



Practitioner Detailed Appendix



Weight Management

SAMPLE

October 1, 2019

Demo Client

Kit #1234ABCD5678

Practitioner Report Key

1 Trait Impact Summary

A high level overview of which traits have the biggest impact based on our proprietary algorithm.



Impact Score	A potential impact of a variant type.
HIGH	Likely a large clinical impact
MEDIUM	Likely a slightly elevated clinical impact
LOW	Likely a low clinical impact

2 Variant Type

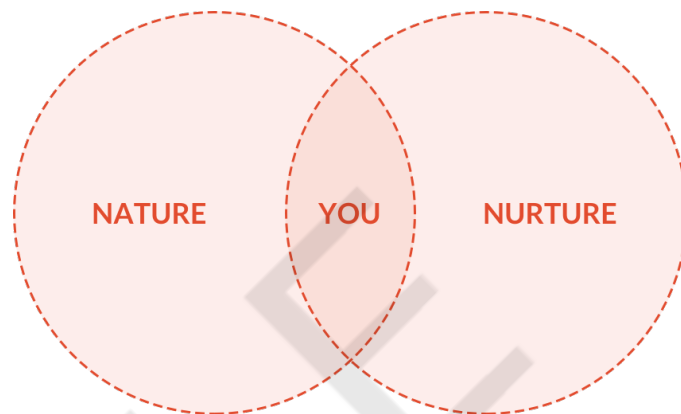
Genetic variants are the differences that make each person unique. In this report, variant refers to Single Nucleotide Polymorphisms (SNPs). + is the risk allele and - is the non-risk allele.

Variant Type	Definition
+/+	Both risk alleles present
+/-	One risk allele present
-/-	No risk allele present
+/U or -/U	Indeterminable allele
NR	Not Reportable, unable to determine variants present in the sample

3 Research Grade

The strength of the research after assessing for number of published studies, sample size of the population studied, degree of study replication, biological mechanism, and other factors.

Research Grade	Definition
***	High Research Validity
**	Medium Research Validity
*	Low Research Validity



UNDERSTANDING THE GENES

DNA is a long, ladder-shaped molecule. Each rung on the ladder is made up of a pair of interlocking units, called bases, that are designated by the four letters in the DNA alphabet - A, T, G and C. 'A' always pairs with 'T', and 'G' always pairs with 'C'.



Basic unit of heredity that is made of DNA and acts as instructions to make all body proteins. Humans have between 20,000 - 25,000 **genes**, half of which come from one's mother and the other half from one's father.



A **SNP** is a Single Nucleotide Polymorphism. DNA consists of 4 main building blocks (Adenine (A), Thymine (T), Guanine (G), and Cytosine (C)). In certain locations within DNA, one person may have an A, whereas another may have a G. This difference is often called a variant. This variant is a SNP. The rs number is a unique identifier used by researchers and databases to refer to specific SNPs. It stands for Reference SNP cluster ID.

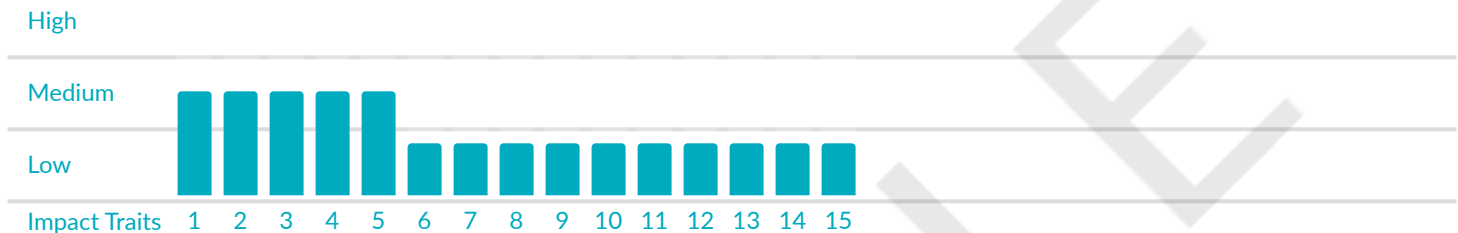


Clinical Significance is the clinical or practical importance of a given SNP. Having a risk variant (+) for a particular SNP, increases one's predisposition to this clinical significance.

