

FOOD & PET SENSITIVITY

ANALYSIS + REPORT



PERSON TESTED:
REFERENCE #:
DATE OF BIRTH:
REPORT DATE:



HOMEDNA™ FOOD & PET SENSITIVITY

Your DNA report reveals how your genes may make you more sensitive to common irritants, including: gluten (wheat), egg, lactose (dairy), cow milk protein (casein or whey), peanuts, pet dander, and more. Your results contain information only from your genes and do not include environmental factors that may cause or aggravate symptoms. This analysis and report are based on scientific studies and publications. For more details about the information contained in your report, we invite you to visit the links in the **Supporting Science** section.

**Note: This is not an allergy test. To diagnose allergies, consult your medical practitioner.
This report is being provided for educational and informational purposes only.**

CATEGORY	GENES TESTED	SENSITIVITY	PAGES
 FOOD SENSITIVITIES			
 Gluten	HLA-DQ8, HLA DQ 2.2, HLADQ2.5, HLA DQ2.2/2.5	 <i>More Sensitive</i>	3-5
 Lactose	MCM6, DAO	 <i>More Sensitive</i>	6-8
 Cow Milk Protein	IL-10 (A-1082G), HLA-DQ7	 <i>More Sensitive</i>	9-11
 Egg	SERPINB7	 <i>More Sensitive</i>	12-13
 Peanut	HLA-DQ region, C11orf30, FLG	 <i>Less Sensitive</i>	14
 Other Foods	IL-10 (C-627A), C11orf30, STAT 6, HLA-DR region, HLA-DRB1 (DR7), IL4, FLG, SERPINB7	 <i>More Sensitive</i>	15-17
 PET SENSITIVITIES			
 Pet Dander	HLA-DQ region	 <i>More Sensitive</i>	18-20
 HISTAMINE SENSITIVITIES			
 Histamine	DAO, HNMT	 <i>More Sensitive</i>	21-23

This product is not intended to diagnose, treat, cure, or prevent any disease. Results are based on your genetics and not other factors such as general health, environment, or diet. The scoring methods used to determine your outcomes are based on correlation data collected by the provider.



YOUR RESULTS

GENE TESTED	YOUR PROFILE	SENSITIVITY
 HLA-DQ8 - rs7454108	TT	 MORE SENSITIVE
 HLA DQ 2.2 - rs2395182	TT	
 HLA DQ 2.2 - rs7775228	TT	
 HLA DQ 2.2 - rs4713586	AA	
 HLADQ2.5 - rs2187668	CC	
 HLA DQ2.2/2.5 - rs2858331	AG	



CONCLUSION STATEMENT: People with genetic markers similar to yours may have a **higher risk of sensitivity** to gluten than other people.



ABOUT GLUTEN SENSITIVITY: Gluten is a protein in wheat, barley, and rye. Humans do not have the enzymes to break down gluten, leaving tiny particles of gluten in the digestive tract that may cause sensitivities for certain individuals.



COMMON SYMPTOMS: Symptoms of this sensitivity may include, but are not limited to:

- sleepiness after eating
- stomach upset
- foul-smelling gas after certain meals
- difficulty concentrating

IMPORTANT: If you're experiencing symptoms, contact your medical practitioner for guidance

See next page for diet, lifestyle, and supplement tips for this category ►



DIET TIPS

TIP	DETAILS
Try a gluten-free diet	Following a gluten-free diet (removing wheat, barley and rye products) has been shown to help people improve symptoms
Eat many nutrient-rich foods, including green vegetables and healthy fats (like olive oil and coconut oil)	Eating a Mediterranean-based diet (high in vegetables and olive oil/ lower in protein) has been found to be helpful for many individuals. Because many individuals with gluten sensitivity have difficulty absorbing important nutrients, it's important that you include these foods in your daily diet and use supplements as directed by your medical practitioner



LIFESTYLE TIPS

TIP	DETAILS
Read labels and ask about food preparation at restaurants	Many labels say "gluten-free," but the food may not come from an exclusively gluten-free preparation area or manufacturing plant



