

DEMO DEMO

Name: DEMO DEMO
Date of Birth: 10-01-1982
Biological Sex: Female
Age: 43
Height:
Weight: 205 lbs
Fasting:

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

FINAL REPORT

Accession ID: 2472699740

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	2025-10-23 14:15 (PST)	2025-10-25 12:01 (PST)	Methylation Genetics - P2	2025-11-04 19:23 (PST)



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TNP Test not performed

R&L Refer to risks and limitations at the end of report

Notes Refer to Lab notes at the end of the table

INTRODUCTION

Vibrant Wellness is pleased to present Methylation Genetics to support healthy lifestyle choices in consultation with your healthcare provider. The report identifies genetic variants associated with methylation pathways and is meant to be interpreted alongside complementary Vibrant Wellness Zoomer testing. This test is intended to be used by healthcare providers to guide personalized wellness strategies based on genetic predispositions that may influence current biological status.


The genetic variants on the report are organized as multiple tables under different subheadings for associated markers. The summary page lists the set of analytes with risk associated variants. Following this section is the complete list of the genetic markers measured in the panel. 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.

Methodology

The Methylation Genetics panel uses real-time PCR methodology. DNA is extracted and purified from blood 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 results of the genetic testing will be listed in the format in the image below. The "SNP ID" identifies the particular genetic variation detected. The "Variant" refers to the specific nucleotide change for the particular variant. The "Gene Name" refers to the specific gene impacted or associated with the SNP ID. The "Risk Association" refers to the impact of the specified genetic variation on some biochemical pathway, physiological process and/or health state. "Your Genotype" refers to the specific alleles identified to be carried by the patient tested. "Your Risk" indicates, based on the patient's specific genetic findings, if their risk of genetic impacts on a biochemical pathway, physiological process and/or health state, are either increased (elevated) or not. The "Non-risk Genotype" refers to the allele combinations (nucleotides) not associated with increased risk. See the image below for an example illustration of the results.

Risk Level	Variant	Gene Name	Risk Association	Your Genotype	Your Risk	Non-risk Genotype
 SNP ID	C638T	MTHFR	Detox Capability	A A	Elevated	A G

Please note: Pediatric risk interpretation for the reported variants has not been established. It is important that you discuss any modifications to your diet, exercise, drug, and/or nutritional supplementation with your healthcare provider before making any changes