Disclaimer - 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 Your Client

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
1 Hunger	= MEDIUM
2 Obesity Predisposition	= MEDIUM
3 Saturated Fat Response	= MEDIUM
4 Stress Response	= MEDIUM
5 Weight Loss & Protein Diets	= MEDIUM
6 Blue Light Sensitivity	— LOW
7 Dieting Success	— LOW
8 Exercise & Fat Loss	— LOW
9 Mindful Eating	— LOW
10 Obesity & Artificially Sweetened Beverages	— LOW
11 Sleep Impairment	— LOW
12 Snacking	— LOW
13 Sweet Tooth	— LOW
14 Weight Loss & Low-Fat Diets	— LOW
15 Yo-Yo Dieting	— LOW

Categorical Traits	Result	Learn More
1 Metabolic Rate	Higher	

SAMPLE

Practitioner Detailed Appendix: Weight Management

Below is a summary of the genetic data that we test for in this Health Action Plan. Recommendations are given for traits with Medium and High Impact.

Traits are listed in order of trait impact. Please look at the Trait Impact Summary Report for more information.

Trait	Gene	SNP/RSID	Clinical Significance	Variant Type	SNP Impact Score	Research Grade	References (PMID)
Hunger	FTO	rs9939609	More hunger, less satiety	+/+	High	***	19793853, 23867619
Hunger	MC4R	rs17782313	More hunger, less satiety	-/-	Low	***	24139164, 27730429
Obesity Predisposition	FTO	rs9939609	Increased risk of obesity	+/+	High	***	27659330, 28384342
Obesity Predisposition	FTO	rs1121980	Increased risk of obesity	+/+	High	***	18159244, 22355368
Obesity Predisposition	ADIPOQ	rs17300539	Increased risk of obesity	+/+	High	*	2699942, 25223469
Obesity Predisposition	ADIPOQ	rs266729	Increased risk of obesity	+/-	Medium	*	25223469, 27388775
Obesity Predisposition	ADIPOQ	rs1501299	Increased risk of obesity	+/-	Medium	***	25223469, 28416193
Obesity Predisposition	MC4R	rs17782313	Increased risk of obesity	-/-	Low	***	18454148, 28384342
Obesity Predisposition	PPARG	rs1801282	Increased risk of obesity	-/-	Low	***	23666678, 28090739
Saturated Fat Response	FTO	rs9939609	Increased risk for higher BMI or obesity with high fat diet	+/+	High	***	22049296, 22457394
Saturated Fat Response	FTO	rs1121980	Increased risk for higher BMI or obesity with high fat diet	+/+	High	***	22049296, 30021629
Saturated Fat Response	TCF7L2	rs7903146	Increased risk for higher BMI or obesity with high fat diet	+/-	Medium	***	21543200, 23497168
Saturated Fat Response	STAT3	rs8069645	Increased risk for higher BMI or obesity with high fat diet	-/-	Low	**	19776189

