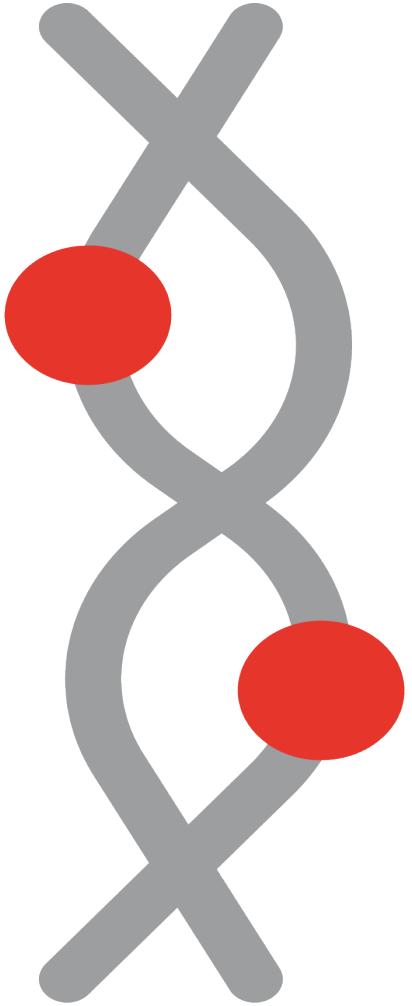
Fagron genomics



Gene Comprehensive Nutrigenomic Report

Accession Number: ##########
Specimen Collected: ##/##/####
Specimen Received: ##/##/####
Report Generated: November 16, 2022
Specimen Type: Buccal Swab
Provider: ######## ########
Patient Name: ###### ######
Patient DOB: ##/##/####
Patient Gender: Female

Do not make any decisions about your health solely based on the information contained in this report. Always consult with a licensed and experienced health practitioner when you receive this report.

GX Sciences | 844-258-5564 | www.GXSciences.com
Lab | 4150 Freidrich Lane, Ste H | Austin, TX 78744
Laboratory Director: James W. Jacobson, Ph.D

– 8 – Female

(-/-) No clinical abnormality | (+/-) Heterozygous result | (+/+) Homozygous result

rsID	Gene	Genetic Result	Therapeutics Associated With Positive Result	Highly Recommended Therapeutics	Provider Discretion: As Needed Formula Recommendations	Lifestyle Recommendations	Laboratory Recommendations
Developmental							
Methylation							
rs651933	FOLR2	+/-	Methyltetrahydrofolate (5-MTHF)	**Methyl Folate Plus™ Twice Daily**			
rs1801131	MTHFR 1298	+/-					
rs1801133	MTHFR 677	+/-					
rs1801198	TCN2	-/-	Methyl B12, Adenosyl B12				
Neurotransmitters							
rs4680	COMT V158M	-/-	Taurine, Choline, Trimethylglycine (TMG), Dimethylglycine (DMG), Methionine, SAMe, Inositol				
rs769407	GAD1	-/-	Prescription Amantadine, Ketamine, Glycine, N-Acetyl-Cysteine (NAC), Zinc, Magnesium, Elderberry, L-Theanine, Melatonin		May benefit from Pro GAD Enhancer™ May Benefit from Calming Cream™ May Benefit from Melatonin if Sleep is an Issue		Consider Neurotransmitter Metabolite Testing
rs3828275	GAD1	+/-					
rs6323	MAO-A	-/-	B2 (Riboflavin), Methyl Donors (Taurine, Choline, Trimethylglycine (TMG), Dimethylglycine (DMG), Inositol, Methionine		May Benefit from Full Focus+™ if you have Anxiety or Focus Issues		Consider Neurotransmitter Metabolite Testing
rs1799836	MAO-B	+/+					

rs1042173	SLC6A4	+/-	5-HTP (Hydroxytryptophan)		May Benefit from Mood Plus™ if you have Anxiety or Depression Issues	May Have Less Than Optimal Response To SSRIs	Consider Neurotransmitter Metabolite Testing
rs6313	HTR2	-/-					
rs4570625	TPH2	+/-	L-5-Methyl THF, Niacinamide, 5-HTP				Consider Neurotransmitter Metabolite Testing
rs1108580	DBH	+/-	Vitamin C Copper				

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Neurotrophic Factors							
rs1142636	SYN1	-/-	RG3, Nicotinamide Riboside, Ginseng				
rs6265	BDNF	-/-	Curcumin, Lithium Orotate, D-Chiro-Inositol, Catechins, Resveratrol, Exercise				
Neuro-inflammation							
rs10402876	C3	+/+	Anti-Inflammatory Therapy: Curcumin, Omega 3s, Resveratrol, Quercetin, Low Dose Naltrexone (LDN), CBD Oil	**CBD Oil** **PEA Soothe Support™** **Prescription Low Dose Naltrexone (LDN)**		Consider Low Inflammatory Diet	Consider Pregnenolone, Cortisol, T cell profile, Routine Thyroid Panel, Candida Titer, Food Allergy Panel, Environmental Allergy Testing
rs2569191	CD14	+/-					
rs2069812	IL5	+/-					
rs1800795	IL6	+/-					
rs1800925	IL13	-/-					
rs10181656	STAT4	+/-					
rs1800629	TNF	-/-					
rs231775	CTLA4	+/+					
rs1076560	DRD2	-/-	Increased Efficacy of Naltrexone				
Autophagy							
rs510432	ATG5	+/-	Curcumin, Lithium Orotate, D-Chiro-Inositol, Catechins, Resveratrol, Caffeine, 12 Hour Fasting	**DCI 500 or Metabolic Stimulator™** **N.A.S. Enhancer™**		12-15 Hour Fasting if appropriate for age	Routine Blood Sugar, Insulin and Hb A1c
rs26538	ATG12	+/-					
rs10210302	ATG16L1	-/-					

