WELCOME

Name - Surname:

Report Number: 036

Epigenetic Coach: Doç. Dr Gülsen Meral

What to expect from this report

Thank you for choosing the Nutrigenetic & Epigenetic Coaching Package. We are very happy to have analyzed your results and delivered them to you. In this final report, you will find the results of your genetic test and expert analysis, the results of your microbiota test and expert analysis, and finally, the nutritional recommendations tailored for you. All analyzes and comments in the content of our report have been specially designed and prepared based on your test results. As a result of this report, it is aimed to increase the quality of your life in the light of genetics, to make arrangements with your nutrition and lifestyle planning for a healthier and epigenetic profile. Although polymorphism analyzes do not diagnose the disease, they provide information about increased risk and susceptibility for some diseases. The information in this booklet are recommendations based on the science of Nutrigenetics & Nutrigenomics. It does not include medical treatment.

What is epigenetics?

Epigenetic is the science that examines the hereditary changes that occur without a change in the DNA sequence of exons and introns (active and inactive gene regions) in gene expression. In more scientific terms, it examines the changes that occur in the phenotype without changing the genotype. Epigenetic changes are natural and necessary events that progress in a certain order, but they can be affected by external factors such as age, lifestyle, nutrition, environmental conditions, diseases, drugs and supplements. It is known that epigenetic mechanisms are effective in the emergence of many diseases such as allergies, autoimmune diseases, Type 2 Diabetes, obesity, insulin resistance, cardiovascular diseases. Epigenetic mechanisms are defined by three important systems, namely DNA methylation, histone modifications and non-coding RNA-related gene silencing systems, in line with current research. Epigenetic marks can be modified by lifestyle choices, nutrition, environmental influences and supplements. Epigenetic effects occur throughout life, not just in the womb, and are reversible. For example, it is known that air pollution can increase the risk of neurodegenerative diseases by changing the methyl effects on DNA. Studies have shown that B group vitamins protect against the harmful epigenetic effects of pollution and fight the harmful effects of certain substances on the body. It is known that dietary regulations and a tailor-made diet significantly alter the epigenetic effects. Nutrigenetic and nutriepigenomics studies explore the mechanisms of action of food and epigenetics on human health. As an exemplary study, research can be given that a high-fat and low-carbohydrate diet can positively affect the development of mental ability through HDAC inhibitors by opening chromatin. As a result, scientific studies reveal the effects of different food groups on the epigenome and health, and the roles they play in the emergence of diseases. Accordingly, arranging optimal food intake according to the epigenetic profile of the person can prevent many diseases and reverse many existing diseases in the existing person and provide a better quality of life.

Why is Epigenetic Coaching important?

Epigenetic marks can be modified by lifestyle choices, nutrition, environmental influences and supplements. Epigenetic effects occur throughout life, not just in the womb, and are reversible. For example, it is known that air pollution can increase the risk of neurodegenerative diseases by changing the methyl effects on DNA. Studies have shown that B group vitamins protect against the harmful epigenetic effects of pollution and fight the harmful effects of certain substances on the body.

NUTRITION PANEL

	PANEL	RISK		
		LOW	MEDİUM	HİGH
	Lactose Intolerance		→	
	Omega-3			→
	Gluten Intolerance		→	
	Histamine Intolerance	→		
	Detox phase I and phase II	→		
	Food allergy		→	
	Caffeine sensitivity		→	

	DIET	SUPPLEMENT	LIFESTYLE
FOLAT	Diet rich in methionine (consumption of excessive red meat and dairy products) is not recommended.	Attention should be paid to active folate, vitamin B6, vitamin B12, betaine, vitamin B2 and magnesium deficiency. Adequate amount of requirement must be provided.	There are many genetic and environmental factors that contribute to increased homocysteine levels; Nutrition, stress, lifestyle, some chronic diseases, heavy metal accumulation, some vitamin and mineral deficiencies can increase the risk of homocysteine.
LCT	You have lactose intolerance. Due to your lactase enzyme deficiency, consumption of dairy sources (yogurt, cheese, kefir, cream, quark, cow's milk, animal milk) should be limited in the diet. Preferably, vegetable milks (almond, coconut milk, oat milk can be consumed.)	Probiotic supplementation can be started.	A lactose-restricted diet should be preferred in order to experience intestinal problems such as indigestion and gas complaints. Foods containing lactose can be detected by gaining the habit of reading labels..
HİSTAMİN	Consumption of histamine-rich foods should be limited. Foods with high histamine content: fermented products (yogurt, pickles), dried fruits, smoked meats, processed delicatessen products (sausage, salami, sausage, pastrami), some types of fish (salmon) are foods rich in histamine. You should stay away from this group of foods. You should be fed with foods (rich in omega-3 and omega-9) that increase DAO enzyme activity.	*Dao enzim arttıcı suppl.* *Omega-3 ve omega-9*	The amount and frequency should be limited by observing allergic reactions. A food diary can be kept.
DETOKS	Coal fire, grilling, frying techniques are inconvenient for you. Heterocycline causes amine formation. You should prefer boiled, oven, pot dishes. Limit your red meat consumption.	*Antioksidan* *multivitamin* *C vit*	You need to reduce the effect of toxic intermediate metabolites. Cooking techniques you need to pay attention to.
DHA-EPA	A diet rich in omega-3s should be consumed. Omega-3 sources in the diet should be increased. Oily fish should be consumed 2-3 times a week..	*OMEGA-3 supp.*	Pay attention to the EPA/DHA RATIO. Products containing omega 3 must be tested for concentration, purity, free of heavy metals and chemical waste and must be documented with an IFOS certificate.
GLUTEN	According to your sensitivity in your diet, you can add gluten-free foods. You can choose buckwheat, basmati rice, potatoes, all vegetables and fruits as they do not contain gluten.	With the habit of reading labels, you should pay attention to foods containing gluten.	

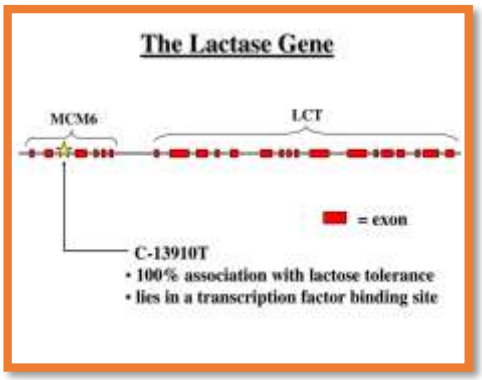
LACTOSE İNTOLERANCE			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
LTC	G	GG	lactose intolerance
MCM6	A	TT	lactose intolerance

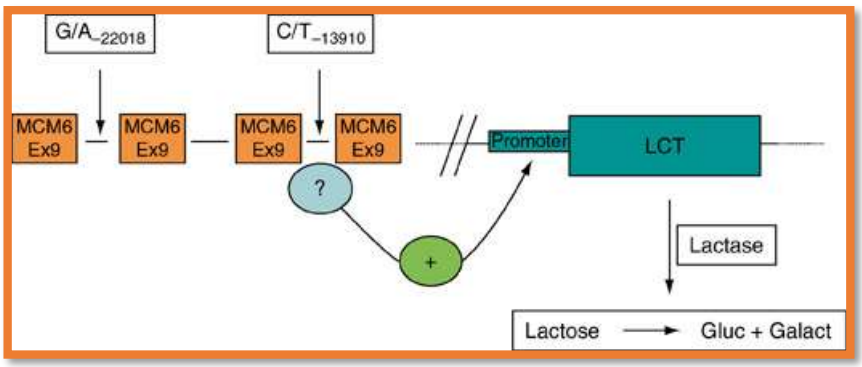
LCT	**YOUR RESULT**
The LCT gene provides instructions for making an enzyme called lactase. The enzyme lactase helps digest lactose, a sugar found in milk and other dairy products. Lactase is produced by cells lining the walls of the small intestine. These cells, called intestinal epithelial cells, have finger-like projections called microvilli that absorb nutrients as they pass through the gut so they can be absorbed into the bloodstream. Based on their appearance, these groups of microvilli are collectively known as brush borders. Lactase functions at the brush border to break down lactose into smaller sugars called glucose and galactose for absorption.	You are a carrier of the risk allele.

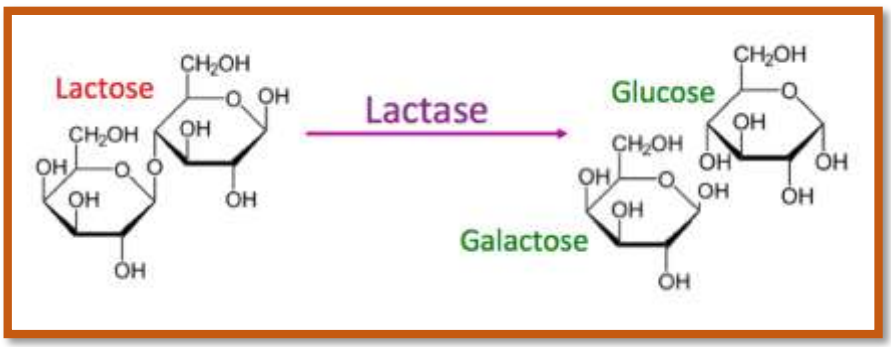
MCM6	**YOUR RESULT**
The MCM6 gene, also known as the minichromosome maintenance complex component 6, provides the necessary information for the creation of the minichromosome maintenance protein (MCM) in the human body. Single nucleotide polymorphisms in the intron regions of this gene are associated with differential expression of the promoter of the neighboring lactase gene and therefore associated with the occurrence of lactose intolerance in early adulthood.	You are not a carrier of the risk allele.

Dairy Products and Lactose Intolerance Suggestions

You have lactose intolerance. Due to your lactase enzyme deficiency, consumption of dairy sources (yogurt, cheese, kefir, cream, quark, cow's milk, animal milk) should be limited in the diet. Preferably, vegetable milks (almond, coconut milk, oat milk can be consumed.)







Caffeine + CARBOHYDRATE			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
ADORA2A	T	*TT*	Caffeine in combination with carbohydrates increases the postprandial glucose response (WITHOUT) TT: Anxiety that develops with high coffee consumption
ADORA2A	C	*CC*	CC: Post-coffee anxiety
CYP1A2	A/C	**AC**	Caffeine plus carbohydrates cause glucose to stay high for longer. AC : medium level CC : slow metabolized AA : rapid metabolizer

CYP1A2	**YOUR RESULT**
The liver enzyme cytochrome P450 1A2 (CYP1A2) is responsible for 90% of caffeine metabolism, while caffeine exerts most of its effects through antagonist binding to adenosine A2a receptors (ADORA2A).	You are a carrier of the risk allele.

ADORA2A	**YOUR RESULT**
Caffeine produces mild psychostimulant and sometimes anxiogenic effects through interactions with other systems by antagonizing adenosine at A1 and A2A receptors. Adenosine receptors co-locate with dopamine receptors in the brain and interact functionally. Thus, functional polymorphisms in genes for both adenosine and dopamine receptors may influence responses to caffeine. The primary mechanism by which caffeine produces its central effects is by blocking adenosine receptors. At physiologically relevant concentrations, caffeine binds to adenosine A1 and A2A receptors with high affinity and antagonizes the effects of endogenous adenosine. Therefore, functional changes in these receptors caused by genetic variation may alter responses to caffeine.	You are a carrier of the risk allele.

Caffeine + CARBOHYDRATE RECOMMENDATIONS

There is an effect of increasing anxiety that develops with coffee consumption. Drinks with high caffeine content should be limited during the day. There is 150 mg of caffeine in a cup of filter coffee. By paying attention to the amount of caffeine, their consumption should be limited.

1 Cup (200ml) Filter Coffee: 135-200 mg. 1 Cup (60 ml) Espresso: 100 mg. 1 Cup (200ml) Cappuccino: 100 mg. 1 Cup (200ml) Instant Coffee: 100 mg. 1 Cup of Turkish Coffee: 57 mg. 1 Cup (200ml) Decaffeinated Coffee: Maximum 5 mg.

Daily caffeine consumption should not exceed 300 mg.

HISTAMIN SENSITIVITY			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
AOC1	G	CG	Reduced production of DAO required for the breakdown of histamine in the intestines.
AOC1	A	GG	Reduced production of DAO required for the breakdown of histamine in the intestines.
AOC1	T	GG	Reduced production of DAO required for the breakdown of histamine in the intestines.
HMNT	A	AA	Less breakdown of serum histamine
HMNT	T	CC	Less breakdown of serum histamine

AOC1	**YOUR RESULT**
Histamine plays an important role in the immune response, especially in allergic responses. Di-amine Oxidase (DAO - more precisely called Amine Oxidase, Copper Containing 1) is an enzyme that breaks down histamine and is encoded by the AOC1 gene 1. In health, histamine comes from immune cells (mast cells) found in the skin, gut or lungs when a pathogen or allergen is detected. The risk 'T' allele of C47T in the AOC1 gene is associated with reduced DAO activity and histamine intolerance. Those who carry the 'T' allele of the AOC1 gene C47T may be at risk of developing symptoms associated with histamine intolerance such as anxiety, body temperature problems, diarrhea, headache, low blood pressure, inflammation and irritation along with flushing.	You are a carrier of the risk allele.

HMNT	**YOUR RESULT**
Histamine N-methyltransferase is an enzyme involved in histamine metabolism. It is one of two enzymes involved in histamine metabolism in mammals, the other being diamine oxidase. HNMT catalyzes the methylation of histamine in the presence of S-adenosylmethionine, which forms N-methylhistamine	You are a carrier of the risk allele.

HISTAMIN SENSITIVITY RECOMMENDATIONS

Consumption of histamine-rich foods should be limited. Foods with high histamine content: fermented products (yogurt, pickles), dried fruits, smoked meats, processed delicatessen products (sausage, salami, sausage, pastrami), some types of fish (salmon) are foods rich in histamine. You should stay away from this group of foods. You should be fed with foods (rich in omega-3 and omega-9) that increase DAO enzyme activity. Do not consume foods with additives, try to consume foods in their natural state. Consume bone broth that has not been boiled for a long time Eat a diet rich in zinc, copper and vitamin B6 (Fresh fish, red meat of green-fed animal, greens, root vegetables)

KOLİN			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
PEMT	T	***TT***	Decreased PEMT activity, phosphatidylcholine
BHMT	A	GG	Decreased conversion of choline to betaine
FMO3	A	AG	Less used choline as a methyl donor
MTHFD1	A	AG	More likely to have choline deficiency (check diet)

PEMT	**YOUR RESULT**
Choline is an essential nutrient for humans, but some of the requirement can be met by endogenous synthesis catalyzed by phosphatidylethanolamine N-methyltransferase (PEMT). Phosphatidylethanolamine N-methyltransferase (PEMT) is a transferase enzyme that converts phosphatidylethanolamine (PE) to phosphatidylcholine (PC) in the liver. It is encoded by the PEMT gene. [While the CDP-choline pathway, in which choline obtained through dietary consumption or metabolism of choline-containing lipids is converted to PC, constitutes approximately 70% of PC biosynthesis in the liver, it has been shown that the PEMT pathway plays a role.	You are a carrier of the risk allele.

