SNP nutrigenomics

C.O.D.E. REPORT

Custom **O**ptimization of **D**NA **E**xpression

Understand your personalized nutritional formula and the science-backed actions you can take to amplify your success.

Prepared for
YOUR NAME

Welcome to an optimized you.

SNiP Nutrigenomics is a revolutionary health and lifestyle company.

Our mission? Your supreme health through genetic optimization.

Using science-backed, proprietary biotechnology, we custom compound foundational, DNA-based nutritional supplements to elevate your genetic expression.

We've cracked the code to simplifying personalized biohacking.

CODE Complex, our flagship product, is an innovative nutritional supplement custom formulated to proactively support your genetic vulnerabilities.

Using cutting-edge nutrigenomics, CODE Complex addresses individual genetic “glitches” (called SNPs) impacting countless biochemical pathways involved in health, wellness and aging.

Based on your personal nutritional needs, as evidenced by the genetic analysis of your cheek swab, CODE Complex contains the vitamins, minerals, and micronutrients your body requires for optimal functioning.

In addition, your SNiP DNA Report(s) contains scientifically valid, epigenetic insights, aka: “biohacks.”

These lifestyle tips and tricks are designed to help fast-track your DNA-personalized wellness journey with clinician-approved suggestions for diet, exercise, sleep, mood, and more.

This is a wellness plan that's in perfect synch with your genetic blueprint.

What's a SNP?

Single Nucleotide Polymorphism, or SNP, is pronounced: “snip.”

SNPs are the blueprints that create either proteins or enzymes that run all the functions within our bodies. They are also genetic variants that alter the functions of genes naturally. For example, hair color, eye color, and skin color are all the result of SNPs.

By generating biological or metabolic recipes using slight differences in ingredients, known as nucleotides (“A” for Adenine, “T” for Tyrosine, “C” for Cytosine, or “G” for Guanine), variations occur, making humans as beautifully unique as we are.

There is a difference, however, between observing SNPs for traits such as appearance and observing SNPs for health.

While not all SNPs are problematic, researchers evaluate SNPs to determine less-than-optimal metabolic responses in the body and to discover how how they function, recover, and absorb/utilize nutrition and nutritional supplementation.

SNPs are vital to actionable DNA test results. In fact, at SNiP Nutrigenomics, SNPs are what give us insight into which nutrients, as well as which lifestyle choices (epigenetics), will work best for your body.

SNPs play a role in functions such as how well our bodies maintain healthy blood pressure or cholesterol levels already within the normal range; how well our bodies respond to inflammation and how our immune systems work; and how well our bodies utilize key nutrients such as CoQ10, folate, and vitamin D.

Science has shown that the twenty-two SNPs we test and formulate on are critically tied to physical, mental and emotional functioning. A variant on one or more of these genes suggests you may require specific nutrition (type, amount, etc.) to function optimally.

SNiP Nutrigenomics tests for nutritionally actionable, “heavy-hitting” SNPs that have functionally significant effects on genetic expression. Based on the results of this test, we custom compound your CODE Complex, a nutritional supplement designed to help your body perform essential functions that will positively impact short and long-term health and wellness.

(See the summary of each gene separately in this report.)

How do SNPs impact nutrition (and vice versa)?

SNPs affect how we absorb and utilize nutrients in the body. Many of these nutritional pathways precurse metabolic or cellular functions, meaning they influence energy production and cellular activity. When we see a SNP in important nutritional pathways, we understand it can lead to certain types of health concerns. As a result, we can take proactive steps to lead a healthier lifestyle in many cases.

These are actionable SNPs that allow us to better support how our bodies function through precise, personalized nutrition.

What does SNiP's DNA test look for?

At SNiP, our DNA testing follows a nutritional genomics, also known as nutrigenomics, approach. We analyze how nutrients and genetics interact and how that interaction impacts the way your body functions. As we pull and analyze SNPs, we follow nutritional pathways. We're not just looking at genes that identify physical traits. We want to find the genes we can act on and support based on your genetic code. It's all about examining the nutritional pathways and understanding what we can do to support optimal genetic expression with nutrition and lifestyle “hacks” based on your DNA.

Reading your CODE Report

We understand genetics can feel complex. We aim to make things as simple as possible so you can clearly understand the information that matters most. Think of your CODE Report as a roadmap providing critical information you wouldn't otherwise have access to.

In every DNA report SNiP offers, the specific SNPs we report on are listed by gene name and an identifying number called rsID. For each SNP, you will have one of three different colors with a number indicating your "results."

Here is what they mean:

Because you have two parents, you have two of each gene (inheriting one gene from each parent). Therefore, there are three possible outcomes to whether you carry a variant gene or not:

✓ Neither parent gave you genes with a variant; this gene has more potential to function optimally.

! One parent gave you a gene with a variant and one gave you a gene with no variant; you can use moderate nutritional support for this gene to function optimally.

✗ Both parents gave you genes with a variant; you can use a high level of nutritional support to help this gene function optimally.

Science has shown you can benefit from specific, plant-based nutrition, including vitamins, minerals and micronutrients to help each gene function at a higher optimization. In addition, healthy lifestyle choices enhance these benefits, which can positively influence your genes "epigenetically."

So, in each report, we include specific, research-backed lifestyle tips and tools for you to incorporate into your wellness routine. These, along with your customized CODE Complex, are personalized for you based on your results.

Many of the SNPs' functions in this report can be measured through standard blood tests. So, as a bonus, we include suggestions for lab tests your health provider may want to conduct to monitor your health and progress.

Details of the actual ingredients in your CODE Complex are outlined in your CODE Report. You will also see numerical footnotes. These numbers correspond to the scientific sources behind our choosing these ingredients for you. You can access all research citations relevant to your report(s) here.

Want to dive deeper? Visit our blog to learn about DNA, nutrition, epigenetic lifestyle hacks and more.

How to order your DNA-customized supplement

1) Log in to your account 2) Find the "Shop" tab 3) Choose CODE Complex in capsules or powder 4) Complete purchase

Video Tutorial

Subscribe and save $20 per order

Privacy, compliance, and accreditation

SNiP Nutrigenomics is committed to your privacy protection. We do not store or sell your DNA data to third parties, including employers, health insurance companies, or other entities.

Your DNA is collected solely for the purposes of generating your DNA report(s) and for the DNA-informed customization of your personalized nutritional supplement(s).

Your DNA is collected via a cheek swab and sent directly to our HIPAA-compliant, CLIA-certified, and CAP-accredited lab partner, whose security measures meet or exceed industry standards. For added privacy, no name, email address, or other identifying information is attached to your DNA sample. Instead, your swab is connected to you through a serial bar code and the indication you made as "male at birth" or "female at birth" during account registration. Cheek swabs are destroyed within 90 days of processing.

Once the lab analyzes your DNA sample, raw data is delivered using advanced encryption measures to SNiP, where your data will be assessed, and your personalized report(s) generated before being made available through your password-protected dashboard. In addition, our platform utilizes state-of-the-art technology to ensure your account is safe and secure.

For more information:

- HIPAA Compliance
- CLIA Certification
- CAP Accreditation
- GMP Certification

Results for: Your Name

Your unique DNA-personalized supplement (CODE Complex) is formulated for you based on the analysis of the following key genes: APOB, ATP5C1, COMT, CRP, CYP11B2, EPHX1, FTO, FUT2, GSTP1, IL6, MTHFR, MTRR, NQO1, PON1, SOD2, TNF-a, VDR

✓ No variants (wild type) ! One variant (heterozygous) ✗ Two variants (homozygous)

GENE rsID	Gene`s Broad Function	Reported In	Your Results
APOB rs693	Healthy lipid support; APOB (apolipoprotein B) helps create proteins that are important for cholesterol metabolism.	Heart	✗
ATP5C1 rs1244414	Mitochondrial function; the human ATP5C1 gene aids in the production of the mitochondrial ATP synthase protein, which assists cellular energy creation.	Cognitive/Brain, Energy	!
COMT rs4680	Neurotransmitter recycling and toxin breakdown; COMT (Catechol O-Methyltransferase) is an enzyme that breaks down stress hormones and neurotransmitters such as dopamine, an important chemical that aids thinking, behavior, and attention. COMT (rs4680) is also known as the warrior/ worrier gene.	BMI, Cognitive/Brain, Detox, Gut/Microbiome, Heart, Immune, Methylation, Mood	✗
CRP rs1205	Healthy inflammatory response; C-reactive protein (CRP) is an important biomarker for inflammation and is involved in healthy inflammatory response.	Cognitive/Brain, Gut/Microbiome, Heart, Immune, Inflammation, Mood	✓
CYP11B2 rs1799998	Healthy blood pressure; the CYP11B2 gene produces an enzyme called aldosterone synthase. It is part of the cytochrome P54 family, which helps keep the right amount of fluid in the body, aids in healthy blood pressure, and helps free the body of toxins.	Heart	!
EPHX1 rs1051740	Detoxification; Epoxide hydrolase (EH) is a type of enzyme that is important for breaking down substances in the body, such as epoxides —harmful chemicals that can be found in the brain, liver, kidney, lungs, and gut.	BMI, Detox, Energy	!