SUPPLEMENT TIPS

SUPPLEMENT	DOSE PER DAY	DETAILS
Iron	Men = 8 mg Women = 10 mg	If hemoglobin and ferritin levels are low, research suggests about 8 mg of iron for men and 10 mg of iron for women can help replenish iron stores. Consider taking ferrous glycinate, which is less constipating
Folate Supplement	400 mcg 800 mcg if pregnant	Research suggests taking the metabolized form of folate, called "methyl" on the label, because it's easier for the body to absorb and does a better job of increasing folate levels in red blood cells
Vitamin B12	500 mcg+	Look on the label for the words hydroxyl or methyl before the B12. These are the most effective types of B12 supplements. The amount of vitamin B12 you need depends of your age, your genes, and the amount of acid in your stomach, since low stomach acid lowers your ability to absorb B12
Vitamin D	3,000 IU	Consider taking 3000 IU per day of a vitamin D3 supplement, which should be enough for most people



SUPPLEMENT TIPS CONTINUED

SUPPLEMENT	DOSE PER DAY	DETAILS
Zinc	8-10 mg	Research suggests about 8-10 mg of zinc are adequate for maintaining whole body sufficiency. There are different types of zinc supplements: sulfate, citrate and picolinate. Citrate and picolinate are more easily absorbed. If you're taking a multivitamin, check how much zinc is included. Always take zinc with food to avoid an upset stomach
Magnesium	300-400 mg	Research suggests 300-400 mg of magnesium are needed to maintain body stores

Research has determined these supplements may be helpful to those experiencing sensitivity(ies) in this category. The above are suggestions only. Before taking any supplements or changing your existing regimen, please consult your medical practitioner.



YOUR RESULTS

GENE TESTED	YOUR PROFILE	SENSITIVITY
 MCM6 - rs4988235	AG	 MORE SENSITIVE
 MCM6 - rs182549	CC	
 DAO - rs2052129	GG	
 DAO - rs2268999	AA	
 DAO - rs10156191	CC	
 DAO - rs1049793	CG	
 DAO - rs1049742	CC	



CONCLUSION STATEMENT: People with similar genetic markers may have a **higher risk of difficulty** with digesting lactose.



ABOUT LACTOSE SENSITIVITY: Lactose is a sugar found in animal-sourced milk and dairy products. Certain genetic markers may make it more likely to have difficulty digesting foods containing lactose.



COMMON SYMPTOMS: Symptoms of this sensitivity may include, but are not limited to:

- bloating
- abdominal discomfort
- gas

IMPORTANT: If you're experiencing symptoms, contact your medical practitioner for guidance

See next page for diet, lifestyle, and supplement tips for this category ►



DIET TIPS

TIP	DETAILS
Use alternatives to cow milk such as nut, sheep, and goat milk, but be wary of soy milk	Soy may not be a healthy substitute for milk. Research has found that unfermented soy might make it harder for the body to absorb nutrients. Additional studies found soy might lower hormone levels in both men and women, which may result in additional health concerns
Try eating aged cheeses, since they contain less lactose	A good way of determining how much lactose is in cheese is to check the amount of sugar on the nutrition label. If there's more than 2g of sugar, there's a greater amount of lactose
Try eating yogurt	Yogurt is one of the few dairy products that is often well tolerated in lactose-intolerant people. The probiotics in the yogurt may help digest and break down the lactose



LIFESTYLE TIPS

TIP	DETAILS
Gradually increase your lactose intake over time	Gradually increasing lactose intake has been shown to improve lactose tolerance. You can start with small quantities of hard cheese, move on to softer cheeses, then give yogurt a try. Finally, try milk
Try lactase-reduced milk	Some companies add the lactase enzyme to milk to break down the lactase and make it more tolerable for those who drink it. Use caution and start with small portions, because the amount of lactase that is broken down varies depending on each company's process



