



ELITE GENE LABS

GENETIC POTENTIAL FOR OPTIMAL PERFORMANCE

Gene Comprehensive Nutrigenomic Report

Accession Number: #####

Specimen Collected: ###/###/####

Specimen Received: ###/###/####

Report Generated: August 12, 2025

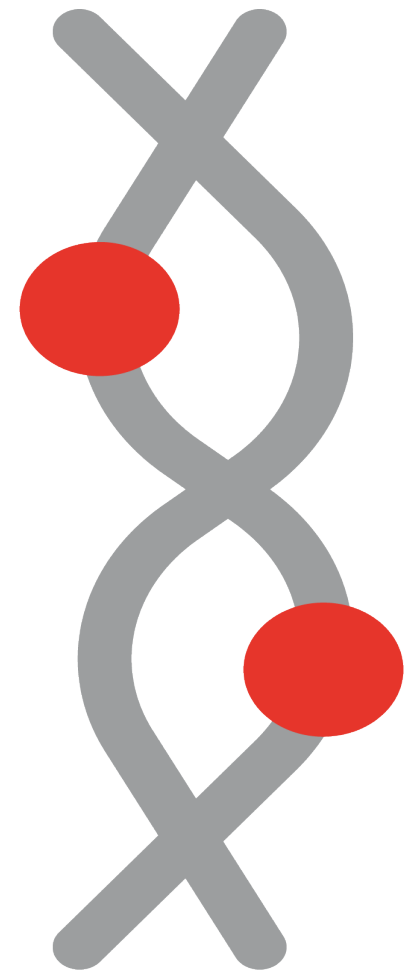
Specimen Type: Buccal Swab

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.



– 32 – Female

(-/-) Normal Risk (-/+) Medium Risk (+/+) High Risk

rsID	Gene	Genetic Result	Therapeutics Associated With Positive Result	Highly Recommended Therapeutics	Provider Discretion: As Needed Formula Recommendations	Lifestyle Recommendations	Laboratory Recommendations
Gastrointestinal							
Food Sensitivities							
rs10156191	AOC1	C/C (-/-)	Poor Ability to Break Down External Histamine				
rs11558538	HNMT	C/C (-/-)					
rs2187668	HLA DQA1	C/C (-/-)	High Risk of Gluten and Casein Sensitivity, Broad Spectrum Enzyme				
rs7454108	HLA DQB1	T/T (-/-)					
rs4988235	MCM6	G/G (+/+)	High Incidence of Lactose Intolerance	You Possess a High Risk of Lactose Intolerance		Avoid Lactose (Dairy Products)	
Microbiome Stability							
rs492602	FUT2	A/G (+/-)	Prebiotics and Probiotics Needed	Berry Good Immune		Consider Consumption of Prebiotic and Probiotic Foods	
Nitric Oxide Inducibility							
rs4795067	NOS2	A/G (+/-)	Inducible Nitric Oxide Synthase (iNOS) Activity, Anti-Infectives, Beta Glucans	Immune Defend		Increased iNOS Activity May Promote Higher Levels of Inflammation	



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Autophagy Consideration							
rs510432	ATG5	C/C (+/+)	Increased Susceptibility to Bacterial GI Infections and Crohn's Disease	TRI-Butyrin Supreme™		Intermittent Fasting (12-15 Hours)	Consider GI Pathogen Profile if Infection Is Suspected
rs10210302	ATG16L1	C/C (-/-)					
rs2241880	ATG16L1	A/A (-/-)					

Summary for Elite Gut Health

Highly Recommended Therapeutics

Provider Discretion:
As Needed Formula
Recommendations

Lifestyle Recommendations

Laboratory Recommendations

Food Sensitivities

- You Possess a High Risk of Lactose Intolerance

- Avoid Lactose (Dairy Products)

