



PATHWAY FIT®

Protected Health Information

PERSONAL DETAILS

PATIENT ID GUERRAR
DOB Jul 22, 1967
GENDER M
ETHNICITY Caucasian

ORDERING HEALTHCARE PROFESSIONAL

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LABORATORY INFO

ACCESSION NUMBER H2821178
ACTIVATION CODE SWBJX-MVYVH
SPECIMEN TYPE BUCCAL SWAB
COLLECTED DATE Mar 3, 2017
RECEIVED DATE Apr 28, 2017
REPORT DATE May 16, 2017

Test Results Reviewed & Approved by:
Laboratory Director,
Nilesh Dharajiya, M.D.

Diet
Recommendation



MATCHING DIET TYPE

Genes Tested - ADIPOQ, APOA2, FTO, KCTD10, LIPC, MMAB, PPARG, and more...

Description

This patient has an increased likelihood of weight loss or health benefits on a diet that is lower in carbohydrates. This diet has been selected by evaluating many genetic variants associated with LDL, HDL, triglyceride, and blood sugar levels, as well as how people respond to different macronutrients.

BALANCED DIET

MEDITERRANEAN DIET

LOW CARB DIET

LOW FAT DIET

Diet
Recommendation



RESPONSE TO MONOUNSATURATED FATS

Genes Tested - ADIPOQ, PPARG

Description

This patient's genotypes in the ADIPOQ and PPARG genes are associated with lower body weight when greater than 13% of calories come from healthy monounsaturated fats. The PPARG study included only women, whereas the ADIPOQ study included both men and women. There is insufficient scientific evidence to determine if men are similarly affected by the PPARG variant.

INCREASED BENEFIT

NEUTRAL

Diet
Recommendation



RESPONSE TO POLYUNSATURATED FATS

Gene Tested - PPARG

Description

This patient's genotype does not indicate an association between body weight and the ratio of polyunsaturated to saturated fats consumed. However, several benefits may still be gained by substituting some saturated fats with polyunsaturated fats. This test result is derived from a study with only women, and there is insufficient scientific evidence to determine if men are similarly affected.

INCREASED BENEFIT

NEUTRAL

Diet
Recommendation



GENETIC RISK FOR DECREASED OMEGA-6 AND OMEGA-3

Gene Tested - FADS1

Description

This patient has a variant in the FADS1 gene that is associated with typical plasma levels of the omega-6 fat arachidonic acid and the omega-3 fat eicosapentaenoic acid. The FADS1 gene encodes an enzyme involved in processing omega-6 and omega-3 fats.

DECREASED

TYPICAL

Eating Behaviors

SNACKING
INCREASED
TYPICAL
Gene Tested - LEPR

Description

This patient does not have the variant in the leptin receptor gene associated with increased snacking behavior and is less likely to display extreme snacking behavior. Leptin is an essential hormone for the regulation of food intake. This test result is derived from a study with only women, and there is insufficient scientific evidence to determine if men are similarly affected.

Eating Behaviors

HUNGER
INCREASED
TYPICAL
Gene Tested - NMB

Description

This patient is more likely to display typical susceptibility to hunger. The patient does not have a variant in the NMB gene that is associated with increased feelings of hunger. This test result is based on a preliminary study.

Eating Behaviors

SATIETY - FEELING FULL
**DIFFICULTY FEELING
FULL**
TYPICAL
Gene Tested - FTO

Description

This patient is more likely to feel satisfied after a meal. The patient does not have a variant in the FTO gene that is associated with eating more without feeling satisfied. Although this test result is derived from a study focused on children, there is preliminary data supporting the same association in adults.

Eating Behaviors

EATING DISINHIBITION
MORE LIKELY
LESS LIKELY
Gene Tested - TAS2R38

Description

This patient does not have a variant in the TAS2R38 gene that is associated with the tendency to eat more than normal in response to a stimulus; therefore, the patient is less likely to display eating disinhibition. This test result only applies to women, and there is insufficient scientific evidence to determine if men are similarly affected.