No variants (wild type) One variant (heterozygous) Two variants (homozygous)

GENE rsID	Gene`s Broad Function	Reported In	Your Results
FTO rs9939609	Healthy body mass index, satiety responsiveness, and obesity-associated gene; FTO plays a critical role in regulating fat mass, adipogenesis, and total body weight.	BMI, Gut/Microbiome, Heart, Immune, Mood	✓
FTO rs1121980	Healthy body mass index, satiety responsiveness, and obesity-associated gene; FTO plays a critical role in regulating fat mass, adipogenesis, and total body weight.	BMI, Gut/Microbiome, Heart, Immune, Mood	!
FUT2 rs602662	Vitamin B12; FUT2 (Fucosyltransferase 2) is an enzyme that helps the body utilize vitamin B12. The FUT2 gene is associated with different levels of vitamin B12 in the blood. FUT2 has been linked to an overgrowth of bacteria in the gut, which can lead to dysbiosis (H pylori).	Detox, Energy, Gut/Microbiome, Heart, Immune, Methylation	✓
GSTP1 rs1695	Oxidative stress support and detoxification; the GSTP1 (glutathione S-transferase P1) “phase II” detoxification enzyme system supports the body’s production of glutathione, a substance that helps to protect the body from toxins. It is critical for protecting the body from oxidative stress.	BMI, Detox, Energy, Immune, Methylation	✓
IL6 rs1800795	Healthy immune system; IL-6 (Interleukin 6) is a protein that assists with a healthy inflammatory response, healthy immune function and bone health.	Cognitive/Brain, Gut/Microbiome, Heart, Immune, Inflammation, Mood	!
MTHFR C677T rs1801133	Homocysteine/healthy folate conversion; the MTHFR gene provides instructions to the enzyme known as methylenetetrahydrofolate reductase. This enzyme affects how well homocysteine is cleared from the blood via the process of folate conversion and methylation along the methionine pathway.	BMI, Heart, Detox, Gut/Microbiome, Methylation, Mood	!

No variants (wild type) One variant (heterozygous) Two variants (homozygous)

GENE rsID	Gene`s Broad Function	Reported In	Your Results
MTHFR A1298C rs1801131	Homocysteine/healthy folate conversion; the MTHFR gene provides instructions to the enzyme known as methylenetetrahydrofolate reductase. This enzyme affects how well homocysteine is cleared from the blood via the process of folate conversion and methylation along the methionine pathway.	BMI, Detox, Gut/Microbiome, Heart, Methylation, Mood	!
MTRR rs1801394	Homocysteine/healthy heart; the MTRR gene encodes the enzyme known as methionine synthase reductase (MSR). Its task is to support the remethylation of homocysteine into methionine and recycle active forms of vitamin B12.	BMI, Detox, Gut/Microbiome, Heart, Methylation, Mood	✗
NQO1 rs1800566	CoQ10 mitochondria support; NQO1 is an important antioxidant enzyme. It helps process toxins and free radicals that cause oxidative stress. NQO1 maintains levels of the coenzyme Q10 (CoQ10), which in turn helps maintain mitochondrial function. NQO1 activates vitamin E and vitamin K.	Cognitive/Brain, Energy, Heart	✓
PON1 rs662	Lipid oxidation support; PON1 (paraoxonase-1) is an enzyme that prevents the oxidation of low-density lipoprotein cholesterol (LDL-C). It also breaks down the oxidized form. Managing levels of oxidized LDL is critical for a healthy cardiovascular system.	BMI, Detox, Heart	!
SOD2 rs4880	Free radical defense; SOD2 (Superoxide Dismutase 2) is a key enzyme for scavenging reactive oxygen species produced by mitochondria. This enzyme plays an important role in maintaining cellular homeostasis, which is vital for balanced and healthy cells.	BMI, Detox, Energy, Gut/Microbiome, Immune, Methylation, Mood	✗
TNF-a rs1800629	Healthy inflammatory response; the TNF-alpha gene helps to control a healthy inflammatory response. TNF is a protein made by white blood cells when the body is exposed to an antigen or infection.	Gut/Microbiome, Heart, Immune, Inflammation, Mood	!
VDR-Apa1 rs7975232	Vitamin D is active in every cell of our body and is a critical hormone affecting mood, blood sugar, bone health, and more. It helps to convert vitamin D into its bioavailable form.		!

No variants (wild type) One variant (heterozygous) Two variants (homozygous)

GENE rsID	Gene`s Broad Function	Reported In	Your Results
VDR-Fok1 rs2228570	Vitamin D receptor; Vitamin D is active in every cell of our body and is a critical hormone. (Note: While we think of vitamin D as a vitamin, it is actually a hormone the body utilizes for a range of functions.) Vitamin D affects mood, blood sugar, and bone health, as well as many other bodily functions. Vitamin D Receptor aids in converting vitamin D into its bioavailable form.	BMI, Cognitive/Brain, Gut/Microbiome, Heart,Immune, Inflammation, Methylation, Mood	✓
VDR-Bsm1 rs1544410	Vitamin D is active in every cell of our body and is a critical hormone affecting mood, blood sugar, bone health, and more. It helps to convert vitamin D into its bioavailable form.		!
VDR-Taq1 rs731236	Vitamin D is active in every cell of our body and is a critical hormone affecting mood, blood sugar, bone health, and more. It helps to convert vitamin D into its bioavailable form.		!

APOB
rs693

Your Result: Significant Nutritional Support Needed

About this gene:

ApoB helps maintain healthy LDL cholesterol (often called "bad" cholesterol) levels already in the normal range—supporting overall heart health.[111]

In addition, LDL cholesterol is essential to cellular membrane function and repair. Cholesterol is necessary for cell membranes, providing strength and flexibility to cells. It also helps with cellular communication. LDL delivers cholesterol to muscles because it is crucial for muscle repair. This process is critical for rebuilding stronger muscles, especially after physical exertion. Without LDL transporting cholesterol, we would not be able to make hormones. It's also important to have enough cholesterol present to produce adequate amounts of Vitamin D. (Vitamin D is critical for cell growth, glucose metabolism, neuromuscular and immune function.).[3,110] In fact, cholesterol is the backbone for all our hormones!

Based on your genetic results, your CODE Complex DNA-personalized supplement will provide significant nutritional support for:

- ApoB production
- Maintenance of healthy cholesterol levels already within the normal range.
- Overall heart health

Your customized CODE Complex will help optimize your genetic expression of ApoB through scientifically validated amounts of the following ingredients:

Green Tea Extract (polyphenols, catechins)

Research:

- Supplementing with 500mg/day of tea catechins supports healthy LDL levels in adults.[91]
- Catechins in green tea support ApoB activity reduction.[92,93]
- Consuming one cup of green tea daily supports healthy cholesterol levels already in the normal range.[5,94]

ApoB Continued

Grape Skin Extract (polyphenols, resveratrol)

Research:

- Polyphenols in red wine support a reduction in ApoB levels.[95, 205, 207]

Pomegranate Extract (ellagic acid)

Research:

- Consuming pomegranate juice increases HDL ("good cholesterol") associated esterase and supports heart health in healthy humans.[96]
- In animal models, oxidation suppression is supported by ellagic acid (a phytochemical found in pomegranates).[97,98]

Artichoke Extract (chlorogenic acid, caffeoylquinic acids)

Research:

- Artichoke extract supports cholesterol levels in the normal range.[99]
- Artichoke extract positively modulates endothelial function, associated with heart and vascular system health.[100,101]

Evidence-Based Lifestyle Tips for APOB Gene:

Your analysis indicates for a high risk unhealthy lipids. Increase healthy dietary fats: grass-fed butter, ghee, avocado oil, olive oil, and coconut oil. Increase (organic) leafy greens, berries, and walnuts. Avoid foods high in omega-6: soy/vegetable/cottonseed/corn/canola/hydrogenated (and partially hydrogenated) oils, margarine, fried and processed foods. Eat beef if it is grass-fed only. Move your body to raise your heart rate for at least twenty to thirty minutes daily. Maintain a healthy body mass index (BMI) and be sure to get at least seven hours of sleep per night.

