YOUR YOUTRIENTS GENOMIC REPORT SUMMARY

GENETIC SUMMARY REPORT WITH RECOMMENDATIONS

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COMT

Your COMT gene produces the enzyme largely responsible for metabolizing your neurotransmitters (the chemicals (aka neurochemicals) in your brain that help to elicit your emotions – pleasure, fear, anxiety etc).

Optimal neurotransmitter metabolism is fundamental to your executive function – a collective term referring to overall brain function as it relates to mood and behavioral dispositions.

If you have either the 'slow' or 'fast' version of the COMT gene, you may be at an increased risk of overly prolonged, or overly short, respectively, emotional states with important implications to your executive function.

YOUR GENOTYPE: G/A

COMT GENOTYPE MATRIX

A/A	SLOW
G/A	MEDIUM
G/G	FAST

Ingredients that potentially slow down the expression of COMT (ie reduce the rate of metabolism of your neurochemcials) are: EGCG, Quercetin, Luteolin, L-Tyrosine

Ingredients that potentially increase the expression of COMT (ie increase the rate of metabolism of your neurochemicals) are: B-Vitamins, Magnesium, Rhodiola, Theanine

DRD2

Your DRD2 gene produces one of the main dopamine receptors in your brain.

The ability of specific regions in your brain to bind to dopamine (once it is secreted in response to a specific stimulus) is a fundamental contributor to positive emotions and a healthy executive function.

If you have the 'low density' version of the DRD2 gene you may be at an increased risk of suboptimal pleasure response – a reduced response to pleasure cues – secondary to a reduced ability to bind to dopamine.

YOUR GENOTYPE: G/G

DRD2 GENOTYPE MATRIX

A/A	LOW DENSITY
G/A	OPTIMAL/AVERAGE DENSITY
G/G	OPTIMAL DENSITY

Ingredients that may be beneficial to individuals with the 'low density' version DRD2 are: L-Tyrosine, EGCG, Luteolin, SAM-e.

ADRA2B

Your ADRA2B gene produces the main receptor for your neurochemical, noradrenaline.

Your ability to bind and respond to noradrenaline is significantly associated with your fear and anxiety response.

If you have the 'prolonged sensitivity' version of the ADRA2B gene you may be at an increased risk of overly heightened fear/anxiety responses. You may also have a tendency to fixate or focus on the negative, or on negative emotional cues.

YOUR GENOTYPE: I/D

DRD2 GENOTYPE MATRIX

D/D	PROLONGED SENSITIVITY
I/D	AVERAGE/PROLONGED SENSITIVITY
I/I	REDUCED/SHORTENED SENSITIVITY

Ingredients that may be beneficial to individuals with the 'prolonged sensitivity' version ADRA2B are: Ginseng, Rhodiola, Theanine

5-HTTLPR

Your 5-HTTLPR is found within the gene that produces your receptor for serotonin.

The ability for special parts of your brain to bind and reabsorb serotonin (once secreted) determines the duration for which you are under its influence. Serotonin is widely thought to be involved in bringing about a sense of calm, and is associated with reducing anxiety.

If you have the 'reduced reabsorption' version of 5-HTTLPR you may be at an increased risk of poor serotonin regulation. You may be more easily irritated and prone to anxiety.

YOUR GENOTYPE: L/S

5-HTTLPR GENOTYPE MATRIX

S/S	REDUCED REABSORPTION
L/S	AVERAGE/REDUCED REABSORPTION
L/L	OPTIMAL REABSORPTION

Ingredients that may be beneficial to individuals with the 'reduced reabsorption' version of 5-HTTLPR are: 5-HTP, Vitamin B6, Methylcobalamin (Methyl B12)

BDNF

Your BDNF gene is responsible for making a very important protein in your brain known as Brain Derived Neurotrophic Factor (BDNF).

Adequate BDNF production is critical for healthy brain function – for maintaining neural plasticity, for recovering from traumas that affect the brain…both physical (concussions) and emotional.

If you have a 'low production' version of the BDNF gene, you may be at an increased risk of poorer recovery from physical brain traumas such as concussions. You may also find that you tend to get 'stuck' on negative emotional stimuli – a tendency that can lead to increased neuroticism.

YOUR GENOTYPE: G/A

BDNF GENOTYPE MATRIX

A/A	LOW PRODUCTION
G/A	REDUCED/LOW PRODUCTION
G/G	OPTIMAL PRODUCTION

Ingredients that may be beneficial to individuals with the 'low production' version of BDNF are: Magnesium Threonate, NAC, Green Coffee Fruit Extract, Tocotrienols

9p21

Your 9p21 result isn't a gene per say, but rather a genetic marker/locus at a location within your genetic manual (your genome) that is highly associated with cardiovascular disease risk.

A major risk factor for cardiovascular disease is the ease or tendency of the lining of your blood vessels (collectively referred to as your vasculature) to become inflamed (as caused by toxins/pollutants etc dissolved in your blood).