Eating Behaviors

FOOD DESIRE
INCREASED
TYPICAL
Gene Tested - ANKK1/DRD2

Description

This patient's genotype at a marker in the DRD2/ANKK1 gene is associated with increased likelihood to display elevated food desire, also known as food reinforcement. This metric quantifies how much effort an individual is willing to put forth to gain access to food. Among people who were considered obese, those with this patient's genotype were more likely to consume their favorite foods in greater quantities and exert greater effort to obtain them.

Eating Behaviors

SWEET TOOTH
INCREASED
TYPICAL
Gene Tested - SLC2A2

Description

This patient is more likely to eat typical amounts of sugars in his or her diet. The patient has a genetic variant in the SLC2A2 gene that is associated with typical consumption of sugars.

Food Reactions

CAFFEINE METABOLISM
SLOW METABOLIZER
FAST METABOLIZER
Gene Tested - CYP1A2

Description

This patient is more likely to have a slow rate of caffeine metabolism. The patient has the CYP1A2 allele that is associated with an increased risk of nonfatal myocardial infarction when consuming high amounts of caffeine (four or more cups of coffee daily). In addition to genetics, caffeine metabolism depends on lifestyle factors, such as amount of coffee consumed, smoking and hormonal birth control.

Food Reactions

BITTER TASTE
TASTER
NON - TASTER
INCONCLUSIVE
Gene Tested - TAS2R38

Description

The patient has a variant in the TAS2R38 gene that, in some people, is associated with high levels of sensitivity to a bitter chemical called phenylthiocarbamide. Tasters may need to monitor their salt intake because they may have an increased preference for salty foods that mask the bitterness.

Food Reactions

SWEET TASTE
DECREASED
TYPICAL
Gene Tested - TAS1R3

Description

This patient is more likely to have typical sensitivity to the sweet taste of sugar. The TAS1R3 gene encodes a sweet taste receptor. This patient has a genetic variant in the TAS1R3 gene that is associated with typical sensitivity to sweet taste.

Food Reactions

LACTOSE INTOLERANCE
MORE LIKELY
LESS LIKELY
Gene Tested - MCM6

Description

This patient is more likely to be lactose intolerant. The patient has a variant that is close to the lactase gene and is associated with decreased lactase levels. If lactose intolerant, the patient should ensure that his or her calcium intake from non-dairy or lactose-free sources is sufficient. This test result applies only to Caucasians, and other variants may play an important role in other ethnicities.

Food Reactions

ALCOHOL FLUSH
MORE LIKELY
LESS LIKELY
Gene Tested - ALDH2

Description

This patient's genotype at a variant in the ALDH2 gene indicates that he or she is less likely to display alcohol flush. The ALDH2 gene encodes an enzyme critical for proper alcohol metabolism.

Nutrition

GENETIC RISK DUE TO DECREASED VITAMIN B2
OPTIMIZE INTAKE
STAY BALANCED
Gene Tested - MTHFR

Description

This patient's genotype at a marker in the MTHFR gene indicates that vitamin B2 levels are likely to have a relatively small impact on homocysteine levels. High plasma levels of homocysteine are a risk factor for heart disease.

Nutrition

GENETIC RISK FOR DECREASED VITAMIN B6
OPTIMIZE INTAKE
STAY BALANCED
Gene Tested - NBPF3

Description

The patient has a variant in the NBPF3 gene that is associated with reduced levels of vitamin B6, possibly due to faster than normal clearance of this vitamin from the bloodstream. Therefore, this patient is more likely to have lower plasma levels of vitamin B6. This patient could be advised to consume more foods containing vitamin B6, including beans, whole grains, meat, eggs and fish.

Nutrition

GENETIC RISK FOR DECREASED VITAMIN B12
OPTIMIZE INTAKE
STAY BALANCED
Gene Tested - FUT2

Description

This patient is more likely to have lower plasma levels of vitamin B12. The patient has a variant in the FUT2 gene that is associated with decreased vitamin B12 levels. This patient could be advised to consume more foods containing vitamin B12, including meat, fish, poultry, eggs and milk products.