SUPPLEMENT TIPS

SUPPLEMENT	DOSE PER DAY	DETAILS
Probiotics	10 billion CFU strains of Lactobacillus Casei, Lactobacillus Reuteri, or Lactobacillus acidophilus	A daily capsule containing 10 billion CFU strains of Lactobacillus Casei, Lactobacillus Reuteri, or Lactobacillus acidophilus can have positive effects on lactose tolerance. Inclusion of a probiotic during the elimination and reintroduction and gradual build-up phase can be effective



SUPPLEMENT TIPS CONTINUED

SUPPLEMENT	DOSE PER DAY	DETAILS
Lactase enzyme	18,000 IU (6,000 units before each meal)	Taking a lactase enzyme with 6,000 lactase units or more before meals can improve symptoms of lactose intolerance by 70-80%

Research has determined these supplements may be helpful to those experiencing sensitivity(ies) in this category. The above are suggestions only. Before taking any supplements or changing your existing regimen, please consult your medical practitioner.



YOUR RESULTS

GENE TESTED	YOUR PROFILE	SENSITIVITY
 IL-10 (A-1082G) - rs1800896	TT	 MORE SENSITIVE
 HLA-DQ7 - rs4639334	GG	



CONCLUSION STATEMENT: People with genetic markers similar to yours may have a **higher risk of sensitivity** to cow milk protein (casein or whey) than other people.



ABOUT COW MILK PROTEIN SENSITIVITY: Milk is primarily made up of water, fat, lactose (milk sugar), minerals, and protein. Sensitivity to milk protein (casein or whey) is one of the most common food sensitivities seen in young children, although it's usually outgrown by adulthood. This condition is **not** the same as lactose sensitivity.



COMMON SYMPTOMS: Symptoms of this sensitivity may include, but are not limited to:

- skin irritation
- nausea
- congestion
- upset stomach



IMPORTANT: If you're experiencing symptoms, contact your medical practitioner for guidance

See next page for diet, lifestyle,
and supplement tips for
this category ►



DIET TIPS

TIP	DETAILS
Try using ghee (clarified butter) in your cooking	Ghee does not contain milk protein and is therefore more easily tolerated. Ghee products are found at most grocery stores
Avoid cow-sourced foods	Cow-produced foods such as milk, yogurt, and cheese all contain milk protein
Try baking your milk products	Research has shown the body can tolerate baked milk products better than raw milk products. To help build tolerance, eliminate and then gradually reintroduce baked milk products followed by raw milk products, in small quantities
Try goat or camel milk instead of cow milk	Research has found these milks are more easily tolerated by those who have a sensitivity to milk protein
Coconut and almond milk are vegan choices that make great substitutes	It's important to carefully read the labels on dairy substitutes; prepackaged products often contain stabilizers or additives that people may be sensitive to. Vegan options are usually a safe choice
Experiment with extensively-hydrolyzed formula or dairy products	"Extensively-hydrolyzed" means the proteins have been broken down to such an extent that the body usually does not react to them. Hydrolyzed rice milk is well tolerated



LIFESTYLE TIPS

TIP	DETAILS
Read labels, looking specifically for whey or casein proteins and any milk derivative	Milk protein is commonly found in greek yogurt, bodybuilding drinks/protein shakes, and baby formula, so be sure to carefully check what you're buying



SUPPLEMENT TIPS

SUPPLEMENT	DOSE PER DAY	DETAILS
Lactobacillus Rhamnosus GG	1.4×10 CFU	Probiotics, specifically Lactobacillus Rhamnosus GG, might improve tolerance to dairy protein. Dosages of at least 1.4×10 CFU were found to be helpful

Research has determined these supplements may be helpful to those experiencing sensitivity(ies) in this category. The above are suggestions only. Before taking any supplements or changing your existing regimen, please consult your medical practitioner.