If you have the 'increased sensitivity' version of the 9p21 locus, your blood vessels may be overly sensitive to inflammatory agents/toxins (such as the chemicals found in cigarette smoke)

YOUR GENOTYPE: 4 **G**

9p21 GENOTYPE MATRIX

3-4 G	INCREASED SENSITIVITY/SUBOPTIMAL
2 G	AVERAGE SENSITIVITY
0-1 G	REDUCED SENSITIVITY/OPTIMAL

Ingredients that may be beneficial to individuals with the 'increased sensitivity' version of 9p21 are: Omega 3 Fatty Acids, Tocotrienols

APOE

Your APOE gene is responsible for making a protein, apolipoprotein E, which is involved in the transportation of your blood lipids – including cholesterol.

Your blood lipids (including cholesterol) are primarily transported by two families of 'carriers' – low density lipoproteins (LDLs) and high density lipoproteins (HDLs). Your LDL carriers tend to deposit lipids on the inner lining of your blood vessels (in response to inflammation), while your HDL carriers tend to recirculate your lipids and transport them to your liver.

If you have the 'increased risk' version of the APOE gene, you may be at an increased risk of vascular dysfunction, including elevated blood lipids. The increased risk version of the APOE gene has also been associated with an increased risk of Alzheimer's disease, though it should be duly noted that this is not a diagnosis nor a definitive outcome. It is simply an 'increased risk' association that can be significantly reduced with appropriate lifestyle, diet and potentially supplementation.

YOUR GENOTYPE: 3/3

APOE GENOTYPE MATRIX

3/4 and 4/4	INCREASED RISK
2/3 and 3/3	AVERAGE/NORMAL RISK
2/2	RARE (ASSOCIATED WITH TYPE III HYPERLIPOPROTEINEMIA

Ingredients that may be beneficial to individuals with the 'increased risk' version of APOE are: Omega 3 fatty acids, Tocotrienols, Curcumin

NOS3

Your NOS3 gene is responsible for making an important enzyme involved in regulating vaso-dilation and –constriction (the relaxing and constricting of your blood vessels).

The ability for your blood vessels to expand or constrict in response to varying blood flow demands (such as when transitioning from rest to exertion) is an important function for optimal cardiovascular health.

If you have the 'low activity' version of the NOS3 gene, you may be at an increased risk of suboptimal cardiovascular function – reduced vascular responsiveness to fluctuating blood flow/sheer force. This is not a diagnosis of heart disease. This is simply an association of reduced vascular function secondary to potentially reduced vascular adaptability.

YOUR GENOTYPE: G/T

NOS3 GENOTYPE MATRIX

T/T	LOW ACTIVITY
G/T	AVERAGE ACTIVITY
G/G	OPTIMAL ACTIVITY

Ingredients that may be beneficial to individuals with the 'low activity' version of NOS3 are: L-Arginine, Omega 3 Fatty Acids, Citrulline

ACE

Your ACE gene is responsible for making an important enzyme involved in regulating your blood pressure.

Your ability to regulate (keep normal) your blood pressure, is a central component to optimal cardiovascular health and to overall health. One of the ways your body regulates blood pressure is through the continuous balance of sodium (salt) and water – a job that is primarily handled by your kidneys.

If you carry the 'increased activity' version of the ACE gene, you may be at an increased risk of salt sensitivity and salt-induced hypertension.

YOUR GENOTYPE: A/G

ACE GENOTYPE MATRIX

G/G	INCREASED ACTIVITY/SUBOPTIMAL
A/G	AVERAGE ACTIVITY/POSSIBLY OPTIMAL
A/A	REDUCED ACTIVITY/OPTIMAL

Ingredients that may be beneficial to individuals with the 'increased activity' version of ACE are: Hawthorn Root

SLCO1B1

Your SLCO1B1 gene is one of your most important cellular 'traffic cops'. It is responsible for directing the influx efficiency of several molecules, particularly pharmaceutics, into your cells. One of the most important pharmaceutical compound families trafficked into your cells by SLCO1B1 is statins.

Statins are one of the most prescribed classes of drugs, used primarily to reduce lipid profiles in at risk patients. Despite its overall efficacy, several studies have shown that a considerable percent of patients stop taking their statins due to the sometimes undesirable occurrence of statin-induced- myopathies (extreme muscle pain and fatigue).

If you carry the C version of this gene, your ability to transport statins from the blood into your liver cells/hepatocytes (where the statins would otherwise be metabolized/neutralized) can be reduced. This reduction in statin metabolism can lead to higher than anticipated blood levels of statins with concomitant risk of myopathy and liver toxicity.

If you are on statins and you carry the C version of this gene, speak to your healthcare provider about dosing options and possible alternatives to statins.

YOUR GENOTYPE: T/T

SLCO1B1 GENOTYPE MATRIX

C/C	MARKEDLY REDUCED STATIN METABOLISM
T/C	REDUCED STATIN METABOLISM
T/T	OPTIMAL STATIN METABOLISM

Ingredients that may be beneficial to individuals with the 'markedly reduced/reduced statin metabolism version of SLCO1B1 are: Ubiquinol

FUT2

Your FUT2 gene is responsible for making an important enzyme involved in the absorption of vitamin B12 from your digestive tract.

Vitamin B12 is an essential vitamin. It is required for your cells to perform a fundamentally important reaction known as methylation. It is one of the only vitamins not found in fruits and vegetables. Rather, B12 is referred to as an animal/protein derived vitamin. It works in synchrony with vitamin B9/folate and is required for cellular methylation. It is essential for optimal protein metabolism, red blood cell production and function, neuromuscular function, and brain health.