Nutrition

GENETIC RISK FOR DECREASED FOLATE
OPTIMIZE INTAKE
STAY BALANCED
Gene Tested - MTHFR

Description

This patient has increased risk for lower plasma levels of folate and higher plasma levels of homocysteine, a substance linked to cardiovascular disease at high levels. Folate can lower the plasma level of homocysteine, and diets rich in folate are associated with reduced risk of cardiovascular disease. Folate is particularly important early in pregnancy for preventing some birth defects.

Nutrition	✓	GENETIC RISK FOR DECREASED VITAMIN A Gene Tested - BCMO1 Description The patient has a variant in the BCMO1 gene that is associated with an impaired conversion of beta-carotene into vitamin A. This test result is derived from a study with only women, and there is insufficient scientific evidence to determine if men are similarly affected. This patient could be advised to consume preformed vitamin A found in fortified milk, breakfast cereals and multivitamins containing retinyl palmitate or retinyl acetate.	OPTIMIZE INTAKE
			STAY BALANCED
			INCONCLUSIVE

Nutrition	✓	GENETIC RISK FOR DECREASED VITAMIN C Gene Tested - SLC23A1 Description This patient is less likely to have lower plasma levels of vitamin C. The patient does not have a variant in the SLC23A1 gene that is associated with decreased levels of circulating vitamin C.	OPTIMIZE INTAKE
			STAY BALANCED

Nutrition	✓	GENETIC RISK FOR DECREASED VITAMIN D Gene Tested - GC Description This patient is less likely to have lower plasma levels of vitamin D. The patient does not have a variant in the GC gene that encodes a vitamin D-binding protein and is associated with decreased circulating levels of vitamin D, possibly due to a reduced ability to transport vitamin D in the body.	OPTIMIZE INTAKE
			STAY BALANCED

Nutrition	✓	GENETIC RISK FOR INCREASED VITAMIN E Gene Tested - intergenic Description This patient does not have a variant near the APOA5 gene that is associated with increased plasma levels of alpha-tocopherol so is less likely to have higher plasma levels of alpha-tocopherol, which is one compound that makes up vitamin E. This patient could be advised to consume more foods containing vitamin E, including vegetable oils, leafy green vegetables, eggs and nuts.	OPTIMIZE INTAKE
			STAY BALANCED

Exercise	✓	ENDURANCE TRAINING Genes Tested - LIPC, LPL, PPARD Description This patient has a genetic profile that is associated with enhanced benefits in response to a 20-week endurance training program.	ENHANCED BENEFIT
			NORMAL BENEFIT

Exercise	✓	STRENGTH TRAINING	LESS BENEFICIAL BENEFICIAL
Gene Tested - INSIG2 Description This patient has a variant that is associated with an increased fat volume after 12 weeks of resistance training; therefore, the patient is more likely to display higher fat volume in response to strength training. This test result only applies to men, and there is insufficient scientific evidence to determine if women are similarly affected.			
Exercise	✓	AEROBIC CAPACITY (VO2MAX)	DECREASED TYPICAL
Gene Tested - PPARGC1A Description This patient is more likely to have a typical aerobic capacity. This patient does not have a variant in the PPARGC1A gene that is associated with decreased baseline VO2max. The PPARGC1A gene encodes a key regulator of energy metabolism. The baseline VO2max level can vary depending on age, gender, past medical history, current health and level of physical activity. This test result is derived from a study with only men, and there is insufficient scientific evidence to determine if women are similarly affected.			
Exercise	✓	MUSCLE POWER	ENHANCED MUSCLE POWER LESS MUSCLE POWER
Gene Tested - ACTN3 Description This patient is more likely to display enhanced performance in sprinting and other power sports. This patient has the functional version of the ACTN3 gene. The ACTN3 gene encodes a protein in fast-twitch muscle fibers that is frequently found in top-level sprinters and elite power-oriented athletes. However, this gene is only one of many factors determining a person's athletic potential.			
Exercise	✓	ACHILLES TENDINOPATHY	INJURY PRONE TYPICAL
Gene Tested - MMP3 Description This patient has a typical likelihood of displaying Achilles tendinopathy. The patient does not have the G/G genotype at a MMP3 marker, which is associated with a greater chance of developing Achilles tendinopathy compared to individuals with other genotypes.			
Exercise	✓	BMI RESPONSE TO EXERCISE	EXERCISE STRONGLY RECOMMENDED EXERCISE RECOMMENDED
Gene Tested - FTO Description This patient has a variant in the FTO gene that indicates the patient is more likely to be overweight (BMI ≥ 25) if he or she has low physical activity levels. Research shows that people with this variant can reduce their propensity for increased BMI by being physically active.			