YOUR RESULTS

GENE TESTED	YOUR PROFILE	SENSITIVITY
 SERPINB7 - rs1243064	AT	 MORE SENSITIVE



CONCLUSION STATEMENT: People with genetic markers similar to yours may have a **higher risk of sensitivity** to eggs than other people.



ABOUT EGG SENSITIVITY: Egg sensitivity is very common. Many people are sensitive to the white part, called albumin, versus the yolk.



COMMON SYMPTOMS: Symptoms of this sensitivity may include, but are not limited to:

- stomach upset
- runny nose
- congestion
- skin irritations

⚠ IMPORTANT: If you're experiencing symptoms, contact your medical practitioner for guidance

See next page for diet, lifestyle, and supplement tips for this category ►



DIET TIPS

TIP	DETAILS
Consider eliminating eggs for 30 days and then slowly reintroducing eggs	This strategy may be a very effective way to increase tolerance. Try starting with just the yolks, then move on to the whole egg 1-2 times a week and see how you feel
Make baked eggs instead of alternatively-cooked eggs	Baked eggs are comparatively well tolerated and can be used to build egg-protein tolerance
Use egg substitutes	Gelatin: Dissolve 1 tablespoon of gelatin in 3 tablespoons of water for each egg in a recipe. Let sit for 3-5 minutes. Not all gelatin is sourced/created equally. Choose brands that come from pastured beef to enjoy higher quality Chia seeds: Grind 1 tablespoon of chia seeds and mix with 3 tablespoons water. Let sit for about 15 minutes and use goopy mixture as an egg substitute or in smoothies



LIFESTYLE TIPS

TIP	DETAILS
Always read the labels of all the foods you eat	Avoid or be mindful of the presence of egg protein or egg-white products
Use protein powders with caution	Some powders use albumin (egg whites) as a protein source, so use with caution if you suspect you're sensitive to eggs



SUPPLEMENT TIPS

SUPPLEMENT	DOSE PER DAY	DETAILS
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Although supplements that help balance the immune system might help manage the body's response to eggs, no supplements have been shown to directly target egg sensitivities



YOUR RESULTS

GENE TESTED	YOUR PROFILE	SENSITIVITY
 HLA-DQ region - rs9273440	CC	 LESS SENSITIVE
 HLA-DQ region - rs4713479	CC	
 HLA-DQ region - rs2763982	CG	
 HLA-DQ region - rs9368704	GG	
 C11orf30 - rs7936434	GG	
 FLG - rs61816761	GG	



CONCLUSION STATEMENT: People with genetic markers similar to yours may have a **lower risk of sensitivity** to peanuts than other people.



ABOUT PEANUT SENSITIVITY: Peanut sensitivity is very common. This sensitivity is considered heritable, which means it can get passed through the generations. It is thought to be a combination of environment and genetics. Early exposure to peanuts has been shown to decrease the chances of developing sensitivities.



COMMON SYMPTOMS: Symptoms of this sensitivity may include, but are not limited to:

- skin irritation
- itchy mouth and/or throat
- runny nose

IMPORTANT: If you're experiencing symptoms, contact your medical practitioner for guidance



NEXT STEPS: Although your results for DNA testing in this category indicate a lower risk of sensitivity, you may still be experiencing reactions that could indicate a sensitivity to something else. Be sure to carefully review your results for other categories, especially **Other Foods** and **Histamines**, and please consult your medical practitioner.



OTHER FOODS: YOUR RESULTS

Shrimp, Apples, Tree Nuts, Soy, Soybean, Fish, Corn, and Yeast



YOUR RESULTS

GENE TESTED	YOUR PROFILE	SENSITIVITY
 IL-10 (C-627A) - rs1800872	TG	 MORE SENSITIVE
 C11orf30 - rs7936434	GG	
 STAT 6 - rs703817	TT	
 STAT 6 - rs4759044	CC	
 HLA-DR region - rs7192	GG	
 HLA-DR region - rs9275596	TT	
 HLA-DRB1 (DR7) - rs439844	TC	
 HLA-DRB1 (DR7) - rs3135391	GG	
 IL4 - rs11949166	-	
 FLG - rs12123821	CC	
 FLG - rs1933064	AA	
 SERPINB7 - rs12964116	AG	



CONCLUSION STATEMENT: People with genetic markers similar to yours may have a **higher risk of sensitivity** to certain food groups than other people.



