

SPERM DONOR GENETIC TESTING SUMMARY

Donor # 7931

Fairfax Cryobank recommends reviewing this genetic testing summary with your healthcare provider to determine suitability.

Last Updated: 1/29/2026

Donor Reported Ancestry: Italian, Polish, Swedish, Norwegian

Jewish Ancestry: No

Genetic Test*	Result	Comments Donor's Residual Risk**
Chromosome analysis (karyotype)	Normal male karyotype	No evidence of clinically significant chromosome abnormalities
Hemoglobin evaluation	Normal hemoglobin fractionation and MCV/MCH results	Reduced risk to be a carrier for sickle cell anemia, beta thalassemia, alpha thalassemia trait (aa/-- and a-/a-) and other hemoglobinopathies
Expanded Genetic Disease Carrier Screening Panel attached - 549 diseases by gene sequencing and del/dup analysis.	<p>Carrier: Congenital Adrenal Hyperplasia, 21-Hydroxylase Deficiency (CYP21A2)</p> <p>Carrier: Ehlers-Danlos Syndrome Type VI (PLOD1)</p> <p>Carrier: Mitochondrial Complex 1 Deficiency, NDUF5-Related (NDUF5)</p> <p>Carrier: Non-Syndromic Hearing Loss, GJB2-Related (GJB2)</p> <p>Negative for other genes tested.</p>	Partner testing is recommended before using this donor.

*No single test can screen for all genetic disorders. A negative screening result significantly reduces, but cannot eliminate, the risk for these conditions in a pregnancy.

**Donor residual risk is the chance the donor is still a carrier after testing negative.

Patient Information

Patient Name: Donor 7931
Date Of Birth: [REDACTED]
Gender: Male
Ethnicity: Northern European
Caucasian
Patient ID: N/A
Medical Record #: [REDACTED]
Collection Kit: [REDACTED]
Accession ID: N/A
Case File ID: [REDACTED]

Test Information

Ordering Physician: [REDACTED]
Clinic Information: Fairfax Cryobank
Phone: N/A
Report Date: 07/15/2025
Sample Collected: 07/01/2025
Sample Received: 07/02/2025
Sample Type: Blood

CARRIER SCREENING REPORT

ABOUT THIS SCREEN: Horizon™ is a carrier screen for specific autosomal recessive and X-linked diseases. This information can help patients learn their risk of having a child with specific genetic conditions.

ORDER SELECTED: The Horizon Custom panel was ordered for this patient. Males are not screened for X-linked diseases

FINAL RESULTS SUMMARY:**CARRIER for Congenital Adrenal Hyperplasia, 21-Hydroxylase Deficiency**

Positive for the pathogenic deletion in the CYP21A2 gene. If this individual's partner is a carrier for CONGENITAL ADRENAL HYPERPLASIA, 21-HYDROXYLASE DEFICIENCY, their chance to have a child with this condition is 1 in 4 (25%). Carrier screening for this individual's partner is recommended.

CARRIER for Ehlers-Danlos Syndrome Type VI

Positive for the pathogenic variant c.145C>T (p.Q49*) in the PLOD1 gene. If this individual's partner is a carrier for EHLERS-DANLOS SYNDROME TYPE VI, their chance to have a child with this condition is 1 in 4 (25%). Carrier screening for this individual's partner is suggested.

CARRIER for Mitochondrial Complex 1 Deficiency, NDUFAF5-Related

Positive for the likely pathogenic variant c.1A>C (p.M1?) in the NDUFAF5 gene. If this individual's partner is a carrier for MITOCHONDRIAL COMPLEX 1 DEFICIENCY, NDUFAF5-RELATED, their chance to have a child with this condition may be as high as 1 in 4 (25%). Carrier screening for this individual's partner is suggested.

CARRIER for Non-Syndromic Hearing Loss, GJB2-Related

Positive for the pathogenic variant c.35del (p.G12Vfs*2) in the GJB2 gene. Although most variants in this gene are associated with an autosomal recessive form of NON-SYNDROMIC HEARING LOSS, GJB2-RELATED, some rare GJB2 variants may cause an autosomal dominant form of the condition. To our knowledge, there is insufficient evidence that this variant causes an autosomal dominant form of this condition. If this individual's partner is a carrier for NON-SYNDROMIC HEARING LOSS, GJB2-RELATED, their chance to have a child with this condition is likely 1 in 4 (25%). Carrier screening for this individual's partner is suggested.

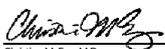
Negative for 545 out of 549 diseases

No other pathogenic variants were detected in the genes that were screened. The patient's remaining carrier risk after the negative screening results is listed for each disease/gene on the Horizon website at <https://www.natera.com/panel-option/h-all/>. Please see the following pages of this report for a comprehensive list of all conditions included on this individual's screen.

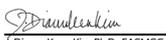
Carrier screening is not diagnostic and may not detect all possible pathogenic variants in a given gene.

RECOMMENDATIONS

Individuals who would like to review their Horizon report with a Natera Laboratory Genetic Counselor may schedule a telephone genetic information session by calling 650-249-9090 or visiting naterasession.com. Clinicians with questions may contact Natera at 650-249-9090 or email support@natera.com. Individuals with positive results may wish to discuss these results with family members to allow them the option to be screened. Comprehensive genetic counseling to discuss the implications of these test results and possible associated reproductive risk is recommended.


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Senior Laboratory Director, Natera


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Laboratory Director, Natera

Patient Information

Patient Name: Donor 7931

Test Information

Ordering Physician: [REDACTED]



Clinic Information: Fairfax Cryobank

Date Of Birth: [REDACTED]

Case File ID: [REDACTED]

Report Date: 07/15/2025

CONGENITAL ADRENAL HYPERPLASIA, 21-HYDROXYLASE DEFICIENCY

Understanding Your Horizon Carrier Screen Results

What is Congenital Adrenal Hyperplasia, 21-Hydroxylase Deficiency?

Congenital Adrenal Hyperplasia, 21-Hydroxylase Deficiency (also called 21-Hydroxylase Deficiency) is an inherited disorder that causes the adrenal glands, the organs that sit on top of the kidneys, to make decreased amounts of the hormones cortisol and aldosterone and increased amounts of male sex hormones called androgens.

There are three forms of 21-Hydroxylase Deficiency. The most common and severe form is called the 'salt-wasting type' with signs and symptoms that are often present at birth. Babies with the salt-wasting type of 21-Hydroxylase Deficiency are at risk for losing large amounts of sodium in the urine due to too low a level of aldosterone hormone. These 'salt-wasting crises' can lead to poor feeding, weight loss, dehydration, vomiting, low blood pressure, and shock, and can be life-threatening if not treated quickly. Symptoms in females include being born with external genitalia that do not have the typical appearance of male or female (ambiguous genitalia). Over time, affected females may also have early puberty, rapid early growth with short adult height, increased body hair (hirsutism), male pattern baldness, irregular menstrual periods, and decreased fertility. Affected males have normal genitalia at birth but are at risk for salt-wasting crises and may have increased penis size and decreased testicle size over time as well as an early growth spurt with short adult height. Some males with this form have decreased fertility due to benign growths in their testicles called 'testicular adrenal rest tumors' (TART).

The 'simple virilizing type' of 21-Hydroxylase Deficiency has similar symptoms to the salt-wasting type except babies with the simple virilizing type are not at risk for salt wasting crises.

The mildest form of 21-Hydroxylase Deficiency is called the 'non-classical type'. People with the nonclassical type of 21-Hydroxylase Deficiency have normal external genitalia. Signs and symptoms may begin as early as childhood or not until adulthood and may include an early growth spurt with short adult height, early puberty, and acne. Additional symptoms in females may include excess body hair, male pattern baldness, irregular periods, and decreased fertility. Additional symptoms in males may include early and heavy facial hair and small testicles. Some people with this type never develop symptoms.