Exercise	✓	BLOOD PRESSURE RESPONSE TO EXERCISE EXERCISE STRONGLY RECOMMENDED EXERCISE RECOMMENDED Gene Tested - EDN1 Description This patient's genotype at a variant in the EDN1 gene does not indicate an association between risk for elevated blood pressure and cardiorespiratory fitness. However, exercise is still recommended to manage nongenetic risk factors for high blood pressure.
Exercise	✓	HDL CHOLESTEROL RESPONSE TO EXERCISE ENHANCED BENEFIT NORMAL BENEFIT Gene Tested - PPARD Description This patient has a variant in the PPARD gene that is associated with a normal benefit in HDL cholesterol levels in response to a 20-week endurance training program. People with "Normal Benefit" may also increase HDL cholesterol levels by exercising, but may not experience an enhanced effect.
Exercise	✓	LOSS OF BODY FAT RESPONSE TO EXERCISE ENHANCED BENEFIT NORMAL BENEFIT Gene Tested - LPL Description The patient has a variant in the LPL gene that is associated with a typical likelihood of reducing body fat mass and percent of body fat in response to 20 weeks of endurance training. This test result only applies to women, and there is insufficient scientific evidence to determine if the same association would be found in men.
Exercise	✓	INSULIN SENSITIVITY RESPONSE TO EXERCISE ENHANCED BENEFIT LESS BENEFIT Gene Tested - LIPC Description This patient's genotype at a marker in the LIPC gene is associated with an increase in insulin sensitivity in response to exercise.
Body And Weight	✓	OBESITY ABOVE AVERAGE AVERAGE Genes Tested - FTO, MC4R Description This patient has increased risk for being overweight (BMI ≥ 25). This patient's genetic profile in the MC4R and FTO genes is associated with increased risk for being overweight. The MC4R gene is involved in regulating energy balance, and the FTO gene may be important for controlling feeding behavior and energy balance. Both genes are associated with BMI.

Body And Weight

WEIGHT LOSS-REGAIN
MORE LIKELY TO REGAIN WEIGHT
WEIGHT LOSS MAINTAINED
Gene Tested - ADIPOQ

Description

This patient does not have a variant in the ADIPOQ gene that is associated with weight regain within 32 to 60 weeks following a restricted calorie diet. The patient is less likely to regain weight after diet-induced weight loss.

Body And Weight

METABOLISM
FAST
NORMAL
Gene Tested - LEPR

Description

This patient is more likely to have a typical resting metabolic rate. The patient does not have a variant in the leptin receptor gene that is associated with a high resting metabolic rate. This variant is only one of many other genetic and nongenetic factors that contribute to metabolism.

Body And Weight

GENETIC RISK FOR DECREASED ADIPONECTIN
POSSIBLY LOW
TYPICAL
Gene Tested - ADIPOQ

Description

This patient is more likely to have lower adiponectin levels. Higher levels of adiponectin are considered good for weight loss and health. Individuals with lower adiponectin levels could be advised to lose weight.