BMHT	**YOUR RESULT**
Betaine-homocysteine methyltransferase BHMT catalyzes an important reaction in the folate and methionine cycles BHMT is a zinc-dependent cytosolic enzyme highly expressed in human liver, kidney and eye lens. It catalyzes one of two main homocysteine remethylation reactions, the transfer of a methyl group from betaine to homocysteine resulting in the formation of dimethylglycine and methionine.	You are not a carrier of the risk allele.

KOLİN			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
PEMT	T	***TT***	Decreased PEMT activity, phosphatidylcholine
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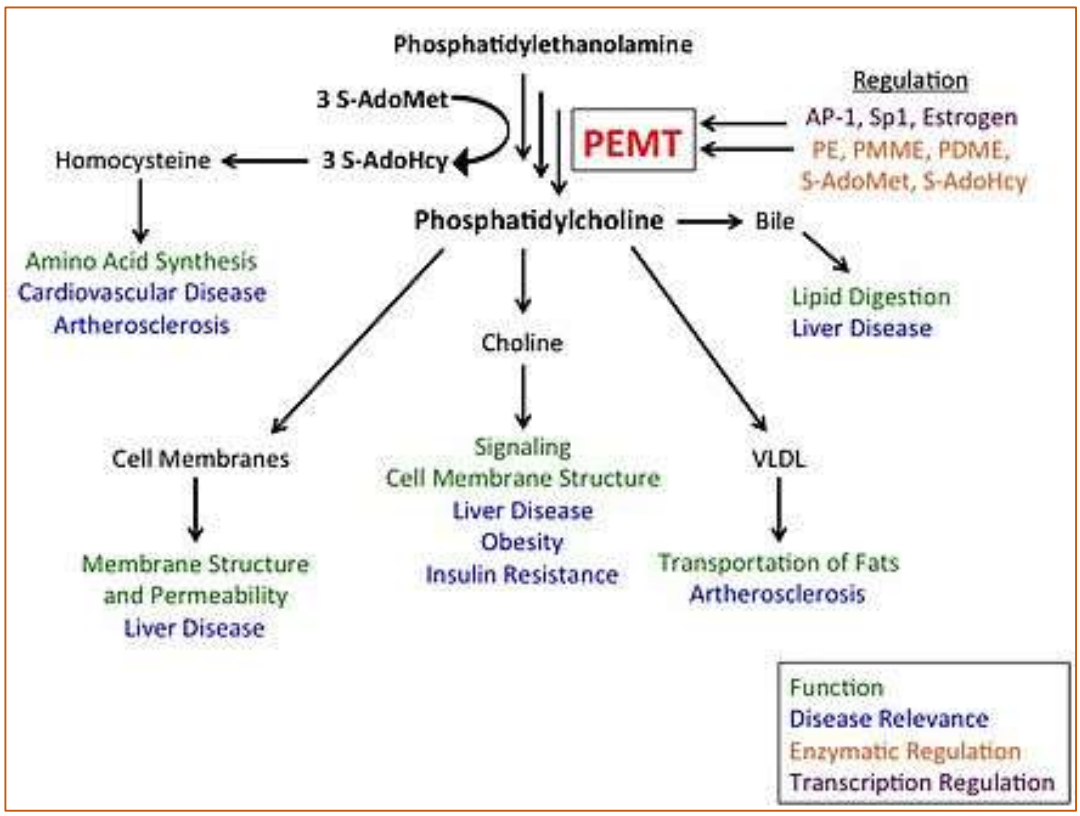
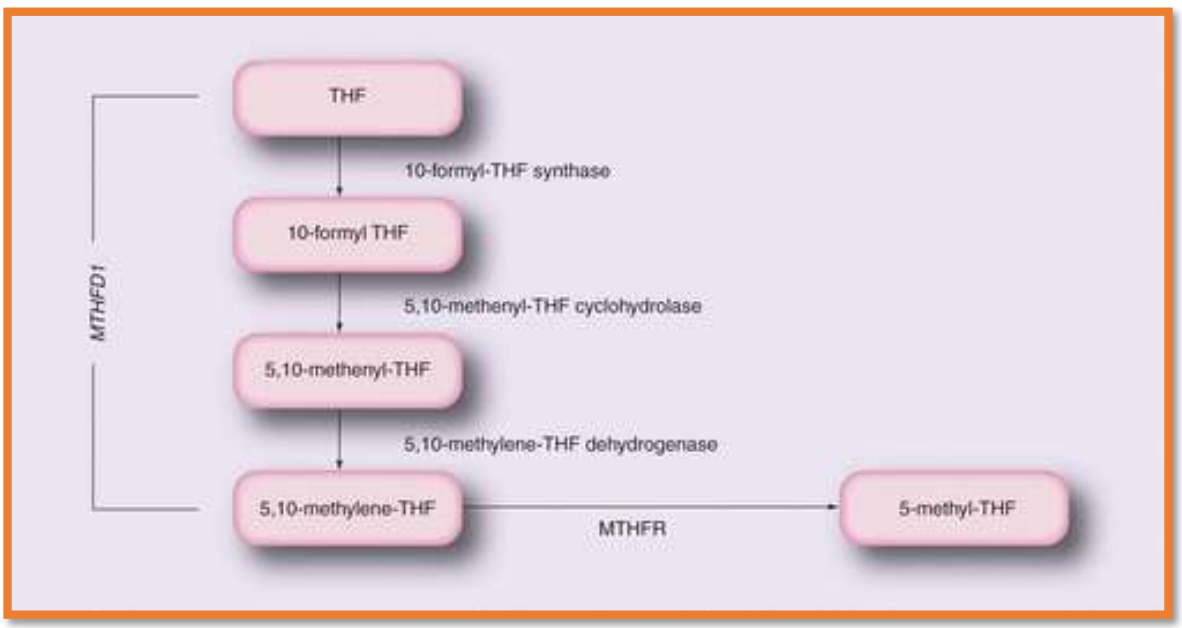
FMO3	**YOUR RESULT**
Trimethylamine-N-oxide (TMAO) is produced from dietary compounds such as choline, L-carnitine, γ-butyrobetaine and betaine. TMA produced in the intestine then enters the circulation. Circulating TMA is oxidized to TMAO by the hepatic enzyme flavin monooxygenase 3 (FMO3) in the liver.	You are a carrier of the risk allele.

MTHFD1	**YOUR RESULT**
The trifunctional enzyme 5,10-methylenetetrahydrofolate dehydrogenase/5,10-methenyltetrahydrofolate cyclohydrolase/10-formyltetrahydrofolate synthetase (MTHFD1) catalyzes the conversion of tetrahydrofolate to the corresponding 10-formyl, 5,10-methenyl and 5,10-methylene derivatives.	You are a carrier of the risk allele.

CHOLINE RECOMMENDATIONS

Choline is one of the nutrients involved in your body's methylation cycle. Good sources of choline include egg yolk, beef liver and wheat germ. Betaine, a metabolite of choline, works through the methylation cycle, so betaine food sources (beetroot, quinoa and spinach) must be present in your diet.





DHA ve EPA

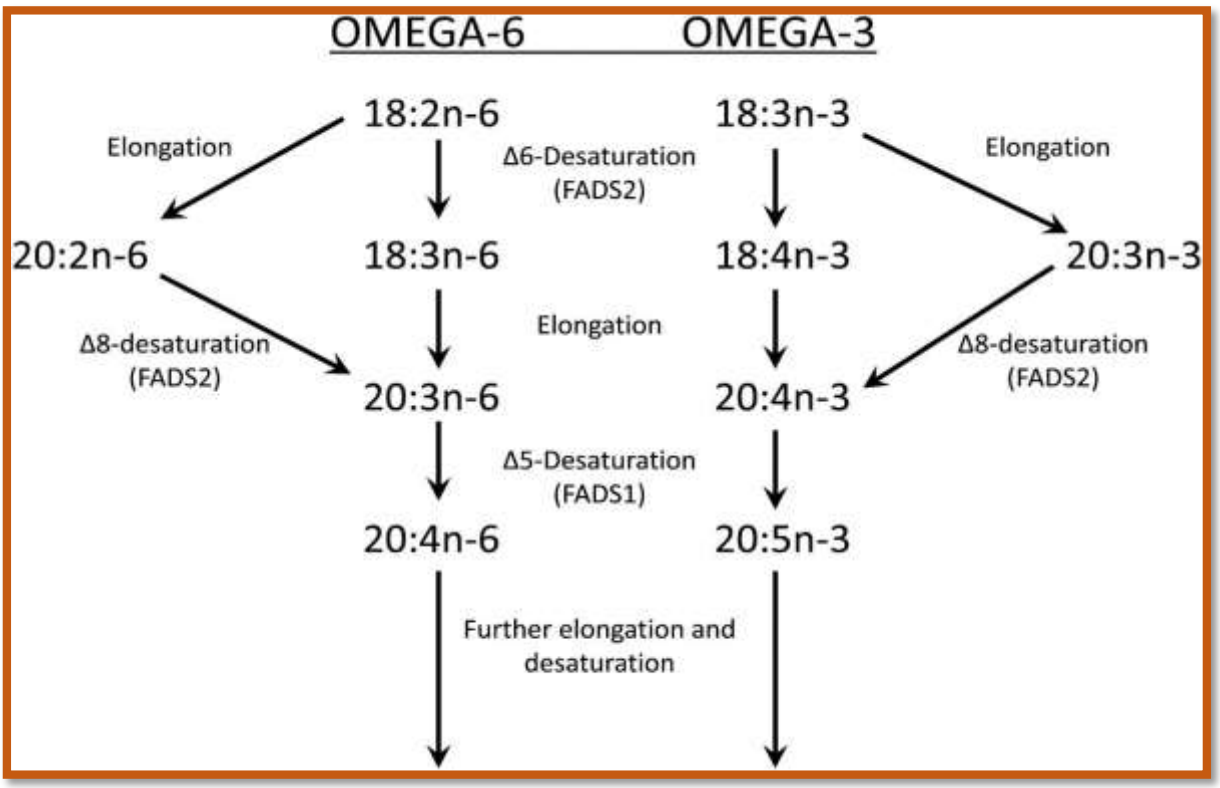
GENES	RISK ALLELLE	GENOTYPE	EXPLANATION
FADS1	T	CC	These variants reduce the conversion of linoleic acid to arachidonic acid and alpha-linolenic acid to EPA and DHA.
FADS2	G	AA	These variants reduce the conversion of linoleic acid to arachidonic acid and alpha-linolenic acid to EPA and DHA.

FADS1	YOUR RESULT
The protein encoded by the FADS1 gene is a member of the fatty acid desaturase (FADS) gene family and catalyzes the last step in the formation of eicosapentaenoic acid by desaturating omega-3 and omega-6 polyunsaturated fatty acids in the delta-5 position (EPA) and Arachidonic acid. Desaturase enzymes (like those encoded by FADS1) regulate the unsaturation of fatty acids by adding double bonds between defined carbons of the fatty acyl chain.	You are not a carrier of the risk allele.

FADS2	YOUR RESULT
Fatty acid desaturase 2 is a member of the fatty acid desaturase (FADS) gene family. Desaturase enzymes cause desaturation of fatty acids by adding double bonds between the defined carbons of the fatty acyl chain. It shows that genetic variants in the FADS region are the main genetic modifiers that can regulate fatty acid metabolism through epigenetic gene regulation.	You are not a carrier of the risk allele.

DHA and EPA RECOMMENDATIONS

If you are a RISK allele carrier; A diet rich in omega-3s should be consumed. Omega-3 sources in the diet should be increased. Oily fish should be consumed 2-3 times a week. Pay attention to the EPA/DHA RATIO. Products containing omega 3 must be tested for concentration, purity, free of heavy metals and chemical waste and must be documented with an IFOS certificate. It should not be forgotten that omega-3 is indispensable for epigenetic changes!



FOOD ALLERGY			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
HLA-DQB1	C	TT	Increased risk of peanut allergy
HLA-DRA	T	GG	Increased risk of peanut allergy
RBFOX1	C	AA	Increased risk of wheat allergy
HLA-DQA1	C	CT	
IL18	G	GT	
HLA-DQ	C	TT	risk shrimp allergy
IL13	A	GG	
IL13	T	CT	
TMPRSS6	A	AG	AA: 3 times more milk allergy
IL10	A	CT	Increased risk of food allergies
IL4	C	CC	Increased risk of food allergies
IL13	T	CC	Increase in food allergies VITAMIN D IS IMPORTANT

HLA-DQB1 / HLA-DRA/ HLA-DQ /HLA-DQA1	YOUR RESULT
The HLA complex helps the immune system distinguish the body's own proteins from proteins made by foreign invaders such as viruses and bacteria.	You are a carrier of the risk allele.

IL-4	YOUR RESULT
Interleukin 4, formed by T Hepler 2 (Th2) cells, is one of the main mediators in allergic inflammation. It is responsible for chronic inflammation and wound repair.	You are a carrier of the risk allele.

FOOD ALLERGY			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
HLA-DQB1	C	TT	Increased risk of peanut allergy
HLA-DRA	T	GG	Increased risk of peanut allergy
RBFOX1	C	AA	Increased risk of wheat allergy
HLA-DQA1	C	CT	
IL18	G	GT	
HLA-DQ	C	TT	risk shrimp allergy
IL13	A	GG	
IL13	T	CT	
TMPRSS6	A	AG	AA: 3 times more milk allergy
IL10	A	CT	Increased risk of food allergies
IL4	C	CC	Increased risk of food allergies
IL13	T	CC	Increase in food allergies VITAMIN D IS IMPORTANT

IL-13	YOUR RESULT
IL-13 also has anti-inflammatory properties. IL-13 induces MMPs as part of a mechanism that protects against excessive allergic inflammation. IL-13 can induce the secretion of immunoglobulin E (IgE).	You are a carrier of the risk allele.