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Developmental							
Sugar Sensitivity and Mood							
rs1800544	ADRA2A	+/+	Increased Risk of Hyperactivity From Sugar and Anti-Psychotic Induced Weight Gain			High Risk of Major Weight Gain With Psychiatric Medications May Have Hyperactivity with Processed Sugar	
Detoxification							
rs1021737	CTH	-/-	N-Acetyl Cysteine (NAC), Glutathione				
rs7483	GSTM3	-/-	Glutathione				
rs1695	GSTP1 I105V	-/-					

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rsID	Gene	Genetic Result	Therapeutics Associated With Positive Result	Highly Recommended Therapeutics	Provider Discretion: As Needed Formula Recommendations	Lifestyle Recommendations	Laboratory Recommendations
Inflammatory Environmental							
rs10156191	AOC1	-/-	Poor Ability To Break Down Histamine in Foods				
rs11558538	HNMT	-/-					
rs12995000	HNMT	-/-					
rs492602	FUT2	+/+	Pre-biotics and Probiotics Needed		Biotic Boost Chews or Powder For Kids™		Consider Microbiome Testing If GI Inflammation Present
rs2187668	HLA DQA1	-/-	High Risk of Severe Gluten Sensitivity				
rs2858331	HLA DQA2	-/-					

Summary for Developmental

Highly Recommended Therapeutics

- Methyl Folate Plus™ Twice Daily
- CBD Oil
- PEA Soothe Support™
- Prescription Low Dose Naltrexone (LDN)
- DCI 500 or Metabolic Stimulator™
- N.A.S. Enhancer™

Provider Discretion: As Needed Formula Recommendations

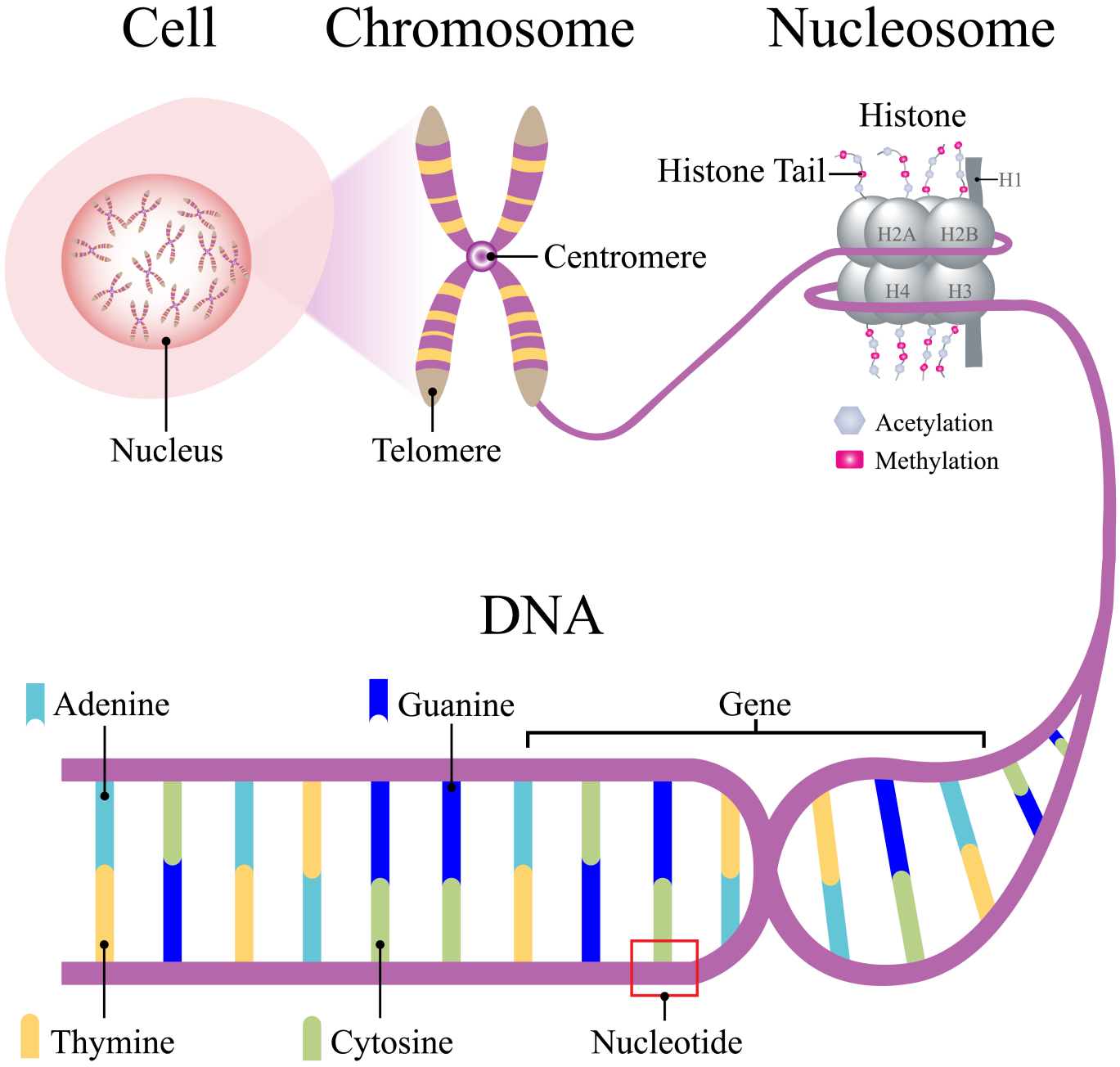
- May benefit from Pro GAD Enhancer™
- May Benefit from Calming Cream™
- May Benefit from Melatonin if Sleep is an Issue
- May Benefit from Full Focus+™ if you have Anxiety or Focus Issues
- May Benefit from Mood Plus™ if you have Anxiety or Depression Issues
- Biotic Boost Chews or Powder For Kids™

