TOXIN GENETICS - BLOOD DEMO

FINAL REPORT

Accession ID: 2311210647

Name: TOXIN GENETICS - BLOOD DEMO
Date of Birth: 01-01-1111
Gender: Male
Age: 01
Height: 65 inches
Weight: 122 lbs
Fasting: UNKNOWN

Telephone: 000-000-0000
Street Address:
Email:

Provider Information

Practice Name: DEMO CLIENT, MD
Provider Name: DEMO CLIENT, MD
Phlebotomist: 0

Telephone: 000-000-0000
Address: 3521 Leonard Ct, Santa Clara, CA 95054

Report Information

Current Result | Previous Result | In Control | Moderate | Risk

Specimen Information

Sample Type	Collection Time	Received Time	Report	Final Report Date
EDTA	2023-12-07 07:15 (PDT)	2023-12-08 13:12 (PDT)	Toxin Genetics – Blood - P2	2023-12-21 11:00 (PDT)

VibrantWellness
3521 Leonard Ct, Santa Clara, CA 95054
1-866-364-0963 | support@vibrant-america.com | www.vibrant-america.com

Toxin Genetics – Blood

INTRODUCTION

Vibrant Wellness is pleased to present to you 'Toxins genetics', to help you make healthy lifestyle, dietary and treatment choices in consultation with your healthcare provider. It is intended to be used as a tool to encourage a general state of health and well-being.The Vibrant Toxins Genetics Panel is a test to measure levels of various genetic mutations present in an individual's body. The panel is designed to give a complete picture of these predispositions enabling a good overview of the potential toxins' inadequacies.

Methodology:

The Vibrant Toxin Genetics panel uses real-time PCR methodology. DNA is extracted and purified from blood/saliva samples and a SNP (single nucleotide polymorphism) genotyping assay is performed using real-time PCR to detect the specific allele targets of each assay performed.

Interpretation of Report:

The genetic mutations on the report are organized as multiple tables under different subheadings for associated markers. The mutation alleles are indicated with a + symbol and wild type alleles are indicated with a – symbol. Risk associated variants are indicated with red and alleles with no risk are indicated with green. All contents provided in the report are purely for informational purposes only and should not be considered medical advice. Any changes based on the information provided should be made in consultation with the clinical provider.

The Vibrant Wellness platform provides tools for you to track and analyze your general wellness profile. Testing for the Toxin Genetics panel is performed by Vibrant Genomics, a CLIA certified lab CLIA#: 05D2098445. Vibrant Wellness provides and makes available this report and any related services pursuant to the Terms of Use Agreement (the "Terms") on its website at www.vibrant-wellness.com. By accessing, browsing, or otherwise using the report or website or any services, you acknowledge that you have read, understood, and agree to be bound by these terms. If you do not agree to these terms, you shall not access, browse, or use the report or website. The statements in this report have not been evaluated by the Food and Drug Administration and are only meant to be lifestyle choices for potential risk mitigation. Please consult your physician for medication, treatment, diet, exercise, or lifestyle management as appropriate. This product is not intended to diagnose, treat, or cure any disease or condition.

Please note:

Pediatric ranges have not been established for this test. It is important that you discuss any modifications to your diet, exercise, and nutritional supplementation with your physician before making any changes. To schedule an appointment with Vibrant Clinical Dietitians please call: Toll-Free 866-364-0963.

Toxin Genetics – Blood - Summary

Xenobiotics

⊕⊕ Homozygous Mutant ⊕⊖ Heterozygous ⊖⊖ Homozygous Wild

Test Name	Gene Name	Risk Association	Your Mutation	Your Risk	Reference
rs4680	COMT	Poor xenobiotic detoxification	⊕⊕ G/G	Elevated	A/A

The COMT gene encodes for the enzyme Catechol-O-methyltransferase. This enzyme plays a crucial role in phase II metabolism of various molecules possessing catechol structure, including catecholamines, estrogens, drugs, and xenobiotics. Mutation in the gene results in decreased enzymatic activity leading to the degradation of xenobiotics. As a result, leads to increased sensitivity to environmental toxicants, a higher risk of developing xenobiotic toxicity.Homozygous mutant (abnormal) individuals with lower enzyme activity have impaired xenobiotic detoxification leading to the accumulation of toxins in the body. Susceptible individuals must consume nutrients including beta-carotene, vitamin A, vitamin C, vitamin E, manganese, copper, zinc, selenium, and coenzyme Q10 which will help the liver detoxify toxins. Fasting and exercising are recommended.