Microbiome Stability

- Berry Good Immune

- Consider Consumption of Prebiotic and Probiotic Foods

Nitric Oxide Inducibility

- Immune Defend

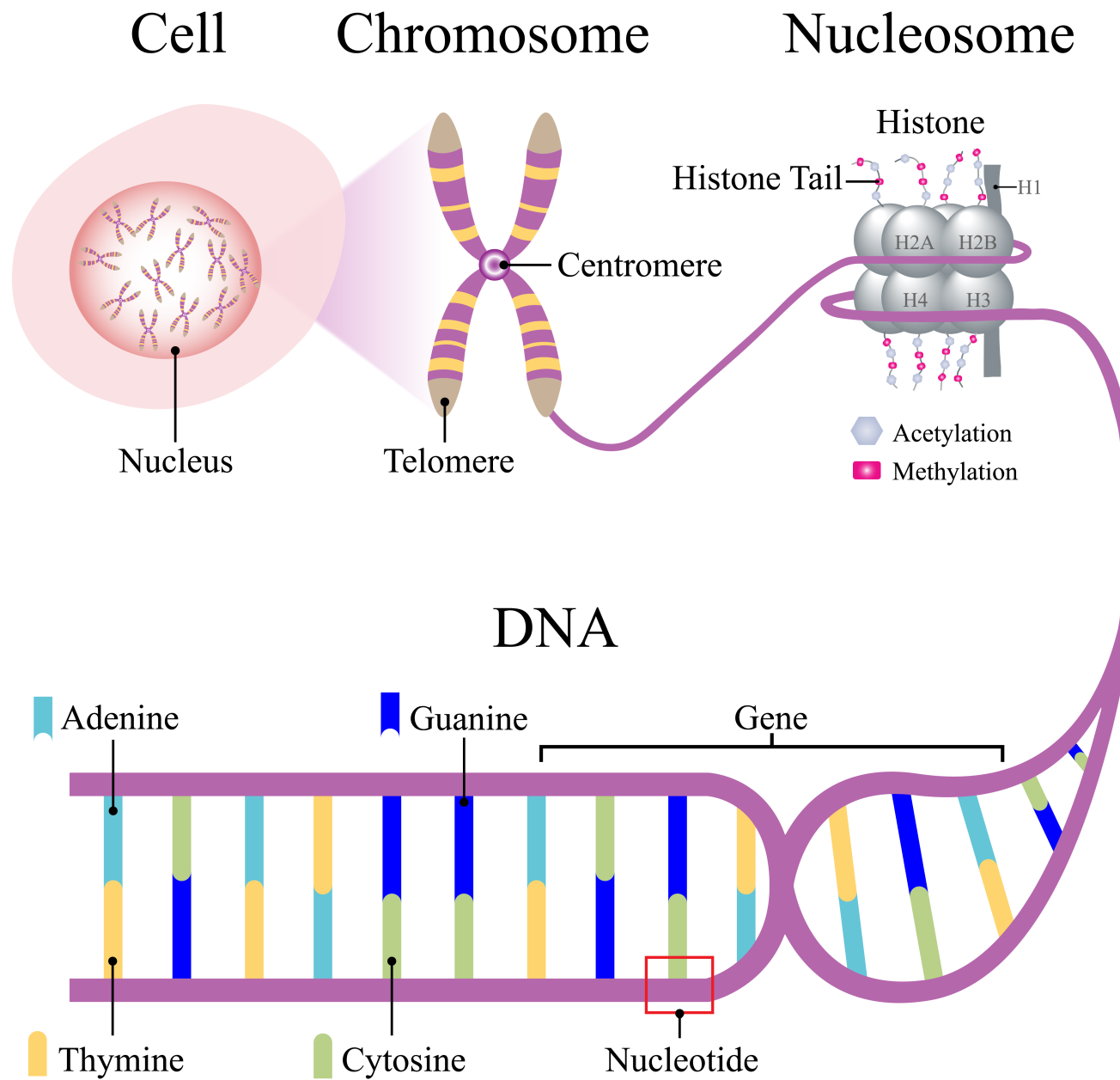
- Increased iNOS Activity May Promote Higher Levels of Inflammation

Autophagy Consideration

- TRI-Butyrin Supreme™

- Intermittent Fasting (12-15 Hours)

