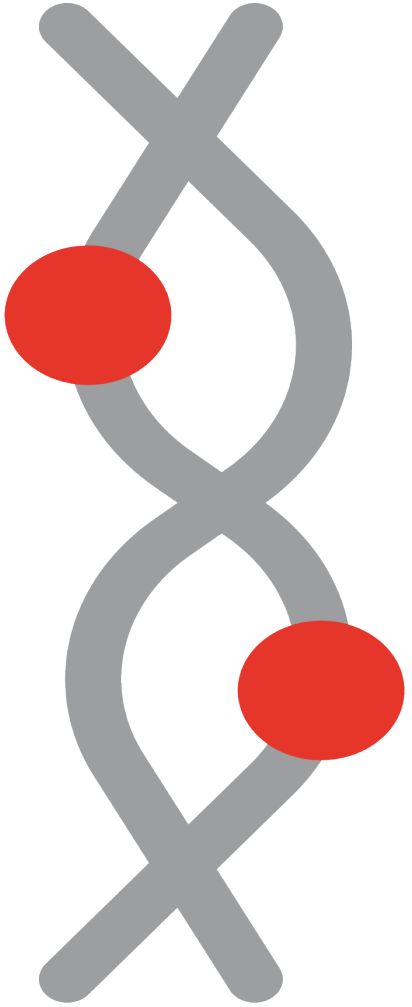
Fagron genomics



Gene Comprehensive Nutrigenomic Report

Accession Number: ##########
Specimen Collected: ##/##/####
Specimen Received: ##/##/####
Report Generated: November 30, 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

– 28 – 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
Neurotransmitters							
rs4680	COMT V158M	+/+	Taurine, Choline, Trimethylglycine (TMG), Dimethylglycine (DMG), Methionine, SAMe, Inositol		May Benefit from Full Focus+™ if Anxiety or Depression Present	Higher Risk of Depression / Anxiety with Stressful Events	Consider Neurotransmitter Metabolite Testing
rs769407	GAD1	-/-	Prescription Amantadine, Glycine, N-Acetyl-Cysteine (NAC), Zinc, Magnesium, Elderberry, L-Theanine, Melatonin	**May Benefit from Prescription Amantadine**	May Benefit from Pro GAD Enhancer™ if Anxiety is Present May Benefit from Neuro Night Essentials™ if Sleep Initiation is Problematic	Be cautious with MSG (Monosodium Glutamate) Be cautious with Glutamine Supplementation	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 Anxiety or Depression Present		
rs1799836	MAO-B	-/-	Methyl Donors (Taurine, Choline, Trimethylglycine (TMG), Dimethylglycine (DMG), Inositol, Methionine				

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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
rs6313	HTR2	+/-	5-HTP (Hydroxytryptophan)		May Benefit from Mood Plus™ if Anxiety or Depression Present	May Have Less Than Expected Efficacy To SSRI Medications	Consider PGx Testing
rs1042173	SLC6A4	+/+					
rs4570625	TPH2	+/-	Niacinamide, 5-HTP				Consider Neurotransmitter Metabolite Testing
rs1108580	DBH	+/-	Droxidopa Phenylpropanolamine Pseudoephredrine Fludrocortisone Strattera				
Methylation for Neurotransmitters							
rs1801131	MTHFR 1298	-/-	Methyltetrahydrofolate (5-MTHF)	**Methyl Folate Plus twice daily**			
rs1801133	MTHFR 677	+/-					