If you carry the 'reduced absorption' version of the FUT2 gene, you may be at an increased risk of suboptimal/low levels of B12 with suboptimal/low cellular methylation and associated health risks.

YOUR GENOTYPE: A/G

FUT2 GENOTYPE MATRIX

G/G	REDUCED ABSORPTION
A/G	REDUCED ABSORPTION
A/A	OPTIMAL ABSORPTION

Ingredients that may be beneficial to individuals with the 'reduced absorption' version of FUT2 are: Sublingual Methylcobalamin (methylated Vitamin B12)

MTHFR

Your MTHFR gene is responsible for making an essential enzyme involved in your metabolism and utilization of vitamin B9, also known as folate (or folic acid).

Vitamin B9 is an essential vitamin. It is required for your cells to perform a fundamentally important reaction known as methylation. It is readily found in green leafy vegetables. It works in synchrony with B12 and is required for cellular methylation. It is essential for optimal protein metabolism, cardiovascular function, neuromuscular function, and brain health.

If you carry the 'reduced activation' version of the MTHFR gene, you may be at an increased risk of suboptimal/low cellular methylation and associated health risks.

YOUR GENOTYPE: T/T

MTHFR GENOTYPE MATRIX

T/T	REDUCED ACTIVATION
C/T	AVERAGE ACTIVATION
C/C	OPTIMAL ACTIVATION

Ingredients that may be beneficial to individuals with the 'reduced activation' version of MTHFR are: Vitamin B9 (Folinic Acid – most preferred, Folic Acid, Methylfolate)

SHMT1

Your SHMT1 gene is responsible for making an essential enzyme involved in your metabolism and utilization (in a step just prior to the role of your MTHFR gene) of vitamin B9, also known as folate (or folic acid).

Vitamin B9 is an essential vitamin. It is required for your cells to perform a fundamentally important reaction known as methylation. It is readily found in green leafy vegetables. It works in synchrony with B12 and is required for cellular methylation. It is essential for optimal protein metabolism, cardiovascular function, neuromuscular function, and brain health.

If you carry the 'suboptimal' version of the SHMT1 gene, you may be at an increased risk of suboptimal/low cellular methylation and associated health risks.

YOUR GENOTYPE: G/G

SHMT1 GENOTYPE MATRIX

A/A	SUBOPTIMAL
G/A	REDUCED/SUBOPTIMAL
G/G	OPTIMAL

Ingredients that may be beneficial to individuals with the 'suboptimal' version of SHMT1 are: Vitamin B9 (Folinic Acid – most preferred, Folic Acid, Methylfolate)

MTRR

Your MTRR gene is responsible for making an important enzyme involved in your metabolism and utilization of vitamin B12.

Vitamin B12 is an essential vitamin. It is required for your cells to perform a fundamentally important reaction known as methylation. It is one of the only vitamins not found in fruits and vegetables. Rather, B12 is referred to as an animal/protein derived vitamin. It works in synchrony with vitamin B9/folate and is required for cellular methylation. It is essential for optimal protein metabolism, red blood cell production and function, neuromuscular function, and brain health.

If you carry the 'reduced activation' version of the MTRR gene, you may be at an increased risk of suboptimal/low levels of activated B12, known as methyl B12, with suboptimal/low cellular methylation and associated health risks.

YOUR GENOTYPE: A/A

MTRR GENOTYPE MATRIX

G/G	REDUCED ACTIVATION
A/G	REDUCED ACTIVATION
A/A	OPTIMAL ACTIVATION

Ingredients that may be beneficial to individuals with the 'reduced activation' version of MTRR are: Sublingual Methylcobalamin (Methylated Vitamin B12)

MTR

Your MTR gene (not to be confused with your MTRR gene) is responsible for making an important enzyme involved in your metabolism and utilization of vitamin B12 (in a step just following the role of your MTRR gene).

Vitamin B12 is an essential vitamin. It is required for your cells to perform a fundamentally important reaction known as methylation. It is one of the only vitamins not found in fruits and vegetables. Rather, B12 is referred to as an animal/protein derived vitamin. It works in synchrony with vitamin B9/folate and is required for cellular methylation. It is essential for optimal protein metabolism, red blood cell production and function, neuromuscular function, and brain health.

If you carry the 'suboptimal' version of the MTR gene, you may be at an increased risk of elevated homocysteine, with suboptimal/low cellular methylation and associated health risks.

YOUR GENOTYPE: A/A

MTR GENOTYPE MATRIX

G/G	SUBOPTIMAL
A/G	SUBOPTIMAL
A/A	OPTIMAL

Ingredients that may be beneficial to individuals with the 'suboptimal' version of MTR are: Sublingual Methylcobalamin (Methylated Vitamin B12)

FTO

Your FTO gene plays an important role in your ability to feel full or satiated.

Satiety, your ability to feel full once you begin to eat, is as much or more a cerebral function, as it is related to your gut. In fact, satiety is triggered in part by nerve signals from your expanding gut to your brain. Your brain processes/interprets these signals as you become full.

If you carry the 'reduced satiety' version of the FTO gene, you may be at an increased risk of weight gain secondary to over-eating (secondary to a reduced sense of satiety). Said simply, you may be at an increased risk of weight gain, because it might take you longer to feel full.