ABOUT OTHER FOODS SENSITIVITY: General food sensitivities cannot always be genetically linked to a specific common culprit, such as gluten or lactose, but you may still experience some discomfort after eating from one or several food groups. Sensitivities to foods not specifically analyzed for this test may include **shrimp, apples, tree nuts, soy, soybean, fish, corn, and yeast**, for example. If you have symptoms and do not have a higher genetic risk for food sensitivity elsewhere in this report, contact your medical practitioner for testing.



COMMON SYMPTOMS: Symptoms of this sensitivity may include, but are not limited to:

- runny nose
- stomach problems
- skin irritations
- headache
- cough

IMPORTANT: If you're experiencing symptoms, contact your medical practitioner for guidance

See next page for diet, lifestyle, and supplement tips for this category ►



OTHER FOODS: WHAT YOU CAN DO

Shrimp, Apples, Tree Nuts, Soy, Soybean, Fish, Corn, and Yeast



DIET TIPS

TIP	DETAILS
Eat foods high in zinc and selenium	Zinc and selenium may help strengthen the mucosal layer in your GI tract and decrease the rate of food sensitivities. Foods high in zinc include oysters, beef, spinach, pumpkin seeds, cashews, and cacao. Foods high in selenium include brazil nuts, spinach, chicken, brown rice, sunflower seeds, and eggs
Eat high-fiber foods	High-fiber foods can act as a prebiotic (food for probiotics) and help balance out the gut microbiome. Aim for more than 30g of fiber a day. Good sources include jicama, green plantains, simply-cooked potatoes and beans, broccoli, flax seeds and chia seeds



LIFESTYLE TIPS

TIP	DETAILS
Get some sun	Low vitamin-D levels are associated with increased rates of food allergies, so sun exposure might be beneficial. Short bouts of sun exposure that don't result in sunburn are best. Always consult your medical practitioner to see what the optimal amount of sun is for you
Drink filtered water	Chlorine's antimicrobial effect is thought to change the gut microbiome, which may lead to an increase in food allergies. Research has found that high chlorine levels in urine were associated with double the rate of food sensitivities



SUPPLEMENT TIPS

SUPPLEMENT	DOSE PER DAY	DETAILS
Omega-3	1.5 g of EPA and about 1 g of DHA	Studies have found that taking omega-3 supplements during pregnancy can help reduce sensitivities in children
Probiotics	1 billion CFU for infants Up to 100 billion CFU for adults	Bifidobacterium Lactis and Lactobacillus Rhamnosus have been shown to reduce reaction to certain foods. Lactobacillus casei and other strains might also be helpful. Always start slowly and observe your response



OTHER FOODS: WHAT YOU CAN DO

Shrimp, Apples, Tree Nuts, Soy, Soybean, Fish, Corn, and Yeast



SUPPLEMENT TIPS CONTINUED

SUPPLEMENT	DOSE PER DAY	DETAILS
Vitamin D	2,000 IU to 5,000 IU	The amount of vitamin D supplement you should take depends on your body's levels. Please consult your medical practitioner

Research has determined these supplements may be helpful to those experiencing sensitivity(ies) in this category. The above are suggestions only. Before taking any supplements or changing your existing regimen, please consult your medical practitioner.



YOUR RESULTS

GENE TESTED	YOUR PROFILE	SENSITIVITY
 HLA-DQ region - rs10189629	AC	 MORE SENSITIVE
 HLA-DQ region - rs17533090	TG	
 HLA-DQ region - rs7775228	TT	



CONCLUSION STATEMENT: People with genetic markers similar to yours may have a **higher risk of sensitivity to cat dander** and **lower risk of sensitivity to dog dander** than other people.