IL-10 / IL-18	YOUR RESULT
IL-10 plays an active role in the immune system by inhibiting cytokine synthesis. Another important cytokine that regulates the immune system's response is interleukin (IL-10). It acts as an anti-inflammatory and prevents disease and tissue damage by suppressing or limiting the unwanted or excessive responses of the innate immune system to microbial antigens. IL-10 usually targets pro-inflammatory cytokines and inhibits their production. IL-18 is a cytokine that increases the efficacy and potency of immune responses. It stimulates the cells of the innate immune system and T cells.	You are not a carrier of the risk allele.

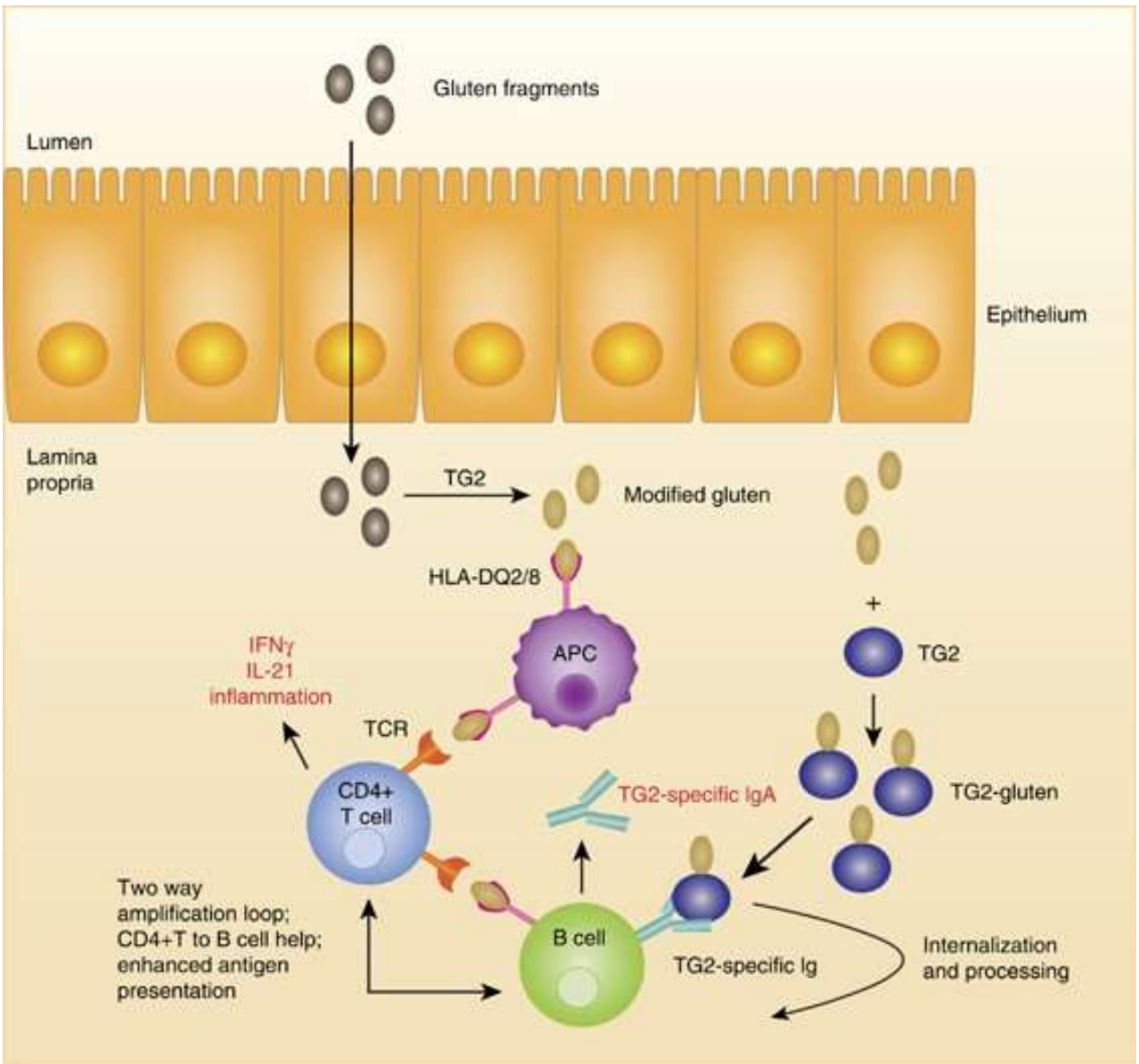
GIDA ALERJİSİ ÖNERİLER
Your milk, wheat, shrimp allergy profile, your LCT gene, and all of the genes examined for gluten enthoropathy cause sensitivity. Therefore, milk and dairy products in your diet should be restricted. Wheat contains gluten, so you should choose gluten-free alternatives such as buckwheat/chickpea flour/quinoa flour/oat flour. You should get into the habit of reading labels. You should pay attention to wheat/milk stimulants in foods.

GLUTEN SENSITIVITY			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
HLA-DQ2.5	T	CC	Developing gluten sensitivity related to celiac
HLA-DQ8	C	TT	Developing gluten sensitivity related to celiac
HLA-DQ	A	AA	Developing gluten sensitivity related to celiac
HLA-DQ 2.2	T	TT	Developing gluten sensitivity related to celiac
HLA-DQ 2.2	C	AC	Developing gluten sensitivity related to celiac

HLA-DQ GEN KOMPLEKSİ	**YOUR RESULT**
The HLA system encodes receptors in our body that help mark and eliminate external threats. These genes have a well-known link with different autoimmune disorders. In celiac disease, DQ2 is the major susceptibility factor, while DQ8 adds a minor risk independent of DQ2. Gluten epitopes are selected by DQ2 and DQ8 and recognized by intestinal T cells of patients with celiac disease. HLA-DQA1 belongs to the group of genes that have important roles in inflammation and autoimmunity.	. You are a carrier of the risk allele.

GLUTEN SENSITIVITY RECOMMENDATIONS

According to your sensitivity in your diet, you can add gluten-free foods. Gluten You can choose buckwheat, basmati rice, quinoa, chickpea flour, corn flour, lentils, potatoes, and vegetables and fruits as they do not contain gluten. Gluten enthoropathy ; It is a common polygenic and multifactorial disorder characterized by malabsorption and mucosal damage of the small intestine, seen in individuals with gluten intolerance to cereals such as wheat, barley, rye, and oats. Paying attention to the gluten label in packaged products can also relieve your sensitivity.



DETOX: PHASE I

GENES	RISK ALLELLE	GENOTYPE	EXPLANATION
CYP1A2	A/C	AC	AA is a faster metabolizer CC/AC : slowly metabolized
CYP1A2	T	CC	Decreased enzyme activity
CYP1A2	A	GG	Decreased enzyme activity

CYP1A2	YOUR RESULT
Phase I metabolism is largely mediated by P450 enzymes. These are heme-containing proteins and are found primarily in the liver. Phase I enzymes: They primarily perform oxidation, reduction, hydroxylation and demethylation processes. With these processes, foreign substances (they are known as xenobiotics) are prepared for phase II in the metabolism pathway.	You are a carrier of the risk allele.

DETOX: PHASE I RECOMMENDATIONS

Cooking techniques are important for CYP1A2 gene variation. Coal fire, grilling, frying type techniques, polycyclic aromatic hydrocarbons (PAH), heterocyclic amine will have a more toxic effect on you than other individuals. For this reason, you should prefer oven/steaming/boiling/pot dishes. For example: high-temperature cooking when consuming meat, black burns, charcoal cooking, consuming smoked meat, consuming processed delicatessen products (smoked turkey, salami, etc.) put you at a higher risk of DNA damage. For this reason, you should consume these consumption patterns or foods limitedly and pay attention to the amount. You should reduce the amount of red meat in your diet and take care to consume it with a diet rich in seasonal vegetables. You can reduce the toxin in red meat with marinating techniques (lemon, vegetable addition).

DETOX: PHASE II GLUTATYONS-TRANSFERASE

GENES	RISK ALLELLE	GENOTYPE	EXPLANATION
GSTP1	G	AA	Slightly reduced enzyme function. G/D increases the risk of breast and prostate cancer
GSTM1	A	AG	Responsible for phase II enzyme activity

GSTM1/ GSTP 1	YOUR RESULT
Phase II enzymes: They perform conjugation and acetylation processes with glucuronate or sulfate. The phase of the detoxification mechanism is responsible for the function of enzymes.	You are a carrier of the risk allele.

SUGGESTIONS
✓ For adequate functioning, the diet should be enriched with cruciferous vegetables (broccoli, cabbage, cauliflower) containing isothiocyanate. Exposure to harmful chemicals (cosmetics, shampoo, shower gel, detergent) that will cause toxin formation should be reduced. Multiple drug use and supplement. Their use is inconvenient.

VITAMIN AND NUTRIENT SUPPORT PANEL

B6 VİTAMİNİ			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
ALPL	T	**CT**	Decreased levels of vitamin B6
ALPL	C	**CT**	Decreased levels of vitamin B6

ALPL	**Your result**
Alkaline phosphatase (ALPL) is associated with vitamin B6. Its indispensable role in the uptake of vitamin B6 (via the hydrolysis of PLP to PL) is well known. Vitamin B6 deficiency has also been associated with brain neurotransmitters and CSF fluid, so the way to achieve brain functions and a healthy mind is to provide the need for vitamin B6 as much as your body needs. Vitamin B6 (pyridoxine) is a type of water-soluble vitamin that has very important functions as a coenzyme in protein metabolism and functions in the synthesis of neurotransmitters. Pyridoxine can also be found in different forms called pyridoxal and pyridoxamine in the structure of foods. The active form is pyridoxinephosphate. Cofactors such as magnesium and riboflavin (vitamin B2) are required for the conversion of pyridoxine to its active form, pyridoxal phosphate (PLF)	You are a carrier of the risk allele

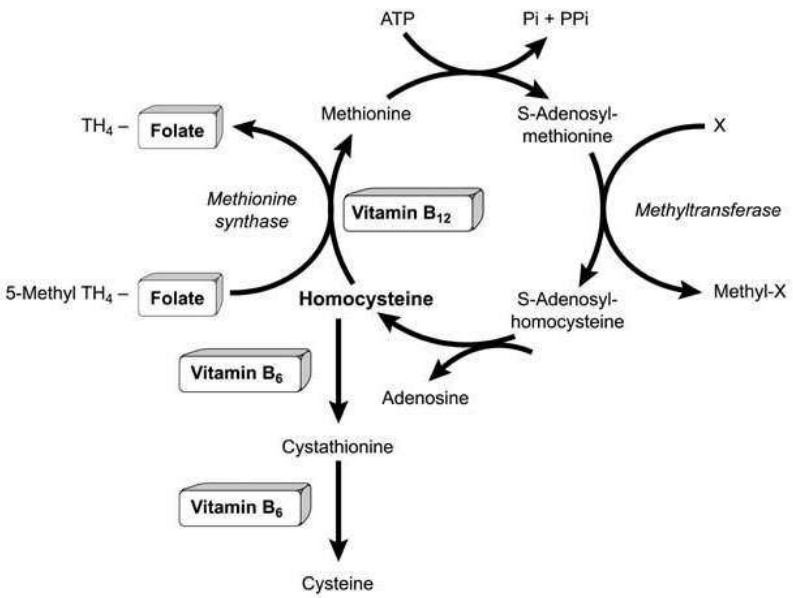
SUGGESTIONS
Sources of Vitamin B6: Red and white meat, Fish and seafood, Eggs, Carrots, spinach, cauliflower, Bananas and avocados, Nuts. If you have difficulty consuming these foods in your diet, vitamin B6 supplementation can be started under the control of a physician.

FOLAT			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
MTHFR C677T	A	AG	Decreased MTHFR enzyme affecting the methylation cycle
MTHFR A1298C	G	**GT**	Decreased MTHFR enzyme affecting the methylation cycle

MTHFR	**YOUR RESULT**
The MTHFR gene encodes the information needed to produce an enzyme called methylenetetrahydrofolate reductase. This enzyme is important for processing amino acids and forming proteins. The MTHFR enzyme is also required to metabolize the vitamin B9 folate. Folate, metabolized by the addition of a methyl group, is required for the conversion of homocysteine to methionine. Methionine is important for the production of protein and other compounds in the body. Genetic variations in the MTHFR gene cause decreased activity of the enzyme produced and are associated with a number of diseases and conditions, including cardiovascular disorders, neurological defects, certain types of cancer, psychiatric disorders, diabetes, and pregnancy complications.	You are a carrier of the risk allele.

FOLAT RECOMMENDATIONS

- ✓ There are many genetic and environmental factors that contribute to increased homocysteine levels; Nutrition, stress, lifestyle, some chronic diseases, heavy metal accumulation, some vitamin and mineral deficiencies can increase the risk of homocysteine. Attention should be paid to active folate, vitamin B6, vitamin B12, betaine, vitamin B2 and magnesium deficiency. Adequate amount of requirement must be provided. Diet rich in methionine (consumption of excessive red meat and dairy products) is not recommended. Folic acid is synthetically produced folate derivative. The names are often used interchangeably, although there are distinct differences between the two. folate; It is found in a wide variety of foods such as vegetables, legumes, cereals, eggs and fruit. In addition, many foods are supplemented with synthetic folate or folic acid. Folate taken into the body through nutrition is converted to its active form, 5-MTHF, before it enters the bloodstream. In the activation of folic acid, the liver and other tissues take part in addition to the digestive system.