Currently, there is no cure for 21-Hydroxylase Deficiency. However, hormone replacement therapy can prevent or lessen some or all of the symptoms. Clinical trials involving potential new treatments for this condition may be available (see www.clinicaltrials.gov).

What causes Congenital Adrenal Hyperplasia, 21-Hydroxylase Deficiency?

21-Hydroxylase Deficiency is caused by a change, or mutation, in both copies of the CYP21A2 gene pair. These mutations cause the genes to not work properly or not work at all. The function of the CYP21A2 genes is to help make sex hormones and other hormones. When both copies of this gene do not work correctly, it leads to the symptoms described above.

21-Hydroxylase Deficiency is inherited in an autosomal recessive manner. This means that, in most cases, both parents must be carriers of a mutation in one copy of the CYP21A2 gene to have a child with 21-Hydroxylase Deficiency. People who are carriers for 21-Hydroxylase Deficiency are usually healthy and do not have symptoms nor do they have the disorder themselves. Usually a child inherits two copies of each gene, one copy from the mother and one copy from the father. If the mother and father are both carriers for 21-Hydroxylase Deficiency, there is a 1 in 4, or 25%, chance in each pregnancy for both partners to pass on their CYP21A2 gene mutations to the child, who will then have this condition. It is sometimes, but not always, possible to determine whether a specific mutation in the CYP21A2 gene will cause the salt-wasting type, the simple virilizing type, or the non-classic type of 21-Hydroxylase Deficiency.

Individuals found to carry more than one mutation for 21-Hydroxylase Deficiency should discuss their risk for having an affected child, and any potential effects to their own health, with their health care provider.

There are a number of other forms of Congenital Adrenal Hyperplasia, each caused by mutations in different genes. A person who is a carrier for Congenital Adrenal Hyperplasia, 21-Hydroxylase Deficiency is not likely to be at increased risk for having a child with these other forms.

What can I do next?

You may wish to speak with a local genetic counselor about your carrier test results. A genetic counselor in your area can be located on the National Society of Genetic Counselors website (www.nsgc.org).

Your siblings and other relatives are at increased risk to also have this mutation. You are encouraged to inform your family members of your test results as they may wish to consider being tested themselves.

If you are pregnant, your partner can have carrier screening for 21-Hydroxylase Deficiency ordered by a health care professional. If your partner is not found to be a carrier for 21-Hydroxylase Deficiency, your risk of having an affected child is greatly reduced. Couples at risk of having a baby with 21-Hydroxylase Deficiency can opt to have prenatal diagnosis done through chorionic villus sampling (CVS) or amniocentesis during pregnancy or can choose to have the baby tested after birth for this condition. **If you are not yet pregnant**, your partner can have carrier screening for 21-Hydroxylase Deficiency ordered by a health care professional. If your partner is found to be a carrier for 21-Hydroxylase Deficiency, you have several reproductive options to consider:

- Natural pregnancy with or without prenatal diagnostic testing of the fetus or testing the baby after birth for 21-Hydroxylase Deficiency
- Preimplantation genetic diagnosis (PGD) with in vitro fertilization (IVF) to test embryos for 21-Hydroxylase Deficiency
- Adoption or use of a sperm or egg donor who is not a carrier for 21-Hydroxylase Deficiency

What resources are available?

- Genetics Home Reference: <http://ghr.nlm.nih.gov/condition/21-hydroxylase-deficiency>
- GeneReviews: <https://www.ncbi.nlm.nih.gov/books/NBK1171/>
- Prenatal diagnosis by CVS: <http://www.marchofdimes.org/chorionic-villus-sampling.aspx>

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- Prenatal diagnosis by amniocentesis: <http://www.marchofdimes.org/amniocentesis.aspx>
- PGD with IVF: <http://www.natera.com/spectrum>

Patient Information

Patient Name: [REDACTED]

Test Information

Ordering Physician: [REDACTED]



Clinic Information: [REDACTED]

Date Of Birth: [REDACTED]

Case File ID: [REDACTED]

Report Date: [REDACTED]

EHLERS-DANLOS SYNDROME TYPE VI

Understanding Your Horizon Carrier Screen Results

What does being a carrier mean?

Your results show that you are a carrier of Ehlers-Danlos syndrome type VI. This condition is also known as kyphoscoliotic Ehlers-Danlos syndrome PLOD1-related (kEDS-PLOD1). A carrier of a genetic condition does not have the condition. Carriers also are not certain to have a child with the condition. We are all carriers of one or more genetic conditions.

Your children are not at high risk for this condition unless your partner or donor is also a carrier of kEDS-PLOD1. Further testing can be done to see if your partner or donor is a carrier.

What is Ehlers-Danlos syndrome type VI (kEDS-PLOD1)?

kEDS-PLOD1 affects the connective tissues of the body. Connective tissue provides support to the skin, bones, blood vessels, and other organs.¹ People with kEDS-PLOD1 are born with low muscle tone (hypotonia) and a curving of the spine (kyphoscoliosis) that is severe and gets worse over time. Because of the low muscle tone, people with kEDS-PLOD1 can learn to sit, walk, and coordinate their bodies more slowly than others (gross motor delay). Nearly all people with kEDS-PLOD1 also have very flexible joints (hypermobility), which can cause joint pain and dislocation. They also often have soft, stretchy skin that can be fragile, and they can bruise easily.^{2,3} Some people with kEDS-PLOD1 have mild to severe eye and vision problems. Weak blood vessels can cause life-threatening bleeding problems, such as tearing (artery rupture) or bursting (aneurysm with dissection).³

There is currently no cure for this condition, and treatment is based on symptoms.¹ Clinical trials involving potential new treatments for this condition could be available (see clinicaltrials.gov).

What causes Ehlers-Danlos syndrome type VI (kEDS-PLOD1)?

kEDS-PLOD1 is caused by changes, or variants, in the PLOD1 gene. These changes make the gene not work properly. Genes are a set of instructions inside the cells of our bodies that tell our bodies how to grow and function. Everyone has two copies of the PLOD1 gene. Carriers of kEDS-PLOD1 have one working copy and one nonworking copy of the gene. People with kEDS-PLOD1 have no working copies of the gene.

kEDS-PLOD1 is usually passed down, or inherited, from both genetic parents. We inherit one copy of the PLOD1 gene from each of our genetic parents. When both genetic parents are carriers, each child has a 1 in 4 (25%) chance of inheriting two nonworking genes and having kEDS-PLOD1. Each child also has a 1 in 2 (50%) chance of being a carrier of kEDS-PLOD1 and a 1 in 4 (25%) chance of inheriting two working copies of the gene. This type of inheritance is called autosomal recessive inheritance.

Will my children have Ehlers-Danlos syndrome type VI (kEDS-PLOD1)?

If your partner or donor also has a nonworking copy of the PLOD1 gene, your children could have kEDS-PLOD1. Each child you have together would have a 1 in 4 (25%) chance of having kEDS-PLOD1. Each child you have together would also have a 3 in 4 (75%) chance of **not** having the condition.

If your partner or donor has PLOD1 carrier screening and no variants are found, the chance that your children would have kEDS-PLOD1 is very low. No further testing would usually be needed for you, your partner or donor, or your children related to kEDS-PLOD1.

What can I do next?

If you want to know if your children are at risk for kEDS-PLOD1, your partner or donor would need to have PLOD1 carrier screening. If you have questions about this testing, please ask your healthcare provider or use the resources below. Many people find it helpful to speak with a genetic counselor.

If your partner or donor is found to be a kEDS-PLOD1 carrier, your children would be at risk for having kEDS-PLOD1.

If you or your partner or surrogate are currently pregnant, tests called CVS (chorionic villus sampling) and amniocentesis can be done during pregnancy to find out if a baby has kEDS-PLOD1. These tests both have a small risk of miscarriage. Babies can also be tested for kEDS-PLOD1 after birth instead.