YOUR GENOTYPE: T/A

FTO GENOTYPE MATRIX

A/A	REDUCED SATIETY
T/A	AVERAGE/REDUCED SATIETY
T/T	AVERAGE/OPTIMAL SATIETY

Ingredients that may be beneficial to individuals with the 'reduced satiety' version of FTO are: Soluble Fiber (guar gum)

MC4R

Your MC4R gene plays an important role in your sense/sensation of hunger or hunger cues/triggers.

How quickly you feel hungry again (after being initially satiated/full) is an important factor in the regulation of your eating habits. Said simply, if you feel hungry easily/too quickly you will have a tendency to snack/eat too frequently. If you snack/eat too frequently you are more likely to gain weight.

If you carry the 'increased snacking' version of the MC4R gene, you may be at an increased risk of weight gain secondary to frequent snacking/eating. Said simply, you may be at an increased risk of weight gain, because you tend to snack.

YOUR GENOTYPE: T/T

MC4R GENOTYPE MATRIX

C/C	INCREASED SNACKING
T/C	INCREASED SNACKING
T/T	AVERAGE/OPTIMAL SNACKING

Ingredients that may be beneficial to individuals with the 'increased snacking' version of MC4R are: Soluble Fiber (guar gum), Phase II Enzyme complex

APOA2

Your *APOA2* gene directs your body to produce a protein called apolipoprotein A-II (ApoA2). The interaction between your *APOA2* gene and saturated fatty acids (SFAs), as it pertains to body mass index (BMI), is among the most widely replicated gene-nutrient interactions studied.

A growing body of research has questioned the validity of avoiding saturated fats in your diet. Saturated fats may not be the big bad monster that we once thought they were. However, while saturated fats are likely not as culpable to obesity and cardiovascular disease as we once thought, for some, there is still an increased risk concern.

If you carry the 'suboptimal' version of the *APOA2* gene, you are at a significantly increased risk of weight gain when consuming a diet rich in saturated fats. You would do well to limit your saturated fat intake to less than 10% of your total caloric intake (approximately 20g for a 2000cal/day diet).

YOUR GENOTYPE: G/G

APOA2 GENOTYPE MATRIX

G/G	SUBOPTIMAL
G/A	AVERAGE/OPTIMAL
A/A	OPTIMAL

Ingredients that may be beneficial to individuals with the 'suboptimal' version of APOA2 are: Soluble Fiber (guar gum)

UCP1

Your *UCP1* gene plays a central role in defining your resting metabolic rate through its role in the thermoregulation of your body – maintaining a stable body temperature.

Your body uses energy to conduct many of the cellular functions that you hardly give any thought to, processes that occur whether you are waking or sleeping – such as brain function, digestion, breathing and maintaining a normal body temperature. The energy you burn to facilitate these essential cellular functions is referred to as your resting metabolic rate (RMR). RMR can vary significantly between individuals and can reflect differences in muscle mass, weight, age and genetics.

Your *UCP1* gene appears to function in fat tissue where it utilizes stored fat to generate heat and maintain a steady core temperature. It is therefore one or your thermoregulatory genes and is directly associated with RMR.
If you carry the 'low RMR' version of the *UCP1* gene, you are likely to have a suboptimal/low resting metabolic rate with an increased risk of abdominal fat/weight gain.

YOUR GENOTYPE: A/A

UCP1 GENOTYPE MATRIX

G/G	LOW RMR
A/G	LOW RMR
A/A	OPTIMAL/AVERAGE RMR

Ingredients that may be beneficial to individuals with the 'low RMR' version of UCP1 are: L-Carnitine, Nicatinamide Riboside, Theabrownine

TCF7L2

Your TCF7L2 gene plays a central role in regulating your insulin secretion and in so doing is one of the most consistent predictors of Type II diabetes (T2D).

Your body has a love/hate relationship with sugars. While glucose plays a central role in the energy reactions within your cells, your body does not like to maintain chronically elevated levels within your blood. Your body uses a fine-tuned mechanism of insulin production and secretion to maintain a healthy relationship with sugars in the food you consume.

If you carry the 'impaired secretion' version of the TCF7L2 gene you are at an increased risk of developing T2D secondary to an increased risk of impaired insulin secretion. It is important to note that the increased risk of T2D associated with this gene is characterized by *impaired* insulin secretion rather than insulin resistance.

YOUR GENOTYPE: G/T

TCF7L2 GENOTYPE MATRIX

T/T	IMPAIRED SECRETION
G/T	IMPAIRED SECRETION
G/G	OPTIMAL/ SECRETION

Ingredients that may be beneficial to individuals with the 'impaired secretion' version of TCF7L2 are: Alpha Lipoic Acid, Chromium, Inositol, Cinnamon

AMY1

Your AMY1 gene produces an enzyme in your saliva that begins the digestion of your starchy foods.

Starches, and broader carbohydrates, are an important component of a balanced diet. In some cultures and geographic regions, starches comprise a significant source of daily calories. Research has shown that the efficiency with which you digest starches appears to be related to both your dietary preferences in relation to sugars, as well as your metabolic/insulin response/efficiency to blood sugars.

If you have the 'low production' version of the AMY gene, you may be at an increased risk of weight gain in response to dietary starches. When consuming starches, you should give preference to complex/high fibre starches.