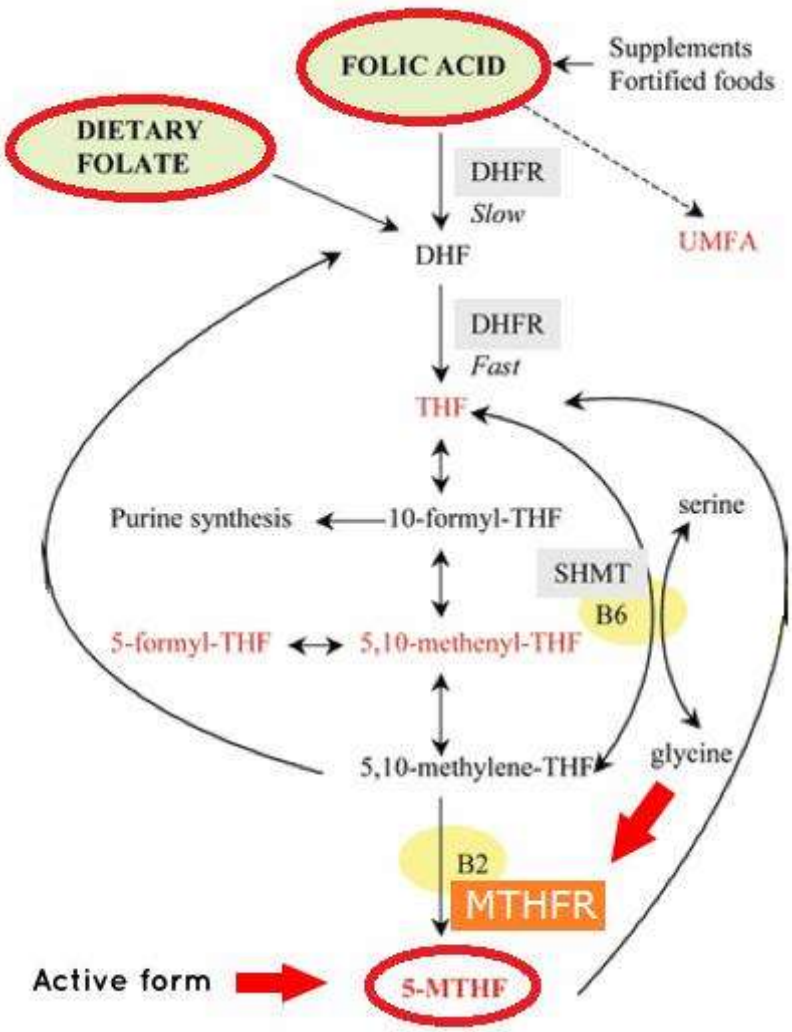


FOLAT			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
DHFR	A	AG	Decreased conversion of folic acid

DHFR	**Your result**
Dihydrofolate reductase (DHFR) is involved in the folate pathway of nucleic acid synthesis. Pyrimethamine inhibits the production of tetrahydrofolate, which is a necessary cofactor for one-carbon metabolism required for the synthesis of nucleic acids and certain amino acids. Point mutations in DHFR reduce its affinity for pyrimethamine	As heterozygous, you are at low risk.

FOLAT RECOMMENDATIONS

✓ Dark green leafy vegetables in the diet should be fed mainly. Supplementation can be started according to B12, B2 and magnesium, choline panels.



BİOTİN			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
BTD	C	GG	Biotinidase deficiency mutation
BTD	G	AA	Biotinidase deficiency mutation
BTD	A	GG	Biotinidase deficiency mutation
BTD	A	GG	Biotinidase deficiency mutation

BTD	YOUR RESULT
The BTD gene gives an order for the production of the enzyme called biotinidase. This enzyme is involved in recycling biotin, one of the B vitamin complexes found in foods such as liver, egg yolks, and milk. Biotin cannot be recycled when this enzyme is not found in sufficient quantities. The resulting shortage of free biotin disrupts the activity of biotin-dependent carboxylases, resulting in the accumulation of potentially toxic compounds in the body. In addition to biotin obtained from the diet, biotinidase also recycles biotin in the body.	You are not a carrier of the Risk Allele

SUGGESTIONS
Among the best biotin sources; legumes, egg yolk, yeast, peanuts, hazelnuts, spinach, soybeans, oat flakes, wheat, mushrooms and beef liver. Animal foods such as beef liver and egg yolk are particularly rich in biotin.

C VİTAMİNİ			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
SLC23A1	C	CC	Low plasma vitamin C

SLC23A1	**YOUR RESULT**
The SLC23A1 gene requires two sodium-dependent vitamin C transporters for the absorption of vitamin C into the body and distribution to organs. This gene encodes one of the two required carriers. The encoded protein is active in bulk vitamin C transport involving epithelial surfaces.	You are a carrier of the risk allele.

SUGGESTIONS

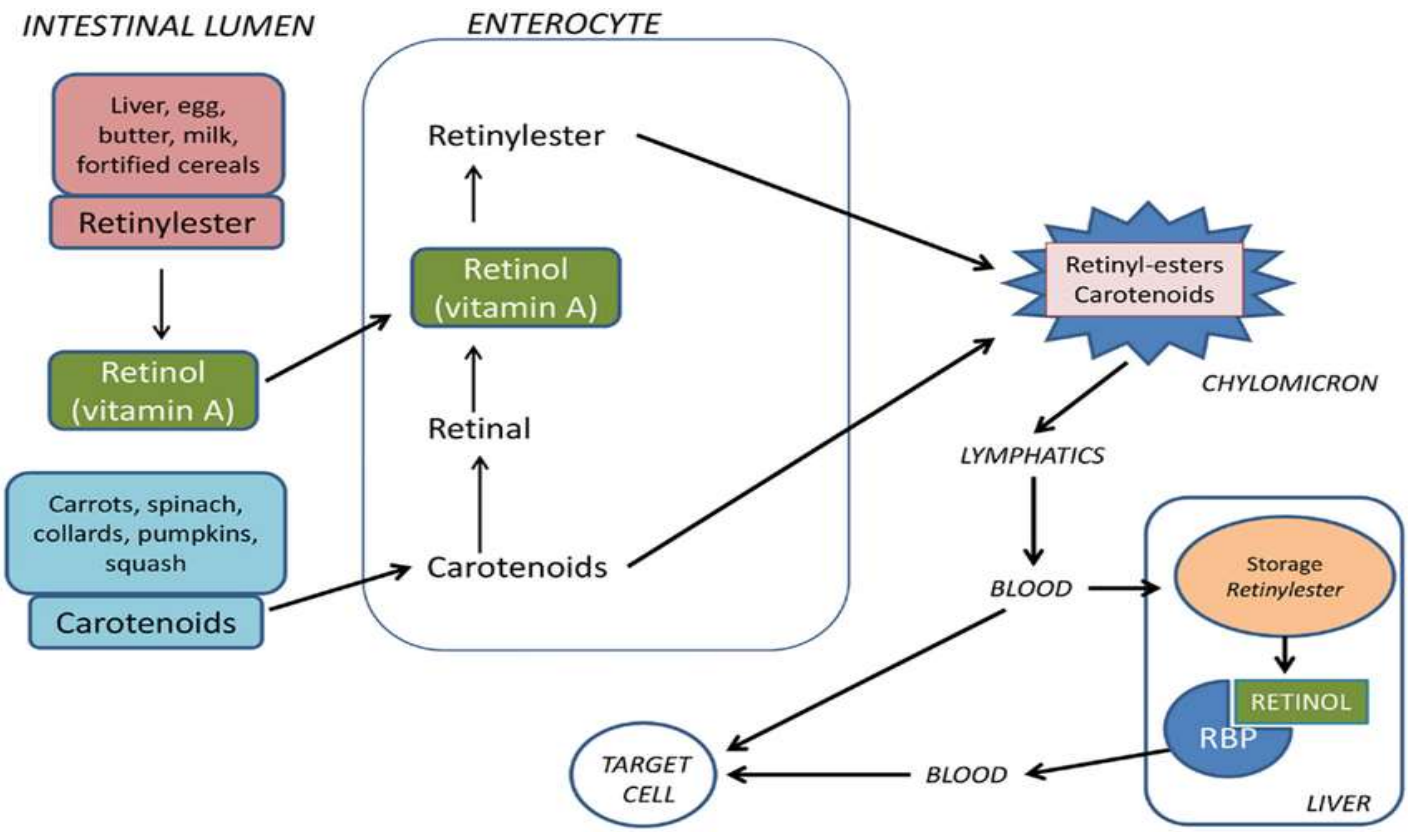
The richest sources of vitamin C: You should include red capia peppers, green peppers, seasonal greens, lemons, citrus fruits in your daily diet. If you cannot consume it, it is recommended that you take a MULTIVITAMIN supplement.

A VİTAMİNİ			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
BCMO1	A	GG	Two copies of the risk allele here can reduce the conversion of beta carotene to vitamin A.
BCMO1	G	TT	Two copies of the risk allele here can reduce the conversion of beta carotene to vitamin A.
BCMO1	T	CT	Two copies of the risk allele here can reduce the conversion of beta carotene to vitamin A.

BCMO1	**YOUR RESULT**
For individuals who may have low vitamin A levels as a result of genetically reduced BCMO1 activity or are “non-converters,” there are several proactive measures that can be taken to support vitamin A concentrations and potentially improve health outcomes. Another step in helping the body absorb and use both vitamin A from animal sources and pro-vitamin A from plant-based sources is to make sure the diet also contains plenty of synergistic nutrients such as iron, which is essential for BCMO1. Zinc, niacin, and riboflavin act synergistically, acting as cofactors for enzymes involved in vitamin A conversion. .	You are a carrier of the risk allele.

SUGGESTIONS

You can increase the benefit of vitamin A with «Animal oil + Plant-based diet « There are two types of Vitamin A: preformed Vitamin A and Provitamin A. Preformed vitamin A is found in milk, egg yolk and similar animal foods. This type of vitamin A is called Retinol. Provitamin A is the precursor of vitamin A that our body produces during digestion. Provitamin A carrots, kale, etc. found in plant foods containing beta-carotene Since vitamin A has important functions in the organism, especially vision, growth, reproduction and epithelial protection, disorders of these functions occur in its deficiency. Due to the lack of rhodopsin formation in the retina, loss of vision, disorders in bone growth, reproductive disorders (inability to perform spermatogenesis in men, resorption of the fetus in pregnant women), regression in growth are observed. Disturbances in the differentiation of epithelial tissues often result in keratinization. Insufficient protein, zinc, phosphorus content of foods and excess free nitrate levels increase the need for vitamin A.



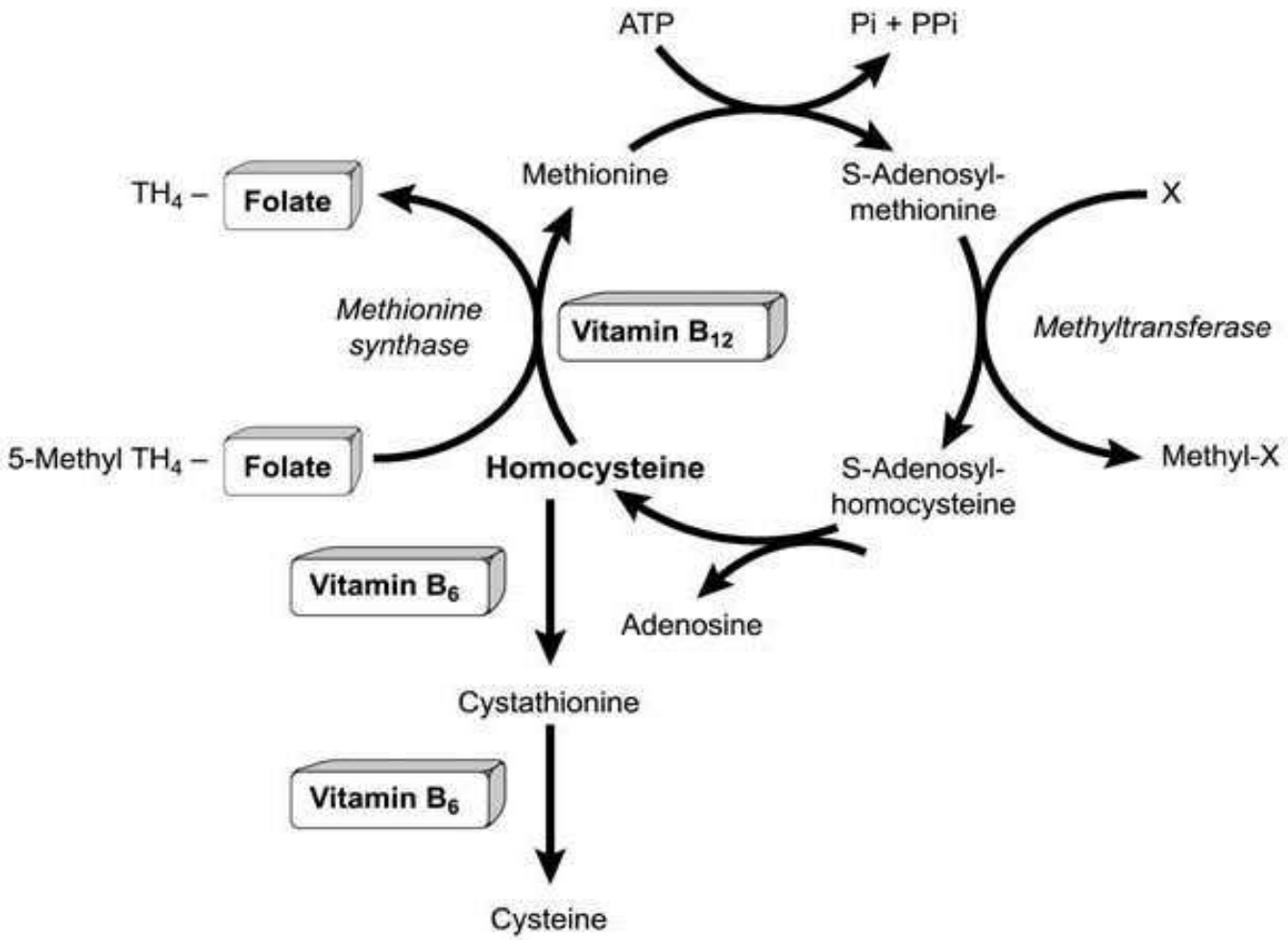
Vitamin B12			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
MTRR	G	***AG***	Decreased MTRR affects B12
TCN1	G	*AA*	B12 carrier, lower circulating B12 levels
TCN1	G	*AA*	B12 carrier, lower circulating B12 levels

TCN1	*YOUR RESULT*
The TCN2/TCN1 gene provides instructions for making a protein called transcobalamin. This protein carries cobalamin (vitamin B12) from the bloodstream to cells in the body.	You do not carry variation on the TCN1 gene.

MTRR	*YOUR RESULT*
The Methionine Synthase Reductase (MTRR) gene (vitamin B12) functions in reductive regeneration. Cob(I)alamine is a cofactor that maintains the activation of the methionine synthase enzyme (MTR) Methionine synthase and binds folate and methionine metabolism.	As heterozygous, you are at low risk.