Methylation Genetics

Test Name	Variant	Gene Name	Risk Association	Your Genotype	Your Risk	Non-risk Genotype
rs1801131	A1298C; A>C	MTHFR	Active folate deficiency	C/C	Elevated	A/A
<p>The MTHFR gene encodes the enzyme methylenetetrahydrofolate reductase, which catalyzes the conversion of 5,10-methylenetetrahydrofolate to 5-methyltetrahydrofolate, the active form of folate. Folate serves as a methyl donor essential for DNA synthesis and methylation reactions, including DNA methylation. Folate deficiency can lead to genomic DNA hypomethylation, an early epigenetic alteration observed in various cancers, particularly colorectal cancer (CRC). Mutations in the MTHFR gene reduce the enzyme's activity, decreasing the production of active folate. This impairment in DNA methylation is associated with an increased risk of developing neural tube defects. Individuals with CC genotype who have impaired gene activity are associated with impaired methylation. Susceptible individuals may benefit from consuming methylated folate supplements.</p>						
rs1801394	A66G; A>G	MTRR	Failure to convert homocysteine to methionine	G/G	Elevated	A/A
<p>The MTRR gene provides instructions for producing the enzyme methionine synthase reductase, which is essential for the proper function of methionine synthase. Methionine synthase catalyzes the remethylation of homocysteine to regenerate methionine and produce S-adenosylmethionine (SAME), a key cellular methyl donor. SAME supports the immune system, maintains cell membranes, and is involved in the synthesis and breakdown of brain chemicals such as serotonin, melatonin, and dopamine. Mutations in the MTRR gene can disrupt enzyme activity, preventing methionine synthase from efficiently converting homocysteine to methionine. This leads to impaired methylation and accumulation of homocysteine in the bloodstream, which is associated with an increased risk of dementia, cardiovascular disease, and stroke. Individuals with GG genotype with disrupted gene activity have impaired methylation. Individuals with genetic susceptibility may benefit from consuming methylated folate supplements. Foods like kale, spinach, bok choy, escarole, collard greens, beet greens, mustard greens, turnip greens, arugula, broccoli, cabbage, Brussels sprouts, cauliflower, beetroot, beans, legumes, okra, mushroom, beef liver, the chicken liver can be included in the diet. Dietary supplements like Vitamin B12, and folate can also be beneficial.</p>						
rs3851059	G>A	MAT1A	Homocysteine builds up in the bloodstream	A/G	Elevated	G/G
<p>The MAT1A gene encodes the methionine adenosyltransferase enzyme, which catalyzes the conversion of methionine to S-adenosylmethionine (SAME) through methylation. SAME supports the immune system, maintains cell membranes, and is involved in the synthesis and breakdown of brain chemicals such as serotonin, melatonin, and dopamine. Mutations in the MAT1A gene can disrupt enzyme activity, preventing the normal conversion of methionine to SAME. Consequently, homocysteine accumulates in the bloodstream, leading to impaired methylation and associated health risks. Individuals with AA genotype exhibit disrupted gene activity and impaired methylation. Individuals with genetic susceptibility may benefit from consuming methylated folate supplements. Foods like kale, spinach, bok choy, escarole, collard greens, beet greens, mustard greens, turnip greens, arugula, broccoli, cabbage, Brussels sprouts, cauliflower, beetroot, beans, legumes, okra, mushroom, beef liver, the chicken liver can be included in the diet. Dietary supplements like Vitamin B6, SAME, and folate can also be beneficial.</p>						
rs1979277	C1420T; C>T	SHMT1	Active folate deficiency	T/T	Elevated	C/C
<p>The SHMT1 gene encodes the enzyme serine hydroxymethyltransferase 1, which catalyzes the conversion of 5,10-methylenetetrahydrofolate to 5-methyltetrahydrofolate, an active form of folate. Folate serves as a critical methyl donor essential for DNA synthesis and biological methylation reactions, including DNA methylation. Mutations in the SHMT1 gene can impair the production of active folate, leading to disrupted DNA methylation and an increased risk of developing neural tube defects. Individuals with TT genotype have impaired gene activity and impaired methylation. Individuals with genetic susceptibility may benefit from consuming methylated folate supplements. Foods like kale, spinach, bok choy, escarole, collard greens, beet greens, mustard greens, turnip greens, arugula, broccoli, cabbage, Brussels sprouts, cauliflower, beetroot, beans, legumes, okra, mushroom, beef liver, the chicken liver can be included in the diet. Dietary supplements like Vitamin B6, SAME, and folate can also be beneficial.</p>						

Methylation Genetics

Test Name	Variant	Gene Name	Risk Association	Your Genotype	Your Risk	Non-risk Genotype
rs10948059	1298C>T	GNMT	Methionine and SAMe build up in the blood	C/T	Partially elevated	C/C

The glycine N-methyltransferase (GNMT) gene regulates the production of the enzyme glycine N-methyltransferase, which catalyzes the methylation of glycine using S-adenosylmethionine (SAMe) to produce N-dimethylglycine and S-adenosylhomocysteine (SAH). This process is essential for cell growth and the regulation of gene expression. Mutations in the GNMT gene can decrease its expression, impairing the breakdown of methionine and SAMe. This leads to their accumulation in the blood, abnormal DNA methylation, cytotoxicity, and disrupted DNA synthesis. Individuals with CT genotype may have decreased gene expression and impaired methylation. Individuals with genetic susceptibility may benefit from consuming methylated folate supplements. Foods like kale, spinach, bok choy, escarole, collard greens, beet greens, mustard greens, turnip greens, arugula, broccoli, cabbage, Brussels sprouts, cauliflower, beetroot, beans, legumes, okra, mushroom, beef liver, the chicken liver can be included in the diet. Dietary supplements like magnesium and folate can also be beneficial.

rs162036	A>G	MTRR	Homocysteine builds up in the bloodstream	A/G	Partially elevated	A/A
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The MTRR gene provides instructions for producing the enzyme methionine synthase reductase, which is essential for the proper function of methionine synthase. Methionine synthase catalyzes the remethylation of homocysteine to regenerate methionine and produce S-adenosylmethionine (SAMe), a crucial cellular methyl donor. SAMe supports the immune system, maintains cell membranes, and is involved in the synthesis and breakdown of brain chemicals such as serotonin, melatonin, and dopamine. Mutations in the MTRR gene disrupt enzyme activity, impairing methionine synthase function. This leads to reduced conversion of homocysteine to methionine, impaired methylation, and elevated homocysteine levels in the bloodstream, increasing the risk of dementia, heart disease, and stroke. Individuals with AG genotype who have disrupted gene activity have impaired methylation. Individuals with genetic susceptibility may benefit from consuming methylated folate supplements. Foods like kale, spinach, bok choy, escarole, collard greens, beet greens, mustard greens, turnip greens, arugula, broccoli, cabbage, Brussels sprouts, cauliflower, beetroot, beans, legumes, okra, mushroom, beef liver, the chicken liver can be included in the diet. Dietary supplements like magnesium and folate can also be beneficial.