ABOUT PET DANDER SENSITIVITY: Pet dander consists of tiny particles of skin shed from animals that have hair, fur, or feathers. Certain genetic markers may make an individual more sensitive to contact with dander.



COMMON SYMPTOMS: Symptoms of this sensitivity may include, but are not limited to:

- throat irritation or coughing
- itchy mouth, nose or eyes

IMPORTANT: If you're experiencing symptoms, contact your medical practitioner for guidance

See next page for diet, lifestyle, and supplement tips for this category ►



DIET TIPS

TIP	DETAILS
Eat more fiber-rich foods	Fiber-rich foods can act as a prebiotic (food for probiotics) and help balance out the gut microbiome. Bacteria ferment the fiber, creating Short Chain Fatty Acids (SCFA), which have been shown to help improve the immune response and also help the body react less to environmental irritants
Try to eat more than 30 g of fiber a day	Good sources of fiber include jicama, green plantains, simply-cooked potatoes and beans, broccoli, flax seeds, and chia seeds. Use caution with kidney beans as they contain a compound that can cause gastrointestinal (GI) distress



LIFESTYLE TIPS

TIP	DETAILS
Reduce exposure to pets	Keep pets confined to certain areas of the home and out of sleeping environments
Use an air filter	Using an MERV-12 or higher-rated air filter in your home ventilation system can reduce pet dander by up to 70%
Reduce carpet and cloth in the home	Carpet and cloth-covered furniture hold more pet dander and increase sensitivity. Try to keep as little carpet as possible in the home and opt for leather and synthetic furniture over cloth
Wash and groom pets frequently	Washing and brushing pets can significantly reduce sensitivity responses for a short period of time (about 24 hours)
Get dirty	Going outside and coming in contact with various environmental microbes via soil and farm animals are associated with lower rates of general sensitivities, including to pets
Avoid parabens and triclosan in personal-care products	Parabens and triclosan, which are used in personal care products, may be associated with increased rates of sensitivity to airborne irritants



SUPPLEMENT TIPS

SUPPLEMENT	DOSE PER DAY	DETAILS
Stinging nettle	300 mg	A supplement containing this Eurasian plant has been found to be effective in reducing symptoms of dander sensitivity
Quercetin	500 mg (250 mg twice a day)	Quercetin is found naturally in citrus fruits, black tea, apples, and lettuce. A supplement can help decrease runny nose and watery eyes when taken twice a day
Bromelain	1,200 mg-1,500 mg (400 mg-500 mg three times a day)	Bromelain is derived from pineapple and can help reduce swelling, redness, and itching when taken three times a day
N-acetyl cysteine	500 mg-2,000 mg	N-acetyl cysteine comes from the amino acid L-cysteine. A daily supplement can help reduce symptoms of pet-dander sensitivity
Vitamin C	2 g (1 g twice a day)	Taking a vitamin C supplement twice a day makes the immune system more efficient in combating the effects of dander sensitivity

Research has determined these supplements may be helpful to those experiencing sensitivity(ies) in this category. The above are suggestions only. Before taking any supplements or changing your existing regimen, please consult your medical practitioner.



YOUR RESULTS

GENE TESTED	YOUR PROFILE	SENSITIVITY
 DAO - rs2052129	GG	 MORE SENSITIVE
 DAO - rs2268999	AA	
 DAO - rs10156191	CC	
 DAO - rs1049742	CC	
 DAO - rs1049793	CG	
 HNMT - rs1050891	AA	



CONCLUSION STATEMENT: People with genetic markers similar to yours may have a **higher risk of sensitivity** to histamine than other people.



ABOUT HISTAMINE SENSITIVITY: Histamine is a compound that may be found in aged and fermented foods as well as red wine. Histamine sensitivity is a condition where there is an imbalance in the body between too much histamine and an inability to breakdown histamine. Exposure to histamine comes in many forms, but the most common way is through certain foods and environmental irritants.