Metabolic Health Factors

GENETIC RISK FOR ELEVATED LDL CHOLESTEROL
HIGH RISK
ABOVE AVERAGE RISK
AVERAGE RISK
BELOW AVERAGE RISK
LOW RISK
Genes Tested - ABCG8, APOB, CELSR2, HMGCR, HNF1A, intergenic, LDLR, MAFB, NCAN, PCSK9

Description

This patient has above average genetic risk for borderline-high LDL cholesterol levels (above 130 mg/dl). However, this result does not mean that the patient has borderline-high LDL cholesterol levels. Monitoring the patient's blood levels of LDL cholesterol could be considered.

Metabolic Health Factors

GENETIC RISK FOR DECREASED HDL CHOLESTEROL
HIGH RISK
ABOVE AVERAGE RISK
AVERAGE RISK
BELOW AVERAGE RISK
LOW RISK
Genes Tested - ABCA1, ANGPTL4, CETP, FADS1, GALNT2, HNF4A, KCTD10, LCAT, LIPC, LIPG, LPL, PLTP, TTC39B, ZNF259

Description

This patient has above average genetic risk for decreased HDL cholesterol levels (below 40 mg/dl). However, this result does not mean that the patient has decreased HDL cholesterol levels. Monitoring the patient's blood levels of cholesterol could be considered.

**Metabolic Health
Factors**

GENETIC RISK FOR ELEVATED TRIGLYCERIDES

Genes Tested - ANGPTL3, APOB, FADS1, GCKR, LPL, MLXIPL, NCAN, PLTP, TRIB1, XKR6, ZNF259

Description

This patient has average genetic risk for elevated triglyceride levels. However, this result does not mean that the patient has optimal triglyceride levels.

HIGH RISK

ABOVE AVERAGE RISK

AVERAGE RISK

BELOW AVERAGE RISK

LOW RISK

**Metabolic Health
Factors**

GENETIC RISK FOR ELEVATED BLOOD SUGAR

Genes Tested - ADCY5, ADRA2A, CRY2, FADS1, G6PC2, GCK, GCKR, GLIS3, MADD, MTNR1B, PROX1, SLC2A2, TCF7L2

Description

This patient has above average genetic risk for elevated blood sugar levels (above 140 mg/dl). However, this result does not mean that the patient has elevated blood sugar levels. Persistent high blood sugar levels may indicate a condition called insulin resistance and can lead to type 2 diabetes. Monitoring the patient's blood levels of glucose could be considered.

HIGH RISK

ABOVE AVERAGE RISK

AVERAGE RISK

BELOW AVERAGE RISK

LOW RISK

GENOTYPE/HAPLOTYPE DETAIL

DIET, NUTRITION AND EXERCISE RESPONSES

This section lists the genetic markers that were tested for Diet, Nutrition and Exercise Responses. Results are organized by condition into four columns:

1. "Gene/Locus" refers to the gene or intergenic region where the marker is located.
2. "Marker" refers to the unique identifier of the tested marker.
3. "Genotype" refers to the combination of nucleotides at a particular marker. The letter(s) on each side of the slash refer(s) to the two copies of the patient's DNA. A genotype of "- -" indicates that a result could not be obtained.
4. "Strength" refers to strength of research evidence for the genetic marker and the associated result. Four filled boxes indicate a study of over 2,000 people and at least one study that replicated the results. Three filled boxes indicate a study of over 400 people. Two filled boxes indicate a study of less than 400 people; studies in this category are preliminary but pass Pathway's criteria for statistical significance. One filled box indicates that results are extremely preliminary.

"Unable To Report" indicates that no result can be provided.

MATCHING DIET TYPE

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
ADIPOQ	rs17300539	A/G	■■■□
APOA2	rs5082	T/T	■■■■
FTO	rs9939609	A/T	■■■□
KCTD10	rs10850219	G/G	■■■□
LIPC	rs1800588	C/C	■■■□
MMAB	rs2241201	C/C	■■■□
PPARG	rs1801282	C/G	■■■□

and more...