If you or your partner or surrogate are not yet pregnant, you could have these options:

- natural pregnancy with CVS or amniocentesis to test for kEDS-PLOD1 during pregnancy;
- natural pregnancy and testing the baby after birth for kEDS-PLOD1;
- preimplantation genetic testing (PGT-M) with in vitro fertilization (IVF) to test embryos for kEDS-PLOD1;
- adoption; or
- use of a sperm or egg donor who had no variants found in PLOD1 carrier screening.

Where can I find more information?

- The Ehlers-Danlos Society ehlers-danlos.com
- Ehlers-Danlos Support UK ehlers-danlos.org/information/dermatosparaxis-ehlers-danlos-syndrome
- CVS marchofdimes.org/chorionic-villus-sampling
- Amniocentesis marchofdimes.org/pregnancy/amniocentesis

What does this mean for my family?

You likely got (inherited) this nonworking gene from one of your genetic parents. Your genetic siblings and other family members could also carry it. You should

Patient Information

Patient Name: [REDACTED]

Test Information

Ordering Physician: [REDACTED]



Date Of Birth: [REDACTED]

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tell your family members about your test results so they can decide if they want carrier screening for kEDS-PLOD1.

References

1. MedlinePlus [Internet]. Bethesda (MD): National Library of Medicine (US); [updated 02/29/2024]. EHLERS-DANLOS SYNDROME, KYPHOSCOLIOTIC TYPE, 1; EDSKSL1; [cited 2024 Aug 13]. Available from: <https://omim.org/entry/225400>.
2. Malfait F et al. Classic Ehlers-Danlos Syndrome. 2007 May 29 [Updated 2024 Feb 1]. In: Adam MP et al, editors. GeneReviews® [Internet]. Seattle (WA): University of Washington, Seattle; 1993-2024. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK1244/>. Accessed August 2024.
3. Brady AF et al. The Ehlers-Danlos syndromes, rare types. Am J Med Genet C Semin Med Genet. 2017 Mar;175(1):70-115. doi: 10.1002/ajmg.c.31550. PMID: 28306225.

Patient Information

Patient Name: [REDACTED]

Test Information

Ordering Physician: [REDACTED]



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Date Of Birth: [REDACTED]

Case File ID: [REDACTED]

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MITOCHONDRIAL COMPLEX 1 DEFICIENCY, NDUFAF5-RELATED**Understanding Your Horizon Carrier Screen Results****What is Mitochondrial Complex 1 Deficiency, NDUFAF5-Related?**

Mitochondrial Complex 1 Deficiency, NDUFAF5-Related is an inherited disorder that causes abnormal function of the mitochondria, the energy-producing structures found in the cells of the body. Symptoms can start in infancy, childhood, or not until later in adulthood. Common symptoms include larger than normal head size, progressive loss of the white matter of the brain, delayed development, seizures, enlarged heart, vision loss, liver disease, kidney disease, muscle disease, and abnormal movements. Infants who show symptoms early in life usually have more severe disease and may have a shortened lifespan. Clinical trials involving potential new treatments for this condition may be available (see www.clinicaltrials.gov).

What causes Mitochondrial Complex 1 Deficiency, NDUFAF5-Related?

Mitochondrial Complex 1 Deficiency (MT-C1D), NDUFAF5-Related is caused by a change, or mutation, in both copies of the NDUFAF5 gene pair. These mutations cause the genes to not work properly or not work at all. When both copies of this gene do not work correctly, it leads to the symptoms described above. MT-C1D, NDUFAF5-Related is inherited in an autosomal recessive manner. This means that, in most cases, both parents must be carriers of a mutation in one copy of the NDUFAF5 gene to have a child with MT-C1D, NDUFAF5-Related. People who are carriers for MT-C1D, NDUFAF5-Related, are usually healthy and do not have symptoms nor do they have MT-C1D, NDUFAF5-Related, themselves. Usually a child inherits two copies of each gene, one copy from the mother and one copy from the father. If the mother and father are both carriers for MT-C1D, NDUFAF5-Related, there is a 1 in 4, or 25%, chance in each pregnancy for both partners to pass on their NDUFAF5 gene mutations to the child, who will then have this condition. Individuals found to carry more than one mutation for MT-C1D, NDUFAF5-Related should discuss any potential risks to their own health and their risk for having an affected child with their health care provider. There are a number of other forms of Mitochondrial Complex Deficiency, each caused by mutations in different genes. People who are carriers of an NDUFAF5 gene mutation are not likely to be at increased risk for having children with these other forms.

What can I do next?

You may wish to speak with a local genetic counselor about your carrier test results. A genetic counselor in your area can be located on the National Society of Genetic Counselors website (www.nsgc.org). Your siblings and other relatives are at increased risk to also have this mutation. You are encouraged to inform your family members of your test results as they may wish to consider being tested themselves. If you are pregnant, your partner can have carrier screening for Mitochondrial Complex 1 Deficiency (MT-C1D), NDUFAF5-Related ordered by a health care professional. If your partner is not found to be a carrier for MT-C1D, NDUFAF5-Related, your risk of having a child with this condition is greatly reduced. Couples at risk of having a baby with MT-C1D, NDUFAF5-Related can opt to have prenatal diagnosis done through chorionic villus sampling (CVS) or amniocentesis during pregnancy or can choose to have the baby tested after birth for this condition. If you are not yet pregnant, your partner can have carrier screening for Mitochondrial Complex 1 Deficiency (MT-C1D), NDUFAF5-Related ordered by a health care professional. If your partner is found to be a carrier for MT-C1D, NDUFAF5-Related, you have several reproductive options to consider:

- Natural pregnancy with or without prenatal diagnosis of the fetus or testing the baby after birth for MT-C1D, NDUFAF5-Related
- Preimplantation genetic diagnosis (PGD) with in vitro fertilization (IVF) to test embryos for MT-C1D, NDUFAF5-Related
- Adoption or use of a sperm or egg donor who is not a carrier for MT-C1D, NDUFAF5-Related

What resources are available?

- United Mitochondrial Disease Foundation: <http://www.umdf.org/types/>
- Prenatal diagnosis done through CVS: <http://www.marchofdimes.org/chorionic-villus-sampling.aspx>
- Prenatal diagnosis done through Amniocentesis: <http://www.marchofdimes.org/amniocentesis.aspx>
- PGD with IVF: <http://www.natera.com/spectrum>

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NON-SYNDROMIC HEARING LOSS, GJB2-RELATED**Understanding Your Horizon Carrier Screen Results****What is Non-Syndromic Hearing Loss, GJB2-Related?**

Non-Syndromic Hearing Loss, GJB2-Related (also called DFNB1) is an inherited disorder that causes early-onset hearing loss. "Non-syndromic" means that no other parts of the body are affected, making hearing loss the only symptom of this condition. In Non-Syndromic Hearing Loss, GJB2-Related, hearing loss is typically present at birth (congenital). However, some children have normal hearing at birth and develop hearing loss during childhood. The severity varies from mild to profound sensorineural hearing loss. The treatment for hearing loss includes hearing aids and, in some cases, cochlear implants. Clinical trials involving potential new treatments for this condition may be available (see www.clinicaltrials.gov). Non-Syndromic Hearing Loss, GJB2-Related does not cause other health problems.

What causes Non-Syndromic Hearing Loss, GJB2-Related?

