

For the evolution of your mind®



Cognizin's Scientific Advantages

The cognitive health supplement market has been growing steadily since 2003, and is estimated at more than \$450-million-a-year. Cognizin® is a patented ingredient researched to help provide three primary brain health benefits:

1. Supports Mental Energy*
2. Promotes Focus and Attention*
3. Supports overall Cognitive Health*

What is Cognizin?

Cognizin is a branded form of Citicoline, a substance found in every cell of the body and especially vital to brain health.* Citicoline is broken down during intestinal absorption and, after passing through the blood/brain barrier, is reconstituted in the brain as citicoline.* Citicoline is a water-soluble compound that:

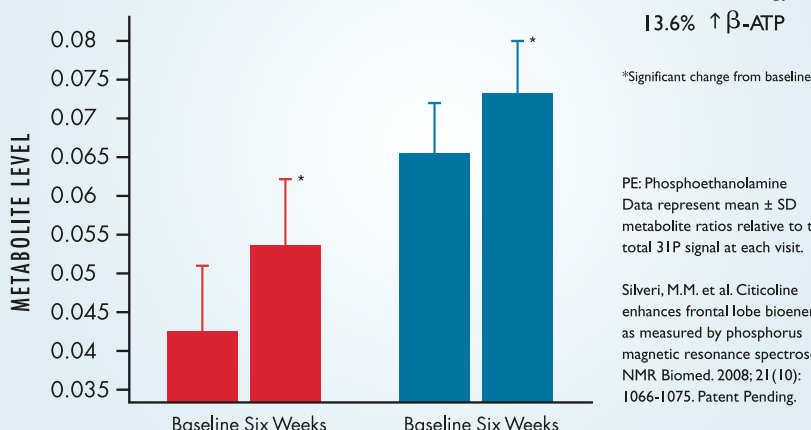
- Supplies precursors for the synthesis of phospholipids, including phosphatidylcholine, a major constituent of brain tissue*
- Helps maintain normal levels of acetylcholine, a chemical that regulates cognitive function*
- Promotes communication between neurons*
- Protects neural structures from free radical damage*
- Supports healthy brain activity and metabolism*
- Helps sustain healthy cellular mitochondria to support cognitive health and energy*

Cognizin®

For the evolution of your mind®

*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.

Cognizin® Citicoline Increases Cellular Synthesis and Energy



Cognizin and energy

Energy reserves play a critical role in healthy brain function. The first vital benefit of Cognizin Citicoline is its ability to help support the brain's energy producing centers.* While the brain makes up only two percent of a person's body weight, it consumes roughly 20 percent of the body's energy when at rest. When performing difficult mental activities, the brain needs even more energy. Clinical research indicates that citicoline supports the health of mitochondria, the powerhouses within cells that actually produce the brain's energy.* Healthy mitochondrial function results in higher levels of ATP—the body's main energy storage molecule—in brain cells.

Cognizin and focus

The second brain-health benefit of Cognizin Citicoline is that it promotes focus and concentration.* The ability to focus requires:

1. An adequate ongoing supply of energy
2. Healthy communication between neurons

Not only does Cognizin support healthy brain metabolism, but it also aids in neural communication by protecting neural structures

against free radical damage and by facilitating the transmission of information through healthy cell membranes.* To function optimally, cell membranes need adequate levels of phospholipids. Phospholipids are a combination of lipids (fats) and the mineral phosphorus that line cell membranes and help determine what is allowed in and out of the cell. Cognizin is a water-soluble compound essential for the synthesis of phosphatidylcholine, the phospholipid that makes up approximately 30 percent of brain tissue. By increasing the body's supply of these essential phospholipids, Cognizin supports healthy brain activity.*

Cognitive health

Cognizin Citicoline is often called a "brain nutrient" because it increases levels of several important neurotransmitters, including acetylcholine, an important brain chemical that regulates cognitive function. Cognizin has also been shown to support the activity of nerves that respond to acetylcholine, helping to raise activity levels in the brain's learning and communication circuits.*

Cognizin's Marketing Advantages



The brain's energy consumption

The brain makes up only two percent of a person's body weight, yet it consumes roughly 20 percent of the body's energy when at rest. Cognizin® helps supply the nutrition that the human brain needs to stay alert and focused throughout the entire day.



The following claims are provided for informational purposes and should be reviewed by your legal counsel prior to use in marketing materials, including product labels.

- Cognizin® supports focus and attention* 4,10,11,13 (≥250mg)
- Cognizin® assists your ability to stay focused* 4,10,11,13 (≥250 mg)
- Cognizin® supports focus to reduce errors while on task* 11,13 (≥250 mg)
- Cognizin® supports energy utilization in the brain* 5,7,9,15 (≥500 mg)
- Cognizin® to support brain and cognitive health* 9,10,11,12,13 (≥250mg)
- Cognizin® is a brain health ingredient that provides nutritional support for attention, focus and brain energy* 9,11,13 (≥250mg)
- Cognizin® supports phospholipid metabolism in the brain* 1,3,5,7,9
- Cognizin® supports acetylcholine production* 1,4,7
- Cognizin® supports brain DNA synthesis and repair* 1,4,7
- Cognizin® supports brain cell signaling* 4,5,7,14
- Cognizin® supports dopamine and norepinephrine production* 4,7,14,15

Cognizin is easy to use

Manufacturers and formulators will love the more practical benefits of Cognizin. This ingredient is:

- **Pure.** Cognizin contains no food additives, artificial flavors or preservatives.
- **Stable.** Cognizin is stable in liquids and to high heat.
- **Water-soluble.** Water-soluble Cognizin is easy to use in beverages and liquids.
- **Neutral in taste.** Cognizin's neutral and slightly acidic taste compliments numerous product flavors.
- **GRAS.** Cognizin achieved self-affirmed GRAS status in 2009 and is considered safe for food and beverage applications.
- **Vegetarian.** No animal origin material is used in Cognizin.
- **Allergen-free.** Cognizin is considered allergen-free.
- **Kosher.** Cognizin is a certified Kosher ingredient.
- **Patented.** Cognizin is produced by a patented fermentation process.