Lifestyle Recommendations

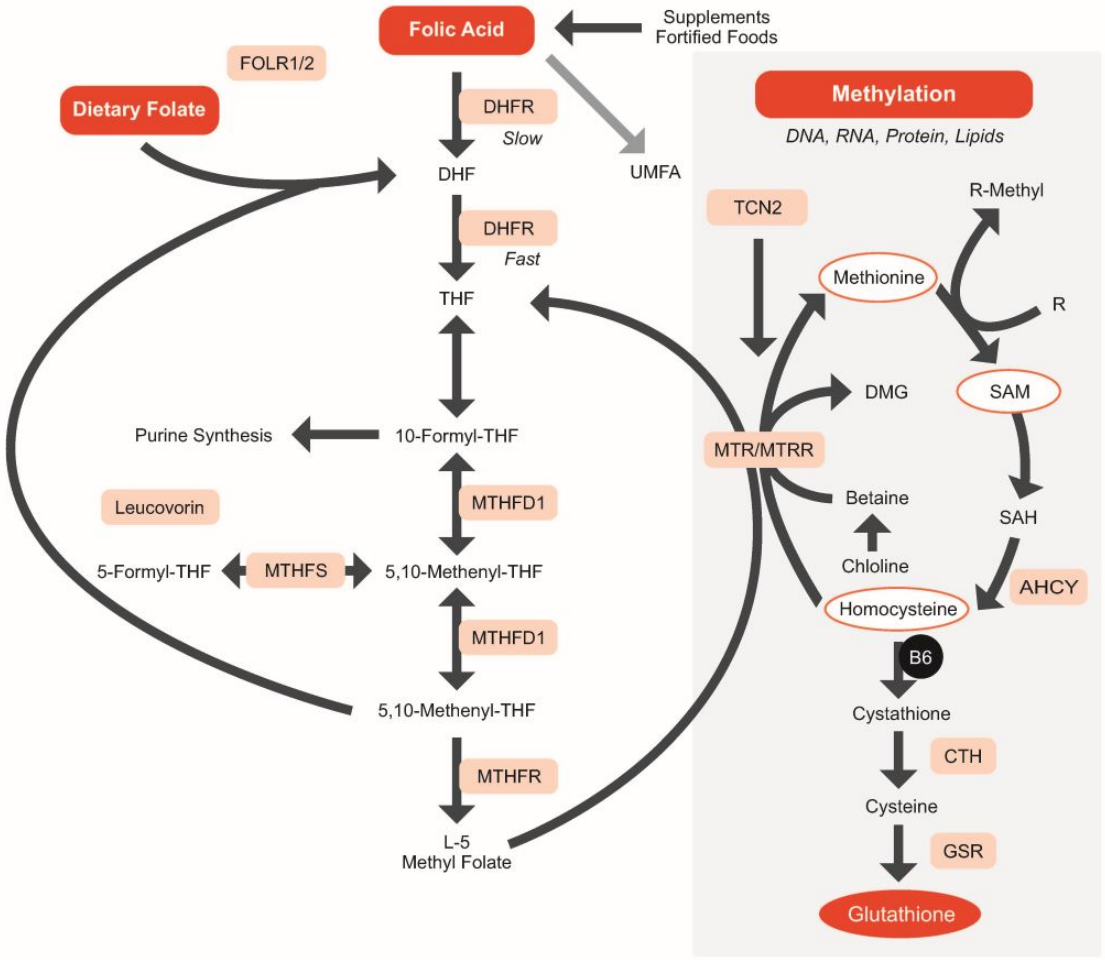
- May Have Less Than Optimal Response To SSRIs
- Consider Low Inflammatory Diet
- 12-15 Hour Fasting if appropriate for age
- High Risk of Major Weight Gain With Psychiatric Medications
- May Have Hyperactivity with Processed Sugar

Laboratory Recommendations

- Consider Neurotransmitter Metabolite Testing
- Consider Pregnenolone
- Cortisol
- T cell profile
- Routine Thyroid Panel
- Candida Titer
- Food Allergy Panel
- Environmental Allergy Testing
- Routine Blood Sugar
- Insulin and Hb A1c
- Consider Microbiome Testing If GI Inflammation Present


Cell
Chromosome
Nucleosome
Histone
Histone Tail
H1
H2A
H2B
H4
H3
Centromere
Nucleus
Telomere
Acetylation
Methylation
DNA
Adenine
Guanine
Gene
Thymine
Cytosine
Nucleotide