RESPONSE TO MONOUNSATURATED FATS

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
ADIPOQ	rs17300539	G/A	■■■□
PPARG	rs1801282	C/G	■■■□

RESPONSE TO POLYUNSATURATED FATS

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
PPARG	rs1801282	C/G	■■■□

GENETIC RISK FOR DECREASED OMEGA-6 AND OMEGA-3

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
FADS1	rs174547	T/T	■■■■

SNACKING

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
LEPR	rs2025804	A/G	■■■□

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HUNGER

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
NMB	rs1051168	G/G	■■□□

SATIETY - FEELING FULL

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
FTO	rs9939609	A/T	■■■□

EATING DISINHIBITION

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
TAS2R38	rs1726866	C/C	■■□□

FOOD DESIRE

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
ANKK1/DRD2	rs1800497	C/T	■■□□

SWEET TOOTH

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
SLC2A2	rs5400	C/C	■■■□

CAFFEINE METABOLISM

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
CYP1A2	rs762551	A/C	■■□□

BITTER TASTE

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
TAS2R38	rs713598	C/C	■■■□
TAS2R38	rs1726866	C/C	■■■□

SWEET TASTE

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
TAS1R3	rs35744813	G/G	■■□□

LACTOSE INTOLERANCE

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
MCM6	rs4988235	C/C	■■■□

ALCOHOL FLUSH

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
ALDH2	rs671	G/G	■■■■

GENETIC RISK DUE TO DECREASED VITAMIN B2

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
MTHFR	rs1801133	C/T	■■■□

GENETIC RISK FOR DECREASED VITAMIN B6

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
NBPF3	rs4654748	C/T	■■■□

GENETIC RISK FOR DECREASED VITAMIN B12

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
FUT2	rs602662	A/G	■■■■

GENETIC RISK FOR DECREASED FOLATE

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
MTHFR	rs1801133	C/T	■■■□

GENETIC RISK FOR DECREASED VITAMIN A

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
BCM01	rs7501331	C/T	■ ■ □ □
BCM01	rs12934922	A/A	■ ■ □ □

GENETIC RISK FOR DECREASED VITAMIN C

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
SLC23A1	rs33972313	G/G	■ ■ ■ ■

GENETIC RISK FOR DECREASED VITAMIN D

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
GC	rs2282679	T/T	■ ■ ■ ■

GENETIC RISK FOR INCREASED VITAMIN E

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
intergenic	rs12272004	C/C	■ ■ ■ ■

ENDURANCE TRAINING

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
LIPC	rs1800588	C/C	■ ■ ■ □
LPL	rs328	C/C	■ ■ □ □
PPARD	rs2016520	A/A	■ ■ ■ □

STRENGTH TRAINING

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
INSIG2	rs7566605	C/G	■ ■ □ □

AEROBIC CAPACITY (VO2MAX)

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
PPARGC1A	rs8192678	G/A	■ ■ □ □

MUSCLE POWER

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
ACTN3	rs1815739	C/C	■ ■ ■ □

ACHILLES TENDINOPATHY

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
MMP3	rs679620	A/G	■ ■ □ □

BMI RESPONSE TO EXERCISE

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
FTO	rs1121980	C/T	■ ■ ■ □

BLOOD PRESSURE RESPONSE TO EXERCISE

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
EDN1	rs5370	G/G	■ ■ ■ □

HDL CHOLESTEROL RESPONSE TO EXERCISE

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
PPARD	rs2016520	A/A	■ ■ ■ □

LOSS OF BODY FAT RESPONSE TO EXERCISE

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
LPL	rs328	C/C	■ ■ □ □

INSULIN SENSITIVITY RESPONSE TO EXERCISE

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
LIPC	rs1800588	C/C	■ ■ ■ □

OBESITY

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
FTO	rs9939609	T/A	■ ■ ■ ■
MC4R	rs17782313	T/C	■ ■ ■ ■