- Consider GI Pathogen Profile if Infection Is Suspected



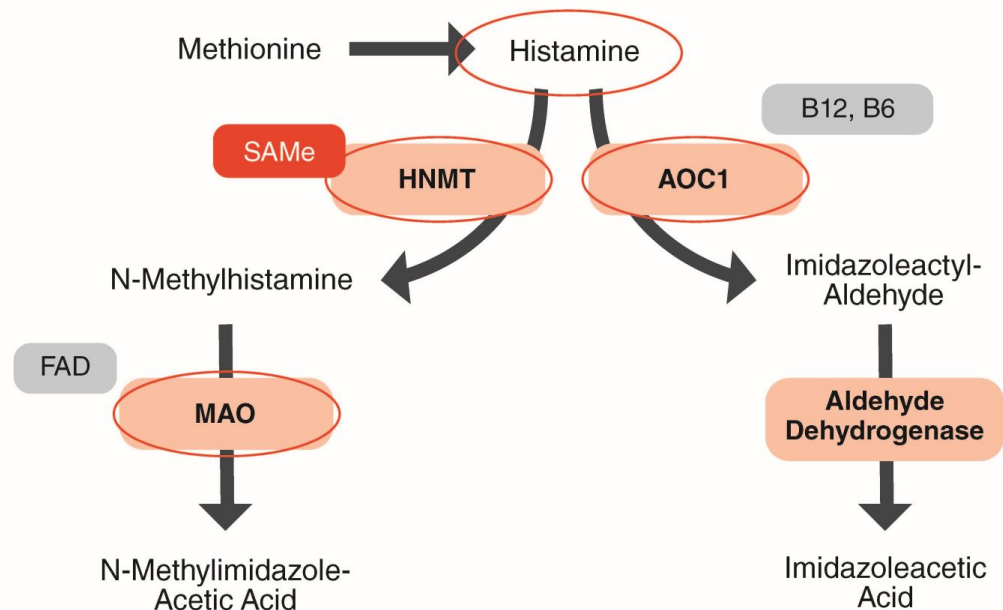
HISTAMINE

HISTAMINE

- Natural substance found in various foods

IMPLICATIONS

- Metabolic Enzymes: amine oxidases (ex. AOC1, MAO, DAO) & HNMT
- High histamine & low amine oxidase activity is associated with:
 - Diarrhea
 - Headaches
 - Nose congestion
 - Asthma
 - Hypotension
 - Arrhythmia
 - Flushing
 - Urticaria (hives)
 - Pruritus (itchy skin)
- Dietary histamine can be rapidly detoxified by amine oxidases, whereas persons with low amine oxidase activity are at risk of histamine toxicity



AOCI & HNMT POLYMORPHISM HISTAMINE

LOW HISTAMINE LEVEL FOODS



Meats & Fish
fresh meat (ex. chicken, turkey, pork and red meat), fresh fish (ex. hake, trout, plaice)



Milk substitutes
(Coconut milk, rice milk)



Cream cheese, butter



Egg yolk



Most cooking oils



Fresh fruits
(with the exception of strawberries)



Most leafy greens and herbs



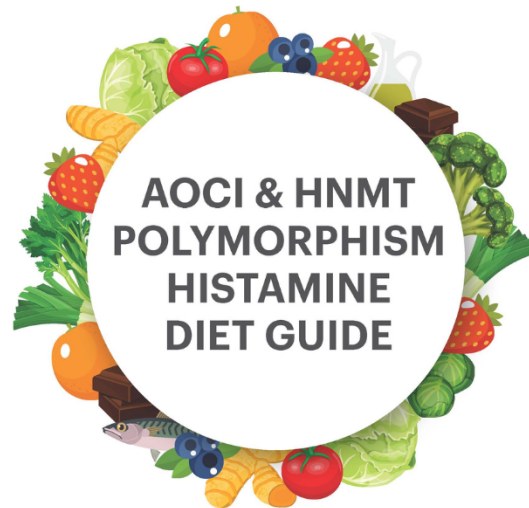
Fresh vegetables



Beverages
(non-citric fruit juices, herbal teas)



Grains



HIGH HISTAMINE LEVEL FOODS



Egg whites



Processed, cured, smoked and fermented meats/fish (lunch meat, bacon, sausage, pepperoni, canned tuna)



Leftover meat
(After meat is cooked, the histamine levels increase due to microbial action as the meat sits)



Dairy products: All fermented milk products (ex. aged cheeses, yogurt, buttermilk, kefir)



Chocolate, cocoa



Bone broth



Fruits (oranges, grapefruit, lemons, lime, berries, dried fruit)



Vegetables (spinach, tomatoes, eggplant)