METHYLATION



Methylation

- Involves the addition of a methyl group (CH3)
- Regulates gene expression and repression
- Reduces or removes toxins that eliminate essential nutrients
- Provides nutrients needed for processes such as detoxification, immune regulation, gut health

Methionine

- Used in protein formation and stabilization
- Elevated levels are associated with risk for coronary heart disease, stroke & neurological diseases

Glutathione

- Important for chemical detoxification & proper mitochondrial functioning
- Genes relevant for production include: AHCY, CTH, CGTP1, GSTM1, GSTM3, GSR, MTRR & MTR

5-Methyl Folate

- Important for dopamine and serotonin formation, detoxification and mitochondrial strength
- Genes relevant for production include: DHFR, FOLR1/2, MTHFD1, MTHFR, MTHFS

Homocysteine

- Elevated levels are associated with risk for coronary heart disease, stroke, neurological diseases
- Variants in the methylation pathway can be associated with increased/decreased levels

FOLATE

FOOD SOURCES


Eggs


Citrus Fruits

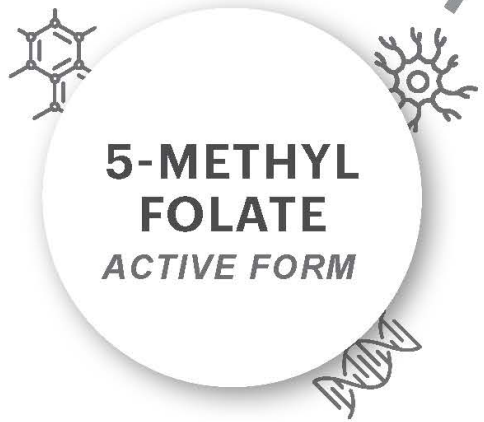

Leafy Greens


Legumes


Broccoli


Brussel Sprouts


Breads, Cereal, Pastas, Rice



FUNCTIONS (OR BENEFITS AS YOU AGE)

- Maintains structure & function of proteins
- Maintains structure & function of DNA
- Facilitates DNA replication, neurotransmitter production & detoxification

DEFICIENCY CAUSES

- Neural tube defects
- Cardiovascular disease
- Memory problems
- Depression
- Insomnia
- Irritability

NEUROTROPHIC FACTORS

VARIANTS IN THE SYN1, NGF & BDNF GENES CAUSE DECREASED NEURON SYNTHESIS

Promote growth, development, survival, synaptic plasticity (strengthening) and repair of neurons

Regulate the development of the peripheral and central nervous systems

Regulate the formation of long-term memories

LOW LEVELS ARE CORRELATED WITH

- Neurodegenerative disorders
- Aging
- Chronic stress
- Mood disorders

WAYS TO INCREASE LEVELS

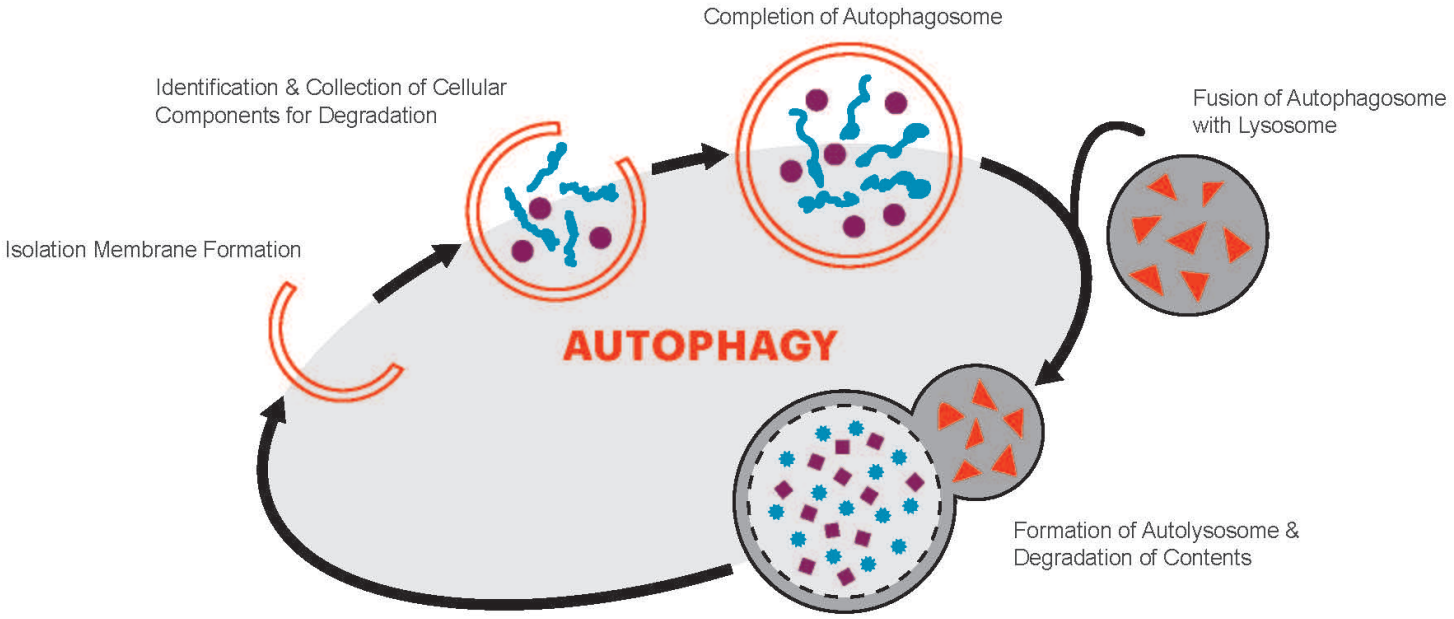
Exercise (physical or cognitive)