ATP5C1
rs1244414

Your Result: Moderate Nutritional Support Needed

About this gene:

ATP5C1 is involved in cellular ATP production (energy) and is important for two primary reasons:

1. It's the only chemical in the body that can be used as energy without being converted first. ATP is recyclable, which means it can be used repeatedly. This is important because it would not be practical for metabolism if the molecule were used up after each reaction.
2. ATP is involved in communication between cells. For example, ATP is believed to be the neurotransmitter responsible for the sense of taste.

Based on your genetic results, your CODE Complex DNA-personalized supplement will provide moderate nutritional support for:

- Cellular energy
- Mitochondrial function

Your customized CODE Complex will help optimize your genetic expression of ATP5C1 through scientifically validated amounts of the following ingredient:

PQQ (pyrroloquinoline quinone)

Research:

- PQQ (methoxatin) increases the numbers and efficiency of mitochondria.[112,128]
- PQQ is thought to be involved in various cellular processes, including protecting nerve cells against damage.[129]
- Animal studies have shown that PQQ can lower C-reactive protein (CRP), interleukin-6 (IL-6), TNF-a, and oxidative stress; human studies are limited but show similar physiological responses.[113,130]

ATP5C1 Continued

Ubiquinone and Kaneka Ubiquinol™ (CoQ10) [458-488]

Research:

- CoQ10 is an antioxidant that plays a significant role in heart health and cellular energy.
- Levels of CoQ10 decrease as we age.[13]
- Depending on your genetic variation, the type and amount of Q10 recommended for you:

  25mg ubiquinol and 25mg ubiquinone

Alpha Lipoic Acid

Research:

- Alpha lipoic acid helps break down carbohydrates[37,38]
- An antioxidant, alpha lipoic acid also helps restore levels of some essential vitamins and minerals[39]

Evidence-Based Lifestyle Tips for Gene:

Your analysis indicates a moderate risk for poor mitochondrial functioning. Eat a balanced, whole-food, nutrient-dense diet. Move your body to raise your heart rate for at least twenty to thirty minutes daily. High-intensity interval training (HIIT) supports mitochondrial functioning. Aim to incorporate HIIT into your routine for at least six minutes daily, twice weekly. Fast, intermittently, two to three days per week, with an eight to twelve-hour eating window. Maintain a healthy body mass index (BMI). Oxygen is critical for energy production. Consider practicing breathwork, such as diaphragmatic breathing. Practice good sleep hygiene: decrease blue light before bed and ensure your sleep environment is completely dark or wear a sleep mask nightly.

COMT
rs4680

Your Result: Slow

About this gene:

Catechol-O-methyltransferase (COMT) gene makes two different versions of an enzyme: MB-COMT and S-COMT. MB-COMT is produced by nerve cells in the brain, while S-COMT is produced by the liver, kidneys, or blood.[135] These enzymes help control the levels of stress hormones.[135,136] Catecholamines are a family of chemical messengers that includes dopamine, norepinephrine, and epinephrine (stress hormones).[136] The COMT gene deactivates stress hormones by adding a methyl group to their structure.[135,136,145]

The process of adding methyl groups to structures is called methylation. Methyl donors are substances that can easily donate a methyl group to another substance. This occurs through the process known as the methylation cycle. COMT variants may express as problems with methylation either with giving a methyl donor or recycling them.[135]

COMT uses S-adenosylmethionine (SAM) to give the methyl group to a catecholamine (dopamine, epinephrine, and norepinephrine, stress hormones).[136] Having either too little SAM or too much S-adenosylhomocysteine (SAH)—which is formed when SAM loses its methyl group—results in COMT not being able to do its job correctly.

Micronutrients such as folate, choline, betaine, vitamin B12, and other B vitamins help DNA methylation by donating methyl groups. Methyl donor issues can lead to irritability, hyperactivity, or abnormal behavior. Someone with methyl donor issues may also be more sensitive to pain.[147,150,155,157] COMT mutations can slow down or speed up the activity of the COMT enzymes, which slows dopamine production and causes dopamine excess imbalances. COMT is important in detoxifying xenobiotics (substances that are foreign to the body).

COMT Continued

COMT enzyme expression is important for breaking down catecholamines (stress hormones).[135,136] Dopamine supports cognitive function, while norepinephrine and epinephrine support the body's stress response. Variations of the COMT gene limit the body's ability to remove catechol's by three to four times, resulting in a build-up of dopamine, norepinephrine, estrogen, etc., in the body.[166] COMT is also associated with greater levels of cortisol and hypothalamic-pituitary-adrenal (HPA) axis dysfunction, which affect the body's ability to calm and de-stress.[137,138,139,140]

People with slow variants have been nicknamed "worriers" because they may have a more challenging time handling stress than those without the slow variant. However, they may be better at problem-solving/thinking skills than people with fast variants.[137,138,139,140,146,172,173,174]

People with fast variants are called "warriors." They may be able to handle stress better; however, they may not be as adept at problem-solving/thinking skills compared to "worriers."[137,138,139,146,172,173,174]

Interestingly, those with SNP variants on this gene appear to experience both positive and negative emotions more strongly than those without it.[139,140,141,146,173,174]

Look at the statements below, as these may be additional indicators of how your COMT expresses, regardless of your genetic results.

Traits of fast COMT expression:

- ☐ It is challenging for me to pay attention or sit still.
- ☐ I can find my center and calm down easily when I am stressed.
- ☐ I can feel low easily.
- ☐ Although I am relaxed most of the time, I don't prefer calmness.
- ☐ I love adrenalin; the risk-taking makes me feel alive afterward.
- ☐ I enjoy joking around and making people laugh.
- ☐ Morning is not my favorite time, and I am challenged to get up and go.
- ☐ I have habit-forming tendencies to all kinds of things (activities, games, shopping, gambling, smoking, drinking, drugs, videos, social media, and such).

COMT Continued

- ☐ I have no trouble falling asleep.
- ☐ I find caffeine helps me pay attention and focus.
- ☐ High fat and sugar make me feel better for a while when I eat them.
- ☐ I am not highly motivated.
- ☐ I function well in high-stress environments.
- ☐ I am not particularly sensitive to my environment.

Traits of slow COMT expression:

- ☐ High protein diets (GAPS, carnivore, Paleo, or Keto) make me cranky.
- ☐ I am very sensitive to my physical environment (sounds, smells, aches).
- ☐ I get irritated quickly, and it takes me a long time to find my center afterward.
- ☐ I worry often.
- ☐ I can focus for a long time.
- ☐ I often have daytime sleepiness.
- ☐ I struggle to fall or stay asleep at night.
- ☐ Caffeine will help energize me, but it can also make me cranky if I have too much.
- ☐ I prefer to be cautious and know what to expect in every situation.
- ☐ I find it challenging to maintain a healthy body mass index (BMI).
- ☐ I am joyful and engaged, but it doesn't take much to irritate me.
- ☐ Patience is not my superpower.