WEIGHT LOSS-REGAIN

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
ADIPOQ	rs17300539	A/G	■ ■ □ □

METABOLISM

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
LEPR	rs8179183	G/G	■ ■ ■ □

GENETIC RISK FOR DECREASED ADIPONECTIN

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
ADIPOQ	rs17366568	A/G	■ ■ ■ ■

GENETIC RISK FOR ELEVATED LDL CHOLESTEROL

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
ABCG8	rs6544713	C/C	■ ■ ■ ■
APOB	rs515135	C/C	■ ■ ■ ■
CELSR2	rs12740374	G/G	■ ■ ■ ■
HMGCR	rs3846663	C/T	■ ■ ■ ■
HNF1A	rs2650000	A/C	■ ■ ■ ■

GENETIC RISK FOR ELEVATED LDL CHOLESTEROL

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
intergenic	rs1501908	C/C	■ ■ ■ ■
LDLR	rs6511720	G/G	■ ■ ■ ■
MAFB	rs6102059	C/C	■ ■ ■ ■
NCAN	rs10401969	T/T	■ ■ ■ ■
PCSK9	rs11206510	T/C	■ ■ ■ ■

GENETIC RISK FOR DECREASED HDL CHOLESTEROL

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
ABCA1	rs1883025	C/C	■ ■ ■ ■
ANGPTL4	rs2967605	C/C	■ ■ ■ ■
CETP	rs247616	C/C	■ ■ ■ ■
FADS1	rs174547	T/T	■ ■ ■ ■
GALNT2	rs4846914	G/A	■ ■ ■ ■
HNF4A	rs1800961	C/C	■ ■ ■ ■
KCTD10	rs2338104	C/C	■ ■ ■ ■
LCAT	rs2271293	G/G	■ ■ ■ ■
LIPC	rs10468017	T/T	■ ■ ■ ■
LIPG	rs4939883	T/T	■ ■ ■ ■
LPL	rs12678919	A/A	■ ■ ■ ■
PLTP	rs7679	T/T	■ ■ ■ ■
TTC39B	rs471364	C/T	■ ■ ■ ■
ZNF259	rs964184	C/C	■ ■ ■ ■

GENETIC RISK FOR ELEVATED TRIGLYCERIDES

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
ANGPTL3	rs10889353	A/A	■ ■ ■ ■
APOB	rs7557067	A/A	■ ■ ■ ■
FADS1	rs174547	T/T	■ ■ ■ ■
GCKR	rs1260326	T/C	■ ■ ■ ■
LPL	rs12678919	A/A	■ ■ ■ ■
MLXIPL	rs714052	A/A	■ ■ ■ ■
NCAN	rs17216525	C/C	■ ■ ■ ■
PLTP	rs7679	T/T	■ ■ ■ ■
TRIB1	rs2954029	A/A	■ ■ ■ ■
XKR6	rs7819412	G/G	■ ■ ■ ■
ZNF259	rs964184	C/C	■ ■ ■ ■

GENETIC RISK FOR ELEVATED BLOOD SUGAR

GENE/LOCUS	MARKER	GENOTYPE	STRENGTH
ADCY5	rs11708067	A/A	■■■■■
ADRA2A	rs10885122	G/G	■■■■■
CRY2	rs11605924	A/C	■■■■■
FADS1	rs174550	T/T	■■■■■
G6PC2	rs560887	C/C	■■■■■
GCK	rs4607517	G/A	■■■■■
GCKR	rs780094	T/C	■■■■■
GLIS3	rs7034200	C/A	■■■■■
MADD	rs7944584	A/T	■■■■■
MTNR1B	rs10830963	C/G	■■■■■
PROX1	rs340874	T/C	■■■■■
SLC2A2	rs11920090	T/T	■■■■■
TCF7L2	rs7903146	C/T	■■■■■

TEST METHODOLOGY

Genotyping by PCR-based enrichment and next-generation sequencing.