Trait	Gene	SNP/RSID	Clinical Significance	Variant Type	SNP Impact Score	Research Grade	References (PMID)
Saturated Fat Response	STAT3	rs744166	Increased risk for higher BMI or obesity with high fat diet	-/-	Low	**	19776189
Saturated Fat Response	APOA2	rs5082	Increased risk for higher BMI or obesity with high fat diet	-/-	Low	***	19901143, 24108135
Saturated Fat Response	STAT3	rs1053005	Increased risk for higher BMI or obesity with high fat diet	-/-	Low	**	19776189
Saturated Fat Response	MC4R	rs12970134	Increased risk for higher BMI or obesity with high fat diet	-/-	Low	***	27186233, 28081251
Stress Response	COMT	rs4680	Higher cortisol, depression and PTSD in response to stress	+/-	Medium	***	23799032, 25068285
Stress Response	BDNF	rs6265	Higher cortisol, depression, and anxiety in response to life stress	-/-	Low	***	24433458, 25419135
Stress Response	HTR2C	rs6318	Higher cortisol levels, increased risk of depression and eating dysregulation in response to life stress	-/-	Low	***	21967853, 25457638
Weight Loss & Protein Diets	FTO	rs1558902	Increased weight loss on a high protein diet	+/+	High	**	22891219
Blue Light Sensitivity	OPN4	rs1079610	More sensitive to blue light	+/-	Medium	*	23555953, 24119231
Dieting Success	PER2	rs2304672	More likely to drop out of diet program	+/+	High	*	20497782
Dieting Success	PER2	rs4663302	More likely to drop out of diet program	+/-	Medium	*	20497782
Exercise & Fat Loss	FTO	rs8050136	Less fat loss in response to exercise training	+/+	High	*	19543202, 27260224
Mindful Eating	MC4R	rs17782313	Increased uncontrolled/emotional eating habits	-/-	Low	***	26588347, 27730429

Trait	Gene	SNP/RSID	Clinical Significance	Variant Type	SNP Impact Score	Research Grade	References (PMID)
Obesity & Artificially Sweetened Beverages	FTO	rs9939609	Consumption of artificial beverages associated with higher BMI	+/+	High	*	28384342
Sleep Impairment	CLOCK	rs2070062	Shorter sleep duration	+/+	High	*	28645331
Sleep Impairment	DRD2	rs17601612	Shorter sleep duration	+/-	Medium	**	26464489, 30299516
Sleep Impairment	CLOCK	rs12649507	Shorter sleep duration	-/-	Low	*	25527757
Snacking	PER2	rs2304672	Increased snacking	+/+	High	*	20497782
Snacking	MC4R	rs17782313	Increased snacking	-/-	Low	**	19153581, 24139164
Sweet Tooth	TAS1R2	rs3935570	Higher sugar intake and preference for sweet foods	+/+	High	*	26268603
Sweet Tooth	TAS1R2	rs35874116	Lower sugar consumption	-/-	Low	**	20943793
Sweet Tooth	GLUT2	rs5400	Higher sugar intake and preference for sweet foods	-/-	Low	**	18349384, 26268603
Weight Loss & Low-Fat Diets	PPM1K	rs1440581	Increased weight loss in response to a low fat diet	+/-	Medium	*	23446828
Weight Loss & Low-Fat Diets	GIPR	rs2287019	Increased weight loss in response to a low fat diet	+/-	Medium	*	22237064
Weight Loss & Low-Fat Diets	IRS1	rs2943641	Increased weight loss in response to a low fat diet	-/-	Low	*	21747052
Weight Loss & Low-Fat Diets	UCP3	rs1800849	Less weight loss in response to a low fat diet	-/-	Low	*	26848765
Weight Loss & Low-Fat Diets	TCF7L2	rs12255372	Increased weight loss in response to a low fat diet	-/-	Low	**	20028944, 23034957
Weight Loss & Low-Fat Diets	CLOCK	rs3749474	Increased weight loss in response to a low fat diet	-/-	Low	*	26690565

Trait	Gene	SNP/RSID	Clinical Significance	Variant Type	SNP Impact Score	Research Grade	References (PMID)
Yo-Yo Dieting	ADIPOQ	rs17300539	<i>More likely to regain weight after weight loss</i>	+/+	High	*	18949681
Metabolic Rate	UCP1	rs1800592	<i>Higher resting metabolic rate and adaptive thermogenesis in response to meal and cold</i>	+/+	High	***	14671150, 21189472