TOOLBOX GENOMICS

Nutrition Optimization

Health Action Plan

October 1, 2019

Demo Client

Kit #1234ABCD5678

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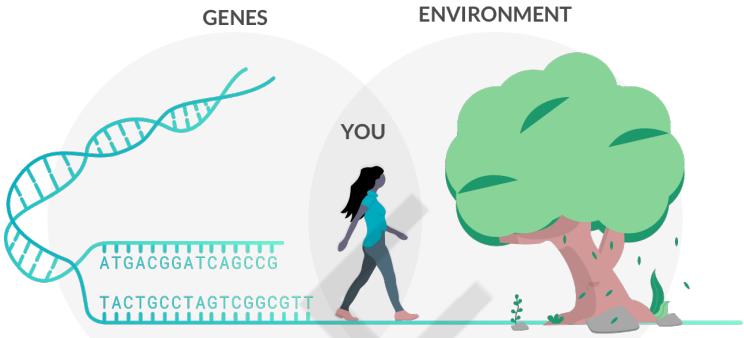
Understand Your Genetics

This report is broken down into three main sections: Trait Impact, Recommendations and Trait Detail. Depending on the number of traits being reviewed, your report will contain multiple trait and recommendation detail sections. Terms and sections of the report are defined below.



DNA

DNA is a long, ladder-shaped molecule. The rungs of the ladder are made of two amino acids pairing together, these are called bases. They always pair the same way, A (Adenine) with T (Thymine), and C (Cytosine) with G (Guanine). The body is constantly replicating DNA strands.

GENE

Genes are the basic units of heredity (passed down from generation to generation). They are made of DNA and provide the instructions for how our body works, what we look like, etc. Humans have between 20,000 - 25,000 genes. We inherit half of them from our mother and half from our father.

SNP

A SNP is a Single Nucleotide Polymorphism. SNPs occur when the amino acids making up the base pair do not come together in the same way as the original DNA strand. For example, the original strand may have had an A but the replicated strand has a G. SNPs are common and many of them have no impact to the individual, however, some can change how our body works.

VARIANT

Variants are how SNPs are referred to in this report. When the amino acid in the copied strand is different from the original, it is called a variant - it varies from the original. Variants are not necessarily 'good' or 'bad' they are simply different from the original. The depiction of variants is shown as: +/+ (both copies have different amino acids), +/- (one copy has a different amino acid), -/- (both copies have the same amino acid as the original) or U (one copy is indeterminate).

Reading This Report

Trait	Impact Score
Trait Name	

Gene	SNP/RSID	Varient
SMPL	ex1234567	+ −

Trait Recommendations

1 Trait Impact

This report focuses on traits. These are typically groups of SNPs that have a similar impact on the body's function. We use a proprietary algorithm to determine the impact a group of SNPs may have on a specific function in the body based on your individual test results.

2 Traits

The traits in our reports are typically grouped by body function, a symptom type, a disease, a nutrient need, or a response to environment. Within the trait pages, you will see the SNPs that are looked at for that trait, your variant type and recommendations to optimize health and minimize risk based on your individual results.

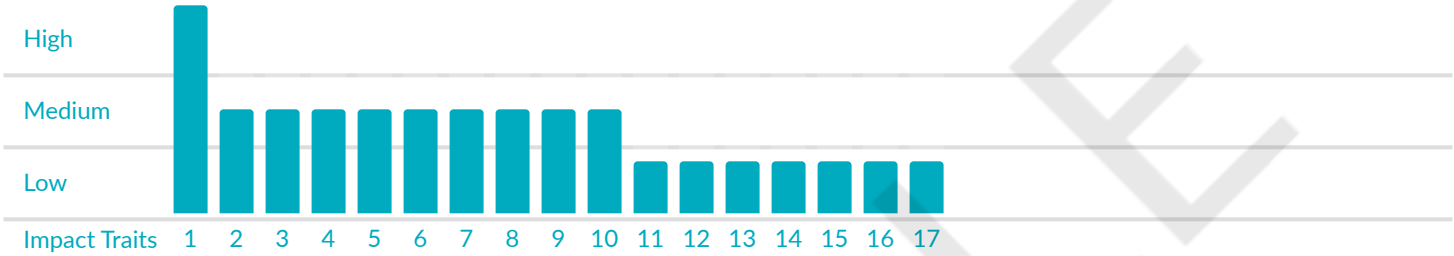
3 Recommendations

Your genes, and therefore your SNPs, will not change during your life. However, this report focuses on SNPs whose impact can be influenced by external factors like diet, exercise, supplements, and lifestyle changes.

