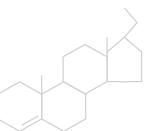


# AdreCor with Licorice Root

Increases cortisol levels and provides non-glandular ingredients important for adrenal health, energy, wakefulness, and stress management\*

Item Number	Available Sizes	Serving Size
2097	90 Capsules	3 Capsules





# Key Ingredients

Glycyrrhizic acid (from Licorice root extract)  Glycyrrhetinic acid (metabolite of glycyrrhizic acid) binds 11β-hydroxysteroid dehydrogenase 2 (11βHSD2) to inhibit the breakdown of cortisol<sup>1\*</sup>

L-histidine

- Precursor to histamine
- In the central nervous system, histamine plays an important role in the release of pituitary hormones and wakefulness<sup>2</sup>

L-methionine

- Precursor to S-adenosylmethionine (SAMe)³
- SAMe is directly involved in methylation processes including catecholamine synthesis<sup>4</sup>

L-tyrosine

 Precursor to catecholamines including dopamine, norepinephrine, and epinephrine

Rhodiola rosea root extract (5% rosavins)

- Adaptogen that has been shown to reduce stress-induced effects<sup>5,6\*</sup>
- Research shows Rhodiola rosea was shown to significantly improve mental fatigue and general well-being under stress<sup>6\*</sup>

Green tea leaf extract (Camellia sinensis) (65% EGCG)

- Epigallocatechin gallate (EGCG) is a polyphenol in green tea that provides antioxidant protection by its ability to scavenge free radicals and metal ions<sup>7\*</sup>
- EGCG has been shown to increase resistance to fatigue in vivo<sup>8\*</sup>

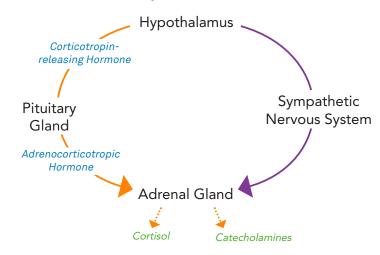
Vitamins B and C

 Active forms of pantothenic acid, niacin, B6, folate, B12, and C are important for the synthesis of adrenal hormones and neurotransmitters<sup>9-14\*</sup>

### The Science

- In response to stress, the sympathetic nervous system (SNS) and hypothalamic-pituitary-adrenal (HPA) axis signal to the adrenals to release catecholamines (norepinephrine and epinephrine) and cortisol<sup>15</sup>
- Prolonged stress is associated with dysregulation of the HPA axis, which can affect catecholamine and cortisol levels<sup>16</sup>

### NeuroAdrenal Response



Green = Biomarker

Blue = Hormone

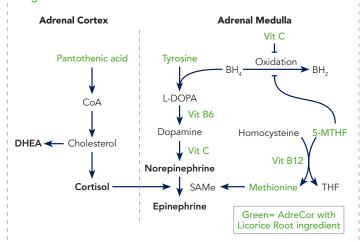
Orange = Hypothalamic-Pituitary-Adrenal (HPA) axis

Purple = Sympathomedullary Pathway

\*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.

## MORE SCIENCE BEHIND ADRECOR WITH LICORICE RO

Figure 1. Adrenal Hormones and Neurotransmitters



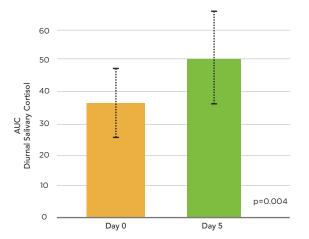
#### AdreCor with Licorice Root and adrenal health

Contains amino acids and vitamins important for the synthesis of adrenal hormones and neurotransmitters\*

- 5-MTHF (from Quatrefolic®) and vitamin B12 are important for methylation processes including the synthesis of catecholamines13\*
- Niacin, vitamin C, and 5-MTHF help protect and regenerate tetrahydrobiopterin (BH<sub>4</sub>) from oxidation<sup>10-12\*</sup>
- Pantothenic acid is the precursor to coenzyme A (CoA), a coenzyme important for energy production and hormone synthesis9\*
- Cortisol induces the conversion of norepinephrine to epinephrine<sup>16</sup>

Catecholamines play an important role in mood, energy, memory, attention and cognition 17-20





#### Cortisol, HPA axis, and fatigue

Cortisol awakening response (CAR) refers to the sharp increase in cortisol levels observed immediately following awakening<sup>22</sup>

- CAR function is thought to be important in regaining arousal after sleep and preparing the body for forthcoming bioenergetic demands<sup>22</sup>
- Cortisol curves lacking a robust CAR are indicative of HPA axis dysregulation and have been correlated with feelings of fatigue<sup>23,24</sup>

#### AdreCor with Licorice Root increases cortisol levels<sup>21\*</sup>

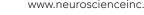
- Participants (n = 19) were prescreened for low cortisol levels
- AdreCor with Licorice Root (3 capsules, twice daily) was taken for four consecutive days
- Mean total cortisol levels (area under the curve AUC) were higher on Day 5 compared to Day 0 (p = 0.004)<sup>21\*</sup>







van Gelderen C, et al. Hum Exp Toxicol. 2000;19(8):434-9. Krystal A, et al. Sleep Med Rev. 2013;17(4):263-72. Duncan T, et al. Mol Nutr Food Res. 2013;57(4):628-36. Mischoulon D and Fava M. Am J Clin Nutr. 2002;7(5):1158S-61S. Chiang H, et al. J Food Drug Anal. 2015;23(3):359-69. Spasov A, et al. Phytomedicine. 2000;7(2):85-9. Legeay S, et al. Nutrients. 2015;7(7):5443-68. Teng Y and Wu D. Pharmacogn Mag. 2017;13(50):326-31. Ragaller V, et al. J Anim Physiol Anim Nutr (Berl). 2011;95(1):6-16. Vrecko K, et al. Biochim Biophys Acta. 1997;1361(1):59-65. May J, et al. Brain Res Bull. 2013;90:35-42. Antoniades C, et al. Circulation. 2006;114(11):1193-201.





Learn more about TravaCor at www.neuroscienceinc.com/products/travacor

- Mattson M and Shea T. Trends Neurosci. 2003;26(3):137-46.
  Dakshinamurti K. Ann NY Acad Sci. 1990;585:128-44.
  Lee D, et al. BMB Rep. 2015;48(4):209-16.
  Krizanova O, et al. Stress. 2016;19(4):419-28.
  Blier P. J Psychiatry Neurosci. 2001;26 Suppl:51-2.
  Verhoeff N, et al. Pharmacol Biochem Behav. 2003;74(2):425-32.
  Xing B, et al. Brain Res. 2016;1641(Pt B):217-33.
  Clark K and Noudoost B. Front Neural Circuits. 2014;8:33.
  Data on file. 2012. NeuroScience, Inc., Osceola, WI. 54020.
  Elder G, et al. Sleep Med Rev. 2014;18(3):215-24.
  Incollingo Rodriguez A, et al. Psychoneuroendocrinology. 2015;62:301-18.
  Adam E, et al. Proc Natl Acad Sci USA. 2006;103(45):17058-63.

If you have cardiovascular concerns or if you are pregnant or nursing, consult your healthcare provider before use.

‡ Magnafolate is a registered trademark of Lianyungang Jinkang Pharmaceutical Technology Co., Ltd.

<sup>\*</sup>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.