Test Name	Gene Name	Risk Association	Your Mutation	Your Risk	Reference
rs1042157	SULT1A1	Poor xenobiotic detoxification	⊕⊖ C/T	Partially elevated	C/C

The SULT1A1 gene encodes for an enzyme sulfotransferase isoform 1A1 (SULT1A1). It is a phase II detoxification enzyme that catalyzes the transfer of the sulfonyl group from 3'-phosphoadenosine 5'-phosphosulfate (PAPS) to nucleophilic groups of a variety of xenobiotic toxins such as heavy metals and environmental pollutants. This process aids in increasing their solubility and facilitating toxin excretion. Mutations in the gene are associated with decreased SULT1A1 enzymatic activity. Hence the elimination of xenobiotics becomes difficult due to their decreased solubility. Heterozygous (partially abnormal) individuals have decreased enzyme activity and poor elimination of xenobiotics. Susceptible individuals must consume nutrients including beta-carotene, vitamin A, vitamin C, vitamin E, manganese, copper, zinc, selenium, and coenzyme Q10 which will help the liver detoxify toxins. Fasting and exercising are recommended.

Test Name	Gene Name	Risk Association	Your Mutation	Your Risk	Reference
rs713041	GPx4	Poor xenobiotic detoxification, Mercury	⊕⊖ C/T	Partially elevated	T/T

The GPx4 gene, also known as Glutathione Peroxidase 4, encodes a vital antioxidant enzyme called glutathione peroxidase (GPx). Although GPx4 itself doesn't directly participate in xenobiotic detoxification, it indirectly contributes through glutathione conjugation reactions, wherein the availability and activity of glutathione are influenced by GPx4. In these reactions, GPx4 aids in the detoxification process by conjugating glutathione with hydrophobic and electrophilic substances. A mutation in the GPx4 gene can lead to reduced GPx enzyme activity, impairing detoxification and catalytic functions, consequently causing the accumulation of toxins in the body.Heterozygous (partially abnormal) individuals with lower GPx enzyme activity have impaired xenobiotic detoxification and catalytic activity. This leads to the accumulation of toxins in the body. Susceptible individuals must consume nutrients including beta-carotene, vitamin A, vitamin C, vitamin E, manganese, copper, zinc, selenium, and coenzyme Q10 which will help the liver detoxify toxins. Fasting and exercising are recommended.

Environmental Toxins

⊕⊕ Homozygous Mutant ⊕⊖ Heterozygous ⊖⊖ Homozygous Wild

Test Name	Gene Name	Risk Association	Your Mutation	Your Risk	Reference
rs2234922	EPHX1	Benzene	⊖⊖ A/A	Elevated	G/G, A/G

EPHX1 gene encodes for microsomal epoxide hydrolase (EH) which is involved in detoxification processes. Epoxides are important reactive intermediates in the metabolism of benzene. They can bind to cellular macromolecules, including DNA and proteins, to form products that lead to cellular toxicity or abnormal changes in genetic material. EH can catalyze the hydrolysis of reactive epoxides generated into more water-soluble derivatives decreasing the toxicity of these metabolites. Thus, EH plays an essential role in the detoxification of benzene metabolites. A mutation in the EPHX1 can affect EH enzymatic activity which can alter the benzene detoxification process leading to the susceptibility to chronic benzene poisoning (CBP).Homozygous wild (abnormal) individuals who have altered benzene detoxification have an increased susceptibility to CBP.Susceptible individuals are advised to consume foods rich in vitamins, A, D, E, K, C, B3, B6, B9, B12, magnesium, EPA, DHA, zinc, and selenium to help the body recover from CBP. Fasting and exercising are recommended.