YOUR GENOTYPE: A/A

AMY1 GENOTYPE MATRIX

A/A	LOW PRODUCTION
T/A	AVERAGE/INCREASED PRODUCTION
T/T	INCREASED PRODUCTION

Ingredients that may be beneficial to individuals with the 'low production' version of AMY1 are: B-Complex Vitamins, Alpha Lipoic Acid, Phase II Enzyme Complex

MCM6

Your MCM6 gene controls the production of your lactase enzyme, the enzyme responsible for metabolizing the dairy sugar, lactose.

Lactose is the sugar found in dairy/milk-derived foods. It is called a disaccharide because it is made of two primary sugars or monosaccharides, glucose and galactose. Your ability to digest lactose and absorb the released glucose is an essential function during infancy. As you grow older and are weaned from milk as your primary food source, your ability to maintain the production of lactase is largely determined by your MCM6 gene.

If you have the 'lactose intolerance' version of the MCM6 gene, you are more likely to lose your ability to produce the lactase enzyme as you age. You are more likely to become lactose intolerant with age. It is important to note that mild to moderate lactose intolerance is often missed, and is often a hidden culprit for bloating, chronic tummy pains, 'indigestion' and self-reported acid reflux.

YOUR GENOTYPE: A/A

MCM6 GENOTYPE MATRIX

G/G	LACTOSE INTOLERANCE
A/G	REDUCED LACTOSE TOLERANCE
A/A	LACTOSE TOLERANCE

Ingredients that may be beneficial to individuals with the 'lactose intolerance' version of MCM6 are: Probiotics, Calcium, Vitamin D3

BCMO1

Your BCMO1 gene is responsible for making an essential enzyme involved in your metabolism and activation of vitamin A.

Vitamin A, beta-carotene, is a fat-soluble vitamin. It is readily found not only in its namesake, carrots, but also in many vegetables and fruits, especially those with a yellow/orange hue. Vitamin A is a powerful anti-oxidant and plays a critical role in maintaining healthy vision, neurological function, healthy skin, and immunologic function. Plant-derived vitamin A is known as beta-carotene. When consumed, beta-carotene must first be converted into its active form, retinol, for you to benefit from it.

If you carry the 'reduced activation' version of the BCMO1 gene, you may be at an increased risk of suboptimal/low levels of retinol. You may benefit from eating foods rich in pre-activated retinol and/or taking a supplement with the retinol version of vitamin A.

YOUR GENOTYPE: A/G

MTHFR GENOTYPE MATRIX

G/G	REDUCED ACTIVATION
A/G	AVERAGE/OPTIMAL ACTIVATION
A/A	OPTIMAL ACTIVATION

Ingredients that may be beneficial to individuals with the 'reduced activation' version of BCMO1 are: Vitamin A (Retinol)

SLC23A1

Your SLC23A1 gene is responsible for making a protein carrier/transporter for vitamin C.

Vitamin C is an essential water-soluble vitamin. Low blood levels of vitamin C have been associated with reduced immune function, and an elevated risk of multiple forms of cancer, type 2 diabetes and cardiovascular disease.

If you carry the 'reduced absorption' version of the SLC23A1 gene, you may be at an increased risk of suboptimal/low levels of vitamin C, secondary to poor absorption/transportation.

YOUR GENOTYPE: G/G

SLC23A1 GENOTYPE MATRIX

A/A	REDUCED ABSORPTION
G/A	REDUCED ABSORPTION
G/G	OPTIMAL ABSORPTION

Ingredients that may be beneficial to individuals with the 'reduced absorption' version of SLC23A1 are: High Dosage Vitamin C

CYP2R1

Your CYP2R1 gene is responsible for making an essential enzyme involved in your production and activation of vitamin D.

Vitamin D, is a fat soluble vitamin and is unique amongst vitamins because it is now widely considered a hormone. Moreover, it is the only vitamin that your body can innately make with a little help from the sun. There are two forms of vitamin D – D2 and D3. D3 is synthesized by your body when sunlight interacts with 7-dehydroxycholesterol found in your skin. D3 is also found in animal-based foods (eg, fatty fish, liver, milk, eggs). D3 is biologically inactive. It must undergo 2 successive transformations, ultimately being converted into its active form – 1, 25 dihydroxyvitamin D.

Your CYP2R1 gene is responsible for the first step (production of 25 hydroxyvitamin D) in the transformation of inactive D3 into active 1, 25 dihydroxyvitamin D.

Vitamin D, along with calcium, is essential for optimal bone health. Additionally, vitamin D plays an important role in your immune and cognitive functions, as well as many other cellular processes.

If you carry the 'reduced activation' version of CYP2R1 you may be at an increased risk of low levels of active vitamin D.

YOUR GENOTYPE: G/G

CYP2R1 GENOTYPE MATRIX

G/G	REDUCED ACTIVATION
A/G	REDUCED ACTIVATION
A/A	OPTIMAL ACTIVATION

Ingredients that may be beneficial to individuals with the 'reduced activation' version of CYP2R1 are: Vitamin D3 (Cholecalciferol)

GC

Your GC gene is responsible for making an important transporter for your vitamin D.

