

# The PureGenomics® Foundational Micronutrient Protocol‡

Developed with Nathan Morris, M.D.†

Gene	SNP	Alleles	What it means	Diet & Lifestyle Recommendations	Pure Encapsulations® Products‡
BCMO1	A379V (rs7501331)	T/T (+/+) C/T (-/+) C/C (-/-)	Reduced ability to convert dietary beta-carotene to active vitamin A.	(+/-) or (-/+) • Ensure adequate intake of vitamin A. If you do not eat foods like organ meats, eggs, cod liver oil and dairy products, a supplement may be recommended.  (-/-) • No recommendations	(+/-) or (-/+) • Vitamin A + Carotenoids  (-/-) • No recommendations
BCMO1	R267S (rs12934922)	T/T (+/+) A/T (-/+) A/A (-/-)	Reduced ability to convert dietary beta-carotene to active vitamin A.	(+/-) or (-/+) • Ensure adequate intake of vitamin A. If you do not eat foods like organ meats, eggs, cod liver oil and dairy products, a supplement may be recommended.  (-/-) • No recommendations	(+/-) or (-/+) • Vitamin A + Carotenoids  (-/-) • No recommendations
GC	rs2282679	G/G (+/+) T/G (-/+) T/T (-/-)	Delivery of vitamin D <sub>3</sub> to cells may be limited.	(+/-) or (-/+) • You may need extra vitamin D. A supplement may be recommended.  (-/-) • No recommendations	(+/-) or (-/+) • Vitamin D <sub>3</sub> liquid or capsules  (-/-) • No recommendations
SLC30A8	rs11558471	A/A (+/+) G/A (-/+) G/G (-/-)	The A allele may affect zinc requirements.	(+/-) or (-/+) • Ensure adequate zinc intake.  (-/-) • No recommendations	(+/-) or (-/+) • Zinc 15  (-/-) • No recommendations
SLC23A1	rs33972313	A/A (+/+) G/A (-/+) G/G (-/-)	Associated with lower circulating vitamin C levels.	(+/-) • Ensure adequate intake of vitamin C. Dietary sources include citrus fruits and berries. 90 mg/day for adult men and 75 mg/day for adult women is generally adequate to maintain healthy immune function. A supplement may be recommended.  (-/+) • Ensure adequate intake of vitamin C. Dietary sources include citrus fruits and berries. 90 mg/day for adult men and 75 mg/day for adult women is generally adequate to maintain healthy immune function. Four to five servings of fruit and vegetables typically provide approximately 200 mg. Higher doses are not necessary on the basis of this SNP alone. A supplement may be recommended.  (-/-) • No recommendations	(+/-) or (-/+) • Ascorbic acid or buffered ascorbic acid (capsules or powder)  (-/-) • 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.

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

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Nothing But Pure®

‡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*
<b>BCMO1</b> A379V (rs7501331)	<b>Serum retinol:</b> Adults: 32.5-78.0 mcg/dL <b>Serum beta-carotene:</b> Men: 4-51 mcg/dL, Women: 6-77 mcg/dL Both assays are useful as vitamin A status may be low and serum beta-carotene levels may be elevated due to poor conversion to retinol.
<b>BCMO1</b> R267S (rs12934922)	<b>Serum retinol:</b> Adults: 32.5-78.0 mcg/dL <b>Serum beta-carotene:</b> Men: 4-51 mcg/dL, Women: 6-77 mcg/dL Both assays are useful as vitamin A status may be low and serum beta-carotene levels may be elevated due to poor conversion to retinol.
<b>GC</b> rs2282679	<b>25-hydroxy vitamin D<sub>3</sub></b> (an indicator of overall vitamin D status): Adults: 20-100 ng/mL
<b>SLC30A8</b> rs11558471	<b>Alkaline phosphatase</b> (a marker of zinc status): Men: 45-115 U/L, Women: 37-144 U/L
<b>SLC23A1</b> rs33972313	Self-reported dietary vitamin C intake.

\*Reference ranges were obtained from LifeLabs Clinical Laboratories. These ranges apply to adults only.

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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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