Non-Syndromic Hearing Loss, GJB2-Related is caused by a gene change, or mutation, in both copies of the GJB2 gene pair (also known as DFNB1). These mutations cause the genes to not work properly or not work at all. The function of the GJB2 genes is to make a protein that is important for hearing. When both copies of the GJB2 gene do not work correctly, it leads to Non-Syndromic Hearing Loss, GJB2- Related. Non-Syndromic Hearing Loss, GJB2-Related is inherited in an autosomal recessive manner. This means that, in most cases, both parents must be carriers of a mutation in one copy of the GJB2 gene to have a child with Non-Syndromic Hearing Loss, GJB2-Related. People who are carriers for Non-Syndromic Hearing Loss, GJB2-Related are usually healthy and usually do not have Non-Syndromic Hearing Loss themselves. Usually a child inherits two copies of each gene, one copy from the mother and one copy from the father. If the mother and father are both carriers for Non-Syndromic Hearing Loss, GJB2- Related, there is a 1 in 4, or 25%, chance in each pregnancy for both partners to pass on their GJB2 gene mutations to the child, who will then have Non-Syndromic Hearing Loss, GJB2-Related. Very rarely, carriers of a single GJB2 mutation will have inherited hearing loss with or without other symptoms. These individuals usually have one parent who is also affected. This type of inheritance, where having only one mutation causes symptoms, is called autosomal dominant. When a person with autosomal dominant hearing loss has a child, there is a 50%, or 1 in 2, chance with each pregnancy of having a child who will also develop this type of hearing loss. It is sometimes, but not always, possible to determine whether a specific mutation in the GJB2 gene will cause autosomal recessive Non-Syndromic Hearing Loss or an autosomal dominant type of hearing loss. Individuals found to carry more than one mutation for Non-Syndromic Hearing Loss, GJB2-Related should discuss their risk for having an affected child and any potential effects to their own hearing with their health care provider.

What can I do next?

You may wish to speak with a local genetic counselor about your carrier test results. A genetic counselor in your area can be located on the National Society of Genetic Counselors website (www.nsgc.org). You may wish to share your carrier screening results with your health care providers, especially if you have a family history of hearing loss or have concerns about your own hearing. Your siblings and other relatives are at increased risk to also have this mutation. You are encouraged to inform your family members of your test results as they may wish to consider being tested themselves. If you are pregnant, your partner can have carrier screening for Non-Syndromic Hearing Loss, GJB2- Related ordered by a health care professional. If your partner is not found to be a carrier for Non-Syndromic Hearing Loss, GJB2-Related, your risk of having a child with Non-Syndromic Hearing Loss, GJB2-Related is greatly reduced. Couples at risk of having a baby with Non-Syndromic Hearing Loss, GJB2-Related can opt to have prenatal diagnosis done through chorionic villus sampling (CVS) or amniocentesis during pregnancy or can choose to test the baby after birth for this condition. If you are not yet pregnant, your partner can have carrier screening for Non-Syndromic Hearing Loss, GJB2-Related ordered by a health care professional. If your partner is found to be a carrier for Non-Syndromic Hearing Loss, GJB2-Related, you have several reproductive options to consider:

- Natural pregnancy with or without prenatal diagnosis of the fetus or testing the baby after birth for Non-Syndromic Hearing Loss, GJB2- Related
- Preimplantation genetic diagnosis (PGD) with in vitro fertilization (IVF) to test embryos for Non-Syndromic Hearing Loss, GJB2-Related
- Adoption or use of a sperm or egg donor who is not a carrier for Non-Syndromic Hearing Loss, GJB2- Related

What resources are available?

- Genetics Home Reference: <http://ghr.nlm.nih.gov/condition/nonsyndromic-hearing-loss>
- Prenatal diagnosis done through CVS: <http://www.marchofdimes.org/chorionic-villus-sampling.aspx>
- Prenatal diagnosis done through Amniocentesis: <http://www.marchofdimes.org/amniocentesis.aspx>
- Preimplantation genetic diagnosis (PGD) with IVF: <http://www.natera.com/spectrum>

Patient Information

Patient Name: [REDACTED]

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Date Of Birth: [REDACTED]

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VARIANT DETAILS**CYP21A2, deletion, pathogenic**

- The deletion of CYP21A2 gene may represent chimeric CYP21A1P/CYP21A2 recombination (aka 30kb deletion) or gene conversion from CYP21A1P pseudogene involving more than two exons.
- This variant has been reported in individuals with classic congenital adrenal hyperplasia due to 21-hydroxylase deficiency (PMID: 1644925, 3260033, 26206692, 22156666).
- This variant has been described in ClinVar [ID: 12160, 12161].

GJB2, c.35del (p.G12Vfs*2), pathogenic

- The c.35del (p.G12Vfs*2) variant in the GJB2 gene has been observed at a frequency of 0.6188% in the gnomAD v2.1.1 dataset.
- This variant has been reported in a homozygous state or in conjunction with another variant in individual(s) with nonsyndromic hearing loss and deafness (DFNB) 1 (PMID: 9285800, 9328482, 9819448, 10422812, 10508996, 10713883).
- This premature termination variant is predicted to cause nonsense-mediated decay (NMD) in a gene where loss-of-function is a known mechanism of disease.
- This variant has been reported in ClinVar [ID: 17004].

NDUFAF5, c.1A>C (p.M1?), likely pathogenic

- The c.1A>C (p.M1?) variant in the NDUFAF5 gene has been observed at a frequency of 0.0016% in the gnomAD v2.1.1 dataset.
- This variant has not been described in ClinVar.

PLOD1, c.145C>T (p.Q49*), pathogenic

- The c.145C>T (p.Q49*) variant in the PLOD1 gene has not been observed in the gnomAD v2.1.1 dataset.
- This variant has been reported in conjunction with another variant in individual(s) with Ehlers-Danlos syndrome type VI (PMID: 10874315).
- This premature termination variant is predicted to cause nonsense-mediated decay (NMD) in a gene where loss-of-function is a known mechanism of disease.
- This variant has been described in ClinVar [ID: 1073871].

Patient Information

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Ordering Physician:



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DISEASES SCREENED

Below is a list of all diseases screened and the result. Certain conditions have unique patient-specific numerical values, therefore, results for those conditions are formatted differently.