Vitamin B12 RECOMMENDATIONS

✓ *B12 deficiency is clinically associated with megaloblastic anemia and neurodegenerative disorders, and is also associated with cardiovascular diseases thought to be mediated through hyperhomocysteinemia. You have low-risk variations of vitamin B12. It can be supplemented with a diet rich in B12 sources in your diet. Cobalamin is obtained from the diet; This vitamin is found in animal products such as meat, eggs, and shellfish.*



THİAMİNE			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
SLCA19A2	A	CC	AA = pathogenic (important) for thiamine-sensitive anemia
SLC19A2	A	GG	AA = pathogenic (important) for thiamine-sensitive anemia
TPK1	C	TT	Thiamine transporter mutation

SLC19A2	*YOUR RESULT*
SLC19A2 encodes thiamine transporter protein. Mutations in this gene cause thiamine-sensitive megaloblastic anemia syndrome (TRMA), an autosomal recessive disease characterized by diabetes mellitus, megaloblastic anemia, and sensorineural deafness.	You are not a risk bearer.

TPK1	*YOUR RESULT*
The TPK1 gene in humans produces the enzyme thiamine pyrophosphokinase 1.Thiamine is converted to thiamine pyrophosphate by a protein that is encoded by this gene.	You are not a risk bearer.

TIAMIN RECOMMENDATIONS

✓ *Thiamine is found in meat, fish, fruit, peas, yogurt, eggs, milk, beans, nuts, whole grains, sunflower seeds, and legumes. It is added externally to breads, cereals, breakfast cereals and many other foods, as well as the foods that are naturally found. Thiamine is a vitamin that must be taken daily because it can be stored in a very small amount in the human body. The reason for its low storage is due to the water solubility of thiamine. For this reason, it is important that the foods that should be taken daily contain sufficient amounts of thiamine. The foods we often take on a daily basis are sufficient to obtain the required amount of thiamine that our body needs. However, heating foods containing thiamine may cause the amount of thiamine in it to decrease.*

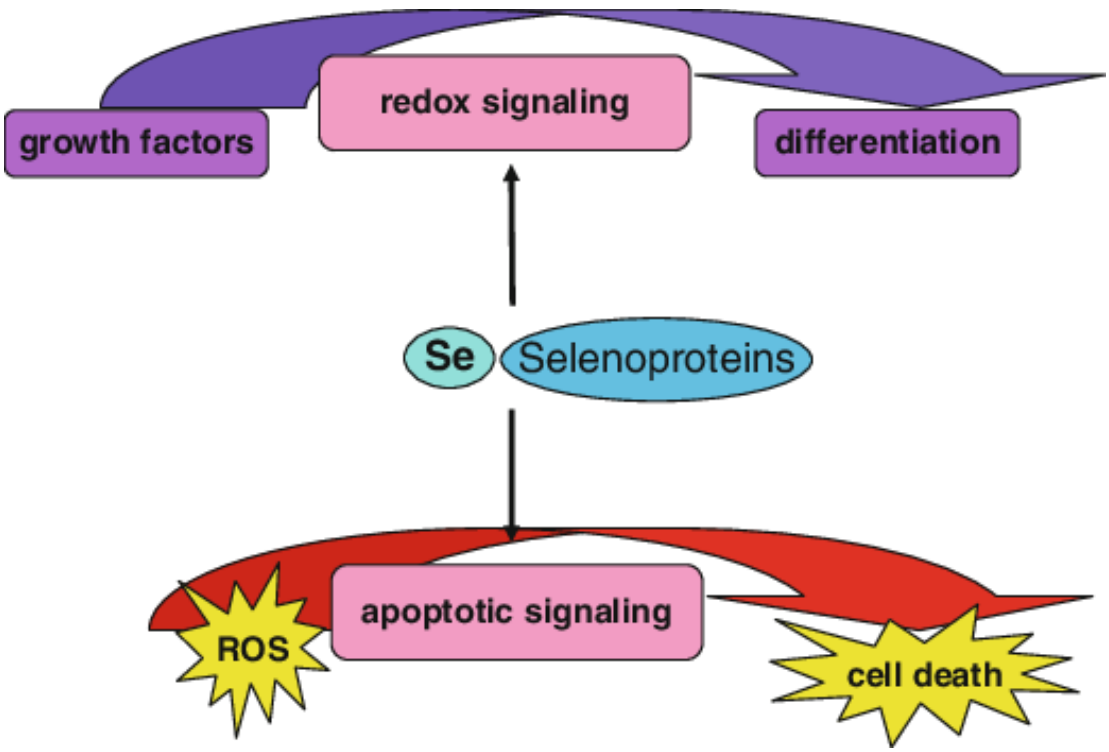
SELENYUM			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
SEP15	C	TT	Associated with a reduced level of zinc, which breaks down nitrogen-containing amines.
SELENOS	T	**CT**	Decreased MTHFR enzyme affecting the methylation cycle

SEP15	**YOUR RESULT**
Selenoprotein is encoded by the SEP15 gene. Inflammatory response, oxidative stress and endoplasmic reticulum (ER) stress are important pathophysiological basis for the occurrence and development of diabetes mellitus (DM) and macroangiopathy complications. Selenoprotein S (SELENOS) is involved in the regulation of these mechanisms; therefore, its association with DM and macroangiopathy has gradually attracted the attention of scientists around the world.	You are not a risk bearer.

SELENOS	**YOUR RESULT**
SELENOS has a variety of biological effects on various tissues and organs, including the liver, adipose tissue, and skeletal muscle. It also protects against free radical damage and has anti-ER stress effects on the pancreas and blood vessels. Additionally, research has shown that specific SELENOS gene polymorphisms are strongly linked to the risk of developing DM and macroangiopathy and have the potential to affect the inflammatory response.	*As heterozygous, you are at low risk.*

SELENIUM RECOMMENDATIONS

✓ *Selenium is found in Brazil nuts eggs, cruciferous vegetables, grains, meat and seafood. Foods with high selenium content: You should definitely consume seafood, sea bass, small fish 2-3 times a week. For your selenium need, you should also include nuts in your diet: raw almonds, raw hazelnuts, raw walnuts. The highest selenium content is in the brazil nut, but be careful with the amount. Selenium + zinc work synergistically. Zinc sources in the diet should also be provided with care.*



RİBOFLAVİN B2			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
FMO3	A	GG	Reduced FMO3, which breaks down nitrogen-containing amines. Some people have helped with riboflavin
FMO3	A	AG	Reduced FMO3, which breaks down nitrogen-containing amines. Some people have helped with riboflavin
FMO3	T	CC	Reduced FMO3, which breaks down nitrogen-containing amines. Some people have helped with riboflavin
FMO3	G	AA	Reduced FMO3, which breaks down nitrogen-containing amines. Some people have helped with riboflavin
FMO3	T	GG	Reduced FMO3, which breaks down nitrogen-containing amines. Some people have helped with riboflavin
FMO3	T	CC	Reduced FMO3, which breaks down nitrogen-containing amines. Some people have helped with riboflavin

FMO3	**YOUR RESULT: LOW**
The FMO3 gene provides instructions for making an enzyme that is part of a larger family of enzymes called flavin-containing monooxygenases (FMOs). These enzymes break down compounds containing nitrogen, sulfur or phosphorus. The enzyme FMO3, which is mainly made in the liver, is responsible for the breakdown of nitrogen-containing compounds from the diet. One of these compounds is trimethylamine, the molecule that gives fish their fishy smell. Trimethylamine is produced as bacteria in the gut help digest certain proteins from eggs, liver, legumes (like soybeans and peas), certain types of fish, and other foods. The FMO3 enzyme normally converts the fishy-smelling trimethylamine to another odorless compound, trimethylamine-N-oxide. Trimethylamine-N-oxide is then excreted from the body in the urine.	As heterozygous, you are at low risk.

MTHFR	**YOUR RESULT: LOW**
Many of the flavoenzymes, including methylenetetrahydrofolate reductase (MTHFR), are dependent on FAD. Riboflavin is a water-soluble vitamin that acts as a precursor to flavin mononucleotide (FMN) and flavin adenine dinucleotide (FAD). FMN is formed by phosphorylation of riboflavin, and as most of FMN is adenylated, FAD is formed in the subsequent ATP-dependent reaction. FMN and FAD are cofactors for more than 150 reduction-oxidation enzymes, some of which are involved in folate, vitamin B6 and cobalamin metabolism. It is associated with a low homocysteine level.	As heterozygous, you are at low risk

RİBOFLAVİN B2

✓*Vitamin B2, one of the water-soluble vitamins, is carried through the bloodstream and is excreted through the urine when the body is not needed. Vitamin B2 can be stored in the body in small amounts. Therefore, vitamin B2 can be consumed every day if needed. Vitamin B2 contributes to the reduction of fatigue and exhaustion. Contributes to energy formation metabolism. Contributes to the protection of the mucosa. Contributes to the preservation of red blood cells. It contributes to the protection of the skin. Contributes to the protection of eyesight. Contributes to iron metabolism.*

D VİT			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
CYP2R1	A	GG	low vitamin D
CYP2R1	T	TT	higher vitamin D levels
CYP27B1	T	CC	Pathogen for vitamin D-induced rickets (important)
GC	G	TT	low vitamin D
GC	A	CC	low vitamin D
VDR taqI	A	AA	low vitamin D
VDRbsmI	T	CC	low vitamin D
VDR	C	CC	low vitamin D

VDR	**YOUR RESULT: MEDIUM**
Vitamin D is involved in many non-skeletal functions such as cell regulation, differentiation and growth, and adaptive and innate immune control, and is also associated with inflammatory markers since the vitamin D receptor (VDR) is expressed. The VDR gene provides instructions for making a protein called the vitamin D receptor (VDR), which makes the body respond to vitamin D. This vitamin can be obtained from foods in the diet or made in the body with the help of exposure to sunlight.	As heterozygous, you are at low risk.

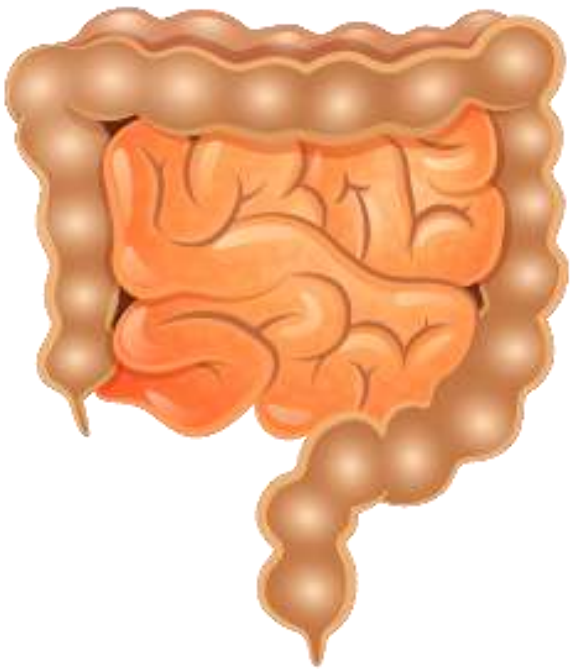
CYP2R1	**YOUR RESULT: MEDIUM**
The CYP2R1 gene provides instructions for making an enzyme called 25-hydroxylase. This enzyme performs the first of two reactions to convert vitamin D to its active form, 1,25-dihydroxyvitamin D3, also known as calcitriol. Vitamin D can be obtained from dietary foods or made in the body with the help of exposure to sunlight. When active, this vitamin plays a role in maintaining the proper balance of various minerals in the body, including calcium and phosphate, which are essential for normal bone and tooth formation. One of the main roles of vitamin D is to control the absorption of calcium and phosphate from the intestines into the bloodstream. Vitamin D is also involved in various processes unrelated to bone and tooth formation.	As heterozygous, you are at low risk.

VITAMIN D RECOMMENDATIONS

- ✓ Getting enough vitamin D; strengthens the immune system, protects against diseases such as cancer and heart diseases, bones, diabetes and osteoporosis. Vitamin D deficiency can cause bone deformation such as rickets in children and bone and muscle weakness in adults. D2 form: Vitamin D2, known as ergocalciferol, can be obtained from fortified foods, plant foods, and vitamin supplements. Foods rich in vitamin D include egg yolks, fatty fish, and liver. D3 form: Vitamin D3, called cholecalciferol, is taken from fortified foods, animal foods and vitamin supplements, and can be synthesized in the skin under the influence of ultraviolet rays. The form synthesized in the skin or taken with food is biologically ineffective. It becomes active after various reactions in the liver and kidney.

GENE	NUTRITION	SUPPLEMENTS AND LIFE RECOMMENDATIONS
ZINC	✓ It is a marker of inflammation. Dietary sources of cholesterol (animal foods) should be reduced. Vegetable oil sources (olive oil, avocado) or rich in omega-3 (walnut, fish, purslane) should be preferred.	✓ Zinc ✓ OMEGA-3
VITAMIN D	✓ It has been associated with vitamin D and autoimmune diseases. Suppl at the appropriate dose. should be started. With adequate calcium support and probiotic supplementation, the rate of benefiting from vitamin D should be increased.	✓ Probiotic ✓ Calcium ✓ Vitamin D ✓ supplVitamin D ✓ values should be checked regularly.
VITAMIN C	✓ Increased need for vitamin C. Vitamin C rich diet should be fed (capia pepper, green pepper, citrus fruits).	✓ Vitamin C supplement. should be supplemented with supplementation.
VITAMIN A	✓ Causes a reduced effect on the conversion of vitamin A. A diet rich in vitamin A should be consumed. In particular, it is necessary to eat both forms of vitamin A by consuming vegetable (orange and red vegetables and animal (liver, red meat) sources together) for this profile.	✓ Excess vitamin A is toxic. Vitamin A requirement can be met by epigenetics.
B12	✓ The best vitamin B12 skis: Vitamin B12 is not found in plant foods. It is abundant in red meat, eggs and fish. It is important for your genetic variations that you take care to consume these group foods daily in your diet. If you have difficulty consuming foods, vitamin B12 supplementation can be started under the control of a physician.	✓ In vitamin B12 deficiency, disorders such as restlessness, depression and anxiety may occur. ✓ B12 supplementation can be started under the supervision of a physician.
SELENIUM	✓ Selenium is found in Brazil nuts eggs, cruciferous vegetables, grains, meat and seafood. Foods with high selenium content: You should definitely consume seafood, sea bass, small fish 2-3 times a week. For your selenium need, you should also include nuts in your diet: raw almonds, raw hazelnuts, raw walnuts. The highest selenium content is in the brazil nut, but be careful with the amount.	✓ The gene variants you have increase your selenium and antioxidant needs.
VITAMIN B6	✓ Sources of Vitamin B6: Red and white meat, Fish and seafood, Eggs, Carrots, spinach, cauliflower, Bananas and avocados, Nuts.	✓ Vitamin B6 supplementation can be started under the supervision of a physician

GUT PANEL



GUT PANEL

GUT – MIKROBIOM GENES			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
FUT2	A	AG	Only AA: Non-secreting blood group; no bifidobacteria.
LCT	C	TT	CC: no lactase, higher Bifidobacteria
SLC39A8	T	CC	Increased risk of Crohn's, altered gut microbiota.
APOA5	C	CT	Reduced Bifidobacterium levels, higher triglycerides and MetS risk
IL4	T	CC	Increased risk of C. difficile in IBD

FUT2	**YOUR RESULT: AG**
There is strong evidence that having two copies of the non-secretory allele (A) in the FUT2 gene increases vulnerability to Crohn's disease and predisposes one to type 1 diabetes. By affecting microbial adhesion and/or the use of host-derived glycans, variant A may change the composition of the gut microbiota and possibly lead to dysbiosis.	As heterozygous, you are at low risk.