Disclaimer - The recommendations in this report have been carefully prepared and reviewed for you by your health and wellness provider, based on his or her reasoned medical judgment about your personal health needs. Be sure that you have shared with your health and wellness provider all relevant information about your health, including any medications or dietary supplements you may be taking, and any medical conditions you may be experiencing, before you adopt any of these recommendations. This test is performed via DNA sequencing. As with all genetic testing with the highest possible standards, the data generated during the laboratory process will have a <99% sensitivity and specificity.

How These Traits Affect You

This page provides a high-level snapshot of the clinical significance of each trait within this panel. The results are in two categories: traits that are ranked high, medium or low impact as well as traits for which there is an explicit result (i.e. categorical such as "yes" or "no"). At the end of this page are a summary of any non-reportable (NR) traits. The results for these traits are unable to be determined from the sample submitted. Recommendations are made for traits with high or medium impact only.



Impact Traits	Impact	Learn More
1 Calcium	HIGH	Page 11
2 Alcohol Metabolism	MEDIUM	Page 12
3 Choline	MEDIUM	Page 13
4 Folate	MEDIUM	Page 14
5 Saturated Fat Response	MEDIUM	Page 15
6 Vitamin A	MEDIUM	Page 16
7 Vitamin B12	MEDIUM	Page 17
8 Vitamin B6	MEDIUM	Page 18
9 Vitamin C	MEDIUM	Page 19
10 Vitamin D3	MEDIUM	Page 20
11 CoQ10	LOW	
12 Gluten Sensitivity	LOW	
13 Lactose Intolerance	LOW	
14 Magnesium	LOW	
15 Omega 3	LOW	
16 Selenium	LOW	
17 Zinc	LOW	

Categorical Traits	Result	Learn More
1 Caffeine-Related Anxiety	Increased	Page 21
2 Iron	Normal	Page 22
3 Caffeine Metabolism	Slow	Page 23

Supplements

Below is a list of the top recommended supplements curated specifically for you. These recommendations may represent a subset of the total recommendations found within the Supplement sections of your report. Recommendations are listed in order of importance based on your individual genetic results. These recommendations have been reviewed by your healthcare provider. Please contact your provider if you have any questions.

Recommendation Name	The Details	Linked Traits
1 **Vitamin D3**	Supplement with 3,000 IUs of vitamin D3 per day.	Calcium, Vitamin D3
2 **Calcium**	Supplement with 500 - 1,000 mg of calcium per day.	Calcium
3 **Choline**	Supplement with 250 - 500 mg of choline per day.	Choline
4 **Cod Liver Oil**	Supplement with 1 - 2 tsp of cod liver oil per day.	Vitamin A
5 **Folate**	Supplement with 400 - 800 mcg of methyl-folate per day.	Folate
6 **Magnesium**	Supplement with 300 - 500 mg of magnesium per day.	Calcium
7 **Probiotics**	Supplement with a 10 - 50 billion CFU probiotic per day.	Vitamin D3
8 **Vitamin A**	Supplement with 3,000 - 5,000 IUs of vitamin A per day.	Vitamin A
9 **Vitamin B12**	Supplement with 500 mcg of vitamin B12 per day.	Vitamin B12
10 **Vitamin B6**	Supplement with 25 - 50 mg of vitamin B6 per day.	Vitamin B6

Note - If you are taking any medications, consult with your practitioner before starting any new supplements as they may have adverse effects with your medications.

Diet

Below is a list of the top dietary recommendations curated specifically for you. These recommendations may represent a subset of the total recommendations found within the Diet sections of your report. Recommendations are listed in order of importance based on your individual genetic results. These recommendations have been reviewed by your healthcare provider. Please contact your provider if you have any questions.