Summary for Neurotransmitters / Mood

Highly Recommended Therapeutics

- May Benefit from Prescription Amantadine
- Methyl Folate Plus twice daily

Provider Discretion: As Needed Formula Recommendations

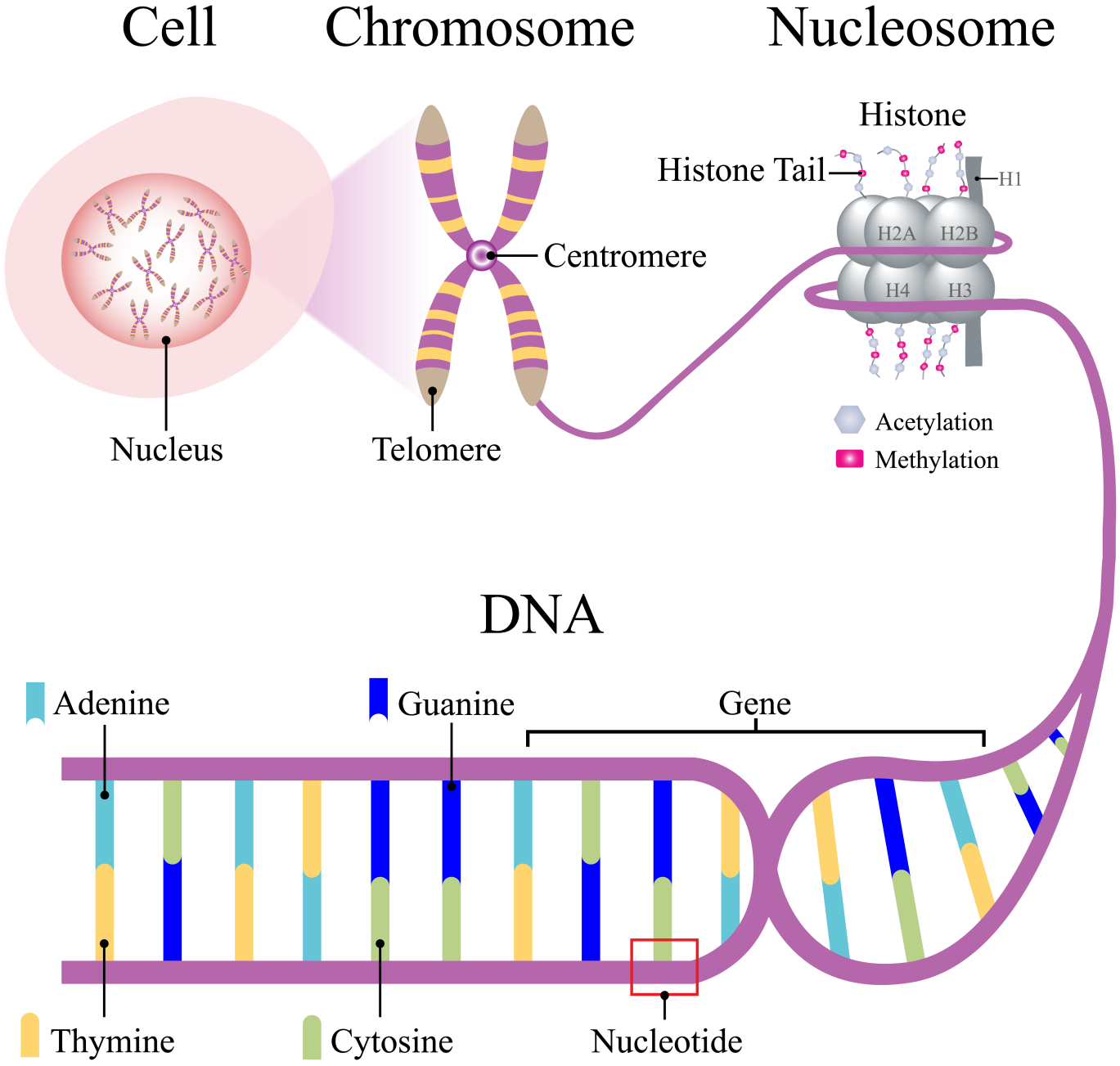
- May Benefit from Full Focus+™ if Anxiety or Depression Present
- May Benefit from Pro GAD Enhancer™ if Anxiety is Present
- May Benefit from Neuro Night Essentials™ if Sleep Initiation is Problematic
- May Benefit from Full Focus+™ if Anxiety or Depression Present
- May Benefit from Mood Plus™ if Anxiety or Depression Present

Lifestyle Recommendations

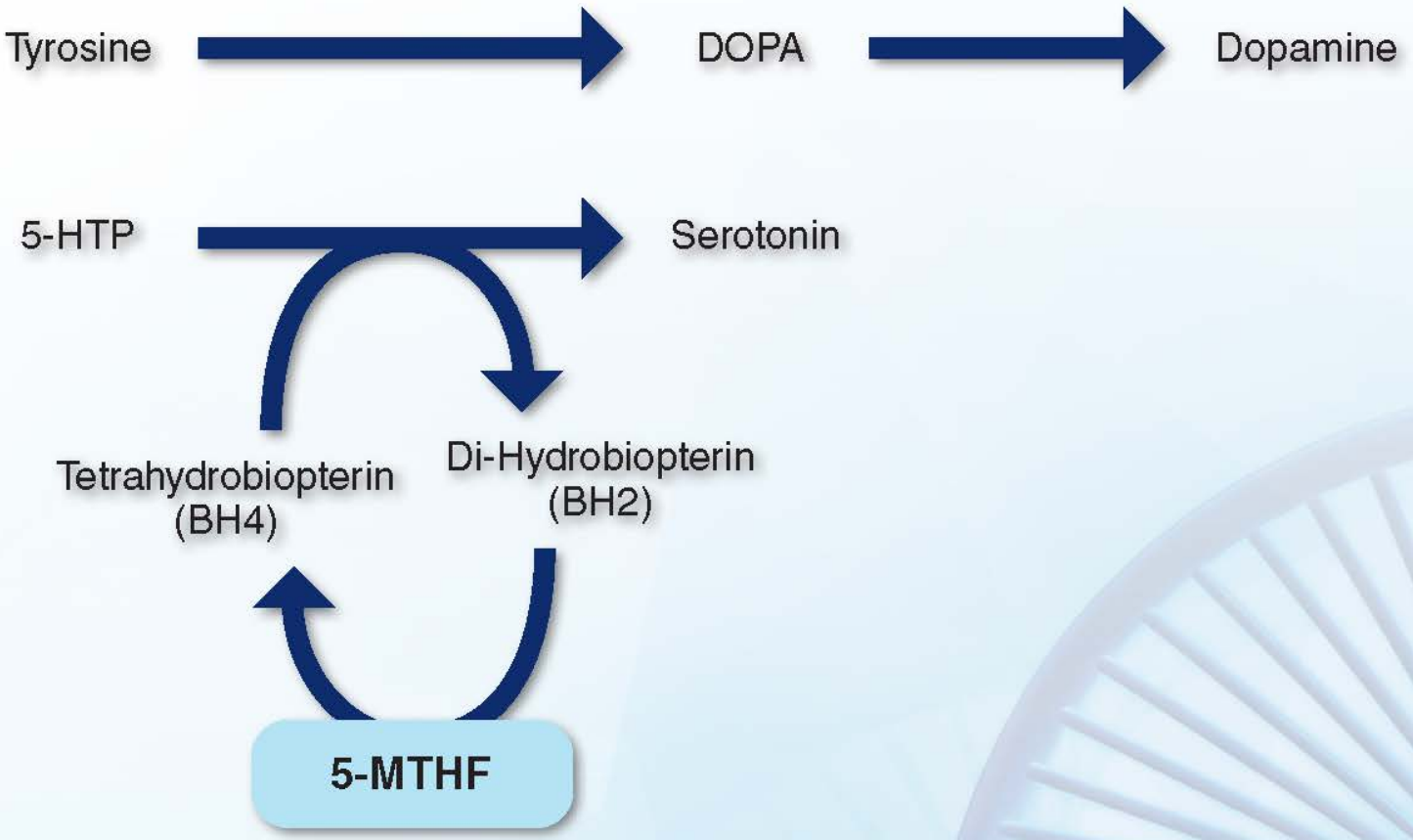
- Higher Risk of Depression / Anxiety with Stressful Events
- Be cautious with MSG (Monosodium Glutamate)
- Be cautious with Glutamine Supplementation
- May Have Less Than Expected Efficacy To SSRI Medications