Vitamin D, is a fat-soluble vitamin and is unique amongst vitamins because it is now widely considered a hormone. Moreover, it is the only vitamin that your body can innately make with a little help from the sun. There are two forms of vitamin D – D2 and D3. D3 is synthesized by your body when sunlight interacts with 7-dehydroxycholesterol found in your skin. D3 is also found in animal-based foods (e.g., fatty fish, liver, milk, eggs). D3 is biologically inactive. It must undergo 2 successive transformations, ultimately being converted into its active form – 1, 25 dihydroxyvitamin D.

Your GC gene is responsible for transporting your D3 as it undergoes its successive activation steps.

If you carry the 'reduced transportation' version of GC you may be at an increased risk of low levels of active vitamin D.

YOUR GENOTYPE: C/C

CYP2R1 GENOTYPE MATRIX

A/A	REDUCED TRANSPORTATION
C/A	REDUCED TRANSPORTATION
C/C	OPTIMAL TRANSPORTATION

Ingredients that may be beneficial to individuals with the 'reduced transportation' version of GC are: Vitamin D3 (Cholecalciferol)

CYP1A2

Your CYP1A2 gene is responsible for making an essential enzyme involved in the metabolism of several compounds/chemicals that are either naturally produced by your body, or are introduced into your body through your diet and environment. Its 'claim to fame' is that your CYP1A2 gene is responsible for metabolizing caffeine – reducing the latter's innate neuro-stimulatory properties.

Caffeine is the most widely consumed stimulant in the world – a statistic generated from the fact that coffee is one of the most widely consumed beverages in the world. While coffee, and its famous ingredient caffeine, confer several health benefits (beyond the famous coffee buzz), for some, over-consumption has been linked to an increased risk of cardiovascular disease, undesirable over-neuro-stimulation, and disturbed sleeping patterns.

If you carry the 'slow metabolism' version of CYP1A2 you may be at an increased risk of metabolizing caffeine too slowly and consequently, at an increased risk of high blood pressure and cardiovascular disease.

YOUR GENOTYPE: A/A

CYP1A2 GENOTYPE MATRIX

C/C	SLOW METABOLISM
A/C	SLOW METABOLISM
A/A	FAST METABOLISM

Ingredients that may be beneficial to individuals with the 'slow metabolism' version of CYP1A2 are: DIM, Resveratrol, Pterostilbene

HORMONE GENE BITES

CYP17A1

This gene produces the enzyme responsible for converting your Progesterones into Androgens (Androstenedione, Androstendiol, Dehydroepiandrosterone (DHEA) and Testosterone).

Several studies suggest that the slow version of this gene, more so in women, is considered optimal. If you have the fast version of this gene you may be at an increased risk of estrogen dominance – having higher than optimal circulating levels of estrogens. The latter can be further elevated if you simultaneously have a fast version of CYP19A1 – the gene responsible for converting your Androgens into Estrogens.

Speak to your health care provider about the possible risks of estrogen dominance.

YOUR GENOTYPE: A/A

CYP17A1 GENOTYPE MATRIX

A/A	**SLOW**
A/G	**FAST**
G/G	**FAST**

Ingredients that potentially increase the expression of CYP17A1 (ie increase the conversion of progesterones into androgens) or counter reduced androgenization are: Conjugated Linoleic Acid (CLA)

CYP19A1

This gene produces the enzyme responsible for converting your Androgens (specifically your Androstenedione and Testosterone) into Estrogens (Estradiol and Estrone).

Estrogen dominance – having higher than optimal circulating levels of estrogens – can lead to hormone-related health concerns (particularly in women). If you have the fast version of this gene (and potentially accentuated if you simultaneously have a fast version of the CYP17A1 gene) you may be at an increased risk of estrogen dominance.

Speak to your health care provider about the possible risks of estrogen dominance.

YOUR GENOTYPE: T/T

CYP19A1 GENOTYPE MATRIX

C/C	**SLOW**
C/T	**MEDIUM**
T/T	**FAST**

Ingredients that potentially slow down the expression of CYP19A1 (ie reduce the conversion of Androgens into Estrogens) or counter estrogen dominance are: DIM, Resveratrol

SRD5A2

This gene produces the enzyme largely responsible for converting your Testosterone (T) into Dihydrotestosterone (DHT). Having adequate levels of T is a critical component of overall health in both men and women. DHT is essentially a more virulent form of T. While we all need a bit of DHT (and more importantly, a good T to DHT ratio), too much can lead to longitudinal health concerns in both men and women.

If you have the fast version of SRD5A2 (and potentially more so if you simultaneously have the fast version of CYP17A1 and the deleted/absent version of UGT2B17) you may be at an increased risk of overly elevated DHT.
Speak to your health care provider about the potential risks of DHT dominance.

YOUR GENOTYPE: C/G

SRD5A2 GENOTYPE MATRIX

C/C	**SLOW**
C/G	**MEDIUM**
G/G	**FAST**

Ingredients that potentially slow down the expression of SRD5A2 (ie reduce the conversion of T into DHT) or counter DHT dominance are: Fenugreek, Quercetin, Zinc, EGCG

UGT2B17

This gene produces the enzyme largely responsible for metabolizing and eliminating your Testosterone (T) and Dihydrotestosterone (DHT).

Maintaining optimal levels of T is fundamental to your longitudinal health (in both men and women). DHT is essentially a more virulent form of T. While we all need a bit of DHT (and more importantly, a good T to DHT ratio), too much can lead to longitudinal health concerns in both men and women.

