

# MTHFR Factor



PURE ESSENCE  
Center for Wellness and Aesthetics



## CLINICAL APPLICATIONS

- Supports Optimal Methylation and Cardiovascular Health
- Supports Healthy Homocysteine Levels
- Increases Neurotransmitter Production
- Supports Primary Detoxification Pathways
- Promotes DNA Repair

in partnership with



MTHFR Factor is a comprehensive formula containing targeted amounts of five key nutrients designed to aggressively support methylation and homocysteine balance in the body. MTHFR Factor provides high-concentration folate (as Quatrefolic®-100% 5-MTHF), the biologically active form, along with trimethyl glycine, and the key methylation vitamins B2, B6, B12 (methylcobalamin). This specific blend of methyl donors promotes DNA repair, homocysteine balance, neurotransmitter production, hormone balance and healthy detoxification.

## Overview

Methylation is a vitamin-requiring biochemical process in the body that is critical for supporting many aspects of mental and physical health, including regulating gene expression. Methylation occurs billions of times every second and helps the body to repair DNA on a continual basis. When methylation processes in the body slow down, an increase in the breakage of DNA strands can occur. In addition to maintaining DNA repair, methylation reactions help maintain optimal neurotransmitter production, homocysteine balance for cardiovascular health, and recycling of molecules that are required for detoxification and supporting healthy inflammatory response. Methylation is also required for proper energy metabolism, immune and nerve cell function. Proper methylation can be inhibited by nutrient deficiencies including folate, and B2, B6 and B12. Certain medications such as acetaminophen, aspirin, ibuprofen and oral contraceptives can also deplete blood levels of these crucial B vitamins.

## Folate† †

Folate is a water soluble member of the B complex vitamins that is critical for maintaining optimal methylation. Folate

is abundantly found in foods such as fruits and dark leafy vegetables but, can be easily destroyed by cooking or processing. Additionally, enzyme defects, malabsorption and congenital deficiency of 5-methylenetetrahydrofolate reductase (5-MTHFR), an enzyme required for the conversion to the bioactive form 5-methyltetrahydrofolate (5-MTHF), can result in an impaired ability to activate folate. 5-MTHF is required as a methyl group donor for the production of mood regulating neurotransmitters such as serotonin, the synthesis of melatonin, as well as DNA production and repair.<sup>1</sup> 5-MTHF also donates its methyl group to vitamin B12 (cobalamin), forming methylcobalamin. Methylcobalamin helps convert the amino acid metabolite homocysteine into the amino acid methionine. Consistent recycling of homocysteine is vital to supporting cardiovascular and arterial health.<sup>1</sup>

## B12 †

Vitamin B12 (cobalamin) works along with folate in many body processes, including the synthesis of DNA, red blood cells and supporting health of the myelin sheath, the insulating exterior that surrounds nerve cells. B12 is found primarily in animal foods.<sup>2</sup> Vegetarians and the elderly run the highest risk of B12 deficiency. B12 is considered by many to be the second most important nutrient in balancing homocysteine levels. Methylcobalamin is the preferred form of B12 as it is the biologically active form of B12 and supports the up-regulation of methylation pathways.<sup>2</sup>

## B6 †

Vitamin B6 is a crucial B vitamin that is involved in the production of proteins in the body, neurotransmitters that help regulate mood, red blood cell formation and the proper functioning of the immune system.<sup>2</sup> B6 is required for more

† 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.