LCT	**YOUR RESULT : TT**
Lactose, a sugar present in milk and other dairy products, is easier to digest thanks to the lactase enzyme.The cells that line the small intestine's walls produce lactase. These cells, known as intestinal epithelial cells, have projections that resemble fingers and are known as microvilli that absorb nutrients as they move through the gut and into the bloodstream. These collections of microvilli are collectively referred to as brush borders based on their appearance. At the brush border, lactase breaks down lactose into galactose and glucose, two smaller sugars that can be absorbed.	You are not a risk bearer.

GUT PANEL

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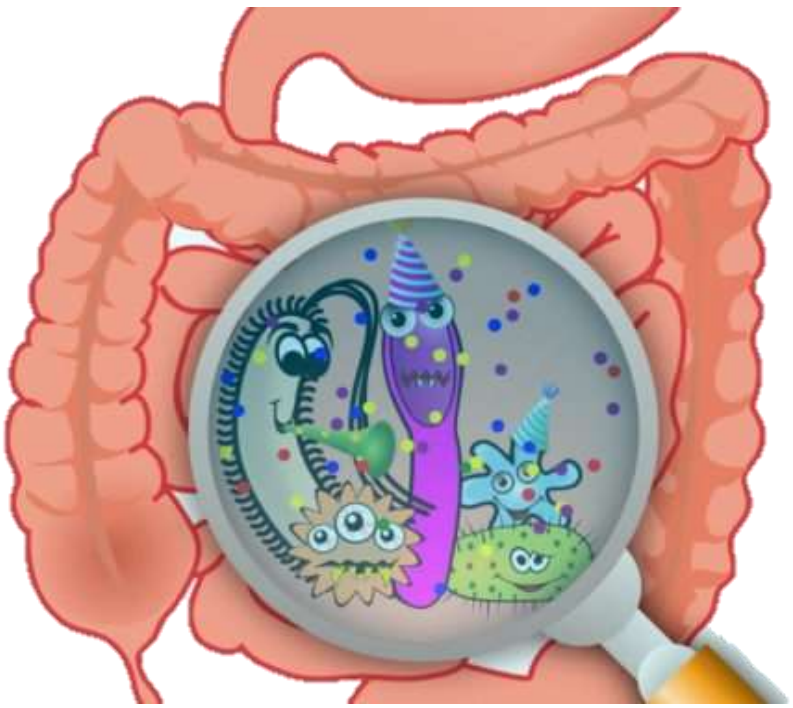
SLC39A8	**YOUR RESULT : CC**
Alteration of the microbiome is linked to the SLC39A8 genetic variant. Additionally linked to zinc deficiency is SLC39A8. Additionally, a zinc deficiency has been linked to changes in microbial composition and function. Changes in the gut microbiota may have an impact on a person's susceptibility to Crohn's disease, an intestinal condition that causes gastrointestinal tract inflammation.	You are not a risk bearer.

APO5	**YOUR RESULT : CT**
Genetic polymorphisms in the APO5 gene are associated with lower very low and high density lipoprotein cholesterol (VLDL-C AND HDL-C) as well as differences in plasma triglyceride concentration. They are also the results of a series of metabolic abnormalities known as the Metabolic Syndrome. Minor allelic variation in the APO5 gene is associated with decreased abundance of the probiotic Bifidobacterium. Bifidobacteria are known to play an active role in inflammatory bowel diseases.	As heterozygous, you are at low risk.

GENE	NUTRITION	SUPPLEMENT RECOMMENDATION
FUT2	*Intestinal regulation should be provided with dysbiosis and anti-inflammatory nutrition.*	*Probiotic containing bifidobacteria*
APOA5	*In terms of triglyceride levels, dietary fat sources can be reduced. Healthy fat sources (olive oil, avocado, fish) should be increased and animal fat sources (butter, red meat) should be decreased.*	*Probiotic containing bifidobacteria*

GUT PANEL RECOMMENDATION

- ✓ *You have a profile close to IBD (inflammatory bowel disease) predisposition. Compliance with your epigenetic diet list supplemented with probiotics in order to prevent inflammation and improve intestinal flora will be dysbio-preventive.*



MENTAL HEALTH PANEL

SEASONAL DEPRESSION			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
PER3	G	*CC*	Increased risk of seasonal depression
OPN4	T	*CC*	Significantly increased risk of seasonal depression; sensitivity to low light levels

OPN4	**YOUR RESULT : CC**
Melanopsin, a non-visual photopigment, is implicated in abnormal responses to low winter light levels in Seasonal Affective Disorder (SAD). It has been proven that functional sequence variation in the melanopsin gene (Opn4) may contribute to the increased light required for normal functioning during the winter months in SAD.	You are not a risk bearer.

PER3	**YOUR RESULT : CC**
Per3 is one of the key components of the circadian clock system. It is known that circadian dysregulation is involved in the pathogenesis of various neuropsychiatric diseases. Per3 deficiency causes defects in the positioning, migration, axon growth and dendrite development of excitatory neurons during corticogenesis, but does not affect the proliferation of neuronal stem and progenitor cells.	You are not a risk bearer.

INFLAMMATION			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
TNF	A	GG	Increased TNF-alpha, increased risk for depression
IL6	G	GG	Stressful life moderately increased risk of depression
IL6	A	GG	Higher IL6, moderate increased risk of depression
IL1B	G	GG	GG: increased risk of depression
İDO1	C	CT	Increased risk of depression with inflammation

İDO1	**YOUR RESULT : CT**
Based on its basal expression in immune cells, IDO1 is significantly upregulated in response to inflammation. Recent studies in the fields of depression and immunology also moderate IDO1 activity with (a) decreased serotonin content and its association with depression (b) increased kynurenine content and neuroplastic changes by the effect of derivatives such as quinolinic acid on glutamate receptors. Furthermore, it has been shown that IDO1 expression is induced by proinflammatory cytokines, leading to increased kynurenine production.	*You are a risk allele carrier.*

IL-6	**YOUR RESULT : GG**
Proinflammatory cytokines, including IL-6, are involved in the pathophysiology of both pain and depression. Upregulation of brain IDO1 by proinflammatory cytokines may regulate the development of inflammation-induced depression through regulation of pain and tryptophan metabolism. One of the most important reasons affecting mental and physical health is inflammation in the body. Inflammatory cytokines increase the permeability of the blood-brain barrier and trigger certain functional changes in brain regions.	*You are a risk allele carrier.*

INFLAMMATION			
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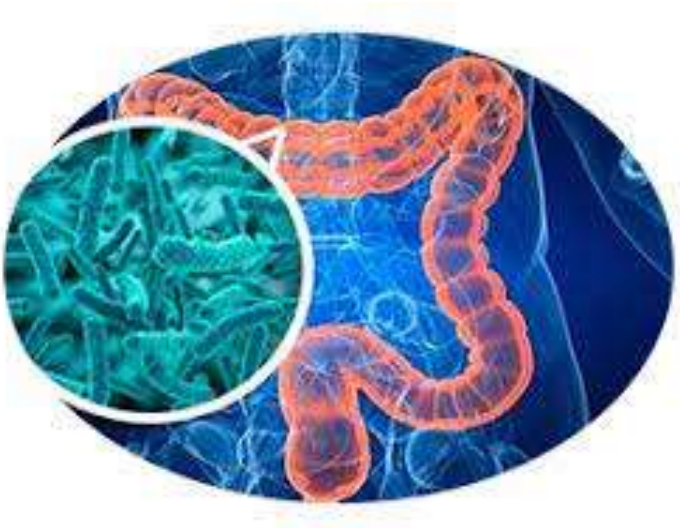
IL1B	G	GG	GG: higher risk of depression
İDO1	C	CT	Increased risk of depression with inflammation

TNA-a	**YOUR RESULT : GG**
TNF-a, a proinflammatory cytokine, was found to be significantly higher in depressed subjects, according to the findings of the meta-analysis. TNF-α activates neurotransmitter transporters and indirectly consume serotonin and its precursor tryptophan, which leads to decreased monoamine neurotransmitters in synaptic cleft. As a result, people who have the A allele are more likely to develop treatment-resistant depression and depressive disorders.	You are not a risk bearer.

IL-1B	**YOUR RESULT : GG**
Interleukin-1β (IL-1β), encoded by IL-1B gene has a key role in dopaminergic differentiation and dendrite growth in developing cortical neurons. According to research, IL1B gene variants have a negative impact on amygdala and anterior cingulate cortex function. In addition, patients with a statistically G allele frequency were found to be more likely to develop post-traumatic stress disorder in another study. All of these studies found a link between the IL-1B gene and mood disorders, including an increased risk of depression.	*You are a risk allele carrier.*

RECOMMENDATIONS FOR INFLAMMATION AND DEPRESSION

- ✓ *Your risk of depression is average for the population due to increased inflammation in your panel results. You can initiate epigenetic changes with preventive, inflammation-reducing nutrition and lifestyle recommendations.*
- ✓ *It is necessary to eliminate vitamin deficiencies and pay particular attention to magnesium.*
- ✓ *If there is dysbiosis, it should be corrected.*
- ✓ *Studies that are related to serotonin and intestinal microbiota are seen in the studies. When deemed necessary, microbiota testing can be performed by your doctor for the recommendation of appropriate probiotic supplementation.*
- ✓ *It is important to remember that routine exercise and an anti-inflammatory diet are important in reducing inflammation.*



DEPRESSION AND MITOCHONDRY RELATED SENSITIVITY			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
SOD2	A	*AG*	AA only: higher chronic inflammation, increased relative risk of depression and psychological stress
GSTA1	A	*AG*	low/dysfunctional enzyme; increased relative risk of psychiatric illness
TOMM40	G	*AA*	mitochondrial protein; increased susceptibility to depressionIncreased risk of depressive and increased lifetime risk of depression
MTHFD1L	A	*GG*	Increased risk of depressive and increased lifetime risk of depression
FKBP5	T	*CT*	Cortisol recovery and increased anxiety after psychosocial stress

SOD2	**YOUR RESULT**
SOD2 is located in the mitochondrial matrix, which is the main site of free radical production from the electron transport chain. This enzyme catalyzes the reaction of superoxide (O 2 .-) to the less reactive hydrogen peroxide (H 2 O 2) (which is not considered free radical) at diffusion-limiting rates. it does. Loss of SOD2 activity can result in multiple pathological phenotypes in metabolically active tissues; Especially in the central nervous system, the potential involvement of SOD2 in the progression of neurodegenerative diseases such as stroke, Alzheimer's and Parkinson's, as well as its potential role in age-related "normal" cognitive decline has been proven by studies.	*You are a risk allele carrier.*

TOMM40	**YOUR RESULT**
TOMM40 encodes a protein that is embedded in the outer membranes of mitochondria and is necessary for the movement of proteins into the mitochondria. In humans, certain alleles of this gene have been statistically associated with an increased risk of developing late-onset Alzheimer's disease.	You are not a risk bearer.

FKBP5	**YOUR RESULT**
The FKBP5 gene produces a chaperone protein that is essential for the hypothalamic-pituitary-adrenal (HPA) axis to function properly. In mammals, the HPA axis is the main neuroendocrine system that controls the stress response. Mood, anxiety, and post-traumatic stress disorder are all linked to HPA. Despite the fact that the T allele increases the risk of stress-related psychological disorders, it has been discovered that the homozygous TT allele responds to antidepressant drug therapy faster and better.	*You are a risk allele carrier.*

DEPRESYON VE MİTOKONDRİ İLİŞKİLİ HASSASİYET			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
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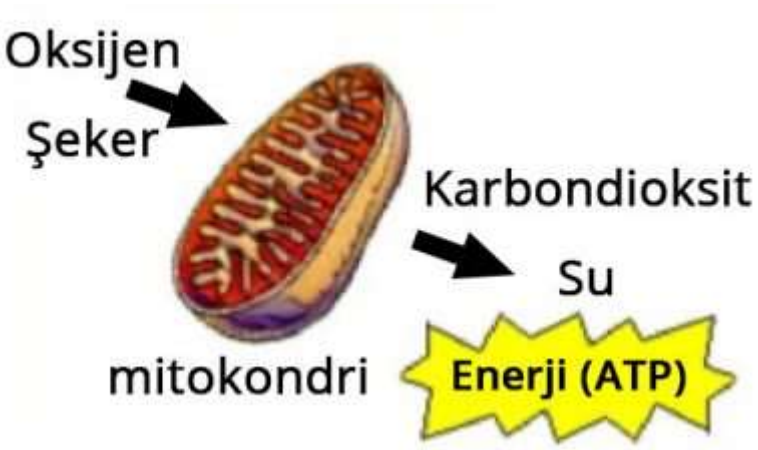
MTHFD1L	A	*GG*	Increased risk of depressive and increased lifetime risk of depression
FKBP5	T	*CT*	Cortisol recovery and increased anxiety after psychosocial stress

MTHFD1L	**YOUR RESULT**
The A allele of MTHFD1L has been associated with depressive rumination. Rumination denotes a cognitive response style to stress: a process of thinking repetitively and passively about the person's own distress, depressed mood and its possible causes and consequences Furthermore, the A allele has been associated with high homocysteine levels. Its high level is associated with major depression, reduced hippocampal volume, and in healthy subjects impaired cognitive functions.	You are not a risk bearer.