Autosomal Recessive

- 1**
17-BETA HYDROXYSTEROID DEHYDROGENASE 3 DEFICIENCY (*HSD17B3*) **negative**
- 3**
3-BETA-HYDROXYSTEROID DEHYDROGENASE TYPE II DEFICIENCY (*HSD3B2*) **negative**
3-HYDROXY-3-METHYLGLUTARYL-COENZYME A LYASE DEFICIENCY (*HMGCL*) **negative**
3-HYDROXYACYL-COA DEHYDROGENASE DEFICIENCY (*HADH*) **negative**
3-METHYLCROTONYL-CoA CARBOXYLASE 2 DEFICIENCY (*MCCC2*) **negative**
3-PHOSPHOGLYCERATE DEHYDROGENASE DEFICIENCY (*PHGDH*) **negative**
- 5**
5-ALPHA-REDUCTASE DEFICIENCY (*SRD5A2*) **negative**
- 6**
6-PYRUVYL-TETRAHYDROPTERIN SYNTHASE (*PTPS*) DEFICIENCY (*PTS*) **negative**
- A**
ABCA4-RELATED CONDITIONS (*ABCA4*) **negative**
ABETALIPOPROTEINEMIA (*MTTP*) **negative**
ACHONDROGENESIS, TYPE 1B (*SLC26A2*) **negative**
ACHROMATOPSIA, CNGB3-RELATED (*CNGB3*) **negative**
ACRODERMATITIS ENTEROPATHICA (*SLC39A4*) **negative**
ACTION MYOCLONUS-RENAL FAILURE (AMRF) SYNDROME (*SCARB2*) **negative**
ACUTE INFANTILE LIVER FAILURE, TRMU-RELATED (*TRMU*) **negative**
ACYL-COA OXIDASE I DEFICIENCY (*ACOX1*) **negative**
AICARDI-GOUTIÈRES SYNDROME (*SAMHD1*) **negative**
AICARDI-GOUTIÈRES SYNDROME, RNASEH2A-RELATED (*RNASEH2A*) **negative**
AICARDI-GOUTIÈRES SYNDROME, RNASEH2B-RELATED (*RNASEH2B*) **negative**
AICARDI-GOUTIÈRES SYNDROME, RNASEH2C-RELATED (*RNASEH2C*) **negative**
AICARDI-GOUTIÈRES SYNDROME, TREX1-RELATED (*TREX1*) **negative**
ALPHA-MANNOSIDOSIS (*MAN2B1*) **negative**
ALPHA-THALASSEMIA (*HBA1/HBA2*) **negative**
ALPORT SYNDROME, COL4A3-RELATED (*COL4A3*) **negative**
ALPORT SYNDROME, COL4A4-RELATED (*COL4A4*) **negative**
ALSTROM SYNDROME (*ALMS1*) **negative**
AMISH INFANTILE EPILEPSY SYNDROME (*ST3GAL5*) **negative**
ANDERMANN SYNDROME (*SLC12A6*) **negative**
ARGININE:GLYCINE AMIDINOTRANSFERASE DEFICIENCY (AGAT DEFICIENCY) (*GATM*) **negative**
ARGININEMIA (*ARG1*) **negative**
ARGININOSUCCINATE LYASE DEFICIENCY (*ASL*) **negative**
AROMATASE DEFICIENCY (*CYP19A1*) **negative**
ASPARAGINE SYNTHETASE DEFICIENCY (*ASNS*) **negative**
ASPARTYLGLYCOSAMINURIA (AGA) **negative**
ATAXIA WITH VITAMIN E DEFICIENCY (*TTPA*) **negative**
ATAXIA-TELANGIECTASIA (*ATM*) **negative**
ATAXIA-TELANGIECTASIA-LIKE DISORDER 1 (*MRE11*) **negative**
ATRANSFERRINEMIA (*TF*) **negative**
AUTISM SPECTRUM, EPILEPSY AND ARTHROGRYPOSIS (*SLC35A3*) **negative**
AUTOIMMUNE POLYGLANDULAR SYNDROME, TYPE 1 (*AIRE*) **negative**
AUTOSOMAL RECESSIVE CONGENITAL ICHTHYOSIS (ARCI), SLC27A4-RELATED (*SLC27A4*) **negative**
AUTOSOMAL RECESSIVE SPASTIC ATAXIA OF CHARLEVOIX-SAGUENAY (*SACS*) **negative**
- B**
BARDET-BIEDL SYNDROME, ARL6-RELATED (*ARL6*) **negative**
BARDET-BIEDL SYNDROME, BBS10-RELATED (*BBS10*) **negative**
BARDET-BIEDL SYNDROME, BBS12-RELATED (*BBS12*) **negative**
BARDET-BIEDL SYNDROME, BBS1-RELATED (*BBS1*) **negative**
BARDET-BIEDL SYNDROME, BBS2-RELATED (*BBS2*) **negative**
BARDET-BIEDL SYNDROME, BBS4-RELATED (*BBS4*) **negative**
BARDET-BIEDL SYNDROME, BBS5-RELATED (*BBS5*) **negative**
BARDET-BIEDL SYNDROME, BBS7-RELATED (*BBS7*) **negative**
BARDET-BIEDL SYNDROME, BBS9-RELATED (*BBS9*) **negative**
BARDET-BIEDL SYNDROME, TTC8-RELATED (*TTC8*) **negative**
BARE LYMPHOCYTE SYNDROME, CIITA-RELATED (*CIITA*) **negative**
BARTTER SYNDROME, BSND-RELATED (*BSND*) **negative**
BARTTER SYNDROME, KCNJ1-RELATED (*KCNJ1*) **negative**
BARTTER SYNDROME, SLC12A1-RELATED (*SLC12A1*) **negative**
BATTEN DISEASE, CLN3-RELATED (*CLN3*) **negative**
BETA-HEMOGLOBINOPATHIES (*HBB*) **negative**
BETA-KETOTHIOLASE DEFICIENCY (*ACAT1*) **negative**
BETA-MANNOSIDOSIS (*MANBA*) **negative**
BETA-UREIDOPROPIONASE DEFICIENCY (*UPB1*) **negative**
BILATERAL FRONTOPIRIETAL POLYMICROGYRIA (*GPR56*) **negative**
- BIOTINIDASE DEFICIENCY (*BTD*) **negative**
BIOTIN-THIAMINE-RESPONSIVE BASAL GANGLIA DISEASE (BTBGD) (*SLC19A3*) **negative**
BLOOM SYNDROME (*BLM*) **negative**
BRITTLE CORNEA SYNDROME 1 (*ZNF469*) **negative**
BRITTLE CORNEA SYNDROME 2 (*PRDM5*) **negative**
- C**
CANAVAN DISEASE (*ASPA*) **negative**
CARBAMOYL PHOSPHATE SYNTHETASE I DEFICIENCY (*CPS1*) **negative**
CARNITINE DEFICIENCY (*SLC22A5*) **negative**
CARNITINE PALMITOYLTRANSFERASE IA DEFICIENCY (*CPT1A*) **negative**
CARNITINE PALMITOYLTRANSFERASE II DEFICIENCY (*CPT2*) **negative**
CARNITINE-ACYLCARNITINE TRANSLOCASE DEFICIENCY (*SLC25A20*) **negative**
CARPENTER SYNDROME (*RAB23*) **negative**
CARTILAGE-HAIR HYPOPLASIA (*RMRP*) **negative**
CATECHOLAMINERGIC POLYMORPHIC VENTRICULAR TACHYCARDIA (*CASQ2*) **negative**
CD59-MEDIATED HEMOLYTIC ANEMIA (*CD59*) **negative**
CEP152-RELATED MICROCEPHALY (*CEP152*) **negative**
CEREBRAL DYSGENESIS, NEUROPATHY, ICHTHYOSIS, AND PALMOPLANTAR KERATODERMA (CEDNIK) SYNDROME (*SNAP29*) **negative**
CEREBROTENDINOUS XANTHOMATOSIS (*CYP27A1*) **negative**
CHARCOT-MARIE-TOOTH DISEASE, RECESSIVE INTERMEDIATE C (*PLEKHG5*) **negative**
CHARCOT-MARIE-TOOTH-DISEASE, TYPE 4D (*NDRG1*) **negative**
CHEDIAK-HIGASHI SYNDROME (*LYST*) **negative**
CHOREOACANTHOCYTOSIS (*VPS13A*) **negative**
CHRONIC GRANULOMATOUS DISEASE, CYBA-RELATED (*CYBA*) **negative**
CHRONIC GRANULOMATOUS DISEASE, NCF2-RELATED (*NCF2*) **negative**
CILIOPATHIES, RPRIP1L-RELATED (*RPRIP1L*) **negative**
CITRIN DEFICIENCY (*SLC25A13*) **negative**
CITRULLINEMIA, TYPE 1 (*ASS1*) **negative**
CLN10 DISEASE (*CTSD*) **negative**
COHEN SYNDROME (*VPS13B*) **negative**
COL11A2-RELATED CONDITIONS (*COL11A2*) **negative**
COMBINED MALONIC AND METHYLMALONIC ACIDURIA (*ACSF3*) **negative**
COMBINED OXIDATIVE PHOSPHORYLATION DEFICIENCY 1 (*GF1M*) **negative**
COMBINED OXIDATIVE PHOSPHORYLATION DEFICIENCY 3 (*TSFM*) **negative**
COMBINED PITUITARY HORMONE DEFICIENCY 1 (*POU1F1*) **negative**
COMBINED PITUITARY HORMONE DEFICIENCY-2 (*PROP1*) **negative**
CONGENITAL ADRENAL HYPERPLASIA, 11-BETA-HYDROXYLASE DEFICIENCY (*CYP11B1*) **negative**
CONGENITAL ADRENAL HYPERPLASIA, 17-ALPHA-HYDROXYLASE DEFICIENCY (*CYP17A1*) **negative**
CONGENITAL ADRENAL HYPERPLASIA, 21-HYDROXYLASE DEFICIENCY (*CYP21A2*) **see first page**
CONGENITAL ADRENAL INSUFFICIENCY, CYP11A1-RELATED (*CYP11A1*) **negative**
CONGENITAL AMEGAKARYOCYTIC THROMBOCYTOPENIA (*MPL*) **negative**
CONGENITAL CHRONIC DIARRHEA (*DGAT1*) **negative**
CONGENITAL DISORDER OF GLYCOSYLATION TYPE 1, ALG1-RELATED (*ALG1*) **negative**
CONGENITAL DISORDER OF GLYCOSYLATION, TYPE 1A, PMM2-Related (*PMM2*) **negative**
CONGENITAL DISORDER OF GLYCOSYLATION, TYPE 1B (*MPI*) **negative**
CONGENITAL DISORDER OF GLYCOSYLATION, TYPE 1C (*ALG6*) **negative**
CONGENITAL DYSERYTHROPOIETIC ANEMIA TYPE 2 (*SEC23B*) **negative**
CONGENITAL FINNISH NEPHROSIS (*NPHS1*) **negative**
CONGENITAL HYDROCEPHALUS 1 (*CCDC88C*) **negative**
CONGENITAL HYPERINSULINISM, KCNJ11-Related (*KCNJ11*) **negative**
CONGENITAL INSENSITIVITY TO PAIN WITH ANHIDROSIS (CIPA) (*NTRK1*) **negative**
CONGENITAL MYASTHENIC SYNDROME, CHAT-RELATED (*CHAT*) **negative**
CONGENITAL MYASTHENIC SYNDROME, CHRNE-RELATED (*CHRNE*) **negative**
CONGENITAL MYASTHENIC SYNDROME, COLQ-RELATED (*COLQ*) **negative**
CONGENITAL MYASTHENIC SYNDROME, DOK7-RELATED (*DOK7*) **negative**
CONGENITAL MYASTHENIC SYNDROME, RAPSN-RELATED (*RAPSN*) **negative**
CONGENITAL NEPHROTIC SYNDROME, PLCE1-RELATED (*PLCE1*) **negative**
CONGENITAL NEUTROPENIA, G6PC3-RELATED (*G6PC3*) **negative**
CONGENITAL NEUTROPENIA, HAX1-RELATED (*HAX1*) **negative**
CONGENITAL NEUTROPENIA, VPS45-RELATED (*VPS45*) **negative**
CONGENITAL SECRETORY CHLORIDE DIARRHEA 1 (*SLC26A3*) **negative**
CORNEAL DYSTROPHY AND PERCEPTIVE DEAFNESS (*SLC4A11*) **negative**
CORTICOSTERONE METHYLOXIDASE DEFICIENCY (*CYP11B2*) **negative**
COSTEFF SYNDROME (3-METHYLGUTACONIC ACIDURIA, TYPE 3) (*OPA3*) **negative**
CRB1-RELATED RETINAL DYSTROPHIES (*CRB1*) **negative**
CYSTIC FIBROSIS (*CFTR*) **negative**
CYSTINOSIS (*CTNS*) **negative**
CYTOCHROME C OXIDASE DEFICIENCY, PET100-RELATED (*PET100*) **negative**
CYTOCHROME P450 OXIDOREDUCTASE DEFICIENCY (*POR*) **negative**