Recommendation Name	The Details	Linked Traits
1 **Mindful Caffeine Intake**	Limit caffeine intake to no more than 100 mg per day or one cup of coffee per day.	Caffeine Metabolism, Caffeine-Related Anxiety
2 **Calcium Rich Foods**	Consume a diet rich in calcium.	Calcium
3 **Choline Rich Foods**	Consume a diet rich in choline.	Choline
4 **Folate Rich Foods**	Consume a diet rich in folate.	Folate
5 **Monitor Your Saturated Fat Intake**	Limit saturated fats in the diet to no more than 22 g per day.	Saturated Fat Response
6 **Reduce Your Dietary Fat Intake**	Reduce the amount of fat in the diet to no more than 20% of total daily caloric intake (no more than 22 g of saturated fat).	Saturated Fat Response
7 **Vitamin A Rich Foods**	Consume a diet rich in vitamin A.	Vitamin A
8 **Vitamin B12 Rich Foods**	Consume a diet rich in vitamin B12.	Vitamin B12
9 **Vitamin B6 Rich Foods**	Consume a diet rich in vitamin B6.	Vitamin B6
10 **Vitamin C Rich Foods**	Consume a diet rich in vitamin C.	Vitamin C

Lifestyle

Below is a list of the top lifestyle recommendations curated specifically for you. These recommendations may represent a subset of the total recommendations found within the Lifestyle sections of your report. Recommendations are listed in order of importance based on your individual genetic results. These recommendations have been reviewed by your healthcare provider. Please contact your provider if you have any questions.

Recommendation Name	The Details	Linked Traits
1 **Limit Alcohol**	Avoid alcohol or limit alcohol to no more than 1 drink per day for women and 2 drinks per day for men.	Alcohol Metabolism
2 **Sunlight**	Get adequate sunlight exposure, approximately 20 minutes per day for most individuals.	Vitamin D3

Further Testing

Below is a list of the top further testing recommendations curated specifically for you. These recommendations may represent a subset of the total recommendations found within the Further Testing sections of your report. Recommendations are listed in order of importance based on your individual genetic results. These recommendations have been reviewed by your healthcare provider. Please contact your provider if you have any questions.

Recommendation Name	The Details	Linked Traits
1 **Homocysteine Levels**	Check blood homocysteine levels	Choline, Folate
2 **Monitor Liver Enzymes**	Monitor liver enzymes	Alcohol Metabolism, Choline
3 **DEXA Scan**	Perform a DEXA Scan	Calcium
4 **Folate Testing**	Test folate levels	Folate
5 **HDL**	Measure HDL cholesterol levels	Saturated Fat Response
6 **LDL**	Measure LDL cholesterol levels	Saturated Fat Response
7 **Methylmalonic Levels**	Test for methylmalonic levels	Vitamin B12
8 **Plasma PLP (Active Form of B6)**	Test plasma PLP (active form of B6) levels	Vitamin B6
9 **Total Cholesterol**	Test total cholesterol level	Saturated Fat Response
10 **Triglyceride**	Test blood triglyceride levels	Saturated Fat Response

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Calcium

People with similar genetic markers may be predisposed to lower levels of Calcium.

Gene	SNP	Variant	Impact
CASR	rs1801725	+/+	High
CASR	rs17251221	+/+	High

Recommendations

These recommendations are based on the genetic findings in the chart above.

SUPPLEMENT	• Vitamin D3	• Magnesium
	• Calcium	
DIET	• Calcium Rich Foods	
FURTHER TESTING	• DEXA Scan	

Alcohol Metabolism

People with similar genetic markers may break down alcohol more slowly than other people. This means you might feel the effects of alcohol sooner and could be exposed to higher levels of alcohol by-products that may be more damaging to the body.

Gene	SNP	Variant	Impact
ADH1B	rs1229984	+/-	Medium
ALDH2	rs671	-/-	Low

Recommendations

These recommendations are based on the genetic findings in the chart above.

LIFESTYLE	• Limit Alcohol
FURTHER TESTING	• Monitor Liver Enzymes

Choline

People with similar genetic markers may be predisposed to low levels of choline.

Gene	SNP	Variant	Impact
PEMT	rs7946	+/+	High

Recommendations

These recommendations are based on the genetic findings in the chart above.

SUPPLEMENT	• Choline	
DIET	• Choline Rich Foods	
FURTHER TESTING	• Homocysteine Levels	• Monitor Liver Enzymes

Folate

People with similar genetic markers may be predisposed to folate deficiencies.

Gene	SNP	Variant	Impact
FOLH1	rs61886492	+/+	High
MTHFR	rs1801133	+/-	Medium
MTHFR	rs1801131	NR	Not Reportable

Recommendations

These recommendations are based on the genetic findings in the chart above.