If you have the deleted/absent version of UGT2B17 (and potentially more so if you simultaneously have the fast version of CYP17A1 and fast version of SRD5A2) you may be at an increased risk of overly elevated DHT.

Speak to your health care provider about the potential risks of Androgen/DHT dominance.

YOUR GENOTYPE: 2 **COPIES**

UGT2B17 GENOTYPE MATRIX

0 COPIES	**ABSENT/DELETED**
1 COPY	**MEDIUM/OPTIMAL**
2 COPIES	**FAST**

Ingredients that potentially slow down the expression of UGT2B17 (ie reduce the elimination of Androgens) or potentially increase androgen production are: Low Dosage Quercetin, Low Dosage EGCG

Ingredients that potentially increase the expression of UGT2B17 (ie increase the elimination of Androgens) or potentially reduce androgen production are: High Dosage Quercetin, High Dosage EGCG

CYP1A1

This gene produces the enzyme largely responsible for metabolizing your Estrogens into 2 hydroxy-Estrogens (2OHE). Optimal Estrogen metabolism is fundamental to your longitudinal health (in both women and men). Said another way, suboptimal estrogen metabolism can lead to significant health risks in both women and men (but unsurprisingly, more so in women). Your estrogens (estradiol and estrone) are metabolized into 3 primary hydroxyl-metabolites – 2OHE, 4OHE and 16OHE. Several studies have shown that 2OHE is likely the most desirable estrogen metabolite, while 4OHE and 16OHE are significantly less so. While all 3 metabolites are produced in a healthy woman, maintaining a favorable 2OHE metabolic pathway is consistently demonstrated to be advantageous.

If you have a slow version of CYP1A1 you may be at an increased risk of poor estrogen metabolism (that is, of reduced metabolism of your estrogens into the more desirable 2OHE metabolite).
Speak to your health care provider about the potential risks of poor estrogen metabolism.

YOUR GENOTYPE: A/A

CYP1A1 GENOTYPE MATRIX

A/A	**SLOW**
G/A	**FAST**
G/G	**FAST**

Ingredients that potentially increase the expression of CYP1A1 (ie increase the metabolism of Estrogens into 2OHE) are: DIM, Resveratrol

CYP1B1

This gene produces the enzyme largely responsible for metabolizing your Estrogens into 4 hydroxy-Estrogens (4OHE). Optimal Estrogen metabolism is fundamental to your longitudinal health (in both women and men). Said another way, suboptimal estrogen metabolism can lead to significant health risks in both women and men (but unsurprisingly, more so in women). Your estrogens (estradiol and estrone) are metabolized into 3 primary hydroxyl-metabolites – 2OHE, 4OHE and 16OHE. Several studies have shown that 2OHE is likely the most desirable estrogen metabolite, while 4OHE and 16OHE are significantly less so. While all 3 metabolites are produced in a healthy woman, reducing your 4OHE metabolic pathway is potentially advantageous to your longitudinal health.

If you have a fast version of CYP1B1 you may be at an increased risk of poor estrogen metabolism (that is, of preferential metabolism of your estrogens into the less desirable 4OHE metabolite).

Speak to your health care provider about the potential risks of poor estrogen metabolism.

YOUR GENOTYPE: C/C

CYP1B1 GENOTYPE MATRIX

C/C	**SLOW**
C/G	**FAST**
G/G	**FAST**

Ingredients that potentially slow down the expression of CYP1B1 (ie reduce the metabolism of Estrogens into 4OHE) are: Genistein, Chrysin

CYP3A4

This gene produces the enzyme largely responsible for metabolizing your Estrogens into 16 hydroxy-Estrogens (16OHE). Optimal Estrogen metabolism is fundamental to your longitudinal health (in both women and men). Said another way, suboptimal estrogen metabolism can lead to significant health risks in both women and men (but unsurprisingly, more so in women). Your estrogens (estradiol and estrone) are metabolized into 3 primary hydroxyl-metabolites – 2OHE, 4OHE and 16OHE. Several studies have shown that 2OHE is likely the most desirable estrogen metabolite, while 4OHE and 16OHE are significantly less so. While all 3 metabolites are produced in a healthy woman, reducing your 16OHE metabolic pathway is potentially advantageous to your longitudinal health.

If you have a fast version of CYP3A4 you may be at an increased risk of poor estrogen metabolism (that is, of preferential metabolism of your estrogens into the less desirable 16OHE metabolite).

Speak to your health care provider about the potential risks of poor estrogen metabolism.

YOUR GENOTYPE: A/A

CYP3A4 GENOTYPE MATRIX

A/A	**SLOW**
A/G	**FAST**
G/G	**FAST**

COMT

This gene produces the enzyme largely responsible for metabolizing your 2OHE and 4OHE into methoxy Estrogens (MeE).

Optimal Estrogen metabolism is fundamental to your longitudinal health (in both women and men). Said another way, suboptimal estrogen metabolism can lead to significant health risks in both women and men (but unsurprisingly, more so in women). Once produced, your 2OHE and 4OHE (keeping in mind that over-production of 4OHE can be potentially harmful) are further metabolized into methoxy estrogens – 2MeE and 4MeE. The conversion of your 4OHE into 4MeE is a favorable reaction. Several studies have shown that 4MeE is less harmful to your body than 4OHE.