Toxin Genetics – Blood - Summary

Heavy Metals

⊕⊕ Homozygous Mutant ⊕⊖ Heterozygous ⊖⊖ Homozygous Wild

Test Name	Gene Name	Risk Association	Your Mutation	Your Risk	Reference
rs713041	GPx4	Poor xenobiotic detoxification, Mercury	⊕⊖C/T	Partially elevated	T/T

The GPx4 gene, also known as Glutathione Peroxidase 4, encodes a vital antioxidant enzyme called glutathione peroxidase (GPx). Although GPx4 itself doesn't directly participate in xenobiotic detoxification, it indirectly contributes through glutathione conjugation reactions, wherein the availability and activity of glutathione are influenced by GPx4. In these reactions, GPx4 aids in the detoxification process by conjugating glutathione with hydrophobic and electrophilic substances. A mutation in the GPx4 gene can lead to reduced GPx enzyme activity, impairing detoxification and catalytic functions, consequently causing the accumulation of toxins in the body.Heterozygous (partially abnormal) individuals with lower GPx enzyme activity have impaired xenobiotic detoxification and catalytic activity. This leads to the accumulation of toxins in the body. Susceptible individuals must consume nutrients including beta-carotene, vitamin A, vitamin C, vitamin E, manganese, copper, zinc, selenium, and coenzyme Q10 which will help the liver detoxify toxins. Fasting and exercising are recommended.

Mycotoxins

⊕⊕ Homozygous Mutant ⊕⊖ Heterozygous ⊖⊖ Homozygous Wild

Test Name	Gene Name	Risk Association	Your Mutation	Your Risk	Reference
rs3734091	XRCC4	Aflatoxin	⊖⊖C/C	Elevated	A/A, A/C

The XRCC4 gene encodes for a protein that is necessary for DNA ligation (joining) and repair of DNA double-strand breaks. Recent studies have shown that polymorphisms in the gene may be associated with dysfunction of XRCC4 which affects its DNA repair capabilities. This gives rise to DNA damage and in severe cases leads to the increased risk of tumor. Aflatoxin B1 (AFB1) acts as a carcinogen (cancer-causing substance) and can induce various types of DNA damage, such as DNA double-strand break (DSBs), DNA base damage, and oxidative damage. Thus, alterations in the XRCC4 gene which is crucial for DNA repair can lead to the risk of AFB1-mediated DNA damage.Homozygous mutant (abnormal) individuals have down-regulated XRCC4 expression leading to the increased risk of AFB1-mediated DNA damage. This may increase the risk of cancer.Susceptible individuals are recommended to increase their intake of fruits and vegetables and they can consume chlorophyllin. Chlorophyllin is a water-soluble derivative of chlorophyll and is well studied as an anticarcinogenic agent. It has beneficial effects against AFB1 toxicity. Fasting and exercising are also recommended.

Test Name	Gene Name	Risk Association	Your Mutation	Your Risk	Reference
rs2228001	XPC	Aflatoxin	⊖⊖G/G	Elevated	T/T, G/T

The XPC gene encodes for a protein that is important for DNA damage sensing and DNA binding. It helps in DNA repair mechanisms. Recent studies have shown that polymorphisms in the gene may be associated with dysfunction of XPC which affects its DNA repair capabilities. This gives rise to DNA damage and in severe cases leads to the increased risk of tumor. Aflatoxin B1 (AFB1) acts as a carcinogen (cancer-causing substance) and can induce various types of DNA damage, such as DNA double-strand break (DSBs), DNA base damage, and oxidative damage. Thus, alterations in the XPC which is crucial for DNA repair can lead to the risk of AFB1-mediated DNA damage.Homozygous mutant (abnormal) individuals have down-regulated XPC expression leading to the increased risk of AFB1-mediated DNA damage. This may increase the risk of cancer. Susceptible individuals are recommended to increase their intake of fruits and vegetables and they can consume chlorophyllin. Chlorophyllin is a water-soluble derivative of chlorophyll and is well studied as an anticarcinogenic agent. It has beneficial effects against AFB1 toxicity. Fasting and exercising are also recommended.