Questionnaire citations:
137,138,139,140,141,142,143,144,149,150,151,152,153,154,155,156,157,158,159,160,161,162,163,164,165,167,170,172,173,174,175,176,177,178,179,180,181,182,183

Your CODE Complex supports optimization for COMT gene expression (including fast and slow) with nutrients 12,95,47,140,143,144,191,212,406,429,443,444,445,446,447,448,449,450,470,471,489,490,491,492,493,494,495,496,497 such as:

- Astaxanthin
- Acerola Cherry Powder Extract
- Broccoli Powder
- Pantothenic Acid (Vitamin B5)
- Riboflavin (Vitamin B2)

COMT Continued

- Biotin (Vitamin B7)
- Niacin (Vitamin B3)
- Thiamine (Vitamin B1)
- Pyridoxal-5'-Phosphate Monohydrate, Pyridoxine (Vitamin B6)
- Flax Seed Powder
- Wolf (Goji) Berry

Evidence-Based Lifestyle Tips for COMT Gene:

Your analysis indicates slow COMT expression. Consider implementing the following evidence-based, epigenetic lifestyle hacks:

- Avoid sugar and refined flour.[140,143,144]
- Eat high-quality protein at every meal.[140,143,144]
- Sleep *at least* seven hours a night (critical). [139, 140, 156, 175]
- Participate in brain-engaging activities: speaking other languages, playing instruments, crossword puzzles, etc. [139, 140, 177, 178]
- Physical contact or eye gazing to increase oxytocin and dopamine (your feel-good neurotransmitters and hormones).[139, 140, 177, 178]
- Avoid environmental toxins.[140, 142, 143, 144, 183]
- Practice effective-for-you stress management techniques.[139, 140, 145, 146, 147, 153, 154, 179, 180, 181, 182]
- Fat creates estrogen, which stresses COMT. Maintain a healthy body mass index (BMI). [140, 149, 160, 161, 162, 163, 164, 165]
- Avoid estrogenic plastics (especially those containing BPA) and pesticides as much as possible. [140, 183]
- Meditate for a few minutes every day. [137, 140, 179, 181]
- Exercise may be your go-to for balancing stress levels (and neurotransmitters). Try not to let your stress build by practicing additional stress reduction and management forms, including breathing, physical contact, eye gazing, and spending time in nature. [139, 140, 146, 156, 176]
- Listen to your body and rest when you need to. Have designated reset or downtimes.

If you are still experiencing unwanted COMT expression, you may need to further investigate with your health provider.

CRP
rs1205

Your Result: Optimal

About this gene:

CRP (C-reactive protein), which is produced in the liver and released into the bloodstream, increases in response to the acute phase of injury, inflammation and infection. In blood tests, CRP is a marker for inflammation.[113]

Evidence-Based Lifestyle Tips for CRP Gene:

Your analysis indicates a low risk for an unhealthy inflammatory response. Even with low genetic risk, lifestyle choices are still crucial for a lifetime of optimal health. Eat a balanced, whole-food, nutrient-dense diet. Move your body to raise your heart rate for at least twenty to thirty minutes daily.

CYP11B2
rs1799998

Your Result: Moderate Nutritional Support Needed

About this gene:

CYP11B2 supports healthy blood pressure. CYP11B2 helps make the hormone aldosterone, which is responsible for fluid and salt levels that affect blood pressure and adrenal function [35]. In addition, aldosterone synthase is a member of the cytochrome P450 family of enzymes.[142] These enzymes help to form and break down molecules within cells. This contributes to essential functions related to detoxification.[169]

Based on your genetic results, your CODE Complex DNA-personalized supplement will provide moderate nutritional support for:

- Overall heart health
- Healthy blood pressure level maintenance (already in the normal range)

Your customized CODE Complex will help optimize your genetic expression of CYP11B2 through scientifically validated amounts of the following ingredients:

Hawthorn Berry Extract (polyphenols,flavonoids)

Research:

- Hawthorne's historical use as a heart-strengthening tonic. [85,86]
- Hawthorne supports healthy cholesterol and blood pressure already in normal ranges.[84,85,86,87,88,89,90]

Magnesium and Potassium

Research:

- Potassium and magnesium are two key minerals that support blood pressure (already in the normal range). [142,189, 190]
- The landmark DASH study (National Institute of Health) recommends the intake of magnesium and potassium at increased levels. [169]

CYP11B2 Continued

Vitamin C (as ascorbic acid) [191]

Garlic Powder [192]

Evidence-Based Lifestyle Tips for CYP11B2 Gene:

Your analysis indicates a moderate risk for unhealthy blood pressure. Eat a balanced, whole-food, nutrient-dense diet. Move your body to raise your heart rate for at least twenty to thirty minutes daily. Limit or avoid caffeine in coffee, tea, sodas, and energy drinks. Caffeine is dehydrating and dehydration affects blood pressure. Drink at least half your body weight in ounces of water per day. Manage stress using health-promoting activities such as tai chi, meditation, eye-gazing or spending time in nature. Breathing in through your nose and out through your nose helps you de-stress (mouth-breathing increases heart rate). Practice good sleep hygiene.

EPHX1
rs1051740

Your Result: Moderate Nutritional Support Needed

About this gene:

EPHX1 helps the body detoxify from exposure to everyday environmental toxins. Elimination of pollutants, including pesticides, automotive exhaust, smoke, and more, are processed through the liver, and mutations in this gene may interrupt the liver's capacity to perform this vital function. As a result, energy, appetite, stress response, may be affected. EPHX1 protein levels have been found in various tissues such as the brain, liver, small intestine, kidney, lung, and urinary bladder.[115] Its activity is important for helping these organs eliminate environmental pollutants.

Based on your genetic results, your CODE Complex DNA-personalized supplement will provide moderate nutritional support for:

- EPHX1 enzymatic activity.
- Overall liver functioning and health.
- Destruction of free radicals resulting from environmental toxins.
- Healthy oxidation response.

Your customized CODE Complex will help optimize your genetic expression of EPHX1 through scientifically validated amounts of the following ingredients:

Green Tea Extract (polyphenols, catechins)

Research:

- Green tea intake and a healthy liver are correlated.[5]
- Genetic expression for EPHX1 is greatly supported by green tea consumption.[5,6]

EPHX1 Continued

Milk Thistle Extract (silymarin)

Clinical research reports:

- Milk thistle is liver protective against environmental-related free radicals.[7]
- Milk thistle supports the synthesis of an essential liver detoxification and immune compound called glutathione.[7,8,9,10]
- Milk thistle protects the liver against epoxides.[7,8,9,10]

Artichoke Extract (phenolic compounds)

Research:

- Artichoke extract is significantly liver-protective and supportive of bile-flow functioning involved in detoxification.[10, 405]

Cruciferous Vegetables: Broccoli and Kale (indole-3-carbinols, sulforaphane)

Research:

- Broccoli and kale support the stimulation of enzymes involved in detoxification.[11,455,456]
- Broccoli and kale support toxin elimination via the promotion of phase II liver enzymes.[12,455,456]

Burdock Root Powder

Research:

- Burdock Root Powder supports liver detoxification and a healthy BMI.[41,193,194]

Schisandra Berry Powder

Research:

- Schisandra Berry Powder supports Phase 1 and Phase II liver function[43,195,196,197]

Gotu Kola Herb Extract[191,201]

EPHX1 Continued

Evidence-Based Lifestyle Tips for EPHX1 Gene:

Your analysis indicates a moderate risk for unhealthy detoxification. Eat a balanced, whole-food, nutrient-dense diet, consuming ample leafy greens and berries. Choose organic produce to lower your exposure to pesticides and avoid using pesticides and herbicides in or around your home and garden. When grilling meat, avoid the "char," opting for "low and slow" instead. Move your body to raise your heart rate for at least twenty to thirty minutes daily. Exercise, sleep, hydration and breathing, specifically, support EPHX1 expression.

Note: Having a variant on EPHX1 calls for a “low and slow” approach to beginning your CODE Complex (or any new supplement) routine. Start with a small dose and listen to your body. Build up as you feel ready. *Want to learn more? Check out this article.*

FTO
rs9939609
rs1121980

Your Result: Moderate Nutritional Support Needed

About this gene:

FTO variants are believed to increase hunger signaling and satiety responsiveness (feeling satisfied). FTO is considered an obesity-associated gene involved with regulating fat mass, adipogenesis (creating fat), total body weight and body mass index (BMI) and is further associated with obesity, high caloric intake, metabolic syndrome, and Type II Diabetes.[116,117]

Based on your genetic results, your CODE Complex DNA-personalized supplement will provide moderate nutritional support for:

- Healthy body mass index (BMI)
- Metabolism regulation
- Healthy blood sugar levels

Your customized CODE Complex will help optimize your genetic expression of FTO through scientifically validated amounts of the following ingredients:

Berberine

Research:

- Found in various plants, berberine is a long-trusted bioactive alkaloid that supports metabolism regulation.[200]

Vitamin C

Research:

- An inverse relationship between blood levels of vitamin C and waist measurements, obesity, and fat oxidation.[191]

FTO Continued

Alpha Lipoic Acid

Research:

- Alpha lipoic acid helps decrease blood sugar by breaking down carbohydrates [37,38,39]
- An antioxidant, alpha lipoic acid helps restore levels of some essential vitamins and minerals [37,38,39]

Bamboo Leaf

Research:

- Bamboo leaves are known for their high silica and antioxidant content. Studies have shown these compounds help with inflammation response and support multiple systems of the body. [457]

Evidence-Based Lifestyle Tips for FTO Gene:

Your analysis indicates a moderate risk for unhealthy weight. Eat a Mediterranean-based diet that is high in healthy fats and fiber[168]. Consume ample (organic) leafy greens and berries. Limit or avoid sugar, control portions and "graze" healthy, nutrient-dense food throughout the day to manage hunger. Move your body to raise your heart rate for at least twenty to thirty minutes daily.