Social interactions

Reduce stress via breathing exercises and/or meditation

AUTOPHAGY

VARIANTS IN THE ATG GENES HAVE BEEN ASSOCIATED WITH CELLULAR BLOCKAGE



DEFECTS LEAD TO:

- Neurodegenerative Diseases
- Aging
- Heart Disease
- Developmental Disorders
- Type II Diabetes
- Insulin Resistance
- Fatty Liver
- Cancers

WAYS TO INCREASE

- Intermittent fasting or low-calorie diet
- Routine Exercise
- Ketogenic diets (high fat, low carbs)
- Medications & Supplements
  D-Chiro Inositol (B8)
  Metformin

SUGAR SENSITIVITY & FOOD

VARIANTS IN THE ADRA2A GENE HAVE BEEN ASSOCIATED WITH A HIGHER RISK OF SUGAR-INDUCED HYPERACTIVITY AND ANTIPSYCHOTIC INDUCED WEIGHT GAIN

ADRA2A GENE

Causes inhibition of the sympathetic nervous system

Helps reduce sugar levels found in the body

SYMPATHETIC NERVOUS SYSTEM

Functions

"Fight or flight" system

Increases sugar levels in the body

Low activity has been associated with an increased risk for weight gain and obesity

POTENTIAL WAYS TO ALLEVIATE HYPERACTIVITY

Limit or avoid dietary intake of:

Sugar

Fruits - grapes, oranges

Wheat

Soy products

Dairy products/Eggs

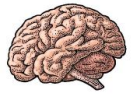
Beans

Vegetables - corn, tomatoes

Beverages - caffeinated and/or sugar-sweetened drinks

WAYS TO COMBAT WEIGHT GAIN WITH ANTIPSYCHOTICS

Exercise



Cognitive strategies - understanding eating behaviors & physical well-being

Low-calorie diet

Behavioral interventions - training in problem solving, goal setting, social support & monitoring exercise and eating habits

Nutritional counseling

LOW-SUGAR DIET

BENEFITS

Weight management

Helps prevent diabetes, heart disease & stroke

Helps manage mood levels, inflammation & skin health

Improved mental health

FOODS TO AVOID

White potatoes

White grains

Refined sugars - breakfast cereals, ketchup, packaged sweets, candy, packaged snack foods

Beverages - sodas, juices, coffee drinks, energy drinks, sweetened smoothies, alcohol (champagne, dessert wine)

FOODS TO EAT

Green leafy vegetables (raw or cooked)

Nuts/seeds - walnuts

Fruits - oranges, grapefruit, berries

Fatty fish - salmon, mackerel, sardines, tuna, anchovies, halibut, trout

Whole grains

Lean proteins

Beans and legumes

Herb/spices - cumin, turmeric, cinnamon

Sweet potatoes

Gene Information Key

rsID	Gene	"-" variant	"+" variant
rs1800544	ADRA2A	G	C
rs10156191	AOC1	C	T
rs26538	ATG12	T	C
rs10210302	ATG16L1	C	T
rs510432	ATG5	C	T
rs6265	BDNF	C	T
rs10402876	C3	G	C
rs2569191	CD14	T	C
rs4680	COMT V158M	G	A
rs1021737	CTH	G	T
rs231775	CTLA4	A	G
rs1108580	DBH	A	G
rs1076560	DRD2	C	A
rs651933	FOLR2	A	G
rs492602	FUT2	A	G
rs3828275	GAD1	C	T
rs769407	GAD1	G	C
rs7483	GSTM3	C	T
rs1695	GSTP1:I105V	A	G
rs2187668	HLA-DQA1	C	T

rsID	Gene	"-" variant	"+" variant
rs2858331	HLA-DQA2	A	G
rs11558538	HNMT	C	T
rs12995000	HNMT	C	T
rs6313	HTR2	G	A
rs1800925	IL13	C	T
rs2069812	IL5	A	G
rs1800795	IL6	G	C
rs6323	MAO-A	T	G
rs1799836	MAO-B	T	C
rs1801131	MTHFR: 1298	T	G
rs1801133	MTHFR: 677	G	A
rs1042173	SLC6A4	A	C
rs10181656	STAT4	C	G
rs1142636	SYN1	A	G
rs1801198	TCN2	C	G
rs1800629	TNF	G	A
rs4570625	TPH2	G	T