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D

D-BIFUNCTIONAL PROTEIN DEFICIENCY (*HSD17B4*) **negative**
 DEAFNESS, AUTOSOMAL RECESSIVE 77 (*LOXHD1*) **negative**
 DIHYDROPTERIDINE REDUCTASE (DHPR) DEFICIENCY (*QDPR*) **negative**
 DONNAI-BARROW SYNDROME (*LRP2*) **negative**
 DUBIN-JOHNSON SYNDROME (*ABCC2*) **negative**
 DYSKERATOSIS CONGENITA SPECTRUM DISORDERS (*TERT*) **negative**
 DYSKERATOSIS CONGENITA, RTTEL1-RELATED (*RTTEL1*) **negative**
 DYSTROPHIC EPIDERMOLYSIS BULLOSA, COL7A1-Related (*COL7A1*) **negative**

E

EARLY INFANTILE EPILEPTIC ENCEPHALOPATHY, CAD-RELATED (*CAD*) **negative**
 EHLERS-DANLOS SYNDROME TYPE VI (*PLOD1*) **see first page**
 EHLERS-DANLOS SYNDROME, CLASSIC-LIKE, TNXB-RELATED (*TNXB*) **negative**
 EHLERS-DANLOS SYNDROME, TYPE VII C (*ADAMTS2*) **negative**
 ELLIS-VAN CREVELD SYNDROME, EVC2-RELATED (*EVC2*) **negative**
 ELLIS-VAN CREVELD SYNDROME, EVC-RELATED (*EVC*) **negative**
 ENHANCED S-CONE SYNDROME (*NR2E3*) **negative**
 EPIMERASE DEFICIENCY (GALACTOSEMIA TYPE III) (*GALE*) **negative**
 EPIPHYSEAL DYSPLASIA, MULTIPLE, 7/DESBUQUOIS DYSPLASIA 1 (*CANT1*) **negative**
 ERCC6-RELATED DISORDERS (*ERCC6*) **negative**
 ERCC8-RELATED DISORDERS (*ERCC8*) **negative**
 ETHYLMALONIC ENCEPHALOPATHY (*ETHE1*) **negative**

F

FACTOR XI DEFICIENCY (*F11*) **negative**
 FAMILIAL DYSAUTONOMIA (*IKBKAP*) **negative**
 FAMILIAL HEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS, PRF1-RELATED (*PRF1*) **negative**
 FAMILIAL HEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS, STX11-RELATED (*STX11*) **negative**
 FAMILIAL HEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS, STXB2-RELATED (*STXB2*) **negative**
 FAMILIAL HEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS, UNC13D-RELATED (*UNC13D*) **negative**
 FAMILIAL HYPERCHOLESTEROLEMIA, LDLRAP1-RELATED (*LDLRAP1*) **negative**
 FAMILIAL HYPERCHOLESTEROLEMIA, LDLR-RELATED (*LDLR*) **negative**
 FAMILIAL HYPERINSULINISM, ABCC8-RELATED (*ABCC8*) **negative**
 FAMILIAL NEPHROGENIC DIABETES INSIPIDUS, AQP2-RELATED (*AQP2*) **negative**
 FANCONI ANEMIA, GROUP A (*FANCA*) **negative**
 FANCONI ANEMIA, GROUP C (*FANCC*) **negative**
 FANCONI ANEMIA, GROUP D2 (*FANCD2*) **negative**
 FANCONI ANEMIA, GROUP E (*FANCE*) **negative**
 FANCONI ANEMIA, GROUP F (*FANCF*) **negative**
 FANCONI ANEMIA, GROUP G (*FANCG*) **negative**
 FANCONI ANEMIA, GROUP I (*FANCI*) **negative**
 FANCONI ANEMIA, GROUP J (*BRIP1*) **negative**
 FANCONI ANEMIA, GROUP L (*FANCL*) **negative**
 FARBER LIPOGRANULOMATOSIS (*ASAH1*) **negative**
 FOVEAL HYPOPLASIA (*SLC38A8*) **negative**
 FRASER SYNDROME 3, GRIP1-RELATED (*GRIP1*) **negative**
 FRASER SYNDROME, FRAS1-RELATED (*FRAS1*) **negative**
 FRASER SYNDROME, FREM2-RELATED (*FREM2*) **negative**
 FRIEDREICH ATAXIA (*FXN*) **negative**
 FRUCTOSE-1,6-BISPHOSPHATASE DEFICIENCY (*FBP1*) **negative**
 FUCOSIDOSIS, FUCA1-RELATED (*FUCA1*) **negative**
 FUMARASE DEFICIENCY (*FH*) **negative**