**EFFICACY**  
the power of

than 60 different enzymatic reactions that occur in the body.<sup>2</sup> Vitamin B6 works along with 5-MTHF and B12 in the recycling of homocysteine. B6 also supports a healthy cardiovascular system by promoting healthy platelet aggregation and aids in maintaining normal blood pressure.<sup>3</sup> Vitamin B6 is required for the activation of lysyl oxidase, an enzyme responsible for collagen production- a factor which is crucial for maintaining healthy arterial blood vessels.<sup>4</sup>

## B2† †

Optimizing B2 (riboflavin) status helps support healthy blood pressure. Supporting riboflavin status also appears to stabilize MTHFR, the enzyme required for 5-MTHF which converts homocysteine to methionine. In a study examining 197 subjects with suspected genetic polymorphisms, riboflavin intervention helped to support healthy blood pressure levels.<sup>6</sup>

## Trimethylglycine (Betaine)† †

As a methyl donor, trimethylglycine supports liver function, including detoxification pathways. In animals, trimethylglycine has been shown to protect against chemical damage to the liver.<sup>7,8</sup> Trimethylglycine has been shown to be beneficial in protecting against fat accumulation in the liver, due to its lipotropic properties (donating a methyl group to aid in the transport of fat out of the liver).<sup>9</sup> Trimethylglycine also works alongside B2, B6, B12 and folate in maintaining normal homocysteine levels.

## Directions

1 capsule per day or as recommended by your health care professional.

## Does Not Contain

Gluten, corn, yeast, artificial colors or flavors.

## Cautions

If you are pregnant or nursing, consult your physician before taking this product.

Supplement Facts			V2
Serving Size 1 Capsule			
Servings Per Container 60			
	Amount Per Serving	% Daily Value	
Riboflavin (Vitamin B2 USP)	25 mg	1,923%	
Vitamin B6	50 mg	2,941%	
(as Pyridoxine Hydrochloride USP)			
Folate (from 2,000 mcg as Quatrefolic® (6S)-5-Methyltetrahydrofolic acid glucosamine salt)	3,400 mcg DFE	850%	
Vitamin B12 (as Methylcobalamin)	1,000 mcg	41,667%	
Calcium	65 mg		
Betaine (Trimethylglycine)	500 mg		
* Daily Value not established.			

Other Ingredients:  
Hypromellose (Natural Vegetable Capsule), TriCalcium Phosphate, Microcrystalline Cellulose, Magnesium Stearate, Stearic Acid, Calcium Silicate and Silicon Dioxide.

## References

1. 5-methyltetrahydrofolate. *Altern Med Review* 2006; 11(4).
2. Murray MT. Encyclopedia of Nutritional Supplements. (1996); Prima Publishing: Rocklin, CA.
3. Ayback M. Effect of oral pyroxidine hydrochloride supplementation on arterial blood pressure in patients with essential hypertension. *Arzneim Forsch* 1995;45:1271-1273.
4. Levene CI, Murray JC. The aetiological role of maternal B 6 deficiency in the development of atherosclerosis. *Lancet* 1977;i:628-629.
5. Hustad S, Ueland PM, Vollset SE, Zhang Y, Bjorke-Monsen AL, Schneede J. Riboflavin as a determinant of plasma total homocysteine: effect modification by the methylenetetrahydrofolate reductase C677T polymorphism. *Clin Chem* 2000; 46:1065-1071.
6. Horigan G, McNulty H, Ward M, Strain JJ, Purvis J, Scott J. Riboflavin lowers blood pressure in cardiovascular disease patients homozygous for the 677C > T polymorphism in MTHFR. *J Hypertension* 2012;28(3):478-486.
7. Junnila M, Barak AJ, Beckenhauer HC, Rahko T. Betaine reduces hepatic lipidosis induced by carbon tetrachloride in Sprague-Dawley rats. *Vet Hum Toxicol* 1998;40:263-6.
8. Kim SK, Kim YC, Kim YC. Effects of singly administered betaine on hepatotoxicity of chloroform in mice. *Food Chem Toxicol* 1998;36:655-61.
9. Barak AJ, Beckenhauer HC, Matti J, Tuma DJ. Dietary betaine promotes generation of hepatic S-adenosylmethione and protects the liver from ethanol-induced fatty infiltration. *Alcohol Clin Exp Res* 1993;17:552-5.

ID# 145060 60 Capsules

LT-PDN-101-C

† 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.

**EFFICACY**  
the power of *e*