Definitions

DETOXIFICATION	Detoxification enzymes are responsible for clearing environmental chemicals and metabolites from our body. Accumulation of these chemicals and by-products can damage intracellular biochemical functions. Alterations in these systems can have a significant negative effect on the nervous system and immune systems functions. These polymorphisms can result in decreased "quality of life" and even decreased "life-span".
CTH	Glutathione production is dependent on the function of the enzyme cystathionine gamma-lyase (CTH). CTH converts cystathionine to cysteine. Individuals with mutations in the CTH gene are predicted to have decreased glutathione-mediated detoxification.
GSTM3	Glutathione S-transferase mu 3 is an enzyme that detoxifies drugs, environmental toxins, and carcinogens by conjugating toxins to glutathione and subsequent excretion by the kidneys. Mutations in GSTM3 are associated with decreased clearance of toxins, anesthetics and drugs from the nervous system.
GSTP1	Glutathione S-transferases (GSTs) are a family of enzymes that play an important role in detoxification. The glutathione S-transferase pi gene (GSTP1) functions in chemical clearance and anti-inflammatory properities. High concentration of GST-p are found in the skin, lungs, sinuses, bladder and the intestinal tract. Polymorphisms of this enzyme allow for increased inflammatory activity in these areas that include eczema, asthma, chronic sinusitis, IBS, "leaky" gut and interstitial cystitis.
DEVELOPMENTAL	The SNPs in this category have been identified as potential areas of weakness in the recovery of developmental disorders.
ATG12	Autophagy-related 12 protein is part of the core autophagy machinery inside the cell. Autophagy, a form of cellular "recycling" is necessary for many cell functions. ATG12 is specifically involved in turning off the innate immune response. Mutations in the ATG12 gene are predicted to lead to increased activity of the innate immune response, and overall inflammation.
BDNF	The BDNF (Brain Derived Neurotrophic Factor) gene encodes for a member of the nerve growth factor family of proteins. BDNF acts on both the central nervous system and the peripheral nervous system helping to support the survival of existing neurons and encourage the growth and differentiation of new neurons and synapses. It is highly expressed in the brain, as well as, the retina, cochlear-vestibular system and motor neurons. Although the vast majority of neurons in the brain are formed prenatally, parts of the adult brain retain the ability to grow new neurons from neural stem cells in a process known as neurogenesis. BDNF helps to stimulate and control neurogenesis, as well as playing an important role in normal neural development. Binding of this protein to its cognate receptor promotes neuronal survival in the adult brain. Expression of this gene is reduced in Alzheimer's, Parkinson's and Huntington's disease. This gene may play a role in the regulation of the stress response and the biology of mood disorders. Several mechanisms to increase BDNF have been discovered. These mechanisms revolve around autophagy stimulation. These include Intermittent Fasting with a single meal of 600 calories on the fast day can increase BDNF production by 50-400%. Cognitive Stimulation, Calorie Restriction, Exercise, Hormone therapy and supplements including Quercitin, Caffeine, Curcumin, Niacinamide, Lithium Oratate, Magnesium Threonate, Resveratrol, Ginseng, Theanine, Olive Leaf Extract and NAC.
SYN1	SYN1 (Synapsin) codes for Synapsins that are responsible for synaptogenesis and the modulation of neurotransmitter release, suggesting a potential role in several neuropsychiatric diseases. This member of the synapsin family plays a role in regulation of axonogenesis and synaptogenesis. Mutations in this gene may be associated with X-linked disorders with primary neuronal degeneration such as Rett syndrome. Additionally, polymorphisms in this gene are associated with numerous neurological conditions, as well as, decreased recovery potential for neurological insults.
INFLAMMATORY	This Enzyme category has significant effects on the inflammatory state of a person's body. Polymorphisms in these specific enzymes will significantly increase the levels of inflammation in the body. By supplementing these enzyme deficiencies, the patient will effectively reduce inflammatory damage to the body.
AOC1	The SNP rs10156191 encodes a weaker form of the histamine degradation enzyme Amine Oxidase, Copper Containing 1 (AOC1). This mutation, Thr16Met, is predicted to produce an enzyme with less catalytic activity and associated higher levels of pro-inflammatory amines like histamine and putrescine.
ATG16L1 rs10210302	The ATG16L1 gene encodes a protein that is a vital component of a protein complex necessary for the cellular phenomena known as autophagy. Autophagy is the process of degrading and cleaning of inert debris of the cell. Weakness in autophagy leads to abnormal accumulation of cellular "garbage" that will eventually affect the cellular function and lead to autophagy-related disease states in including many neurological and immunological diseases, DM Type 2 and fatty liver disease.
ATG5	Autophagy-related 5 protein (ATG5) is an important intracellular mediator of the autophagy response. ATG5 is involved in a wide range of "quality control" features inside the cell: autophagy vesicle formation, innate immune system signaling, consumption of damaged mitochondria, and apoptosis. Mutations in the ATG5 gene are associated with numerous neurological, immunological and endocrine syndromes.
C3	Essential for the immune response, C3 is a protein involved in initiation of the complement system. C3 polymorphisms are associated with susceptibility to asthma and other inflammatory disorders.
CD14	The CD14 protein is a macrophage cell surface receptor that binds bacterial cell wall components. As one of the initiators of the innate immune response, fully functional CD14 is necessary for normal response to potential pathogens. Mutations in the CD14 gene are associated with susceptibility to asthma and other allergen-mediated inflammatory processes.
CTLA4	Cytotoxic T-lymphocyte Associated protein 4 (CTLA4) is an important inhibitor of T-cell activity: CTLA4 is part of the signaling cascade that turns off overactive T cells. Mutations in the gene that encodes CTLA4 are associated with a host of diseases characterized by a heightened immune state.