COMMON SYMPTOMS: Symptoms of this sensitivity may include, but are not limited to:

- headaches
- unexplained food sensitivities
- swollen eyelids
- red eyes
- runny nose

IMPORTANT: If you're experiencing symptoms, contact your medical practitioner for guidance

See next page for diet, lifestyle, and supplement tips for this category ►



DIET TIPS

TIP	DETAILS
Eat foods lower in histamine	High-histamine foods are often found in fermented edibles because bacteria produce histamine. Fermented foods include: alcohol, aged cheeses, vinegar, and smoked meats. Other foods high in histamine are walnuts, cashews, and chocolate. Green and black tea might also contribute to symptoms of histamine sensitivity
Cut back on grilling and frying	Grilling or frying foods, especially meats, increases the amount of histamine in the food. In contrast, boiling helps keep the food's histamine neutral and can even lower the amount of histamine



LIFESTYLE TIPS

TIP	DETAILS
Check your medications	Certain medications such as muscle relaxants, narcotics, nonsteroidal anti-inflammatory drugs, aspirin, certain blood pressure drugs, antibiotics and antidepressants have all been shown to increase histamine sensitivity. If you have either variant, you may consider having a discussion with your medical practitioner to see if there are some non-histamine-causing alternatives IMPORTANT: Never stop or change your medications without first speaking to your medical practitioner
Eat high-histamine foods earlier in the day	New research has found that levels of DAO (diamine oxidase: an enzyme that breaks down histamines) trend downward through the day and reach their lowest levels in the evenings. Correspondingly, study subjects experienced higher blood histamine levels at night



SUPPLEMENT TIPS

SUPPLEMENT	DOSE PER DAY	DETAILS
DAO (diamine oxydase) Enzyme Supplements	10,000 HDU	There are two forms of DAO supplements on the market; one from pig kidneys and another from vegetable sources. New research in human intestinal cells suggests a pea-derived source that is stabilized with CAT (catalase) might be better in stabilizing the cells and decreasing the



SUPPLEMENT TIPS CONTINUED

SUPPLEMENT	DOSE PER DAY	DETAILS
Vitamin C	2 g	Two (2) grams per day have been shown to relieve symptoms of histamine sensitivity
Pyridoxal 5 Phosphate (a form of B6)	5 mg	Five (5) mg a day have been found to increase DAO activity, which helps reduce the amount of histamine in your body
Zinc	8-10 mg	Research suggests about 8-10 mg of zinc are adequate for maintaining whole-body sufficiency
Magnesium	300-400 mg	Research suggests 300-400 mg are needed to maintain body stores

Research has determined these supplements may be helpful to those experiencing sensitivity(ies) in this category. The above are suggestions only. Before taking any supplements or changing your existing regimen, please consult your medical practitioner.

C11orf30 is a gene that codes for a protein called EMSY that changes the way parts of the chromosome is copied. Additionally, this gene works with other genes in the immune system that are responsible for having good skin-barrier protection. A variation in this gene has been associated with an increase in multiple food sensitivities.

DAO (diamine oxidase) is a gene that codes for an enzyme located in surface cells of the kidney, intestines, and placenta that breaks down histamine. When the histamine binds to cells, the cells release DAO to take histamine apart. A variation in this gene can lead to decreased DAO activity, which means the body cannot break down histamine as easily or quickly. People with this variation often experience symptoms of too much histamine when they eat certain foods.

FLG (Filaggrin) is a gene that codes for the protein called filaggrin that is found on the epidermis layer of skin and is designed to help protect it. A variation in this gene leads to a decrease in function or even loss of function which has been associated with food sensitivities.

HLA-DQ7 is part of a group of genes called human leukocyte antigen Class II, which is a part of your immune system. The job of these antigens is to scan your body for its own cells or invader cells. A variation in this gene can lead to a greater sensitivity to foods that the body sees as "foreign" and creates an immune reaction.

