

The PureGenomics® Methylation Protocol‡

Developed with Nathan Morris, M.D.†

Gene	SNP	Alleles	What it means	Diet & Lifestyle Recommendations	Pure Encapsulations® Products‡
CBS	C699T (rs234706)	T/T (+/+) C/T (-/+) C/C (-/-)	Higher conversion of homocysteine to cystathionine.	(+/+) or (-/+) Ensure adequate intake of vitamin B ₆ . A supplement may be recommended. (-/-) No recommendations	(+/+) or (-/+) <ul style="list-style-type: none"> • P₅P 50 • PureGenomics® Multivitamin • PureGenomics® B Complex (-/-) <ul style="list-style-type: none"> • No recommendations
COMT	Val158Met (rs4680)	Met/Met (+/+) Val/Met (-/+) Val/Val (-/-)	Reduced detoxification of catecholamines and estrogen.	(+/+) or (-/+) Manage stress with meditation, yoga or breathing exercises. Include vegetables such as broccoli, cauliflower, and Brussels sprouts in your diet to support estrogen metabolism. Consider supplement options for hormonal balance and, if applicable, for sleep and relaxation support.† (-/-) No recommendations	(+/+) or (-/+) <ul style="list-style-type: none"> • Lithium (orotate) 5 mg • Magnesium (glycinate) • Adenosyl/Hydroxy B₁₂ • DIM Detox • SAMe • PureGenomics® Multivitamin • PureGenomics® B Complex (-/-) <ul style="list-style-type: none"> • No recommendations
FUT2	G772A (rs602662)	A/A (+/+) G/A (-/+) G/G (-/-)	Modified risk of low B ₁₂ status; potential for lower intestinal microbial diversity.	(+/+) Include yogurt, kefir and fermented foods in your diet. (-/-) or (-/-) You may need a vitamin B ₁₂ supplement.	(+/+) <ul style="list-style-type: none"> • Probiotic-5 • PureGenomics® Multivitamin (-/+) or (-/-) <ul style="list-style-type: none"> • B₁₂ 5,000 liquid (use Adenosyl/Hydroxy B₁₂ if COMT +/+ or +/-) • PureGenomics® Multivitamin • PureGenomics® B Complex
MTHFR	C677T (rs1801133)	T/T (+/+) C/T (-/+) C/C (-/-)	Reduced ability to activate folates to 5-MTHF.	(+/+) or (-/+) Eat plenty of green, leafy vegetables, which provide folate in a form the body can use. (-/-) No recommendations	(+/+) or (-/+) <ul style="list-style-type: none"> • Folate 1,000 • PureGenomics® Multivitamin • PureGenomics® B Complex (-/-) <ul style="list-style-type: none"> • No recommendations
MTHFR	A1298C (rs1801131)	C/C (+/+) A/C (-/+) A/A (-/-)	Reduced ability to activate folates to 5-MTHF.	(+/+) or (-/+) Eat plenty of green, leafy vegetables, which provide folate in a form the body can use. (-/-) No recommendations	(+/+) or (-/+) <ul style="list-style-type: none"> • Folate 1,000 • PureGenomics® Multivitamin • PureGenomics® B Complex (-/-) <ul style="list-style-type: none"> • No recommendations
MTR	A2756G (rs1805087)	G/G (+/+) A/G (-/+) A/A (-/-)	Potential B ₁₂ depletion.	(+/+) or (-/+) You may need a vitamin B ₁₂ supplement. (-/-) No recommendations	(+/+) or (-/+) <ul style="list-style-type: none"> • Methylcobalamin 1,000 mcg • B₁₂ Folate • PureMelt B₁₂ Folate • PureGenomics® Multivitamin • PureGenomics® B Complex Use Adenosyl/Hydroxy B ₁₂ if COMT +/+ or +/- (-/-) <ul style="list-style-type: none"> • No recommendations
MTRR	A66G (rs1801394)	G/G (+/+) A/G (-/+) A/A (-/-)	Slower regeneration of B ₁₂ .	(+/+) or (-/+) You may need a vitamin B ₁₂ supplement. (-/-) No recommendations	(+/+) or (-/+) <ul style="list-style-type: none"> • Methylcobalamin 1,000 mcg • PureGenomics® Multivitamin • PureGenomics® B Complex Use Adenosyl/Hydroxy B ₁₂ if COMT +/+ or +/- (-/-) <ul style="list-style-type: none"> • No recommendations
TCN2	C766G (rs1801198)	G/G (+/+) C/G (-/+) C/C (-/-)	Associated with lower levels of bioavailable B ₁₂ .	(+/+) or (-/+) You may need a vitamin B ₁₂ supplement. (-/-) No recommendations	(+/+) or (-/+) <ul style="list-style-type: none"> • B₁₂ 5,000 liquid • PureGenomics® Multivitamin • PureGenomics® B Complex Use Adenosyl/Hydroxy B ₁₂ if COMT +/+ or +/- (-/-) <ul style="list-style-type: none"> • No recommendations

Please note that these SNPs are markers of genetic predisposition supported by a limited, yet evolving body of evidence. Due to the many factors that modify their effects on physiology, a positive result does not necessarily mean that any or all of the recommended supplements are needed. Consider additional methods, such as those listed under Assessment Recommendations, to determine the need for support.

†Dr. Morris is a retained consultant for Pure Encapsulations.

‡These statements have not been evaluated by the Food & Drug Administration. These products are not intended to diagnose, treat, cure or prevent any disease.

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Gene and SNP	Assessment Recommendations*
CBS C699T (rs234706)	Plasma B6: Adults: 21-21.7 ng/mL Serum homocysteine: CBS activity is inversely associated with homocysteine levels. Men: <11.4 μmol/L, Women: <10.4 μmol/L
COMT Val158Met (rs4680)	Urinary estrogen metabolite ratio (2-OH(E1+E2) / 16α-OHE1): Indicates how effectively a patient methylates estrogens (2-hydroxyestrone to 2-methoxyestrone). Premenopausal, luteal phase women: 0.3-13.7, Postmenopausal women: 0.3-15.1, Men: 0.8-12.9
FUT2 G772A (rs602662)	Serum B₁₂(for -/- only): Adults: 180-914 ng/L
MTHFR C677T (rs1801133)	Serum homocysteine (a useful indicator of overall methylation competence): Men: <11.4 μmol/L, Women: <10.4 μmol/L RBC Folate: Adults: >280 ng/mL RBC
MTHFR A1298C (rs1801131)	Serum homocysteine (a useful indicator of overall methylation competence): Men: <11.4 μmol/L, Women: <10.4 μmol/L RBC Folate: Adults: >280 ng/mL RBC
MTR A2756G (rs1805087)	Methylmalonate (a marker of intracellular levels of B ₁₂): Adults: <400 nmol/L
MTRR A66G (rs1801394)	Methylmalonate (a marker of intracellular levels of B ₁₂): Adults: <400 nmol/L
TCN2 C766G (rs1801198)	Methylmalonate (a marker of intracellular levels of B ₁₂): Adults: <400 nmol/L

*Reference ranges were obtained from Dynacare. These ranges apply to adults only.

PureGenomics® nutritional information is not intended for use in the diagnosis, cure, mitigation, treatment or prevention of disease.

This information is intended for use by healthcare practitioners, is for informational purposes only, and does not establish a doctor-patient relationship. Please be sure to consult your physician before taking this or any other product. Consult your physician for any health problems.

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