DISCLAIMER

This test was developed and its performance characteristics determined by Pathway Genomics Corporation. It has not been cleared or approved by the FDA. The laboratory is regulated under CLIA as qualified to perform high-complexity testing. This test is used for clinical purposes. It should not be regarded as investigational or for research.

If you have any questions about this report or wish to speak with one of Pathway Genomics' genetic counselors, please call (877) 505.7374.

RISKS AND LIMITATIONS

Risk of Laboratory Technical Problems or Laboratory Error

The certified testing laboratory has standard and effective procedures in place to protect against technical and operational problems. However, such problems may still occur. The testing laboratory receives samples collected by patients and physicians. Problems in shipping to the laboratory or sample handling can occur, including but not limited to damage to the specimen or related paperwork, mislabeling, and loss or delay of receipt of the specimen. Laboratory problems can occur that might lead to inability to obtain results. Examples include, but are not limited to, sample mislabeling, DNA contamination, un-interpretable results, and human and/or testing system errors. In such cases, the testing laboratory may need to request a new sample. However, upon re-testing, results may still not be obtainable.

As with all medical laboratory testing, there is a small chance that the laboratory could report inaccurate information. For example, the laboratory could report that a given genotype is present when in fact it is not. Any kind of laboratory error may lead to incorrect decisions regarding medical treatment and/or diet and fitness recommendations. If a laboratory error has occurred or is suspected, a health care professional may wish to pursue further evaluation and/or other testing. Further testing may be pursued to verify any results for any reason.

Limitations

The purpose of this test is to provide information about how a tested individual's genes may affect carrier status for some inherited diseases, responses to some drugs, risk for specific common health conditions, and/or selected diet, nutrition and/or exercise responses, as well as to learn more about the tested individual's ancient ancestry, depending upon the specific genetic testing that is ordered by the health care professional. Tested individuals should not make any changes to any medical care (including but not limited to changes to dosage or frequency of medications, diet and exercise regimens, or pregnancy planning) based on genetic testing results without consulting a health care professional.

The science behind the significance or interpretation of certain testing results continues to evolve. Although great strides have been made to advance the potential usefulness of genetic testing, there is still much to be discovered. Genetic testing is based upon information, developments and testing techniques that are known today. Future research may reveal changes in the interpretation of previously obtained genetic testing results. For example, any genetic test is limited by the variants being tested. The interpretation of the significance of some variants may change as more research is done about them. Some variants that are associated with disease, drug response, or diet, nutrition and exercise response may not be tested; possibly these variants have not yet been identified in genetic studies.

Many of the conditions and drug responses that are tested are dependent on genetic factors as well as nongenetic factors such as age, personal health and family health history, diet, and ethnicity. As such, an individual may not exhibit the specific drug response, disease, or diet, nutrition and exercise response consistent with the genetic test results.

Another limitation for some conditions, particularly in the areas of diet and exercise, is that genetic associations have been studied and observed in Caucasian populations only, and in some cases only in one gender. In this case, the interpretations and recommendations are made in the context of Caucasian studies, but the results may or may not be relevant to tested individuals who are of non-Caucasian or mixed ethnicities or the non-studied gender. If patient ethnicity is not disclosed in the test requisition form the ethnicity field in the report will read as "Ethnicity: Not Reported". Such reports will be defaulted to phenotype list displayed for Caucasian ethnicity.

Based on test results and other medical knowledge of the tested individual, health care professionals might consider additional independent testing, or consult another health care professional or genetic counselor.

RESULT STATUS DEFINITIONS

Amended 	Test results and/or patient information that have been revised in a way that does not impact the clinical significance of the result(s) and/or patient diagnosis, treatment or management.
Corrected 	Test results and/or patient information that have been revised in a way that may impact the clinical significance of the result(s) and/or patient diagnosis, treatment or management.
Final 	Test results that are available at the time of report issue or have been revised from pending status to final status.
Pending 	Test results that are not available at the time of report issue. All pending results will be specified in the report.