rs1799983	G894T	NOS3	Altered DNA Methylation	G/T	Partially elevated	G/G
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The NOS3 (eNOS) gene encodes endothelial nitric oxide synthase, an enzyme responsible for producing nitric oxide (NO) in vascular endothelial cells. NO is crucial for maintaining vascular tone, regulating blood pressure, and preventing thrombosis. DNA methylation is a key epigenetic mechanism regulating NOS3 expression, and altered methylation patterns have been linked to vascular dysfunction. Polymorphisms such as G894T may influence methylation status, contributing to endothelial dysfunction and increasing susceptibility to coronary artery disease, hypertension, pre-eclampsia, and diabetic vascular complications. Inflammatory and oxidative stress pathways can further exacerbate vascular impairment associated with NOS3 polymorphisms and dysregulated methylation. Individuals with the GT genotype may have intermediate eNOS activity, with potential variability in NO production depending on environmental factors and epigenetic influences such as DNA methylation. Individuals with genetic susceptibility may benefit from consuming methylated folate supplements. Foods like kale, spinach, bok choy, escarole, collard greens, beet greens, mustard greens, turnip greens, arugula, broccoli, cabbage, Brussels sprouts, cauliflower, beetroot, beans, legumes, okra, mushroom, beef liver, the chicken liver can be included in the diet. Dietary supplements like magnesium and folate can also be beneficial.

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Methylation Genetics - All Markers

Methylation Genetics

Test Name	Variant	Gene Name	Risk Association	Your Genotype	Your Risk	Non-risk Genotype
rs1801133	C677T; C>T	MTHFR	Active folate deficiency	C/C	Normal	C/C
rs1801131	A1298C; A>C	MTHFR	Active folate deficiency	C/C	Elevated	A/A
rs1801394	A66G; A>G	MTRR	Failure to convert homocysteine to methionine	G/G	Elevated	A/A
rs3851059	G>A	MAT1A	Homocysteine builds up in the bloodstream	A/G	Elevated	G/G
rs1979277	C1420T; C>T	SHMT1	Active folate deficiency	T/T	Elevated	C/C
rs10948059	1298C>T	GNMT	Methionine and SAMe build up in the blood	C/T	Partially elevated	C/C
rs3733890	G716A; G>A	BHMT	Homocysteine builds up in the bloodstream	G/G	Normal	G/G
rs162036	A>G	MTRR	Homocysteine builds up in the bloodstream	A/G	Partially elevated	A/A
rs1805087	A2756G; A>G	MTR	Homocysteine builds up in the bloodstream	A/A	Normal	A/A
rs4680	G158A; G>A	COMT	Abnormal catechol-O-methyltransferase levels	G/G	Normal	G/G
rs4633	c.186C>T	COMT	Abnormal catechol-O-methyltransferase levels	C/C	Normal	C/C
rs1799983	G894T	NOS3	Altered DNA Methylation	G/T	Partially elevated	G/G

Disclaimer

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All laboratory testing is performed by Vibrant Genomics, a CLIA-certified (No. 05D2098445) and CAP-accredited (No. 9282409-01) clinical laboratory (address: 3521 Leonard Ct, Santa Clara, CA 95054). Testing is performed only upon the order of a licensed healthcare professional. Biological specimens are obtained from patients by, or at the direction of, the ordering healthcare professional.

This test is a laboratory-developed test (LDT) that has been designed, manufactured, validated and performed by Vibrant in accordance with applicable federal and state laboratory regulations. This test has not been reviewed or approved by the U.S. Food and Drug Administration (FDA).

The informational content (including summaries, descriptions, images, and other materials) included in this report is based on publicly available scientific literature and for informational purposes only. This content and test results do not replace medical advice from a qualified healthcare professional. Test results are intended for use by healthcare professionals and must be interpreted based on their knowledge of the patient's clinical history and presentation. Any wellness, nutritional, or dietary recommendations, diagnoses of medical conditions, or treatment decisions based on these results are made at the discretion and responsibility of the healthcare professional.

Vibrant assumes no responsibility or liability arising from the use or interpretation of test results by the healthcare professional.