SUPPLEMENT	• Folate	
DIET	• Folate Rich Foods	
FURTHER TESTING	• Homocysteine Levels	• Folate Testing

Saturated Fat Response

People with similar genetic markers may be predisposed to higher BMIs when consuming high saturated fat diets.

Gene	SNP	Variant	Impact
FTO	rs9939609	+/+	High
FTO	rs1121980	+/+	High
TCF7L2	rs7903146	+/-	Medium
STAT3	rs8069645	-/-	Low
STAT3	rs744166	-/-	Low
APOA2	rs5082	-/-	Low
STAT3	rs1053005	-/-	Low
MC4R	rs12970134	-/-	Low

Recommendations

These recommendations are based on the genetic findings in the chart above.

DIET

- Reduce Your Dietary Fat Intake
- Monitor Your Saturated Fat Intake

FURTHER TESTING

- Triglyceride
- Total Cholesterol
- HDL
- LDL

Vitamin A

People with similar genetic markers may be predisposed to vitamin A deficiencies.

Gene	SNP	Variant	Impact
BCMO1	rs7501331	+/-	Medium
BCMO1	rs12934922	+/-	Medium
BCMO1	rs6564851	+/-	Low
BCMO1	rs11645428	+/-	Low

Recommendations

These recommendations are based on the genetic findings in the chart above.

SUPPLEMENT	• Vitamin A	• Cod Liver Oil
DIET	• Vitamin A Rich Foods	
FURTHER TESTING	• Zinc	• Vitamin A (Retinol)

Vitamin B12

People with similar genetic markers may be predisposed to low vitamin B12 levels.

Gene	SNP	Variant	Impact
FUT2	rs1047781	+/+	High
FUT2	rs602662	+/-	Medium
FUT2	rs601338	+/-	Medium
TCN1	rs526934	+/-	Medium
CUBN	rs1801222	-/-	Low

Recommendations

These recommendations are based on the genetic findings in the chart above.

SUPPLEMENT	• Vitamin B12
DIET	• Vitamin B12 Rich Foods
FURTHER TESTING	• Methylmalonic Levels

Vitamin B6

People with similar genetic markers may be predisposed to lower vitamin B6 levels.

Gene	SNP	Variant	Impact
ALPL	rs1697421	+/+	High
ALPL	rs4654748	+/-	Medium
ALPL	rs1780316	-/-	Low

Recommendations

These recommendations are based on the genetic findings in the chart above.

SUPPLEMENT	• Vitamin B6	
DIET	• Vitamin B6 Rich Foods	
FURTHER TESTING	• Vitamin B6	• Plasma PLP (Active Form of B6)

Vitamin C

People with similar genetic markers may be predisposed to low levels of vitamin C (ascorbic acid).

Gene	SNP	Variant	Impact
GSTM1	rs366631	+/+	High
SLC23A1	rs33972313	-/-	Low
SVCT1	rs4257763	-/-	Low

Recommendations

These recommendations are based on the genetic findings in the chart above.

SUPPLEMENT	• Vitamin C
DIET	• Vitamin C Rich Foods
FURTHER TESTING	• Vitamin C Test

Vitamin D3

People with similar genetic markers may be predisposed to low levels of vitamin D3.

Gene	SNP	Variant	Impact
CYP2R1	rs10741657	+/+	High
GC	rs4588	+/-	Medium
GC	rs2282679	+/-	Medium
DHCR7	rs12785878	-/-	Low

Recommendations

These recommendations are based on the genetic findings in the chart above.

SUPPLEMENT

- Vitamin D3
- Probiotics
- Vitamin D & K Supplement Combination

LIFESTYLE

- Sunlight

FURTHER TESTING

- Vitamin D3 (25-OH)

Caffeine-Related Anxiety

People with genetic markers similar to yours may experience increased anxiety after drinking caffeine.

Gene	SNP	Variant	Impact
ADORA2A	rs5751876	+/+	High

Recommendations

These recommendations are based on the genetic findings in the chart above.

DIET

- Mindful Caffeine Intake

Iron

People with similar genetic markers are more likely to have normal iron levels.

Gene	SNP	Variant	Impact
TMPRSS6	rs855791	+/+	High
HFE	rs1800562	+/+	High
HFE	rs1799945	+/-	Medium

Caffeine Metabolism

People with similar genetic markers may be more sensitive to caffeine and may feel the effects of caffeine faster and longer.

