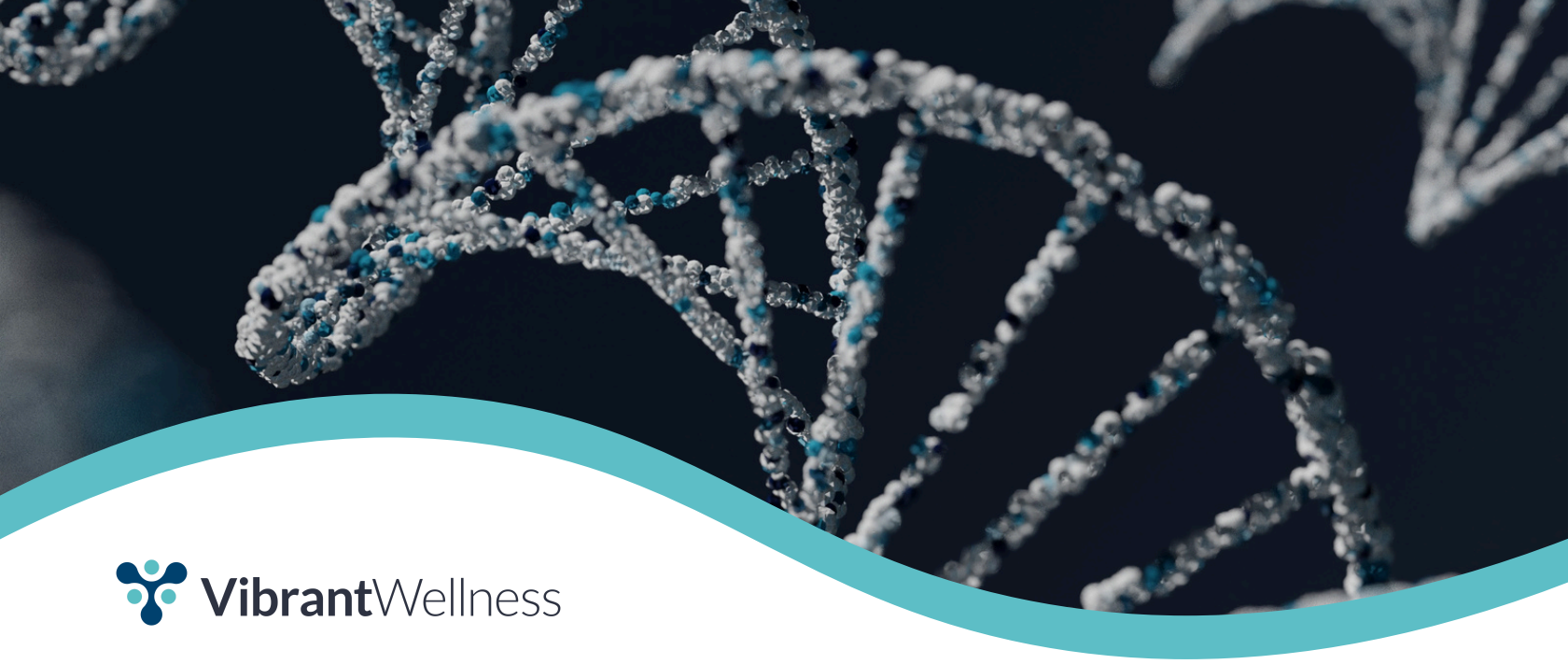

VibrantWellness

Toxin Genetics

Key Clinical Messages

What is the Toxin Genetics Test?

The Toxin Genetics Test assesses for multiple genetic variations that affect detoxification. This test is available as a stand-alone test by sampling either saliva or blood to determine an individual's risk for impaired detoxification.

Which Tests Pair Well with the Toxin Genetics Test?

- **Total Tox Burden (Environmental Toxin, Mycotoxin, and Heavy Metals tests)**: To assess an individual's specific level of toxins in the body.
- **PFAS Chemicals Test:** To assess an individual's specific level of per- and polyfluoroalkyl substances in the body.
- **Micronutrient Panel or NutriPro:** Micronutrient testing provides insights into intra- and extra-micronutrients levels, while the NutriPro test detects nutrition-related genetic SNPs.
- **Serum, Saliva, or Urinary Hormones:** Impaired detoxification pathways may cause endocrine disruption and hormonal imbalances.

Why Order the Toxin Genetics Test?

The Toxin Genetics test provides valuable information about genetic variations in genes that code for detox enzymes that can significantly impact the body's ability to detoxify harmful substances effectively. These genetic differences, known as **single nucleotide polymorphisms (SNPs),** can lead to both slow and rapid detoxification processes, each of which comes with its own set of potential health risks.

Those with genetic variations that result in *slow detoxification* may have difficulty eliminating toxins from their bodies. Consequently, they may be more susceptible to toxin-related health conditions, as their systems are less effective in removing harmful substances. Conversely, *rapid detoxifiers* may face adverse reactions caused by increased oxidative stress when exposed to certain medications or environmental toxins. This can elevate their risk of developing diseases like cancer.

An impaired detoxification system is linked to a wide range of conditions and chronic diseases, including cancer, cardiovascular disease, and neurological conditions such as Alzheimer's. Moreover, defective detoxification and toxic overload can create a vicious cycle, where one condition exacerbates the other, leading to further health complications.