DRD2	Dopamine receptor D2 is an important component of the neuroinflammation process. Activation of DRD2 signaling is thought to decrease TNFalpha release from inflammatory mast cells. Polymorphisms associated with decreased DRD2 signaling activity are predicted to lead to pro-inflammatory phenotypes.
FUT2	Fucosyltransferase 2 (FUT2) is responsible for producing specific sugar groups that are secreted by the intestinal cells into the bowel to attract "good bacteria" . Polymorphisms in this gene produce "poor secreter" status. Lack of these sugars allows for gut dysbiosis and a higher risk of inflammatory bowel disease.
HLA-DQA1	Major histocompatibility complex, DQ alpha 1 (HLA-DQA1) is a human gene responsible for a cell surface receptor essential to the function of the immune system. Patients with a polymorphism in this gene are at higher risk for auto-immune based inflammatory disease including Celiac disease, Crohn's, Ulcerative Colitis, and gluten sensitivity.
HLA-DQA2	Major histocompatibility complex, DQ alpha 2 (HLA-DQA2) is a human gene responsible for a cell surface receptor essential to the function of the immune system. Patients with a polymorphism in this gene are at higher risk for auto-immune based inflammatory disease including Celiac disease, Crohn's, Ulcerative Colitis, and gluten sensitivity.
HNMT rs12995000	The HNMT gene encodes the histamine degradative enzyme, histamine N-methyltransferase. HNMT, in contrast to AOC1, requires the methyl donor S-adenosylmethionine and a complete methylation pathway for normal function. Polymorphisms in HNMT gene expression or protein-coding are predicted to prolong the pro-inflammatory effects of histamine signaling.
HNMT Thr105Ile	The HNMT gene encodes the histamine degradative enzyme, histamine N-methyltransferase. HNMT, in contrast to AOC1, requires the methyl donor S-adenosylmethionine and a complete methylation pathway for normal function. Polymorphisms in HNMT gene expression or protein coding are predicted to prolong the pro-inflammatory effects of histamine signaling.
IL13	IL13 (Interleukin 13) is a member of the interleukin family of chemical messengers of the immune system. Polymorphisms in this gene are associated with changes in IL13 gene expression and increase the risk of more severe inflammatory responses to allergens.
IL5	The protein product of the Interleukin 5 gene (IL5) is important for normal development of B lymphocytes and eosinophils (a pro-inflammatory white blood cell). Inactivating mutations in the IL5 gene are associated with susceptibility to certain viral infections and increased aggression of inflammatory response. These polymorphisms are also associated with increased aggression of allergies, asthma and eosinophilia.
IL6	Interleukin 6, IL6, is an important pro-inflammatory cytokine. Polymorphisms in this gene leads to a more aggressive inflammatory response. Patients with IL-6 mutations require assistance with inflammatory control.
STAT4	The Signal Transducer and Activator of Transcription 4 (STAT4) gene encodes a transcription factor that responds to extracellular growth factors and cytokines. Mutations in the STAT4 gene are associated with inflammatory disorders like lupus and rheumatoid arthritis.
TNF	Tumor necrosis factor, TNF, is an important pro-inflammatory signaling molecule. Polymorphisms in the protein coding part of this gene are associated with more severe pro-inflammatory responses and require supplementation for inflammatory control.
METHYLATION	Methylation is a primary biochemical process in the body that involves the addition of a "methyl" chemical group to a vitamin or neurotransmitter. The addition of the "methyl" group allows for very specific biochemical interactions. Poor "methylation" function alters the effectiveness, delivery and function of many vitamins and important chemicals in the cell.
FOLR2	Folate Receptor 2 (FOLR2) is a member of the folate receptor (FOLR) family. Members of this gene family have a high affinity for folic acid. Polymorphisms in this gene allow for poor delivery of folic acid to the interior of cells. This can create a high plasma folic acid. This polymorphism does create a methylation deficiency. This polymorphism is associated with many disorders of pregnancy. This receptor is found in high quantities on the placenta, thymus and bone marrow. Can be affiliated with immune disorders.
MTHFR A1298C	Methylenetetrahydrofolate reductase (MTHFR) catalyzes the conversion of 5,10-methylenetetrahydrofolate to 5-methyltetrahydrofolate, the bioactive form of folic acid. Two significant polymorphism variants exist in this gene, the A1298C and the C677T. The 1298 confers a conversion weakness of 10% for one copy and approximately 20% for two copies. In contrast, the 677 variant is much more severe and conveys a 40% conversion weakness for one copy and 70% for two copies. A reduced level of MTHFolate produces significant biochemical effects including poor production of dopamine and serotonin, pregnancy complications, poor healing of the nervous system, weak mitochondrial function, reduced production of glutathione, poor cell turnover and poor function of T cell lymphocytes.
MTHFR C677T	Methylene tetrahydrofolate reductase (MTHFR) catalyzes the conversion of 5,10-methylenetetrahydrofolate to 5-methyltetrahydrofolate, the bioactive form of folic acid. Two significant polymorphism variants exist in this gene, the A1298C and the C677T. The 1298 confers a conversion weakness of 10% for one copy and approximately 20% for two copies. In contrast, the 677 variant is much more severe and conveys a 40% conversion weakness for one copy and 70% for two copies. A reduced level of MTHFolate produces significant biochemical effects including poor production of dopamine and serotonin, pregnancy complications, poor healing of the nervous system, weak mitochondrial function, reduced production of glutathione, poor cell turnover and poor function of T cell lymphocytes.
TCN2	The protein product of the Transcobalamin 2 gene, TCN2, binds the active form of vitamin B-12. Individuals with the G/G phenotype at rs1801198 have decreased serum B-12 and increased homocysteine when compared to individuals with the C/C phenotype.
NEUROTRANSMITTER	Neurotransmitters are chemicals that are used to produce specific effects in the nervous system. These specific neurotransmitter genomics assess a person's risk for anxiety, depression and dysphoria.