G

GABA-TRANSAMINASE DEFICIENCY (*ABAT*) **negative**
 GALACTOKINASE DEFICIENCY (GALACTOSEMIA, TYPE II) (*GALK1*) **negative**
 GALACTOSEMIA (*GALT*) **negative**
 GALACTOSIALIDOSIS (*CTSA*) **negative**
 GAUCHER DISEASE (*GBA*) **negative**
 GCH1-RELATED CONDITIONS (*GCH1*) **negative**
 GDF5-RELATED CONDITIONS (*GDF5*) **negative**
 GERODERMA OSTEODYSPLASTICA (*GORAB*) **negative**
 GITELMAN SYNDROME (*SLC12A3*) **negative**
 GLANZMANN THROMBASTHENIA (*ITGB3*) **negative**
 GLUTARIC ACIDEMIA, TYPE 1 (*GCDH*) **negative**
 GLUTARIC ACIDEMIA, TYPE 2A (*ETFA*) **negative**
 GLUTARIC ACIDEMIA, TYPE 2B (*ETFB*) **negative**
 GLUTARIC ACIDEMIA, TYPE 2C (*ETFDH*) **negative**
 GLUTATHIONE SYNTHETASE DEFICIENCY (*GSS*) **negative**
 GLYCINE ENCEPHALOPATHY, AMT-RELATED (*AMT*) **negative**
 GLYCINE ENCEPHALOPATHY, GLDC-RELATED (*GLDC*) **negative**
 GLYCOGEN STORAGE DISEASE TYPE 5 (McArdle Disease) (*PYGM*) **negative**
 GLYCOGEN STORAGE DISEASE TYPE IXB (*PHKB*) **negative**
 GLYCOGEN STORAGE DISEASE TYPE IXC (*PHKG2*) **negative**
 GLYCOGEN STORAGE DISEASE, TYPE 1a (*G6PC*) **negative**
 GLYCOGEN STORAGE DISEASE, TYPE 1b (*SLC37A4*) **negative**
 GLYCOGEN STORAGE DISEASE, TYPE 2 (POMPE DISEASE) (*GAA*) **negative**
 GLYCOGEN STORAGE DISEASE, TYPE 3 (*AGL*) **negative**
 GLYCOGEN STORAGE DISEASE, TYPE 4 (*GBE1*) **negative**

GLYCOGEN STORAGE DISEASE, TYPE 7 (*PFKM*) **negative**
 GRACILE SYNDROME (*BCS1L*) **negative**
 GUANIDINOACETATE METHYLTRANSFERASE DEFICIENCY (*GAMT*) **negative**

H

HARLEQUIN ICHTHYOSIS (*ABCA12*) **negative**
 HEME OXYGENASE 1 DEFICIENCY (*HMOX1*) **negative**
 HEMOCHROMATOSIS TYPE 2A (*HFE2*) **negative**
 HEMOCHROMATOSIS, TYPE 3, TFR2-Related (*TFR2*) **negative**
 HEPATOCEREBRAL MITOCHONDRIAL DNA DEPLETION SYNDROME, MPV17-RELATED (*MPV17*) **negative**
 HEREDITARY FRUCTOSE INTOLERANCE (*ALDOB*) **negative**
 HEREDITARY HEMOCHROMATOSIS TYPE 2B (*HAMP*) **negative**
 HEREDITARY SPASTIC PARAPARESIS, TYPE 49 (*TECPR2*) **negative**
 HEREDITARY SPASTIC PARAPLEGIA, CYP7B1-RELATED (*CYP7B1*) **negative**
 HERMANSKY-PUDLAK SYNDROME, AP3B1-RELATED (*AP3B1*) **negative**
 HERMANSKY-PUDLAK SYNDROME, BLOC1S3-RELATED (*BLOC1S3*) **negative**
 HERMANSKY-PUDLAK SYNDROME, BLOC1S6-RELATED (*BLOC1S6*) **negative**
 HERMANSKY-PUDLAK SYNDROME, HPS1-RELATED (*HPS1*) **negative**
 HERMANSKY-PUDLAK SYNDROME, HPS3-RELATED (*HPS3*) **negative**
 HERMANSKY-PUDLAK SYNDROME, HPS4-RELATED (*HPS4*) **negative**
 HERMANSKY-PUDLAK SYNDROME, HPS5-RELATED (*HPS5*) **negative**
 HERMANSKY-PUDLAK SYNDROME, HPS6-RELATED (*HPS6*) **negative**
 HOLOCARBOXYLASE SYNTHETASE DEFICIENCY (*HLCS*) **negative**
 HOMOCYSTINURIA AND MEGALOBlastic ANEMIA TYPE CBLG (*MTR*) **negative**
 HOMOCYSTINURIA DUE TO DEFICIENCY OF MTHFR (*MTHFR*) **negative**
 HOMOCYSTINURIA, CBS-RELATED (*CBS*) **negative**
 HOMOCYSTINURIA, Type cblE (*MTRR*) **negative**
 HYDROLETHALUS SYNDROME (*HYLS1*) **negative**
 HYPER-IGM IMMUNODEFICIENCY (*CD40*) **negative**
 HYPERORNITHINEMIA-HYPERAMMONEMIA-HOMOCITRULLINURIA (HHH SYNDROME) (*SLC25A15*) **negative**
 HYPERPHOSPHATEMIC FAMILIAL TUMORAL CALCINOSIS, GALNT3-RELATED (*GALNT3*) **negative**
 HYPOMYELINATING LEUKODYSTROPHY 12 (*VPS11*) **negative**
 HYPOPHOSPHATASIA, ALPL-RELATED (*ALPL*) **negative**

I

IMERSLUND-GRÄSBECK SYNDROME 2 (*AMN*) **negative**
 IMMUNODEFICIENCY-CENTROMERIC INSTABILITY-FACIAL ANOMALIES (ICF) SYNDROME, DNMT3B-RELATED (*DNMT3B*) **negative**
 IMMUNODEFICIENCY-CENTROMERIC INSTABILITY-FACIAL ANOMALIES (ICF) SYNDROME, ZBTB24-RELATED (*ZBTB24*) **negative**
 INCLUSION BODY MYOPATHY 2 (*GNE*) **negative**
 INFANTILE CEREBRAL AND CEREBELLAR ATROPHY (*MED17*) **negative**
 INFANTILE NEPHRONOPHTHISIS (*INVS*) **negative**
 INFANTILE NEUROAXONAL DYSTROPHY (*PLA2G6*) **negative**
 ISOLATED ECTOPIA LENTIS (*ADAMTSL4*) **negative**
 ISOLATED SULFITE OXIDASE DEFICIENCY (*SUOX*) **negative**
 ISOLATED THYROID-STIMULATING HORMONE DEFICIENCY (*TSHB*) **negative**
 ISOVALERIC ACIDEMIA (*IVD*) **negative**

J

JOHANSON-BLIZZARD SYNDROME (*UBR1*) **negative**
 JOUBERT SYNDROME 2 / MECKEL SYNDROME 2 (*TMEM216*) **negative**
 JOUBERT SYNDROME AND RELATED DISORDERS (JSRD), TMEM67-RELATED (*TMEM67*) **negative**
 JOUBERT SYNDROME, AHI1-RELATED (*AHI1*) **negative**
 JOUBERT SYNDROME, ARL13B-RELATED (*ARL13B*) **negative**
 JOUBERT SYNDROME, B9D1-RELATED (*B9D1*) **negative**
 JOUBERT SYNDROME, B9D2-RELATED (*B9D2*) **negative**
 JOUBERT SYNDROME, C2CD3-RELATED/OROFACIODIGITAL SYNDROME 14 (*C2CD3*) **negative**
 JOUBERT SYNDROME, CC2D2A-RELATED/COACH SYNDROME (*CC2D2A*) **negative**
 JOUBERT SYNDROME, CEP104-RELATED (*CEP104*) **negative**
 JOUBERT SYNDROME, CEP120-RELATED/SHORT-RIB THORACIC DYSPLASIA 13 WITH OR WITHOUT POLYDACTYLY (*CEP120*) **negative**
 JOUBERT SYNDROME, CEP41-RELATED (*CEP41*) **negative**
 JOUBERT SYNDROME, CPLANE1-RELATED / OROFACIODIGITAL SYNDROME 6 (*CPLANE1*) **negative**
 JOUBERT SYNDROME, CSPP1-RELATED (*CSPP1*) **negative**
 JOUBERT SYNDROME, INPP5E-RELATED (*INPP5E*) **negative**
 JUNCTIONAL EPIDERMOLYSIS BULLOSA, COL17A1-RELATED (*COL17A1*) **negative**
 JUNCTIONAL EPIDERMOLYSIS BULLOSA, ITGA6-RELATED (*ITGA6*) **negative**
 JUNCTIONAL EPIDERMOLYSIS BULLOSA, ITGB4-RELATED (*ITGB4*) **negative**
 JUNCTIONAL EPIDERMOLYSIS BULLOSA, LAMB3-RELATED (*LAMB3*) **negative**
 JUNCTIONAL EPIDERMOLYSIS BULLOSA, LAMC2-RELATED (*LAMC2*) **negative**
 JUNCTIONAL EPIDERMOLYSIS BULLOSA/LARYNGOONYCHOCUTANEOUS SYNDROME, LAMA3-RELATED (*LAMA3*) **negative**