Laboratory Recommendations

- Consider Neurotransmitter Metabolite Testing
- Consider PGx Testing

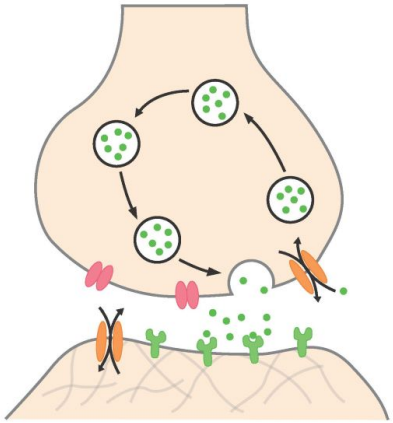

Cell
Chromosome
Nucleosome
Histone
Histone Tail
H1
H2A
H2B
H4
H3
Centromere
Nucleus
Telomere
Acetylation
Methylation
DNA
Adenine
Guanine
Gene
Thymine
Cytosine
Nucleotide

5-MTHF & Neurotransmitter Production



NEUROTRANSMITTERS & PATHWAY

TRANSMIT INFORMATION FOR ESSENTIAL PROCESSES SUCH AS DIGESTION, BREATHING, HEARTBEAT, MOVEMENT, PAIN REGULATION ETC.



RELEVANT GENES

- **HTR2, TPH2, SLC6A4, MAO-A** genes are important in the synthesis, breakdown, transport and/or functioning of serotonin
- **COMT, MAO-A, MAO-B** genes are important for the breakdown of serotonin, norepinephrine and/or dopamine
- The **DBH** gene is important for norepinephrine synthesis
- The **GAD1** gene is important for GABA synthesis
- Variants in **COMT, MAO-A, MAO-B and GAD1** genes have been associated with mood, anxiety and focus issues

WAYS TO INCREASE LEVELS

Aerobic Exercise

Dietary Factors

Mediation/Yoga

Increase Sun Exposure

Gene Information Key

rsID	Gene	"-" variant	"+" variant
rs4680	COMT V158M	G	A
rs1108580	DBH	A	G
rs3828275	GAD1	C	T
rs769407	GAD1	G	C
rs6313	HTR2	G	A
rs6323	MAO-A	T	G
rs1799836	MAO-B	T	C
rs1801131	MTHFR 1298	T	G
rs1801133	MTHFR 677	G	A
rs1042173	SLC6A4	A	C
rs4570625	TPH2	G	T

Definitions

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.
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.
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.
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

TESTING:

Testing Performed By: AMH

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

DISCLAIMER:

Report contents and report recommendations are created and approved by GX Sciences. Sole responsibility for the proper use of the information on the GX Sciences report rests with the user, or those professionals with whom the user may consult. Nutrigenomic Testing and Dietary Supplements are not "Designated Health Services" covered by Medicare or Medicaid and may not be reimbursed under any state or Federal health care program.

DISCLAIMER:

These products are not approved by the Food and Drug Administration and are not intended to diagnose, treat, cure or prevent disease. These recommendations are for report purposes only and an individual is not required to use such products. These are recommendations only and do not replace the advisement of your own healthcare practitioner.

GX Sciences SNP References

METHYLATION SNP References

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NEUROTRANSMITTER SNP References

COMT

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GAD1

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