PFAS

No markers are outside the normal reference range

Patient Name: DEMO DEMO
Date of Birth: 01-01-1111 Accession ID: 2311210647
Service Date: 2023-12-08 13:12 (PDT)

Toxin Genetics – Blood

Xenobiotics

⊕⊕ Homozygous Mutant ⊕⊖ Heterozygous ⊖⊖ Homozygous Wild

Test Name	Gene Name	Risk Association	Your Mutation	Your Risk	Reference
rs1042157	SULT1A1	Poor xenobiotic detoxification	⊕⊖ C/T	Partially elevated	C/C
rs762551	CYP1A2	Poor xenobiotic detoxification	⊕⊖ A/C	Normal	A/C, C/C
rs1871042	GSTP1	Poor xenobiotic detoxification	⊕⊕ C/C	Normal	C/C
rs713041	GPx4	Poor xenobiotic detoxification, Mercury	⊕⊖ C/T	Partially elevated	T/T
rs4680	COMT	Poor xenobiotic detoxification	⊕⊕ G/G	Elevated	A/A

Environmental Toxins

⊕⊕ Homozygous Mutant ⊕⊖ Heterozygous ⊖⊖ Homozygous Wild

Test Name	Gene Name	Risk Association	Your Mutation	Your Risk	Reference
rs2234922	EPHX1	Benzene	⊖⊖ A/A	Elevated	G/G, A/G
rs1051741	EPHX1	Benzene	⊖⊖ C/C	Normal	C/C
rs751141	EPHX2	Benzene	⊕⊕ G/G	Normal	G/G
rs1902023	UGT2B15	Bisphenol A, Parabens (MeT, EtP)	⊕⊕ C/C	Normal	C/C, A/A
rs1048943	CYP1A1	Organochlorine/Organophosphate/PFOS and PFOA	⊕⊕ A/A	Normal	A/A
rs1056836	CYP1B1	Pesticides (Diazinon and Malathion), PFAS	⊕⊕ G/G	Normal	G/G
rs1695	GSTP1	Benzidine, styrene, arsenic, cadmium, mercury and pesticides	⊖⊖ A/A	Normal	A/A
rs1138272	GSTP1	Tobacco smoke and alcohol/Mercury	⊖⊖ C/C	Normal	C/C

Heavy Metals

⊕⊕ Homozygous Mutant ⊕⊖ Heterozygous ⊖⊖ Homozygous Wild

Test Name	Gene Name	Risk Association	Your Mutation	Your Risk	Reference
rs11076161	MT1A	Cadmium	⊕⊕ G/G	Normal	G/G, A/G
rs1695	GSTP1	Benzidine, styrene, arsenic, cadmium, mercury and pesticides	⊖⊖ A/A	Normal	A/A
rs1138272	GSTP1	Tobacco smoke and alcohol/Mercury	⊖⊖ C/C	Normal	C/C
rs713041	GPx4	Poor xenobiotic detoxification, Mercury	⊕⊖ C/T	Partially elevated	T/T
rs1050450	GPx1	Methylmercury, Lead and Tobacco	⊖⊖ C/C	Normal	C/C

Patient Name: **DEMO DEMO**
Date of Birth: **01-01-1111** Accession ID: **2311210647**
Service Date: **2023-12-08 13:12 (PDT)**

Toxin Genetics – Blood

Mycotoxins

⊕⊕ Homozygous Mutant ⊕⊖ Heterozygous ⊖⊖ Homozygous Wild

Test Name	Gene Name	Risk Association	Your Mutation	Your Risk	Reference
rs2056131	ITGB3	Increased Mold sensitivity	⊕⊖ A/G	Normal	A/G, A/A
rs28383151	XRCC4	Aflatoxin	⊕⊕ G/G	Normal	G/G, A/G
rs3734091	XRCC4	Aflatoxin	⊖⊖ C/C	Elevated	A/A, A/C
rs25487	XRCC1	Aflatoxin	⊖⊖ C/C	Normal	C/T, C/C
rs861539	XRCC3	Aflatoxin	⊕⊖ A/G	Normal	G/G, A/G
rs7003908	XRCC7	Aflatoxin	⊕⊖ A/C	Normal	A/C, A/A
rs13181	XPD	Aflatoxin	⊕⊖ G/T	Normal	T/T, G/T
rs2228001	XPC	Aflatoxin	⊖⊖ G/G	Elevated	T/T, G/T