Cognizin product applications

Cognizin is suitable for use in:

- Dietary supplements
- Beverages and beverage bases
- Breakfast cereals
- Chewing gum
- Dairy product analogs
- Frozen dairy desserts
- Hard and soft candies
- Milk and milk products
- Processed fruits and fruit juices

Cognizin® is Backed by Kyowa

Kyowa is an international health ingredient manufacturer and a world leader in the development, manufacturing and marketing of nutraceuticals, pharmaceuticals and food products. Part of Kyowa's dedication to ongoing scientific research, quality management and consumer education, the Cognizin® brand leads the way in clinical brain research. Cognizin is backed by:

- Patents approved and patents pending
- Clinical studies published in peer-reviewed journals
- Self-affirmed GRAS status
- Increased consumer awareness

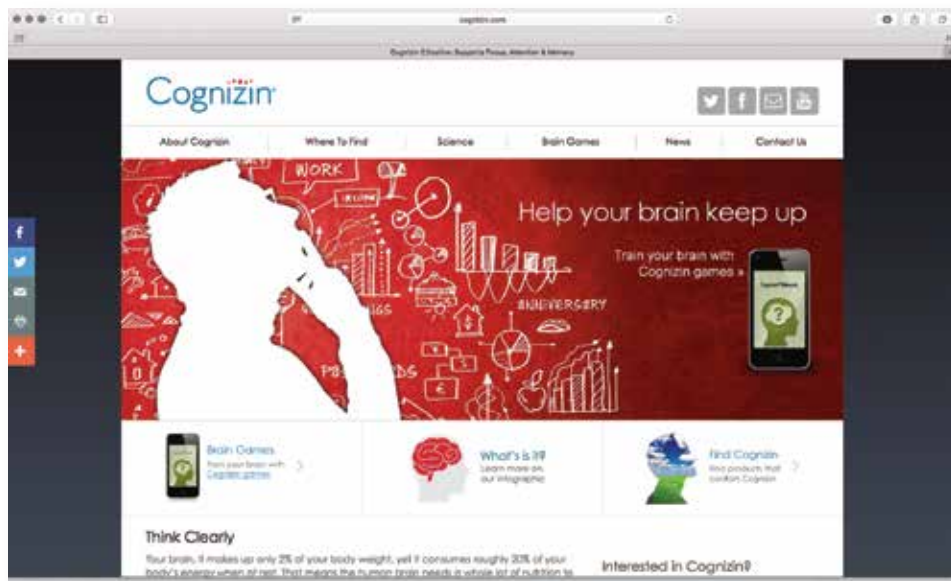
Kyowa is committed to supplying the following marketing support for Cognizin:

- Co-branding program
- Trade education (manufacturers and healthcare professionals)
- Tradeshow events and lectures
- Consumer education
- Dedicated website at www.cognizin.com

- Increased awareness and promotion in national consumer TV, magazines, newspaper and internet communications
- Ongoing public relations campaigns for both trade and consumer
- Social media campaigns for both trade and consumer

Generate breakthrough sales with the ingredient designed to boost brain energy, enhance focus and concentration and improve memory function—Cognizin.*

For more information on including Cognizin in your next product, go to www.kyowa-usa.com.



*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.

1. Wurtman RJ et al. *Biochem Pharmacol.* 2000; 60(7):989-92.
2. Rao AM et al. *J Neurosci Res.* 1999; 58(5):697-705.
3. Lopez-Coviella I et al. *J Neurochem.* 1995; 65(2):889-94.
4. Conant R, Schauss AG. *Alt Med Rev.* 2004; 9:1, 17-31.
5. Babb SM et al. *Psychopharmacology (Berl).* 2002; 161:248-54.
6. Fioravanti M, Yanagi M. *The Cochrane Library*, Oxford, England. 2006; Issue 4.
7. Secades JJ, Lorenzo JL. *Meth Find Exp Clin Pharmacol.* 2006; 27 (Suppl B):1-56.
8. Watanabe S et al. *Folia Psychiatr Neurol Jpn.* 1975; 29(1):67-76.
9. Silveri MM et al. *NMR Biomed.* 2008; 21(10):1066-75.
10. Spiers PA et al. *Arch Neurol.* 1996; 53:441-48.
11. McGlade E. et al., *Food and Nutrition Sciences.* 2012; 3:769-773.
12. Cotroneo AM, et al., *Clin Interv Aging.* 2013; 8: 131-7
13. McGlade E, et al. *J Atten Disord.* 2015.
14. Secades JJ, et al., *Meth find exp clin pharmacol.* 1995; 17 (Suppl B):1-54.
15. Stork C, et al., *Molecular Psychiatry.* 2005; 10: 900-919.



For more information about Cognizin contact:

KYOWA HAKKO USA, INC.

Customer Service: 800.596.9252 info@kyowa-usa.com

600 Third Ave. 19th Floor
New York, NY 10016

Tel: 212.319.5353
Fax: 212.421.1283

www.kyowa-usa.com
www.cognizin.com