FUT2
rs602662

Your Result: Optimal

About this gene:

The FUT2 gene helps create an enzyme called "galactoside 2-alpha-L-fucosyltransferase 2." This enzyme is involved in several chemical reactions in the body. It affects the ABO blood group antigens, which determine a person's blood type.[118] Research suggests that genetic variations in FUT2 may influence immune response and alter how the body absorbs vitamins, especially vitamin B12.[118]

Vitamin B12 levels affect everything from nerve conduction and red blood cell production to methylation processes involved with homocysteine balancing (critical for maintaining healthy inflammatory response).[148] FUT2 is integral for producing prebiotics, which are gut bacteria critical for good health. Bifidobacterium is a type of gut bacteria that is especially important for optimal health (70%-80% of immune cells are in the gut). These beneficial bacteria produce certain small-chain fatty acids as well as the amino acids lysine, tryptophan and tyrosine.

FUT2 has also been associated with the overgrowth of dysbiotic microbiota (H pylori). Science is exploring the many ways our gut communicates with and affects our neurotransmitters (the communication molecules of our brain), impacting everything from mitochondrial function to mental health.[112]

Evidence-Based Lifestyle Tips for FUT2 Gene:

Your analysis indicates a low risk for unhealthy weight. Even with low genetic risk, lifestyle choices are still crucial for a lifetime of optimal health. Eat a balanced, whole-food, nutrient-dense diet, consuming ample leafy greens and organic berries. Move your body to raise your heart rate for at least twenty to thirty minutes daily.

GSTP1
rs1695

Your Result: Optimal

About this gene:

The GSTP1 gene produces an enzyme, glutathione S-transferase pi (GSTP1). This enzyme plays an important regulatory role in removing toxins from your cells.[119,171] GSTP1 is closely associated with protecting the body from exposure to low doses of ionizing radiation, heavy metals, and other chemicals.[119] The GSTP1 enzyme helps to remove these substances by binding them to other molecules, which makes them easier to remove from the body and protects cells against DNA damage.[171]

Evidence-Based Lifestyle Tips for GSTP1 Gene:

Your analysis indicates a low risk for increased oxidative stress. Even with low genetic risk, lifestyle choices are still crucial for a lifetime of optimal health. Eat a balanced, whole-food, nutrient-dense diet, consuming ample leafy greens and organic berries. Move your body to raise your heart rate for at least twenty to thirty minutes daily. Avoid unnecessary household toxins such as air fresheners, pesticides, and fabric softeners; opt, instead, for verified natural alternatives from www.ewg.org.

IL6
rs1800795

Your Result: Moderate Nutritional Support Needed

About this gene:

IL-6 SNP produces a type of protein called a cytokine. It helps to start inflammation in the body. Macrophages and adipocytes (fat cells) make it. People who are obese have more IL-6 in their bodies. IL-6 can pass from the blood into the brain, increasing body temperature. So why is this gene important? Inflammation is the body's way of naturally protecting and healing itself from germs, injuries, and stress. In small amounts, inflammation can be helpful for healing. However, when inflammation is too high or lasts for a long time, it can lead to more significant health concerns[113]. People with the IL-6 SNP have a higher chance of having too much inflammation, which can worsen with the Standard American Diet (SAD) and other unhealthy lifestyle choices.

Based on your genetic results, your CODE Complex DNA-personalized supplement will provide moderate nutritional support for:

- Healthy Immune function
- Healthy inflammatory response

Your customized CODE Complex will help optimize your genetic expression of IL-6 through scientifically validated amounts of the following ingredient:

Turmeric Root Powder

Research:

- Curcumin, the bright-yellow compound found in turmeric, has strong anti-inflammatory properties. [280]
- Curcumin is a powerful antioxidant. [36]
- Curcumin supports the genetic expression of numerous genes associated with inflammatory processes. [186,187,188,208]

IL6 Continued

Bamboo Leaf

Research:

- Bamboo leaves are known for their high silica and antioxidant content. Studies have shown these compounds help with inflammation response and support multiple systems of the body. [457]

Evidence-Based Lifestyle Tips for IL6 Gene:

Your analysis indicates a moderate risk for an unhealthy immune response. Eat a balanced, whole-food, nutrient-dense diet, consuming foods less likely to trigger inflammation, such as (organic) leafy green vegetables, wild-caught fatty fish (sardines and salmon), green tea, and (organic) berries.[5] Move your body to raise your heart rate for at least twenty to thirty minutes daily to support maintaining a healthy body mass index (BMI). During cold and flu seasons, or periods of sustained stress, support your immune system by maintaining adequate vitamin D levels.[4] Avoid too much alcohol, quit smoking, and get at least seven hours of sleep each night. If you wake up without feeling refreshed, add more hours nightly.

MTHFR

rs1801133 (C677T)
rs1801133 (A1298C)

Your Result: Moderate Nutritional Support Needed

About this gene:

The MTHFR gene supports methylation (sharing or recycling methyl donors), cellular detoxification, and homocysteine levels (healthy inflammation) by determining which form of folic acid (folic acid or reduced folate) can be used efficiently.[121,122] MTHFR provides the blueprint for the MTHFR enzyme, which helps convert dietary folic acid into a form that is more effectively utilized. This converted form (reduced folate) is then used in many biochemical pathways. Also critical is the reduced folate's role in recycling homocysteine into methionine.[184] Like the MTRR enzyme, the MTHFR enzyme controls homocysteine levels; research has shown heart health depends upon homocysteine levels staying under control. [121,184]

C677T is considered a more serious mutation and is connected to blood clotting issues, heart health, male fertility, and more physical reactions. [357,369,372, 373, 374]

A1298C tends to affect mood and impact neurotransmitter synthesis, brain function and DNA repair. [295]

Based on your genetic results, your CODE Complex DNA-personalized supplement will provide moderate nutritional support for:

- Homocysteine levels
- Overall heart health
- The methylation cycle

Your customized CODE Complex will help optimize your genetic expression of MTHFR through scientifically validated amounts of the following ingredients:

Trimethylglycine (also known as TMG or Betaine)

Research:

- Betaine is required for homocysteine-to-methionine conversion to support healthy homocysteine levels.[51,52,53,59,60]

MTHFR Continued

- Betaine amplifies B vitamin activity [57]

Choline Bitartrate

Research:

- Choline supports healthy homocysteine levels and forms TMG/betaine as it oxidizes.[58,59,317]

Choline and Trimethylglycine

Research:

- Ongoing intake of choline and betaine is highly supportive of heart health and healthy levels of homocysteine.[59,60,317]

Reduced folate (5-methyl-tetrahydro folic acid) as Quatrefolic®

Quatrefolic® is a registered trademarks of Gnosis S.p.A.

Research:

- Compared to folic acid, the bioactive form of folate—reduced folate (5-methyl-tetrahydro folic acid)— best supports women with MTHFR mutations with healthy homocysteine levels. [61,122,184,266-385]

Evidence-Based Lifestyle Tips for MTHFR Gene:

Your analysis indicates a moderate risk for unhealthy homocysteine levels. Eat a balanced, whole-food, nutrient-dense diet, consuming foods less likely to trigger inflammation. Move your body to raise your heart rate for at least twenty to thirty minutes daily and incorporate strength/resistance training and flexibility training at least twice weekly. Consume organic, vitamin B-rich foods such as leafy greens, eggs, grass-fed beef, poultry, and wild-caught, fatty fish. Drink clean water: at least half your body weight in ounces per day.

MTRR
rs1801394

Your Result: Significant Nutritional Support Needed

About this gene:

The MTRR gene provides the blueprint for the enzyme methionine synthase reductase (MSR). This enzyme is important because it helps control homocysteine levels (healthy inflammation levels) in the body by recycling it back into methionine. Research has shown that controlling homocysteine levels is essential for preserving heart health.[123] MTRR also supports methylation (sharing or recycling methyl donors) and cellular detoxification.