GSTA1	**YOUR RESULT**
The brain is the organ in our body that consumes the most oxygen, so its production of reactive oxygen species (ROS) is also at its highest. When the antioxidant system's balance is disrupted, ROS, which should normally be eliminated by the antioxidant system, isn't, and oxidative metabolite damage results. One of the most important antioxidant enzymes is glutathione S-transferase, which is encoded by the GSTA1 gene. By causing the enzyme to be secreted in a lower amount than it should be, the GSTA1 gene variant may increase the risk of psychiatric disease.	*You are a risk allele carrier.*

DEPRESSION AND MITOCHONDRY RECOMMENDATIONS

- ✓ *Many organelles and metabolic processes are linked to depression. According to your genotype results, you have an increased susceptibility to depression, an increased risk of depression, and an increased lifetime risk of depression. Chronically high cortisone levels decrease mitochondrial function, whereas low, normal cortisone levels increase mitochondrial function. As a result, breathing exercises, yoga, exercise, and deep sleep must be practiced in order to manage stress in daily life. Neurodegenerative diseases, chronic pain, and mood disorders are all caused by a lack of mitochondrial health in the brain. Mitochondria use glutamate to promote new neuron formation and differentiation, as well as brain development and neuroplasticity.*
- ✓ *In patients with depression, especially in the anterior (prefrontal) and limbic regions of the brain, both a disruption in ATP production and calcium metabolism, and a decrease in the number of nerve cells, as well as a decrease in gray matter thickness were detected.*
- ✓ *Remember, managing stress is in your hands!*



SEROTONIN			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
SLC6A4	T	TT	Combination TT for rs2129785 and AA for rs11867581
SLC6A4	A	AG	anticipates HTTLPR; this is increasinglinked to an increased risk of anxiety and depression.
HTR1A	C	CG	Serotonin receptor variant linked with higher impulsivity
HTR1B	G	CC	Serotonin receptor variant linked to increased risk of depression, anxiety
CRHR1	G	AG	Depression and anxiety increased by childhood traumas
OXTR	G	GG	Increased optimism and empathy with excess oxytocin

SLC6A4	**YOUR RESULT: TT**
Impaired serotonergic signaling is a common feature of depression, and the role of the serotonin transporter gene (SLC6A4) in serotonin reuptake has gotten a lot of attention. SLC6A4 methylation and genetic variants have been linked to structural changes in the hippocampus and corpus callosum in depressed people. The main regulator of serotonergic neurotransmission and an active target of SSRIs is serotonin transporter (5-HTT), which is encoded by the serotonin transporter gene (SLC6A4).	*You are a risk allele carrier.*

HTR1B	**YOUR RESULT : CC**
Protein ligand binding encoded by the HTR1B gene activates second messengers that inhibit the activity of adenylate cyclase and direct the release of serotonin, dopamine and acetylcholine in the brain.	You are not a risk bearer.

HTR1A	**YOUR RESULT : CG**
HTR1A is a receptor that mediates serotonergic neuron and signaling negative feedback inhibition in limbic brain regions, including the amygdala. The serotonin 1A receptor is the most abundant receptor in the brain and is also expressed in serotonin neurons, where it plays a role in serotonin activity regulation. Overexpression of this autoreceptor causes a decrease in serotonergic neurotransmission and has been linked to mental illnesses like major depression and anxiety. Furthermore, the 5-HTR1A G(-1019) allele has been linked to impulsivity.	*You are a risk allele carrier.*

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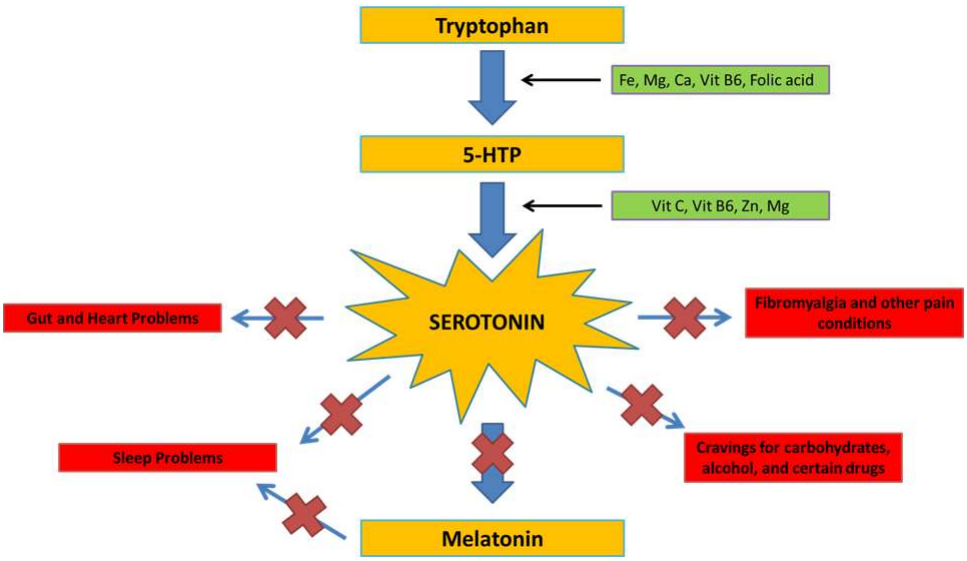
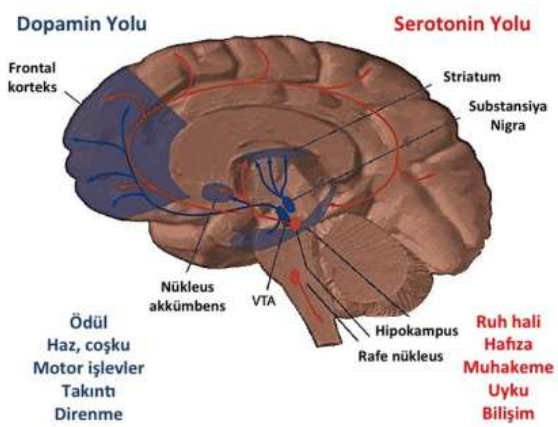
CRH1B	**YOUR RESULT : AG**
CRHR1 is a G-protein-coupled receptor that binds to the CRH family of neuropeptides, which are important regulators of the HPA pathway. The encoded protein is required for signal transduction pathways that control a variety of physiological processes, including stress, reproduction, immune response, and obesity. It is hypothesized that CRHR1 function may be linked to susceptibility to childhood traumas, stress-related psychopathology, particularly anxiety and depressive disorders, and that variations in CRHR1 function may modulate the response to stress.	*You are a risk allele carrier.*

OXTR	**YOUR RESULT: GG**
It has been discovered that oxytocin, a neurotransmitter and a hormone, has an effect on empathy and stress sensitivity. Human plasma oxytocin levels have been found to influence characteristics such as parent-child attachment behaviors, romantic relationships, and stranger generosity. Individuals with the G allele of OXTR have more sensitive parenting behavior, less love for solitude, and more empathy than those with the A allele, according to statistics. At the same time, it was discovered in another study that people with this variation wanted more emotional support when they were stressed.	*You are a risk allele carrier.*

SEROTONİN ÖNERİLER

- ✓ Serotonin, known as the happiness molecule, is a kind of chemical that provides communication between nerves. Serotonin is synthesized by tryptophans. Mood disorders are associated with depression, anxiety and neurotransmitter. Alleles in related genes explain the risk levels in pathways associated with neurotransmitters.
- ✓ Tryptophan enables the production of the chemical serotonin. Protein foods are foods rich in tryptophan; In addition, supplementing tryptophan-containing foods with carbohydrates has a positive effect on serotonin levels.





ANXIETY			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
ADORA2A	T	TT	TT only: increased risk of panic disorder Caffeine consumption increased anxiety
OXTR	G	AG	Higher adult separation anxiety in depressed patients
GNB3	T	CC	Increased separation anxiety with OXTR
FKBP5	T	CT	TT only: incomplete cortisol recovery, increased anxiety after psychosocial stress

OXTR	**YOUR RESULT** : AG
The hormone oxytocin is a neuropeptide associated with both emotional function and social empathy. Separation anxiety has been shown to be associated with oxytocin level and oxytocin receptor variant in studies. Those with the G/G allele worry when they are separated from their loved ones. Vitamin C is the cofactor to form oxytocin.	*You are a risk allele carrier.*

GNB3	**YOUR RESULT: CC**
The GNB3 gene is responsible for producing the G-protein beta-3 subunit. Increased intracellular signal transduction in G-protein coupled receptors is caused by the presence of the T allele, also known as the C825T polymorphism. Following neurotransmitter receptor activation, G-proteins play an important role in molecular signaling, resulting in an increase in intracellular calcium ion concentrations. It has been suggested that this increase may increase the risk of developing depression over time. Another study found that the T allele of C825T can result in the deletion of 41 amino acids, altering cellular signal transduction and ion transport, and that people with the TT and CT genotypes are more likely to be depressed. At the same time, the GNB3 gene is involved in antidepressant treatment response.	You are not a risk bearer.

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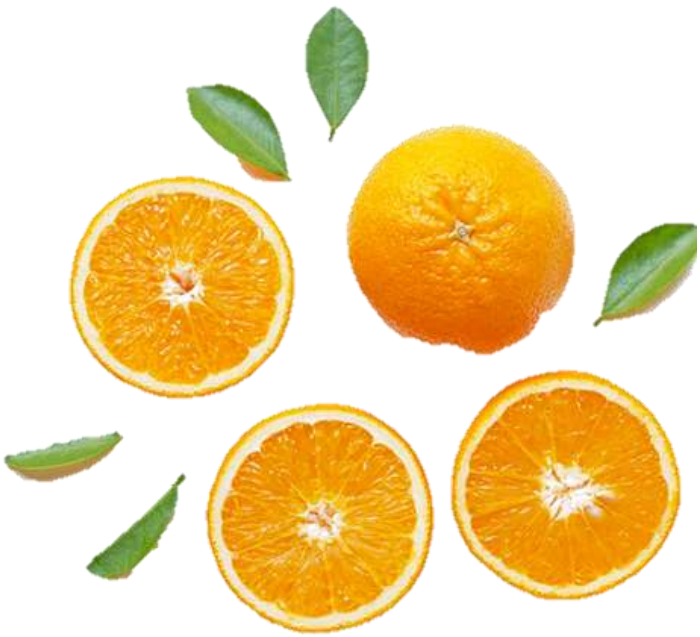
ADORA2A	**YOUR RESULT : TT**
Individuals with the C/C genotype of the ADORA2A gene encoding the Adenosine A2 receptor reported the smallest increase in anxiety, while those with the T/T genotype reported the greatest increase in anxiety, according to the statistical studies. Furthermore, it has been discovered that people with the T allele are more likely to experience anxiety after consuming caffeine.	*You are a risk allele carrier.*

FKBP5	**YOUR RESULT : CC**
The FKBP5 gene produces a chaperone protein that is essential for the hypothalamic-pituitary-adrenal (HPA) axis to function properly. In mammals, the HPA axis is the main neuroendocrine system that controls the stress response. Mood, anxiety, and post-traumatic stress disorder are all linked to HPA. Despite the fact that the T allele increases the risk of stress-related psychological disorders, it has been discovered that the homozygous TT allele responds to antidepressant drug therapy faster and better.	*You are a risk allele carrier.*

ANXIETY RECOMMENDATIONS

✓ *Separation anxiety has been shown to be associated with oxytocin level and oxytocin receptor variant in studies . Vitamin C is the cofactor to form oxytocin. Therefore, a diet rich in vitamin C will reduce anxiety markers.*



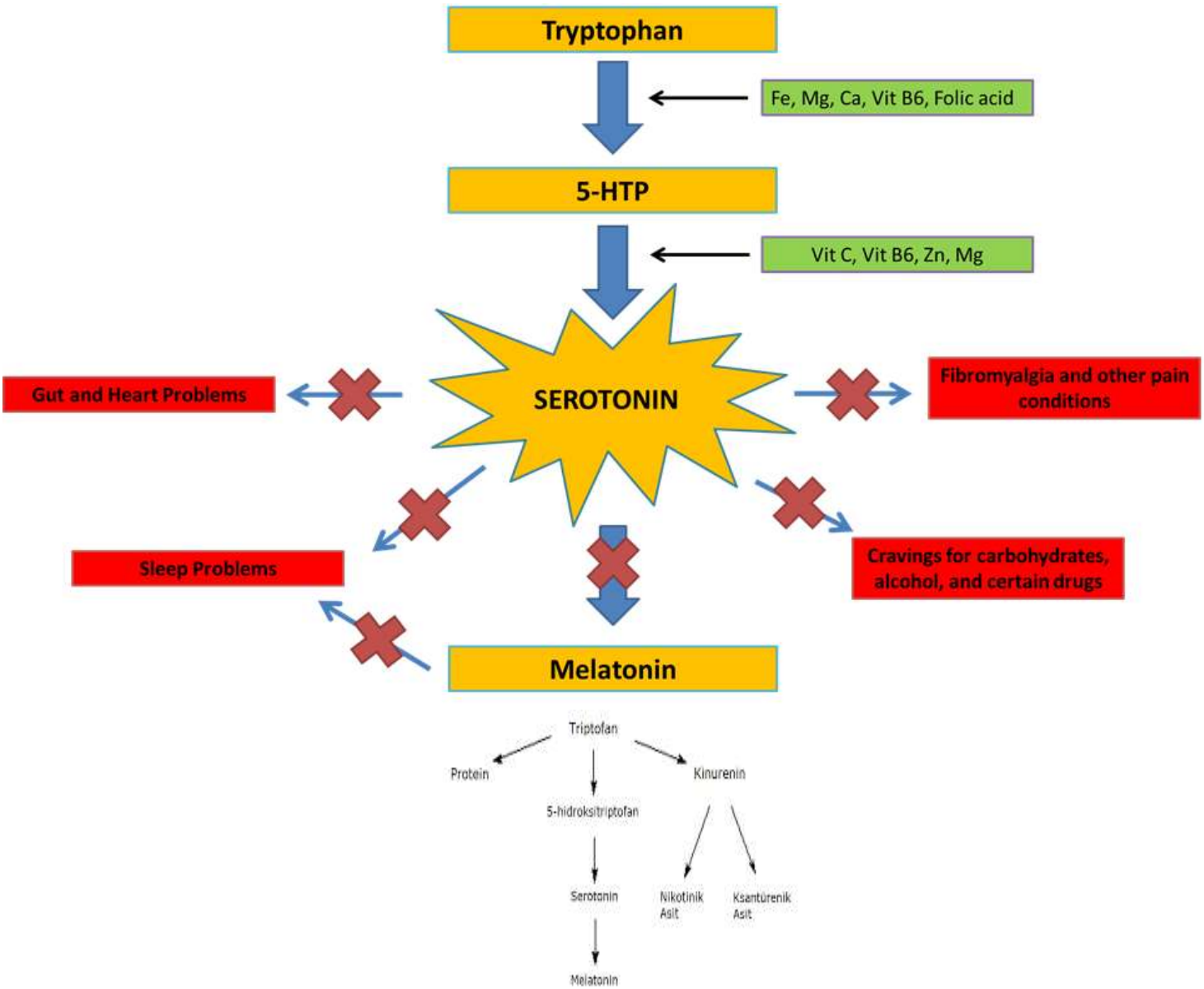
TRIPTOPHANE METABOLISM			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
TPH2	G	GT	Less conversion of tryptophan to serotonin
TPH2	A	TT	increased risk of depression
TPH2	G	GT	Decreased risk of depression
TPH2	T	AA	TT only: Circadian rhythm disruption is likely in people with depression
İDO1	A	AG	Increased IDO-1 enzyme activity