Gene	SNP	Variant	Impact
CYP1A2	rs762551	+/-	〓 Medium

Recommendations

These recommendations are based on the genetic findings in the chart above.

DIET

- Mindful Caffeine Intake

Recommendation Detailed Appendix

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Appendix 2

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Supplements

Recommendation Name	The Details	Linked Traits
Vitamin D3	Supplement with 3,000 IUs of vitamin D3 per day.	Calcium, Vitamin D3
Calcium	Supplement with 500 - 1,000 mg of calcium per day.	Calcium
Choline	Supplement with 250 - 500 mg of choline per day.	Choline
Cod Liver Oil	Supplement with 1 - 2 tsp of cod liver oil per day.	Vitamin A
Folate	Supplement with 400 - 800 mcg of methyl-folate per day.	Folate
Magnesium	Supplement with 300 - 500 mg of magnesium per day.	Calcium
Probiotics	Supplement with a 10 - 50 billion CFU probiotic per day.	Vitamin D3
Vitamin A	Supplement with 3,000 - 5,000 IUs of vitamin A per day.	Vitamin A
Vitamin B12	Supplement with 500 mcg of vitamin B12 per day.	Vitamin B12
Vitamin B6	Supplement with 25 - 50 mg of vitamin B6 per day.	Vitamin B6
Vitamin C	Supplement with 500 - 1,000 mg of vitamin C per day.	Vitamin C
Vitamin D & K Supplement Combination	Supplement with 4,000 - 5,000 IUs of Vitamin D3 with 50 mcg plus 1,000 mcg of combination Vitamin K1 and K2 per day.	Vitamin D3

Diet

Recommendation Name	The Details	Linked Traits
Mindful Caffeine Intake	Limit caffeine intake to no more than 100 mg per day or one cup of coffee per day.	Caffeine Metabolism, Caffeine-Related Anxiety
Calcium Rich Foods	Consume a diet rich in calcium.	Calcium
Choline Rich Foods	Consume a diet rich in choline.	Choline
Folate Rich Foods	Consume a diet rich in folate.	Folate
Monitor Your Saturated Fat Intake	Limit saturated fats in the diet to no more than 22 g per day.	Saturated Fat Response
Reduce Your Dietary Fat Intake	Reduce the amount of fat in the diet to no more than 20% of total daily caloric intake (no more than 22 g of saturated fat).	Saturated Fat Response
Vitamin A Rich Foods	Consume a diet rich in vitamin A.	Vitamin A
Vitamin B12 Rich Foods	Consume a diet rich in vitamin B12.	Vitamin B12

Vitamin B6 Rich Foods	Consume a diet rich in vitamin B6.	Vitamin B6
Vitamin C Rich Foods	Consume a diet rich in vitamin C.	Vitamin C

Lifestyle

Recommendation Name	The Details	Linked Traits
Limit Alcohol	Avoid alcohol or limit alcohol to no more than 1 drink per day for women and 2 drinks per day for men.	Alcohol Metabolism
Sunlight	Get adequate sunlight exposure, approximately 20 minutes per day for most individuals.	Vitamin D3

Further Testing

Recommendation Name	The Details	Linked Traits
Homocysteine Levels	Check blood homocysteine levels	Choline, Folate
Monitor Liver Enzymes	Monitor liver enzymes	Alcohol Metabolism, Choline
DEXA Scan	Perform a DEXA Scan	Calcium
Folate Testing	Test folate levels	Folate
HDL	Measure HDL cholesterol levels	Saturated Fat Response
LDL	Measure LDL cholesterol levels	Saturated Fat Response
Methylmalonic Levels	Test for methylmalonic levels	Vitamin B12
Plasma PLP (Active Form of B6)	Test plasma PLP (active form of B6) levels	Vitamin B6
Total Cholesterol	Test total cholesterol level	Saturated Fat Response
Triglyceride	Test blood triglyceride levels	Saturated Fat Response
Vitamin A (Retinol)	Test blood levels of vitamin A	Vitamin A
Vitamin B6	Test vitamin B6 levels	Vitamin B6
Vitamin C Test	Test blood vitamin C levels	Vitamin C
Vitamin D3 (25-OH)	Test blood levels of vitamin D3 (25-OH)	Vitamin D3
Zinc	Test serum zinc levels	Vitamin A