Based on your genetic results, your CODE Complex DNA-personalized supplement will provide significant nutritional support for:

- Healthy homocysteine levels
- Increased glutathione activity
- Conversion of homocysteine-to-methionine
- Overall heart health

Your customized CODE Complex will help optimize your genetic expression of MTRR through scientifically validated amounts of the following ingredients:

B Vitamins

Research:

- The synergistic properties of vitamins Riboflavin (B2), P5P Pyridoxal-5-Phosphate Monohydrate/ Pyridoxine (B6), Methyl Cobalamin (B12), and Reduced Folate (B9) support homocysteine metabolism.[46,47,48,122,123,489-497]

Niacin (vitamin B3)

Research:

- Vitamin B3 lowers cardiovascular health risks.[4U,50,492]

MTRR Continued

Trimethylglycine (also known as TMG or Betaine)

Research:

- Betaine is required for homocysteine-to-methionine conversion to support healthy homocysteine levels. [51,52,53,57-61,121,122,184]
- Betaine amplifies B vitamin activity. [57]

Dong Quai Extract

Research:

- Used for thousands of years by Chinese herbalists, Dong Quai supports liver, lung, and heart functions.[54]
- Dong Quai supports liver oxygenation and liver glutathione enzymatic activity.[55]
- Don Quai reduced damage from oxidative stress and unhealthy homocysteine levels.[54]

Zinc

Research:

- Zinc and B6 synergistically support homocysteine-to-methionine conversion.[56]

Reduced folate (5-methyltetrahydrofolic acid) as Quatrefolic®

Quatrefolic® is a registered trademarks of Gnosis S.p.A.

Research:

- Compared to folic acid, the bioactive form of folate—reduced folate (5-methyltetrahydrofolic acid) — best supports MTRR mutations with healthy homocysteine levels. [61,122,184,266-385]

Evidence-Based Lifestyle Tips for MTRR Gene:

Your analysis indicates a high risk for an unhealthy homocysteine level. Eat a balanced, whole-food, nutrient-dense diet, consuming low-inflammation foods. Move your body to raise your heart rate for at least twenty to thirty minutes daily. Consume organic, vitamin B-rich foods such as leafy greens, eggs, grass-fed beef, poultry, and wild-caught, fatty fish. Make sure you sleep a minimum of seven hours a night, ensuring you feel rested and rejuvenated in the morning (if you don't, extend your hours of sleep). Manage stress using health-promoting activities such as tai chi, meditation, eye-gazing or spending time in nature. Move your body to raise your heart rate for at least twenty to thirty minutes daily. Include strength/resistance and flexibility training at least two days per week. Schedule regular healthcare appointments to have your folate, B12 and homocysteine levels monitored along with all the bloodwork for heart and cardiovascular health (including CBC).

NQO1
rs1800566

Your Result: Optimal

About this gene:

The NQO1 gene provides the blueprint for an enzyme called NAD(P)H quinone oxidoreductase 1, which is an important antioxidant enzyme. NQO1 levels increase under conditions of stress, which helps protect the cell.

The NQO1 gene helps to eliminate free radicals and provide energy for cells. It helps to process toxins and free radicals causing oxidative stress. CoQ10 is also crucial for generating energy in every cell of our bodies, but it is especially concentrated in cells that need a lot of energy, such as the heart! Our bodies produce some CoQ10 (although production decreases as we age), and we also receive more from a healthy diet. When ubiquinone, the oxidized form of CoQ10, is ingested, the body quickly transforms it into ubiquinol. The NQO1 gene encodes for the enzyme that catalyzes this conversion.[124] This enzyme helps process toxins and free radicals that cause oxidative stress.

NQO1 activates vitamin E and vitamin K. Your NQO1 gene determines which form of CoQ10 (ubiquinone, ubiquinol, or both) your body can use most efficiently.[124]

Based on your genetic results, your CODE Complex DNA-personalized supplement will provide standard nutritional support for:

- Energy
- Heart health
- Oxidation response

Your customized CODE Complex will help optimize your genetic expression of NQO1 through scientifically validated amounts of the following ingredients:

NQO1 Continued

Ubiquinone and/or ubiquinol (CoQ10) [458-488]

Research:

- CoQ10 is an antioxidant that plays a significant role in heart health and cellular energy.
- Levels of CoQ10 decrease as we age.[13]
- Depending on your variation, the type and amount of Q10 recommended for you:

  50mg ubiquinone

Bamboo Leaf

Research:

- Bamboo leaves are known for their high silica and antioxidant content. Studies have shown these compounds help with inflammation response and support multiple systems of the body.[457]

Evidence-Based Lifestyle Tips for NQO1 Gene:

Your analysis indicates a low risk for unhealthy CoQ10 energy. Even with low genetic risk, lifestyle choices are still crucial for a lifetime of optimal health. Eat a balanced, whole-food, nutrient-dense diet. Move your body to raise your heart rate for at least twenty to thirty minutes daily. To support healthy aging, consider fasting two to three days per week (intermittent).

PON1
rs662

Your Result: Moderate Nutritional Support Needed

About this gene:

The PON1 gene helps to keep lipid levels healthy and supports good heart health. This gene is important because it provides the blueprint for making the PON1 enzyme and is carried on High-Density Lipoprotein (HDL) in the blood. When the PON1 enzyme attaches to HDL, it protects Low-Density Lipoprotein (LDL) from being oxidized.[125] When LDL is attacked by free radicals (in other words, it is oxidized), it is recognized by the body as something that doesn't belong there. Therefore, managing levels of oxidized LDL is critical for a healthy cardiovascular system.

Based on your genetic results, your CODE Complex DNA-personalized supplement will provide moderate nutritional support for:

- Energy
- Heart health
- Oxidation response

Your customized CODE Complex will help optimize your genetic expression of PON1 through scientifically validated amounts of the following ingredients:

Mushroom Extracts (polysaccharides)

Research:

- Reishi[74,75], maitake[76,77], and shiitake[78,79] mushrooms' compounds support lipids at healthy levels.

Vitamin E (as d-alpha Tocopherol)

Research:

- Vitamin E supports PON1 gene activity through its antioxidant properties, which reduce oxidative stress and support the expression of the PON1 enzyme, an important factor in protecting against oxidative damage and lipid metabolism. [79,80,81,82,83]

PON1 Continued

Evidence-Based Lifestyle Tips for PON1 Gene:

Your analysis indicates a moderate risk for unhealthy cholesterol oxidation. Eat a balanced, whole-food, nutrient-dense diet high in organic leafy greens, organic fruit and lean proteins, and low in processed meats (hot dogs, bologna, etc.), fried foods and sugar. Move your body to raise your heart rate for at least twenty to thirty minutes daily; adding resistance and flexibility training three times per week. Manage stress using health-promoting activities such as tai chi, meditation, eye-gazing or spending time in nature.

SOD2
rs4880

Your Result: Significant Nutritional Support Needed

About this gene:

The SOD2 gene provides the blueprint for the superoxide dismutase 2 (SOD2) enzyme. This enzyme is called MnSOD2 because it needs the mineral manganese (Mn) to function. SOD enzymes are antioxidants, which means they help protect cells from damage caused by oxidative stress. Superoxide radicals are found in every cell in our bodies, and they can cause severe damage to our organs and tissues. SOD2 works by converting the toxic molecule superoxide (O2-) into oxygen (O2) and hydrogen peroxide (H2O2) thus protecting the body from cellular damage.