TPH2 COMPLEX GENES	**YOUR RESULT: MODERATE**
TPH2 is a gene that encodes the rate-limiting enzyme in brain serotonin (5-HT) biosynthesis and plays a key role in serotonin regulation. In healthy adults, polymorphisms in the TPH2 gene have been linked to altered brain reactivity during perception tasks with emotional stimuli. Reduced serotonin levels have been linked to an increased tendency to depression in some TPH2 variants. The TPH2 gene, which has been linked to the development of the brain's serotonergic system, is thought to play a role in the development of attention deficit and hyperactivity disorders.	*You are a risk allele carrier.*

IDO1	**YOUR RESULT: MODERATE**
In cases of inflammation, IDO-1 enzyme activity rises, resulting in an increase in depression due to an increase in kynurunic acid production from tryptophan rather than its conversion to serotonin.	*You are a risk allele carrier.*

TRIPTOPHANE METABOLISM RECOMMENDATIONS

- ✓ *Tryptophan: Serotonin is an essential amino acid involved in the synthesis of compounds such as melatonin. It takes part in physiological functions related to sleep and mental health. Generally speaking, increased inflammation in the body produces kynurenine, which has a neurotoxic metabolite called quinolinic acid, instead of the body's conversion of tryptophan to serotonin. We should not forget that the gut microbiota is also important to reduce this inflammation. Personalized probiotic supplementation should be started and the epigenetic diet list should be followed for 3 months.*



COMT			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
COMT	A	AG	GG = higher activity, lower dopamine, norepinephrine AA = less activity
COMT	T	CT	CC = higher activity TT = lower COMT activity
COMT	A	AA	Increased relative anxiety

COMT	**YOUR RESULT: MODERATE**
COMT is one of the most important genes associated with behavioral traits and psychotic disorders. The genetic variant in COMT is associated with personality disorders. The location of the mutation in COMT is in the promoter region, which can vary in expression regulation and may have effects on dopamine degradation. **Slow COMT advantage** Workaholic, energetic, enthusiastic, unfocused, productive Fast COMT advantage Ability to relax, accepting others, calmness, high tolerance for stress, restful sleep, and a wide range of interests **Slow comt disadvantages** acute coronary syndrome stress cardiomyopathy stress-related hypertension Panic disorder, anxiety, schizophrenia, bipolar disorders (especially mania) Breast, uterine cancer, PMS, fibroids, preeclampsia	*You are a risk allele carrier.*

COMT RECOMMENDATIONS

- ✓ Since our COMT is dependent on the Methylation Cycle, the vitamins and minerals required in the methylation cycle are also required here.
- ✓ folate B9, cobalamin B12, riboflavin B2 proteins and magnesium.

ADVICE IF COMT WORKS SLOW

- ✓ Balanced diet, especially restricting excess protein
- ✓ Avoiding amino acid preparations (phenylalanine tyrosine)
- ✓ Consume less caffeine, tea, chocolate
- ✓ Trying to reduce the estrogen load (Staying away from plastic, cosmetics, BPA (bisphenol) products, insecticides, herbicides)
- ✓ Trying to stay away from stress, taking short vacations if possible, taking frequent quality breaks
- ✓ Meditation, acupuncture, exercise, salt water treatments, grounding

PREFERABLY

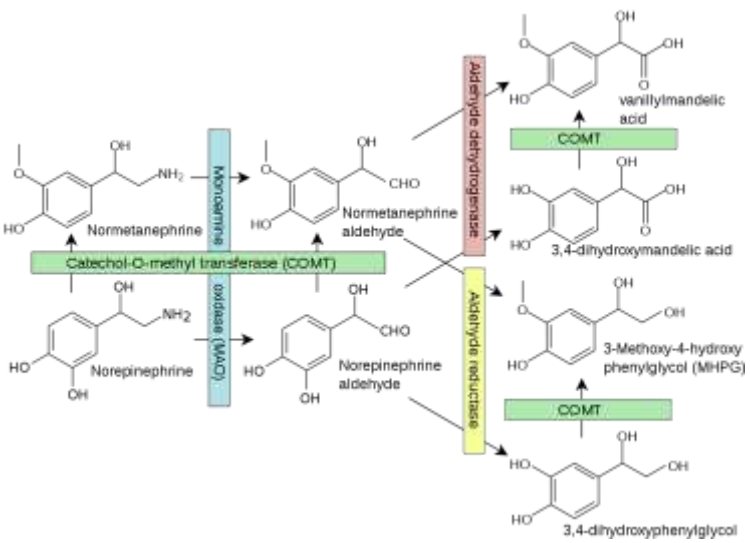
- ✓ AdenosylB12 (adenosylcobalamin)
- ✓ HydroxyB12 (hydroxocobalamin)
- ✓ A combination of adenosyl and hydroxyB12 is suitable.

Because COMT runs slowly

- ✓ EGCG (FROM GREEN TEA)
- ✓ KUERSITIN
- ✓ FISETIN
- ✓ LUTEOLIN
- ✓ RUTIN
- ✓ OLEACEIN (OLIVE OIL POLYPHENOL) should be noted

If you have low COMT function and are looking for natural anti-inflammatory supplements that do not interact with COMT

- ✓ BERBERIN
- ✓ RESVATROL
- ✓ MELATONIN
- ✓ HESPERIDIN



DOPAMIN RECEPTOR			
GENES	**RISK ALLELLE**	**GENOTYPE**	**EXPLANATION**
DRD1	G	AG	GG: decreased dopamine receptor 1 (DDR1) expression
DRD3	C	CT	Ascending obsessive-compulsive personality disorder
COMT	G	AG	N/N Higher COMT; low dopamine A/A Lower COMT higher dopamine
SLC6A3	T	CC	Bipolar and increased risk of early smoking

DRD1	**YOUR RESULT : AG**
The D1 subtype of the dopamine receptor is encoded by the DRD1 family of genes. In the central nervous system, the D1 subtype is the most common dopamine receptor. This G-protein coupled receptor activates cyclic AMP-dependent protein kinases and stimulates adenylyl cyclase. D1 receptors control neuronal development and mediate some behavioral responses, while the dopamine receptor modulates D2-mediated events.	*You are a risk allele carrier.*

COMT	**YOUR RESULT : AG**
The COMT gene produces the enzyme COMT, which degrades dopamine in the brain's prefrontal cortex. Pain perception and some personality disorders are strongly linked to the COMT genotype. COMT variants may result in lower enzymatic activity, resulting in higher dopamine levels; lower pain threshold, increased sensitivity to stress, and psychosis predisposition. In most cases, however, they are more efficient at processing information. **Slow COMT advantage** Workaholic, energetic, enthusiastic, unfocused, productive **Hızlı COMT advantage** Ability to relax, accepting others, calmness, high tolerance for stress, restful sleep, and a wide range of interests **Slow comt disadvantages** Acute coronary syndrome Stress cardiomyopathy stress-related hypertension Panic disorder, anxiety, schizophrenia, bipolar disorders (especially mania) Breast, uterine cancer, PMS, fibroids, preeclampsia	*You are a risk allele carrier.*

DOPAMİN RESEPTÖRÜ			
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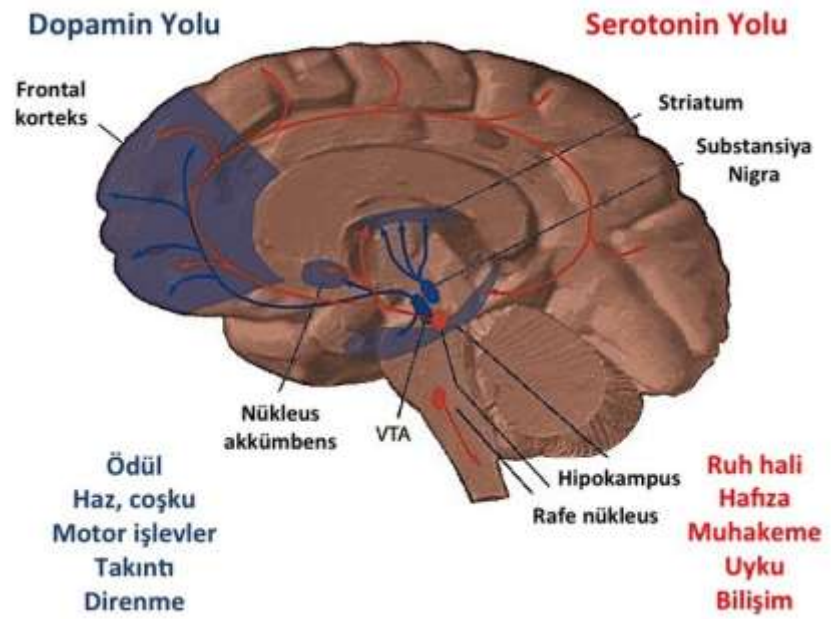
SLC6A3	T	CC	Bipolar and increased risk of early smoking

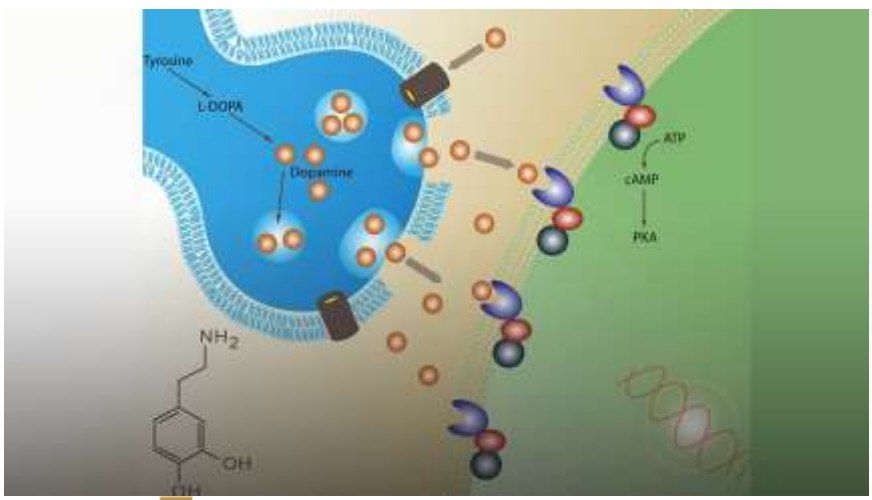
DRD3	
DRD3 encodes the D3 subtype of the dopamine receptor. This receptor is located in limbic areas of the brain that are associated with mental, emotional and endocrine functions. Ser9Gly is a single nucleotide polymorphism in the DRD3 gene. The C allele of this gene encodes glycine. Compulsive personality disorders with increased C allele have been associated with an increased risk for early-stage addiction to certain drugs.	

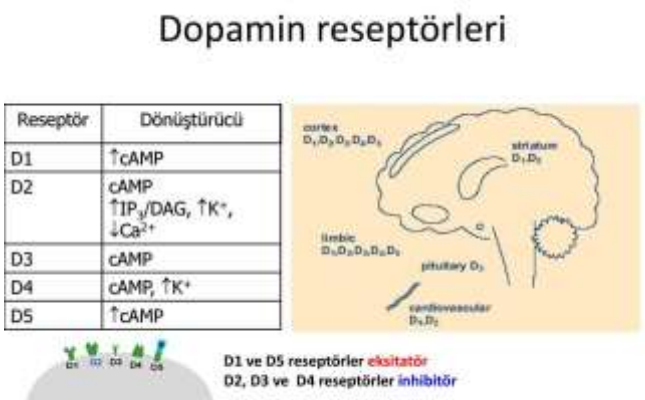
SLC6A3	
SLC6A3 is a dopaminergic gene. The T variant of this gene has been associated with modulating susceptibility to early smoking initiation and indirectly increasing susceptibility to nicotine dependence. At the same time, a possible relationship was determined between dopaminergic genes and speech fluency, and it was suggested that the T allele protects the person from stuttering.	

DOPAMIN RECEPTOR RECOMMENDATIONS

Although dopamine is a neurotransmitter and therefore only seems to be connected to the brain, your gut also plays an important role in regulating dopamine levels, so probiotics can help. Because dopamine is an important neurotransmitter that helps regulate your emotional response to stimuli, too much or too little can cause or worsen symptoms of certain mental health disorders. Too much dopamine can lead to serious mental health problems like mania or schizophrenia. On the contrary, insufficient dopamine can cause symptoms of depression.







GENE	MENTAL HEALTH PANEL GENERAL RECOMMENDATIONS
TPH2	✓ *personalized probiotic supplementation should be started to reduce inflammation*
İDO1	✓ *With an anti-inflammatory diet, omega-3 and omega-9 sources should be enriched, antioxidant-rich vegetables and fruits (red fruits should be added)*
COMT	*For slow running comt :* ✓ *Balanced diet especially restricting excess protein* ✓ *Avoiding amino acid preparations (phenylalanine tyrosine)* ✓ *Consume less caffeine, tea, chocolate* ✓ *Trying to reduce the estrogen load (Staying away from plastic, cosmetics, BPA (bisphenol) products, insecticides, herbicides)* ✓ *Trying to stay away from stress, taking short vacations if possible, taking frequent quality breaks* ✓ *Meditation, acupuncture, exercise, salt water treatments, grounding*
ADORA2A	✓ *Since it is an anxiety trigger, excessive caffeine consumption should not be, coffee containing (intense caffeine) such as filter coffee should be limited per day.*
OXTR	✓ *A diet rich in vitamin C (c vit suppl. can be started)*