The Vibrant Wellness Toxin Genetics panel is designed to identify common SNPs involved in both Phase I and Phase II detoxification processes, along with genetics specific to various toxins. This comprehensive analysis provides valuable insights into an individual's detoxing ability, allowing for personalized detox and wellness plans. By understanding an individual's detox genetics, healthcare professionals can tailor treatment strategies to address potential weaknesses in the detoxification system, reduce toxic build-ups, and promote better health outcomes.

Which Patients Benefit from This Test?

Conditions and symptoms which may benefit from Toxin Genetic testing include:

- **Neurological Conditions:** Alzheimer's disease, Parkinson's disease, multiple sclerosis, brain fog, disorientation, balance loss, or dizziness, headache, and migraines, vision or hearing changes, poor memory, difficulty finding words, difficulty concentrating, unusual skin sensations, tingling, and numbness
- **Gastrointestinal Dysfunction:** Abdominal pain, diarrhea, or bloating, chronic gastrointestinal tract infections
- **Skin Manifestations:** Skin rashes, eczema and other skin manifestations
- **Chronic Fatigue and Weakness:** Chronic fatigue, muscle weakness
- **Respiratory Issues:** Coughing, wheezing, shortness of breath
- **Mental and Emotional Symptoms:** Depression or anxiety, mood swings
- **Cardiovascular Symptoms:** Irregular heartbeat
- **Sleep Issues:** Insomnia
- **Multiple chemical sensitivity**
- **Adverse reactions to medications**
- **Unexplained symptoms**
- **Other symptoms:** Morning stiffness or joint pain, metallic taste in the mouth, light sensitivity, increased urinary frequency or thirst, static shocks

Interpretation:

The variant alleles are indicated with a + symbol and wild type alleles are indicated with a – symbol. Elevated risk associated variants are indicated with **red**, partially elevated risk associated variants are indicated with **yellow**, and normal risk associated variants are indicated with **green**.

Note: the variant alleles does not always correlate with risk.

Sample Report:

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

Lab Methodology

Vibrant Wellness is a CLIA-certified and CAP-accredited lab that utilizes the most reliable methods for testing genetics. SNPs are measured using the **real-time PCR (RT-PCR)** with unparalleled sensitivity and specificity.

Test Prep for Saliva Collection

Collection: One (1) saliva tube

Hydration Restrictions: Rinsing mouth with water to remove food residue and waiting at least 10 minutes after rinsing to avoid sample dilution before collecting saliva

Fasting: Not required

Diet Restrictions: Avoid foods with high sugar or acidity, or high caffeine content, immediately before sample collection. For best test performance, avoid eating a meal within 60 minutes of sample collection.

Medication Restrictions: None

Supplement Restrictions: None

Test Prep for Blood Collection

Collection: One (1) EDTA tube

Hydration Restrictions: None

Fasting: Not required

Diet Restrictions: None

Medication Restrictions: None

Supplement Restrictions: None

Which Markers Are Included in the Toxin Genetics Test?

The Toxin Genetics test uses **real-time PCR (RT-PCR)** technology to detect genetic variants (SNPs) impacting detoxification of toxicants with unparalleled sensitivity and specificity.

SNP ID	Gene	Risk Association
Environmental Toxins		
rs2234922	EPHX1	Benzene
rs1051741	EPHX1	Benzene
rs751141	EPHX2	Benzene
rs1902023	UGT2B15	Bisphenol A, Parabens (MeT, EtP)
rs1048943	CYP1A1	Organochlorine, Organophosphate
rs1056836	CYP1B1	Pesticides (Diazinon, Malathion)
rs1695	GSTP1	Benzidine, styrene, pesticides
rs1138272	GSTP1	Tobacco smoke, alcohol
Heavy Metals		
rs11076161	MT1A	Cadmium
rs1695	GSTP1	Arsenic, cadmium, mercury
rs1138272	GSTP1	Mercury
rs713041	GPx4	Mercury
rs1050450	GPx1	Methylmercury, lead, tobacco

SNP ID	Gene	Risk Association
Mycotoxins		
rs2056131	ITGB3	Increased Mold sensitivity
rs28383151	XRCC4	Aflatoxin
rs3734091	XRCC4	Aflatoxin
rs25487	XRCC1	Aflatoxin
rs861539	XRCC3	Aflatoxin
rs7003908	XRCC7	Aflatoxin
rs13181	XPD	Aflatoxin
rs2228001	XPC	Aflatoxin
Xenobiotics		
rs1042157	SULT1A1	Poor xenobiotic detoxification
rs762551	CYP1A2	Poor xenobiotic detoxification
rs1871042	GSTP1	Poor xenobiotic detoxification
rs713041	GPx4	Poor xenobiotic detoxification
rs4680	COMT	Poor xenobiotic detoxification
PFAS		
rs1048943	CYP1A1	PFOS, PFOA
rs1056836	CYP1B1	PFAS

Regulatory Statement:
This test has been laboratory developed and their performance characteristics determined by Vibrant America LLC, a CLIA-certified laboratory performing the test CLIA#:05D2078809. The test has not been cleared or approved by the U.S. Food and Drug Administration (FDA). Although FDA does not currently clear or approve laboratory-developed tests in the U.S., certification of the laboratory is required under CLIA to ensure the quality and validity of the tests.

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