

Histamine Intolerance Test				Genomic Insights	
Patient Information		Name: [REDACTED]			
Date of Birth:	[REDACTED]	Gender:	M	Lab ID:	[REDACTED]
Date Received:	11/06/2024	Date Collected:	11/04/2024	Date Reported:	12/10/2024
Physician:		[REDACTED]		Clinic ID:	[REDACTED]

Genetic markers for Histamine intolerance: DAO Enzyme report (AOC1 gene)

Variants	Your results	Reference	Point
C47T (rs10156191)	1	Normal C/C	0
		Heterozygous C/T	1
		Homozygous T/T	2
C995T (rs1049742)	1.5	Normal C/C	0
		Heterozygous C/T	1.5
		Homozygous T/T	3
C1990G (rs1049793)	0	Normal C/C	0
		Heterozygous C/G	1
		Homozygous G/G	2
G691T (rs2052129)	1	Normal G/G	0
		Heterozygous G/T	0.5
		Homozygous T/T	1

Normal: Genes inherited from both parents do not have this variant.

Heterozygous: A gene inherited from one parent has this variant while the other gene is normal.

Homozygous: Genes inherited from both parents have this variant.

AOC1 variants and other than those tested may contribute to the decrease in the enzyme activity and/or concentrations.

Combined Histamine Intolerance Risk Score

This score considers both the **genetic factors** (based on the AOC1 gene variants) and the **clinical symptoms** of Histamine Intolerance to provide a comprehensive assessment of an individual's risk.

1. Genetic influence on Histamine Intolerance: 0-8 points

The four variants tested are known to affect **DAO** enzyme activity or concentration, with a different impact.

YOUR points:

3.5

TO BE FILLED OUT BY THE PRACTITIOER AND/OR PATIENT

2. Clinical Symptoms of Histamine Intolerance: 0-20 points

The symptom score reflects the frequency and severity of symptoms commonly associated with Histamine Intolerance.

System	Symptoms	Symptom score	My assessment*
Gastrointestinal	Abdominal pain, bloating, diarrhea, constipation, nausea, vomiting, intestinal cramps, belching, postprandial fullness	0-7 points	5
Neurological	Migraine, headache, irritability, difficulty concentrating.	0-7 points	0
Skin	Itching (pruritus), hives, reddened skin, swollen or reddened eyelids, eczema	0-4 points	3
Cardiovascular	Palpitations, dizziness, hypotension, collapse	0-1 point	0
Respiratory	Nasal congestion, sneezing, rhinorrhea, asthma	0-1 point	1

YOUR points:

9

3. Combined Genetic and Symptom-based Histamine Risk Score

3.5



9



12.5

- **0-3 points: very Low Risk of Histamine Intolerance.**
Unlikely to have Histamine Intolerance
- **4-6 points: Low Risk of Histamine Intolerance**
Low probability of Histamine Intolerance. May have mild genetic predisposition or occasional symptoms, but histamine is unlikely to be a major issue.
- **7-15 points: Moderate Risk of Histamine Intolerance**
Moderate probability of Histamine Intolerance. Presence of some relevant genetic variants and/or noticeable symptoms. Symptoms may be inconsistent or mild to moderate but noticeable with histamine-rich food.
- **16-28 points: High Risk of Histamine Intolerance**
High probability of Histamine Intolerance. Clear genetic and clinical evidence with symptoms that may be severe and frequent. Avoiding high histamine foods and supporting histamine metabolism may be recommended.

*This symptom score is intended to be completed collaboratively by the ordering practitioner and/or the patient. It serves as a guideline only and should be interpreted in the context of a comprehensive clinical assessment. This tool is not diagnostic and does not replace individualized evaluation or practitioner guidance. Scores should be used to support clinical decision making, not to confirm or rule out histamine intolerance.

This combined score provides a personal assessment of Histamine Intolerance risk by integrating genetic and symptom-based factors. It offers a practical tool to help guide health decisions and support individualized management strategies.

References

1. Patel RH, Mohiuddin SS. Biochemistry, Histamine. StatPearls. 2023; 1:1-20.
 2. Shulpekova YO, et al. Food Intolerance: The Role of Histamine. Nutrients. 2021; 13(9):3207.
 3. Comas-Basté O, et al. Histamine Intolerance: The Current State of the Art. Biomolecules. 2020; 10:1181.
 4. Kaur S, et al. Association of Diamine Oxidase (DAO) Variants with the Risk for Migraine in North Indian Population. Meta Gene. 2020; 24:100619.
 5. Okutan G, et al. Prevalence of Genetic Diamine Oxidase (DAO) Deficiency in Female Patients with Fibromyalgia in Spain. Biomedicines. 2023; 11(3):660.
 6. Okutan G, et al. Cumulative Effect of AOC1 Gene Variants on Symptoms and Pathological Conditions in Adult Women with Fibromyalgia: A Pilot Study. Front Genet. 2023; 14:123-130.
 7. Schnedl, W.J.; Enko, D. Histamine Intolerance Originates in the Gut. Nutrients 2021, 13, 1262.
-

Limitations of genetic analysis

It is important to understand that:

1. It is not diagnostic: Genetic analysis of these variants cannot confirm or rule out Histamine Intolerance. It is a complementary tool that must be interpreted together with the patient's clinical picture.
 2. Non-genetic factors: DAO activity is also influenced by external factors, such as diet, medication use (e.g., antihistamines), hormonal status, and underlying diseases.
 3. Genetic variability: The interaction between multiple genes and epigenetic factors can modify the impact of these variants.
-