ADRA2A	ADRA2A (Adrenergic Receptor Alpha 2A) gene that determines sensitivity of the adrenergic nervous system response. Individuals with the G allele at this location predicted to be at higher risk of sugar-induced hyperactivity, and better response to ADHD treatment with typical pharmacological interventions.
COMT V158M	Catechol-O-methyltransferase (COMT) is one of several enzymes that degrade catecholamine neurotransmitters such as dopamine, epinephrine, and norepinephrine. COMT's main function is to inactivate neurotransmitters (dopamine, epinephrine, and norepinephrine) by the addition of a methyl group to the catecholamine. Normal COMT function allows people to rapidly reverse feelings of anxiety or depression. COMT (+/-) patients have sluggish ability to alter anxiety or depression episodes. COMT (+/+) patients are more prone to prolonged episodes of anxiety, depression and OCD.
DBH	DBH (Dopamine Beta Hydroxylase) is an oxidoreductase belonging to the copper type II, ascorbate-dependent monooxygenase family. The encoded protein, expressed in neurosecretory vesicles catalyzes the conversion of dopamine to norepinephrine, which functions as both a hormone and sympathetic nervous system function. Polymorphisms in this gene lower the production of norepinephrine which causes poor autonomic and cardiovascular function, including hypotension and ptosis. Polymorphisms in this gene have also been linked to Autism, ADD, bipolar disorder and major depression.
GAD1 rs3828275	Glutamic Acid Decarboxylase (GAD 1) is the enzyme responsible for conversion of glutamic acid (a stimulant neurotransmitter) to GABA (a calming neurotransmitter). Deficiency of GABA from polymorphisms in this enzyme are associated with sleep disorders, "half glass empty" syndrome, dysphoria, and spasticity.
HTR2A	5-hydroxytryptamine receptor 2 (HTR2) is one of the neuronal receptors for the neurotransmitter serotonin. Mutations in the HTR2 gene are associated with individual response to antidepressants, appetite, and mood.
MAOA	Monoamine oxidase A (MAOA) is one of the classic neurotransmitter degradation enzymes. By degrading serotonin, dopamine, epinephrine, and norepinephrine, MAO-A ends neuronal signaling induced by those neurotransmitters. Mutations in the MAO-A gene leads to decreased degradation of these neurotransmitters and can be associated with increased aggression, mood disorders and drug addiction.
MAOB	Monoamine Oxidase B (MAO B) catalyzes the neuroactive amines, such as dopamine, epinephrine, norepinephrine, and plays a role in the stability of mood in the central nervous system,. MAO B's primary purpose is to degrade dopamine. Patients who possess polymorphisms of MAO B have a higher risk of clinical depression and mood disorders.
SLC6A4	The SLC6A4 gene encodes the serotonin transporter, also known as SERT. The serotonin transporter is responsible for clearing the serotonin neurotransmitter from the synaptic space. SERT is the target of many therapeutic drugs. Polymorphisms in the SLC6A4 gene are associated with increased risk of anxiety and depression and less effective response to SSRI medications.
TPH2	TPH2 (Tryptophan Hydroxylase 2) gene catalyzes the first and rate limiting step in the biosynthesis of serotonin (5HT), an important hormone and neurotransmitter. Mutations in this gene have been shown to be associated with psychiatric diseases such as bipolar affective disorder, anxiety and major depression. Polymorphisms in this gene are also correlated to an increased response rate to SSRI medications.

Disclaimers

METHODOLOGY AND LIMITATIONS:

Testing for genetic variation/mutation on listed genes was performed using ProFlex PCR and Real-Time PCR with TaqMan® allele-specific probes on the QuantStudio 12K Flex. All genetic testing is performed by GX Sciences, 4150 Freidrich Lane, Ste H, Austin, TX. 78744. This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Test results do not rule out the possibility that this individual could be a carrier of other mutations/variations not detected by this gene mutation/variation panel. Rare mutations surrounding these alleles may also affect our detection of genetic variations. Thus, the interpretation is given as a probability. Therefore, this genetic information shall be interpreted in conjunction with other clinical findings and familial history for the administration of specific nutrients. Patients should receive appropriate genetic counseling to explain the implications of these test results. Details of assay performance and algorithms leading to clinical recommendations are available upon request. The analytical and performance characteristics of this laboratory developed test (LDT) were determined by GX Sciences' laboratory pursuant to Clinical Laboratory Improvement Amendments (CLIA) requirements.
CLIA #: 45D2144988 Laboratory Director: James Jacobson, PhD

DISCLAIMER:

This test was developed and its performance characteristics determined by GX Sciences. It has not been cleared or approved by the FDA. The laboratory is regulated under CLIA and qualified to perform high-complexity testing. This test is used for clinical purposes. It should not be regarded as investigational or for research. rsIDs for the alleles being tested were obtained from the dbSNP database (Build 142).

DISCLAIMER:

UND Result: If you have received the result Variant undetermined (UND) this indicates that we were not able to determine your carrier status based on your raw data. Please refer to the GX Sciences genetic knowledge database for more information: https://www.gxsciences.com/kb_results.asp

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