3-agent pharmacotherapy. *J Urol* 1997;158(5):1752-8.

Seamon KB, Daly JW. Forskolin: a unique diterpene activator of cyclic AMP-generating systems. *Journal of Cyclic Nucleotide Research*; 1981;7:201-225.

Seamon KB, Daly JW. Forskolin: its biological and chemical properties. *Adv Cyclic Nucleotide Protein Phosphorylation Res* 1986;20:1-150.

Snow JM. Herbal monograph: *Coleus forskohlii* WILLD. (*Lamiaceae*). *The Protocol Journal of Botanical Medicine* 1995:39-42.

**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.**

**Manufactured by
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