Artificial food colors and preservatives



Fermented & vinegar-containing foods (sauerkraut, kombucha, pickles, relishes, ketchup, prepared mustard)



Spices (cinnamon, chili powder, cloves, nutmeg, curry powder, cayenne)



Beverages (Black Tea, alcohol)

LACTOSE INTOLERANCE

VARIANTS IN THE MCM6 GENE HAS BEEN ASSOCIATED WITH LACTOSE INTOLERANCE

SYMPTOMS AFTER EATING DAIRY PRODUCTS



Diarrhea



Bloating



Occasional vomiting



Gas



Nausea



Stomach cramps

DEFINITION & CAUSES

Lactose:
the sugar found in dairy products,
is not broken down properly

Lactase:
the enzyme that breaks down lactose,
is produced in small amounts

OTHER SOURCES OF CALCIUM



Green leafy vegetables



Milk alternatives
(almond, soy)



Fish
(sardines and canned salmon)



Figs



Whey protein



Calcium
(fortified foods - breakfast
cereals, orange juice)



Seeds
(chia, poppy, sesame, celery)



Beans and lentils



Almonds



Soybean products
(edamame, tofu)



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(-/+) Medium Risk

(+/+) High Risk

rsID	Gene	Genetic Result	Therapeutics Associated With Positive Result	Highly Recommended Therapeutics	Provider Discretion: As Needed Formula Recommendations	Lifestyle Recommendations	Laboratory Recommendations
rs4704397	PDE8B rs4704397	A/G (+/-)	Iodine, Selenium, Increased Risk of Hypothyroidism		Thyroid Synergy™		Thyroid Panel Urinary Iodine OR Comprehensive Micronutrient/Mineral Analysis

Gene Information Key

rsID	Gene	"-" variant	"+" variant
rs10156191	AOC1	C	T
rs10210302	ATG16L1	C	T
rs2241880	ATG16L1	A	G
rs510432	ATG5	T	C
rs492602	FUT2	A	G
rs2187668	HLA-DQA1	C	T
rs7454108	HLA-DQB1	T	C
rs11558538	HNMT	C	T
rs4988235	MCM6	A	G
rs4795067	NOS2	G	A
rs4704397	PDE8B rs4704397	G	A