HLADQ is a group of genes called human leukocyte antigen Class II, which is a part of your immune system. The job of these antigens is to scan your body for its own cells or invader cells. A variation in this gene can lead to greater sensitivity to various foods that the body sees as "foreign" and creates an immune reaction.

- **Subset of HLA (DQ2 and/or DQ8):** Individuals who have this/these genes may view the tiny pieces of undigested gluten as a foreign cell and the individuals need to mount an immune response.

HLA-DQ Region is part of a group of genes called human leukocyte antigen Class II, which is a part of your immune system. The job of these antigens is to scan your body for its own cells or invader cells. A variation in this gene can lead to greater sensitivity to peanuts. The body sees peanuts as "foreign" and creates an immune reaction.

HLA-DR Region is part of a group of genes called human leukocyte antigen Class II, which is a part of your immune system. The job of these antigens is to scan your body for its own cells or invader cells. A variation in this gene can lead to greater sensitivity to certain foods that the body sees as "foreign," and then creates an immune reaction.

HNMT (histamine N-methyltransferase) is a gene that codes for an enzyme located inside the cells of the kidney, liver, spleen, colon, trachea, and more. This enzyme inactivates histamine through a chemical reaction. A variation in this gene can lead to decreased HNMT activity, which means histamine inside the cells cannot be broken down.

IL-10 (A-1082G) Interleukin 10 is a gene that codes for a protein that makes cytokine. This cytokine plays different roles in regulating the immune system and inflammation, especially with regard to food tolerance. A variation in this gene leads to a change in the production of the cytokine, creating higher levels of IL-10 and a more reactive immune system.

IL-10 (C-627A) Interleukin 10 is a gene that codes for a protein that makes cytokine. This cytokine plays different roles in regulating the immune system and inflammation, especially with regard to food tolerance. A variation in this gene can lead to a change in the production of the cytokine, creating higher levels of IL-10 and a more reactive immune system.

IL4 (Interleukin 4) is a gene that codes for a protein that makes cytokines. T-cells, part of white blood cell family, activate the production of IL4. IL-4 helps increase the production of IgE receptors. A variation in this gene may lead to a decrease in IgE receptors that can lead to an increase in food sensitivities.

MCM6 (Mini-Chromosome Maintenance Complex Component 6) is a gene that helps control the neighboring LCT gene, which makes the lactase enzyme you need to digest milk. People with certain variations of this gene may produce less lactase, and therefore have trouble tolerating products made from cow milk.

SERPINB7 (serpin peptidase inhibitor, clade B, member 7) is a gene that plays a role with the immune and inflammation systems and the production of cytokines. A variation in this gene is thought to lead to a loss of function and leads to an increase in food sensitivities.

STAT 6 (signal transducer and activator of transcription 6) is a key gene in the JAK/STAT signaling pathway and is involved in sending messages to activate cytokines IL4 and IL2. It also helps change immune cells into certain types of helper cells. Variations near this gene have been associated with an increase in food sensitivities.

These references include information for both sensitivities and allergies. Note: This is not an allergy test. To diagnose allergies, consult your medical practitioner. This report is being provided for educational and informational purposes only.

GLUTEN

- "I tested my vitamin D level. What do my results mean?"
<http://www.vitamindcouncil.org/i-tested-my-vitamin-d-level-what-do-my-results-mean/>
- "Test ID: ZNS"
<http://www.mayomedicallaboratories.com/test-catalog/Clinical+and+Interpretive/8620>

LACTOSE

- "Lactose Intolerance"
<https://www.niddk.nih.gov/health-information/health-topics/digestive-diseases/lactose-intolerance/Pages/facts.aspx>
- "Lactose digestion from unmodified, low-fat and lactose-hydrolyzed yogurt in adult lactose-maldigesters."
<https://www.ncbi.nlm.nih.gov/pubmed/?term=1559509>
- "Improved clinical tolerance to chronic lactose ingestion in subjects with lactose intolerance: a placebo effect?"
<https://www.ncbi.nlm.nih.gov/pubmed/?term=9414969>
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