SAMPLE

Risk and Limitations

Genetic testing is helpful in analyzing risks to various diseases. However, it is important to note that Genetic risk determinants are neither necessary nor sufficient for the development of disease. Environmental and lifestyle risk factors could also affect the risk of disease development. Genetic risk does not indicate how common a health condition or variant is within the population; a risk-associated variant may be common or uncommon. Interpretation of genetic results should consider individual health context, as population-based reference frameworks may not fully represent all age groups, ethnic backgrounds, or health profiles.

Results may be affected by pre-analytical variables related to specimen type, collection, handling, transport, and storage. EDTA (Whole blood) specimens may be impacted by factors such as improper anticoagulant use, clotting, hemolysis, insufficient sample volume, delayed shipment, processing, or improper storage conditions. Degradation or instability of extracted DNA may occur if specimens are not collected or transported according to recommended guidelines, potentially affecting result accuracy or leading to a Test Not Performed (TNP).

Genetic testing evaluates only the genotypes indicated and does not assess other genetic abnormalities found elsewhere in the genome. Different laboratories may test different variants when evaluating genetic risk for a given condition; therefore, genetic risk results may not be directly comparable between laboratories.

As with any laboratory testing, there are possible sources of error, including but not limited to sample misidentification, trace contamination of PCR reactions, technical errors, and rare genetic variants that may interfere with analysis. Genetic SNP testing is performed using RT PCR platforms. Allele calling for individual SNPs is performed using the instrument manufacturer's autocall methodology. Errors in autocalling may occur, most commonly in association with outlier wells or software-related issues.

The reported SNPs and associated informational content are informed by scientific knowledge at the time of reporting, including peer-reviewed scientific publications, publicly available databases, and guidance from recognized scientific and public health organizations. Interpretive content and variant risk classifications may change as scientific knowledge continues to evolve. As a result, a variant initially reported as non-risk may later be reclassified as risk, or vice versa. To ensure accuracy and relevance of our genetic testing, Vibrant conducts internal audits, post market surveillance, and incorporates feedback from providers and customers to keep reports aligned with the most current scientific findings.

Some individuals may experience anxiety related to their genetic test results. Vibrant encourages any concerned individual to consult with a qualified healthcare professional prior to sample collection for a genetic test. Users of the test are encouraged to discuss their test results with a genetic counselor, board-certified clinical molecular geneticist, or equivalent health care professional. In some cases, the identification of risk-associated genetic variants may prompt discussion with a healthcare provider about additional testing or follow-up.

Vibrant does not diagnose, treat, or cure medical conditions and does not replace the care of a licensed medical practitioner or counselor. Genetic testing is not intended to diagnose disease, assess current health status, or be used to make medical decisions, including whether you should take a medication or how much of a medication you should take. Vibrant assumes no liability for any loss, injury, or damages arising from the procurement, compilation, interpretation, delivery, or reporting of information contained in this report, nor from any decisions made or actions taken based on these results.

The supplement recommendations and dosage guidelines provided are intended for general informational purposes only and should not replace professional medical advice; final dosage decisions must be made in consultation with your healthcare provider. Vibrant disclaims any liability for adverse effects, outcomes, or consequences arising from the use of these suggestions.

Risks and Limitations – Genetics

Genetic testing is helpful in analyzing risks to various diseases. However, it is essential 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. It should be realized that there are possible sources of error like any lab testing which include sample misidentification, trace contamination of PCR reactions, technical errors and rare genetic variants that may interfere with the analysis.

Genetic testing evaluates only for the 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.

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 collecting 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.

Variant risk classification may not align with associated disease risk or may change ex: a benign variant may be reported as pathogenic. Misclassification may be due to updated research studies, allele dropouts or interpretation pitfalls. Variant risk classification may also not be relevant to the tested individual of different or mixed ethnicities in comparison to the study group(s) from literature. Vibrant conducts internal audits, post market surveillance and feedback from providers and customers on an ongoing basis to keep our reports updated with the most current findings. 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 prior to any interventions and diet/supplement/lifestyle changes.

Genetic SNP testing is performed using real time PCR systems. It is important to note that allele calling for a particular SNP is performed using the Autocall methodology of the instrument manufacturer. Failure or error in autocalling could occur and is usually associated with outlier wells or software issues relevant to making an allele call. As with all genetic SNP testing, there is a small chance that the laboratory could report these incorrect results.

Genetic testing is not intended to diagnose a disease, tell you anything about your current state of health, or be used to make medical decisions, including whether you should take a medication/supplement or how much of a medication/supplement you should take. It is intended to provide users with their genetic information and suggestions to inform lifestyle decisions and conversations with their doctor or other health care professionals.