PFAS

⊕⊕ Homozygous Mutant ⊕⊖ Heterozygous ⊖⊖ Homozygous Wild

Test Name	Gene Name	Risk Association	Your Mutation	Your Risk	Reference
rs1048943	CYP1A1	Organochlorine/Organophosphate/PFOS and PFOA	⊕⊕ A/A	Normal	A/A
rs1056836	CYP1B1	Pesticides (Diazinon and Malathion), PFAS	⊕⊕ G/G	Normal	G/G

Toxin Genetics – Blood

Risk and Limitations

This test has been developed and its performance characteristics determined and validated by Vibrant Genomics LLC., a CLIA certified lab. These assays have not been cleared or approved by the U.S. Food and Drug Administration. Vibrant Wellness provides additional contextual information on these tests and provides the report in a more descriptive fashion.

The Vibrant Toxins Genetics panel does not demonstrate absolute positive and negative predictive values for any condition. Its clinical utility has not been fully established. Clinical history and current symptoms of the individual must be considered by the healthcare provider prior to any interventions. Test results should be used as one component of a physician's clinical assessment.

Toxins Genetics testing is performed at Vibrant Genomics, a CLIA certified laboratory. Vibrant Genomics has effective procedures in place to protect against technical and operational problems. However, such problems may still occur. Examples include failure to obtain the result for a specific test due to circumstances beyond Vibrant's control. Vibrant may re-test a sample to obtain these results but upon re-testing the results may still not be obtained. As with all medical laboratory testing, there is a small chance that the laboratory could report incorrect results. A tested individual may wish to pursue further testing to verify any results.

Genetic testing is helpful in analyzing risk to various diseases. However, it is important to note that Genetic risk determinants are neither necessary nor sufficient for the development of diseases. Environmental and lifestyle risk factors could also affect the risk of disease development. Results from genetic analysis should always be interpreted along with clinical findings on the individual. Genetic testing evaluates only for the particular genotypes indicated; it does not test for other genetic abnormalities found elsewhere in the genome. Different genetic variants can be tested by different genetic labs to evaluate the risk for a particular disease, depending on what is tested, genetic risk may not be comparable between labs. It should be realized that there are possible sources of error similar to any lab testing which include sample misidentification, trace contamination of PCR reactions, technical errors and rare genetic variants that may interfere with analysis.

Some individuals may feel anxious about getting their genetic test health results. If the potential user feels very anxious, such user should speak to his or her doctor or other health care professional prior to collection of a sample for testing. Users should consult with their doctor or other health care professional if they have any questions or concerns about the results of their test or their current state of health. Users of the test are also encouraged to discuss their test results with a genetic counselor, board-certified clinical molecular geneticist, or equivalent health care professional.

The information in this report is intended for educational purposes only. While every attempt has been made to provide current and accurate information, neither the author nor the publisher can be held accountable for any errors or omissions. Tested individuals may find their experience is not consistent with Vibrant's selected peer reviewed scientific research findings of relative improvement for study groups. The science in this area is still developing and many personal health factors affect diet and health. Since subjects in the scientific studies referenced in this report may have had personal health and other factors different from those of tested individuals, results from these studies may not be representative of the results experienced by tested individuals. Further, some recommendations may or may not be attainable, depending on the tested individual's physical ability or other personal health factors. A limitation of this testing is that many of these scientific studies may have been performed in selected populations only. The interpretations and recommendations are done in the context of these studies, but the results may or may not be relevant to tested individuals of different or mixed ethnicities.

Vibrant Wellness makes no claims as to the diagnostic or therapeutic use of its tests or other informational materials. Vibrant Wellness reports and other information do not constitute medical advice and are not a substitute for professional medical advice. Please consult your healthcare practitioner for questions regarding test results, or before beginning any course of medication, supplementation, or dietary changes.