If you have the slow version of the COMT gene, you may be at an increased risk of poor estrogen metabolism (that is, poor conversion of 4OHE into the less harmful 4MeE metabolite).

Speak to your health care provider about the potential risks of poor estrogen metabolism.

YOUR GENOTYPE: G/A

COMT GENOTYPE MATRIX

A/A	**SLOW**
G/A	**MEDIUM**
G/G	**FAST**

Ingredients that potentially slow down the expression of COMT (ie reduce the metabolism of OHE's into MeE's) are: EGCG, Quercetin, Luteolin, L-Tyrosine

Ingredients that potentially increase the expression of COMT (ie increase the metabolism of OHE's into MeE's) are: B-Vitamins, Magnesium, Rhodiola, Theanine

GSTT1

This gene produces one of the enzymes largely responsible for eliminating harmful/toxic by-products generated from the metabolism of your Estrogens.

Optimal Estrogen metabolism, including the elimination of harmful/toxic and oxidant by-products produced during estrogen metabolism is fundamental to your longitudinal health (in both women and men). Said another way, suboptimal elimination of estrogen toxic and oxidant by-products can lead to significant health risks in both women and men (but unsurprisingly, more so in women).

If you have 0 copies of the GSTT1 gene you may be at an increased risk of poor estrogen metabolism (that is, of poor elimination of potentially harmful estrogen by-products).

Speak to your health care provider about the potential risks of poor estrogen metabolism and the toxins associated with estrogen metabolism.

YOUR GENOTYPE: 0 **COPIES**

GSTT1 GENOTYPE MATRIX

0 COPIES	**ABSENT/DELETED**
1 COPY	**AVERAGE/OPTIMAL**
2 COPIES	**OPTIMAL**

Ingredients that potentially enhance GST function (ie enhance the elimination of toxins) are: N-Acetyl Cysteine, Alpha Lipoic Acid, Selenium, Milk Thistle

GSTM1

This gene produces one of the enzymes largely responsible for eliminating harmful/toxic by-products generated from the metabolism of your Estrogens.

Optimal Estrogen metabolism, including the elimination of harmful/toxic and oxidant by-products produced during estrogen metabolism is fundamental to your longitudinal health (in both women and men). Said another way, suboptimal elimination of estrogen toxic and oxidant by-products can lead to significant health risks in both women and men (but unsurprisingly, more so in women).

If you have 0 copies of the GSTM1 gene you may be at an increased risk of poor estrogen metabolism (that is, of poor elimination of potentially harmful estrogen by-products).

Speak to your health care provider about the potential risks of poor estrogen metabolism and the toxins associated with estrogen metabolism.

YOUR GENOTYPE: 1 **COPIES**

GSTM1 GENOTYPE MATRIX

0 COPIES	**ABSENT/DELETED**
1 COPY	**NORMAL/OPTIMAL**
2 COPIES	**RARE/POTENTIALLY OPTIMAL**

Ingredients that potentially enhance GST function (ie enhance the elimination of toxins) are: N-Acetyl Cysteine, Alpha Lipoic Acid, Selenium, Milk Thistle

GSTP1

This gene produces one of the enzymes largely responsible for eliminating harmful/toxic by-products generated from the metabolism of your Estrogens.

Optimal Estrogen metabolism, including the elimination of harmful/toxic and oxidant by-products produced during estrogen metabolism is fundamental to your longitudinal health (in both women and men). Said another way, suboptimal elimination of estrogen toxic and oxidant by-products can lead to significant health risks in both women and men (but unsurprisingly, more so in women).

If you have a suboptimal version of the GSTP1 gene you may be at an increased risk of poor estrogen metabolism (that is, of poor elimination of potentially harmful estrogen by-products).

Speak to your health care provider about the potential risks of poor estrogen metabolism and the toxins associated with estrogen metabolism.

YOUR GENOTYPE: A/A

GSTP1 GENOTYPE MATRIX

A/A	**OPTIMAL**
A/G	**POTENTIALLY SUBOPTIMAL**
G/G	**POTENTIALLY SUBOPTIMAL**

Ingredients that potentially enhance GST function (ie enhance the elimination of toxins) are: N-Acetyl Cysteine, Alpha Lipoic Acid, Selenium, Milk Thistle

SOD2

This gene produces an enzyme that is largely responsible for eliminating harmful oxidant by-products generated from the metabolism of your Estrogens.

Optimal Estrogen metabolism, including the elimination of harmful/toxic and oxidant by-products produced during estrogen metabolism is fundamental to your longitudinal health (in both women and men). Said another way, suboptimal elimination of estrogen toxic and oxidant by-products can lead to significant health risks in both women and men (but unsurprisingly, more so in women).

If you a suboptimal version of the SOD2 gene you may be at an increased risk of poor estrogen metabolism (that is, of poor elimination of potentially harmful estrogen oxidant by-products).

Speak to your health care provider about the potential risks of poor estrogen metabolism and the toxins associated with estrogen metabolism.

YOUR GENOTYPE: C/C

SOD2 GENOTYPE MATRIX

C/C	**POTENTIALLY OPTIMAL**
C/T	**AVERAGE/REDUCED FUNCTION**
T/T	**POTENTIALLY SUBOPTIMAL**

Ingredients that potentially enhance SOD2 function (ie enhance the elimination of oxidants) are: EGCG, Manganese, Ashwagandha