Based on your genetic results, your CODE Complex DNA-personalized supplement will provide significant nutritional support for:

- Healthy oxidation response
- Healthy free radical management
- Antioxidant activity

Your customized CODE Complex will help optimize your genetic expression of SOD2 through scientifically validated amounts of the following ingredients:

Green Tea and White Tea Extract (polyphenols,catechins) [4,11]

Research:

- Green tea and white tea extracts are potent antioxidants. This evidence is supported by epidemiological studies, cellular research, and animal studies.
- Tea catechins have been shown to scavenge superoxide radicals. [5,14,15]
- The major catechin found in tea extracts, epigallocatechin-3-gallate (EGCG), supports mSOD activity, preventing oxidation, reducing superoxide radical concentration, helping to maintain proper inflammatory response, promoting healthy body mass index (BMI), and supporting heart and brain function.[5,16,17,18,19]

SOD2 Continued

Bilberry Extract (anthocyanins/flavonoids)

Research:

- The anthocyanins and flavonoids found in bilberry can help to scavenge superoxide radicals.[20]
- Bilberry has traditionally been used for many age-related vision problems [21,22,23]
- A Japanese study shows bilberry helps to support digital eye strain [131]
- Bilberry's effect on vision is supported by the fact that anthocyanins and flavonoids in bilberries are effective at scavenging superoxide.[23]

Spirulina Powder

Research:

- Relatively high levels of superoxide dismutase (mSOD) are found in spirulina powder.[24] Superoxide dismutase is an enzyme that helps to change superoxide radicals into oxygen and hydrogen peroxide. Superoxide is produced when the body uses oxygen and, if not regulated, can damage cells.
- In animal studies, phycocyanin, a pigment found in spirulina, has been shown to decrease cardiac production of the superoxide radical.[25,213,214]

Niacin (vitamin B3) [492]

Research:

- Niacin and its coenzymes NAD and Nicotinamide Adenine Dinucleotide Phosphate (NADP) have important roles in reduction/oxidation reactions involved in energy metabolism, amino acid metabolism, and detoxification reactions for drugs and other substances. [492]
- Niacin and its coenzymes also help protect against damage from oxidation.[133,212]

Evidence-Based Lifestyle Tips for SOD2 Gene:

Your analysis indicates a high risk for an unhealthy free radical defense. Eat a balanced, whole-food, nutrient-dense diet high in organic leafy greens and fruit (emphasize berries). Avoid foods that make you feel sluggish, tired, or moody. Move your body to raise your heart rate for at least twenty to thirty minutes daily; adding resistance and flexibility training three times per week. Manage stress using health-promoting activities such as tai chi, meditation, eye-gazing or spending time in nature. Reduce alcohol to no more than one (women) or two (men) drinks daily. Schedule regular physical and ongoing bloodwork monitoring with your healthcare provider.

TNF-a
rs1800629

Your Result: Moderate Nutritional Support Needed

About this gene:

The Tumor Necrosis Factor-alpha (TNF-a) gene regulates the production of TNF-a, a chemical messenger (cytokine) of the immune system that plays a role in inflammatory processes. Inflammation is the body's immune system's response to attack from various sources, such as pathogens, damaged cells, or irritants. Aging also results in an increased level of cytokines. TNF-a mobilizes white blood cells in response to infections and injuries. While that response is helpful in the short term, if the inflammatory response becomes unbalanced (too much TNF-a), it can negatively affect the cells, tissues, and, ultimately, the organs. An optimal inflammatory response requires a healthy balance of TNF-a.

Based on your genetic results, your CODE Complex DNA-personalized supplement will provide moderate nutritional support for:

- TNF-a activity inhibition and regulation
- Reduction of free radicals perpetuated by high TNF-a and the natural aging process
- Healthy inflammatory response

Your customized CODE Complex will help optimize your genetic expression of TNF-a through scientifically validated amounts of the following ingredients:

Green Tea Extract, Grape Seed and Pomegranate (polyphenols)

Research:

- Overall health and healthy aging are supported by polyphenol intake.
- Supplementation with green tea extract reduces TNF-a.[62,63,64,65,66,67,68]
- Polyphenols from grape seed and green tea support a healthy inflammation response.[5,14,15,19,62,65,68]
- Pomegranates contain polyphenols, which help suppress the production of various inflammatory proteins.[70,209]
- Polyphenol compounds in grape seed extract, known as proanthocyanins, support a healthy inflammatory response.[71]

TNF-a Continued

Milk Thistle Extract (silymarin)

Research:

- Silymarin helps to reduce the activation of NF-kB, which is a nuclear transcription factor. This transcription factor regulates the expression of various genes involved in the inflammatory response.[72]
- Silymarin helps to prevent the production of reactive oxygen species (ROS) when the body is exposed to TNF-a. This can help to protect cells and lipids from damage.[72]
- Silymarin supports a healthy inflammatory response.[73,134]

Evidence-Based Lifestyle Tips for TNF-a Gene:

Your analysis indicates a moderate risk for unhealthy inflammatory response. Eat a balanced, whole-food, nutrient-dense diet, consuming foods less likely to trigger inflammation. Avoid inflammatory foods and those high in omega-6: soy/vegetable/cottonseed/corn/canola/hydrogenated (and partially hydrogenated) oils, margarine, fried and processed foods. Avoid sugar, refined carbohydrates, and starchy grains and vegetables (such as potatoes). Move your body to raise your heart rate for at least twenty to thirty minutes daily, adding resistance and flexibility training three times per week. Manage stress using health-promoting activities such as tai chi, meditation, eye-gazing or spending time in nature.

VDR

rs2228570 (Fok1)
rs7975232 (Apa1)
rs1544410 (Bsm1)
rs731236 (Taq1)

Your Result: Significant Nutritional Support Needed

About this gene:

The VDR gene produces a protein receptor that helps us use the hormone, Vitamin D, which is active in nearly every cell of our bodies. The VDR-Vitamin D interplay is essential for many reasons, including strong bones, healthy immune function, mood, heart health, healthy blood sugar, and brain function.[3] People used to get enough vitamin D from sunlight, but today are often deficient, due to more time indoors combined with higher sunscreen use. [4]

Vitamin D works with vitamin K and calcium to strengthen our bones.[1,2] Our bodies are constantly breaking down and creating new bone, but after age 30, our bodies start breaking down bone faster than we can create it. This vitamin (hormone) also helps regulate how much calcium is in the blood and helps the body absorb and use calcium to build strong bones.

Four unique VDR SNPs (Fok1, Apa1, Bsm1, Taq1) are responsible for the regulation of Vitamin D and together affect how effectively and efficiently our bodies synthesize, respond to, and metabolize Vitamin D.

Your CODE Complex supplement contains foundational support of 2000iu (50mcg) of Vitamin D3. Depending on the presence of genetic variants on any of the four VDR SNPs noted above, you may also receive (up to) an additional 6,000iu (150mcg). Please refer to your Supplement Fact Panel (SFP) for your personalized dose.

For a deeper understanding of SNPs impacting Vitamin D absorption and utilization, please see this article on the SNiP Blog.

Based on your genetic results, your CODE Complex DNA-personalized supplement will provide significant nutritional support for:

- Calcium absorption
- Bone mineral density
- Overall bone health

VDR Continued

Your customized CODE Complex will help optimize your genetic expression of VDR through scientifically validated amounts of the following ingredients:

Calcium (as calcium amino acid chelate)[211]

Research:

- Bone health essentially relies on adequate calcium intake. [210,211]

Vitamin K2 (as menaquinone)

Research:

- Most people are deficient in vitamin K2, primarily found in fermented products like kimchi. Even a healthy "Western" diet does not supply adequate amounts of this essential nutrient. [1,2,102-109,110]

Vitamin D3 (as cholecalciferol)

Research:

- Vitamin D is required for optimal calcium absorption
- Vitamin D is equally as important for bone health as calcium is
- Vitamin D is also important in tooth health [4], heart health,[3,110] healthy immune function, mood, cognition, and more.[3,4]
- Studies have shown that maintaining adequate vitamin D levels is associated with lower mortality rates. In other words, having enough vitamin D can help increase your chances of living a longer and healthier life.

Evidence-Based Lifestyle Tips for VDR Gene:

Your analysis indicates a high risk for poor vitamin D conversion. Eat a balanced, whole-food, nutrient-dense diet with an increased intake of vitamin D-rich foods, such as wild-caught fatty fish (salmon, sardines), eggs, mushrooms, and oats. Move your body to raise your heart rate for at least twenty to thirty minutes daily. Vigorous exercise and strength training may also positively affect vitamin D levels. Expose your bare skin to sunlight (without sunscreen) for at least 10-15 minutes daily, avoiding sunburns. Ask your healthcare provider to monitor your vitamin D levels regularly.[4]

Base Ingredients

In addition to the ingredients chosen just for you based on your genetic blueprint, all CODE Complex formulations, regardless of your genetic profile, include our powerful base blend, designed to support:

- Energy
- Stress (adaptogens)
- Gut health (microbiome, digestion, absorption)
- Healthy aging (telomeres)
- Antioxidants (including CoQ10 in the right form for you)
- DNA repair
- Foundational Vitamin D support
- Healthy inflammatory response
- Healthy immune response
- Increased collagen production
- Essential vitamins, minerals and micronutrients
- Foundational health
- Neurotransmitter and estrogen breakdown

The base blend included in your supplement is a proprietary mix of vitamins, minerals, adaptogens and organic and whole "superfoods," and also includes prebiotics and digestive enzymes to help your body better absorb and utilize your nutrition.