Definitions

AOC1	The AOC1 (amine oxidase copper-containing 1) gene encodes for the diamine oxidase (DAO) enzyme, which is one of two enzymes that breaks down pro-inflammatory amines such as histamine and putrescine. DAO is active in intestinal mucosal cells, and a deficiency of its activity results in the accumulation of high levels of histamine, which can cause a wide range of neurological, gastrointestinal, and epidermal disorders. The polymorphism rs10156191 results in a methionine substitution for a threonine residue in the enzyme at position 16. The T allele, which encodes the methionine variant, results in an enzyme with lower metabolic capacity than the enzyme encoded by the C allele, possibly resulting in reduced ability to break down histamine.
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.
HLA-DQA1	The HLA-DQA1 (major histocompatibility complex, class II, DQ alpha 1) gene encodes a cell surface protein that plays a central role in the function of the immune system and the development of autoimmune disease. HLA-DQA1 is a class II, human leukocyte antigens (HLA), which are expressed on the surface of antigen presenting cells where HLA can bind antigens or substances that induce an immune response for recognition by T cells. HLA-DQA1 encodes a component of HLA-DQ2, a serotype or distinct variation among the HLA structure that determines its antigenic complements. More specifically, the T allele for the polymorphism, rs2187668, can be used to identify HLA-DQ2.5, a high-risk factor for gluten sensitivity and celiac disease. Consistently, genome-wide association studies have found the T allele is associated with celiac disease.
HLA-DQB1 rs7454108	The HLA-DQB1 (major histocompatibility complex, class II, DQ beta 1) gene encodes a cell surface protein that plays a central role in the function of the immune system and the development of autoimmune disease. HLA-DQB1 is a class II, human leukocyte antigens (HLA), which are expressed on the surface of antigen presenting cells where HLA can bind antigens or substances that induce an immune response for recognition by T cells. More specifically, the C allele for the polymorphism, rs7454108, can be used to identify HLA-DQ8, a serotype or distinct variation among the HLA structure that determines its antigenic complements. HLA-DQ8, for example, is a high-risk factor for gluten sensitivity and celiac disease.
MCM6	The promoter for the LCT (lactase) gene, which is important for the digestion of lactose, occurs within an intronic, or non-transcribed, region of the MCM6 (minichromosome maintenance complex component 6) gene. As a result, variation in MCM6 can influence transcription of LCT. For example, rs4988235 is often used as an indicator for the ability to digest dairy. The T allele is associated with lactase persistence, whereas individuals with the CC genotype are likely to be lactose intolerant.
FUT2	The FUT2 (fucosyltransferase 2) gene encodes an enzyme involved in the synthesis of histoblood group antigens (HBGA), which are found on the intestinal mucosa and various bodily fluids. HBGA are oligosaccharide molecules, and in the intestinal mucosa, they act as an attachment site and nutrient source for intestinal bacteria. The polymorphism rs492602 is in near perfect linkage disequilibrium with rs601338, meaning that the alleles are nonrandomly associated and inherited together. Therefore, the G allele for rs492602 indicates the inheritance of the minor allele for rs601338, which results in a stop gain mutation that produces a truncated version of FUT2 that is unable to secrete the oligosaccharide molecules. As a result, individuals of the GG genotype for rs492602 are considered "non-secretors". Carriers of the G allele were found to have compositional and functional changes to the gut microbiota and reduced microbial diversity. Furthermore, G allele carriers had increased susceptibility for inflammatory bowel disease.
NOS2	The NOS2 (nitric oxide synthase 2) gene encodes an isoform of an enzyme that can be induced by pro-inflammatory agents like lipopolysaccharide and cytokines to produce nitric oxide (NO), a potent signaling molecule that can influence immune activation, inflammation, and cell survival. NOS2 can be conditionally activated in many cell types, but it is especially important for the function of immune cells, like macrophages. While NO is needed to defend against invading pathogens and unregulated cellular proliferation, excessive NO can damage healthy tissue. Carriers of the G allele for rs4795067 have an increased ratio of nitrite to nitrate in plasma. Because NO is quickly metabolized to nitrite in the body, nitrite is considered to be a measure of NO reserve, suggesting that carriers of the G allele have increased production of NO. Additionally, the G allele is associated with psoriasis, and NOS2 expression has been shown to be increased in psoriatic lesions. In summary, studies suggest that G allele carriers for rs4795067 produce increased amounts of NO, which can lead to inflammation.
ATG5	The ATG5 (autophagy-related 5) gene is an important intracellular mediator of the autophagy response, which is essential for maintaining homeostasis. The polymorphism rs510432 occurs in the promoter region of ATG5, and individuals homozygous for the C allele have been shown to have increased mRNA expression of ATG5. Additionally, individuals homozygous for the C allele are at an increased risk for developing childhood asthma, but they have a reduced risk for developing sepsis. Individuals who are heterozygous or homozygous for the T allele have been shown to have reduced levels of C-reactive protein.
ATG16L1 rs10210302	The ATG16L1 (autophagy related 16 like 1) gene encodes a protein that is part of a major protein complex essential for autophagy, a process of digesting cellular components for nutrient sensing and cellular regulation. The polymorphism rs10210302 occurs in the promoter region of the gene, and a comprehensive study has linked the T allele with Crohn's disease, an inflammatory bowel disease.
PDE8B rs4704397	The PDE8B (phosphodiesterase 8B) gene encodes a enzyme that catalyzes the hydrolysis of cAMP, a second messenger crucial for cellular energy sensing. The polymorphism rs4704397 occurs in the first intron, and numerous studies have found that the A allele is associated with increased levels of TSH, consistent with hypothyroidism. Additionally, the A allele has been associated with sub-clinical hypothyroidism, hypothyroidism, and infertility.

Disclaimers

TESTING:

Testing Performed By: AC

METHODOLOGY AND LIMITATIONS DISCLAIMER:

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, LLC d/b/a Fagron Genomics US ("Fagron Genomics US") (807 Las Cimas Pkwy, Suite 145, Austin, TX. 78746). 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 Fagron Genomics US's laboratory (Laboratory Director: James Jacobson, PhD) pursuant to Clinical Laboratory Improvement Amendments (CLIA) requirements (CLIA #: 45D2144988).

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Fagron Genomics US SNP References

AOC1

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NOS2

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ATG5

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