- Prebiotics (Organic Inulin)
- Digestive enzymes (Cellulase, Protease, Amylase, Lipase)
- Organic Flaxseed Powder
- Acerola Cherry Powder Extract
- Organic Apple Peel Powder
- Rosemary Leaf Extract
- White Tea Extract
- Beetroot Juice Powder
- Blueberry Juice Powder
- Organic Spinach Juice Powder
- Wolfberry (Goji) Extract
- Niacin (Vitamin B3)
- Biotin
- Zinc
- Pantothenic Acid (Vitamin B5)
- Riboflavin (Vitamin B2)
- Vitamin A
- Thiamine (Vitamin B1)
- Vitamin B6 (P5P Pyridoxal-5'-Phosphate Monohydrate, Pyridoxine)
- ac-11®
- Frankincense
- Organic Astaxanthin
- Vitamin E (d-alpha Tocopherol)
- Mixed Carotenes
- Acai Juice Powder
- Broccoli Powder
- Carrot Juice Powder
- Cranberry Juice Powder
- Calcium
- Vitamin D3 + K2
- Mangosteen Extract
- Raspberry Juice Powder
- Tomato Juice Powder

Supplement Facts Panel (SFP)

Your Name

EX-98816
04/03/2024

Adults ages 18 and over consume ten capsules daily with plenty of liquids. Split into two (or more) servings, if desired.

Supplement Facts

Serving Size: 10 Capsules
Servings Per Container: 30

	Amount Per Serving	% Daily Value
Calories	10 cal	
Total Carbohydrate	2 g	1% *
Vitamin A	100 mcg	11%
Vitamin C (as Ascorbic Acid)	79 mg	88%
Vitamin D3 (as Cholecalciferol)	201.8 mcg	1009%
Vitamin E (as Dl-Ï±-Tocopheryl Acetate)	46.7 mg	311%
Vitamin K2 (as MK-7/Menaquinone-7)	16 mcg	13%
Niacin (B3) (as Niacinamide)	5.2 mg	33%
Folate (B9) (as QuatrefolicÂ® (6S)-5-Methyltetrahydrofolate, Glucosamine Salt)	2295 mcg DFE	574%
Vitamin B12 (as Methylcobalamin)	245 mcg	10208%
Choline (as Choline Bitartrate)	370 mg	67%
Calcium (as Calcium Amino Acid Chelate)	490 mg	38%
Iron	0.4 mg	2%
Magnesium (as Magnesium Citrate)	10 mg	2%
Sodium	93.7 mg	4%
Proprietary VDR Blend	1.287 g	†
Proprietary PON1 Blend	1 g	†
Maitake Mushroom Extract (*Lintinus edodes*) (sporocarp), Reishi Mushroom Extract (*Ganoderma lucidum*) (fruit body), Organic Shiitake Mushroom Extract (*Lentinula edodes*) (fruit body)		
Proprietary Base Blend	0 mcg	†
Organic JA Inulin Powder (*Helianthus tuberosus*) (jerusalem artichoke tuber), Organic Flaxseed Powder (*Linum usitatissimum*) (seed), Acerola Cherry Powder Extract (*Malpighia glabra*) (fruit), Organic Apple Peel Powder (AppleActiv DAPPÂ®) (*Pyrus malus pell*) (fruit peel), Rosemary Leaf Extract (*Rosmarinus officinalis*) (leaf), White Tea Extract (*Camellia sinensis*) (leaf), Beetroot Juice Powder (*Beta vulgaris*) (root), Blueberry Juice Powder (*Vaccinium uliginosum*) (fruit), Mixed Carotenes (from Dunaliella Salina), Acai (fruit juice) (*Euterpe oleracea*) powder, Broccoli Powder (*Brassica oleraca*) (whole plant), Carrot Juice Powder (*Daucus carota*) (root), Cranberry Juice Powder (*Vaccinium macrocarpon*) (fruit), Mangosteen Extract (*Garcinia mangostana*) (pericarp), Raspberry Juice Powder (*Rubus idaeus*) (fruit), Organic Spinach Juice Powder (*Spinacia oleracea*) (leaves), Tomato Juice Powder (*Solanum lycopersicum*) (fruit), Wolfberry (Goji) Extract (*Lycium barbarum*) (fruit), Enzyme Blend (Cellulase, Protease, Amylase, Lipase)		
Proprietary ac-11Â®, Frankincense, Astaxanthin Blend	812 mg	†
ac-11Â® (*Patented Extract of Uncaria Tomentosa*) (inner bark), Frankincense (*Boswellia Serrata*) (resin), Organic Astaxanthin 5% (*Haematococcus pluvialis algal*) (cells)		
Proprietary MTHFR Blend	750 mg	†
Trimethylglycine (as Betaine Anhydrous)		
Proprietary ApoB Blend	500 mg	†
Green tea (*Camellia sinesis*) (leaf), Pomegranate Extract (*Punica granatum*) (pericarp), Artichoke Leaf Powder (*Cynara scolymus*) (leaf), Resveratrol (*Polygonum cuspidatum*) (root)		
Proprietary CYP11B2 Blend	500 mg	†
Hawthorn Berry Extract (*Crataegus pinnatifid*) (fruit), Garlic Powder (*Allium sativum*) (bulb)		
Proprietary EPHX1 Blend	500 mg	†
Milk Thistle Extract (Silymarin) (*Silybum marianum*) (seed), Broccoli Sprout Extract (*Brassica oleracea*) (sprout), Green tea (*Camellia sinesis*) (leaf), Burdock Root Extract (*Arctium lappa*) (root), Kale Powder (*Brassica oleracea*) (leaf), Artichoke Leaf Powder (*Cynara scolymus*) (leaf), Schisandra Berry Powder (*Schisandra chinensis*) (fruit) , Gotu Kola Extract (*Asiaticosides*) (whole herb)		
Proprietary TNF-alpha Blend	500 mg	†
Green tea (*Camellia sinesis*) (leaf), Milk Thistle Extract (Silymarin) (*Silybum marianum*) (seed), Pomegranate Extract (*Punica granatum*) (pericarp), Grape Seed Extract (*Vitis vinifera*) (seed)		
Proprietary ATP5C1 Blend	343 mg	†
Alpha Lipoic Acid, PQQ (as Pyrroloquinoline Quinone Disodium Salt)		
Proprietary FTO Blend	313 mg	†
Alpha Lipoic Acid, Bamboo Leaf Extract (*Folium bambusae*) (leaf), Berberine (as Dihydroberberine)		
IL6/CRP Supplementation - Organic Turmeric	267 mg	†
Organic Turmeric Extract (*Curcuma longa*) (rhizomes), Bamboo Leaf Extract (*Folium bambusae*) (leaf)		
Proprietary SOD2 Blend	250 mg	†
Spirulina Powder (*Arthrospira platensis*) (plant), Green tea (*Camellia sinesis*) (leaf), White Tea Extract (*Camellia sinensis*) (leaf), Bilberry (fruit) (*Vaccinium myrtillus*) extract		
NQO1 Supplementation-Kaneka Ubiquinolâ„¢	250 mg	†
Ubiquinol 30% (from Kaneka Ubiquinolâ„¢)		
Proprietary FUT2 Blend	126 mg	†
SAMe (as AdonatÂ® S-adenosyl-L-methionine disulfate p-toluenesulfonate)		
Proprietary GSTP-1 Blend	125 mg	†
Broccoli Powder (*Brassica oleraca*) (whole plant), Quercetin (as Quercetin Dihydrate) (*Sophora japonica*) (flower), Resveratrol (*Polygonum cuspidatum*) (root), S-Acetyl Glutathione (as EmothionÂ®SAG)		
NQO1 Supplementation-Coenzyme Q10	29 mg	†
Coenzyme Q10 (as Ubiquinone), Bamboo Leaf Extract (*Folium bambusae*) (leaf)		

* Percent Daily Values are based on a 2,000 calorie diet.
â€ Daily Value not established.

Other Ingredients: Hypromellose Capsules, Chlorophyllin, Maltodextrin, Corn Starch.

Allergen Information: This product does not contain wheat, soy, eggs, dairy, artificial colors, flavors, or sugars.

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These statements have not been evaluated by the FDA. These products are not intended to diagnose, treat, cure, or prevent any disease.

This information is for educational purposes only.