K

KRABBE DISEASE (*GALC*) **negative**

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L

LAMELLAR ICHTHYOSIS, TYPE 1 (TGM1) **negative**
 LARON SYNDROME (GHR) **negative**
 LEBER CONGENITAL AMAUROSIS 2 (RPE65) **negative**
 LEBER CONGENITAL AMAUROSIS TYPE AIPL1 (AIPL1) **negative**
 LEBER CONGENITAL AMAUROSIS TYPE GUCY2D (GUCY2D) **negative**
 LEBER CONGENITAL AMAUROSIS TYPE TULP1 (TULP1) **negative**
 LEBER CONGENITAL AMAUROSIS, IQCB1-RELATED/SENIOR-LOKEN SYNDROME 5 (IQCB1) **negative**
 LEBER CONGENITAL AMAUROSIS, TYPE CEP290 (CEP290) **negative**
 LEBER CONGENITAL AMAUROSIS, TYPE LCA5 (LCA5) **negative**
 LEBER CONGENITAL AMAUROSIS, TYPE RDH12 (RDH12) **negative**
 LEIGH SYNDROME, FRENCH-CANADIAN TYPE (LRPPRC) **negative**
 LETHAL CONGENITAL CONTRACTURE SYNDROME 1 (GLE1) **negative**
 LEUKOENCEPHALOPATHY WITH VANISHING WHITE MATTER (EIF2B5) **negative**
 LEUKOENCEPHALOPATHY WITH VANISHING WHITE MATTER, EIF2B1-RELATED (EIF2B1) **negative**
 LEUKOENCEPHALOPATHY WITH VANISHING WHITE MATTER, EIF2B2-RELATED (EIF2B2) **negative**
 LEUKOENCEPHALOPATHY WITH VANISHING WHITE MATTER, EIF2B3-RELATED (EIF2B3) **negative**
 LEUKOENCEPHALOPATHY WITH VANISHING WHITE MATTER, EIF2B4-RELATED (EIF2B4) **negative**
 LIG4 SYNDROME (LIG4) **negative**
 LIMB-GIRDLE MUSCULAR DYSTROPHY TYPE 8 (TRIM32) **negative**
 LIMB-GIRDLE MUSCULAR DYSTROPHY, TYPE 2A (CAPN3) **negative**
 LIMB-GIRDLE MUSCULAR DYSTROPHY, TYPE 2B (DYSF) **negative**
 LIMB-GIRDLE MUSCULAR DYSTROPHY, TYPE 2C (SGCG) **negative**
 LIMB-GIRDLE MUSCULAR DYSTROPHY, TYPE 2D (SGCA) **negative**
 LIMB-GIRDLE MUSCULAR DYSTROPHY, TYPE 2E (SGCB) **negative**
 LIMB-GIRDLE MUSCULAR DYSTROPHY, TYPE 2F (SGCD) **negative**
 LIMB-GIRDLE MUSCULAR DYSTROPHY, TYPE 2I (FKRP) **negative**
 LIPOAMIDE DEHYDROGENASE DEFICIENCY (DIHYDROLIPOAMIDE DEHYDROGENASE DEFICIENCY) (DLD) **negative**
 LIPOID ADRENAL HYPERPLASIA (STAR) **negative**
 LIPOPROTEIN LIPASE DEFICIENCY (LPL) **negative**
 LONG CHAIN 3-HYDROXYACYL-COA DEHYDROGENASE DEFICIENCY (HADHA) **negative**
 LRAT-RELATED CONDITIONS (LRAT) **negative**
 LUNG DISEASE, IMMUNODEFICIENCY, AND CHROMOSOME BREAKAGE SYNDROME (LICS) (NSMCE3) **negative**
 LYSINURIC PROTEIN INTOLERANCE (SLC7A7) **negative**

M

MALONYL-COA DECARBOXYLASE DEFICIENCY (MLYCD) **negative**
 MAPLE SYRUP URINE DISEASE, TYPE 1A (BCKDHA) **negative**
 MAPLE SYRUP URINE DISEASE, TYPE 1B (BCKDHB) **negative**
 MAPLE SYRUP URINE DISEASE, TYPE 2 (DBT) **negative**
 MCKUSICK-KAUFMAN SYNDROME (MKKS) **negative**
 MECKEL SYNDROME 7/NEPHRONOPHTHISIS 3 (NPHP3) **negative**
 MECKEL-GRUBER SYNDROME, TYPE 1 (MKS1) **negative**
 MECR-RELATED NEUROLOGIC DISORDER (MECR) **negative**
 MEDIUM CHAIN ACYL-CoA DEHYDROGENASE DEFICIENCY (ACADM) **negative**
 MEDNIK SYNDROME (AP1S1) **negative**
 MEGALENCEPHALIC LEUKOENCEPHALOPATHY WITH SUBCORTICAL CYSTS (MLC1) **negative**
 MEROSIN-DEFICIENT MUSCULAR DYSTROPHY (LAMA2) **negative**
 METABOLIC ENCEPHALOPATHY AND ARRHYTHMIAS, TANGO2-RELATED (TANGO2) **negative**
 METACHROMATIC LEUKODYSTROPHY, ARSA-RELATED (ARSA) **negative**
 METACHROMATIC LEUKODYSTROPHY, PSAP-RELATED (PSAP) **negative**
 METHYLMALONIC ACIDEMIA AND HOMOCYSTINURIA TYPE CBLF (LMBRD1) **negative**
 METHYLMALONIC ACIDEMIA, MCEE-RELATED (MCEE) **negative**
 METHYLMALONIC ACIDURIA AND HOMOCYSTINURIA, TYPE CBLF (MMACHC) **negative**
 METHYLMALONIC ACIDURIA AND HOMOCYSTINURIA, TYPE CblD (MMADHC) **negative**
 METHYLMALONIC ACIDURIA, MMAA-RELATED (MMAA) **negative**
 METHYLMALONIC ACIDURIA, MMAB-RELATED (MMAB) **negative**
 METHYLMALONIC ACIDURIA, TYPE MUT (0) (MUT) **negative**
 MEVALONIC KINASE DEFICIENCY (MVK) **negative**
 MICROCEPHALIC OSTEOPLASTIC PRIMORDIAL DWARFISM TYPE II (PCNT) **negative**
 MICROPTHALMIA / ANOPHTHALMIA, VSX2-RELATED (VSX2) **negative**
 MITOCHONDRIAL COMPLEX 1 DEFICIENCY, ACAD9-RELATED (ACAD9) **negative**
 MITOCHONDRIAL COMPLEX 1 DEFICIENCY, NDUFAF5-RELATED (NDUFAF5) **see first page**
 MITOCHONDRIAL COMPLEX 1 DEFICIENCY, NDUFS6-RELATED (NDUFS6) **negative**
 MITOCHONDRIAL COMPLEX I DEFICIENCY, NUCLEAR TYPE 1 (NDUFS4) **negative**
 MITOCHONDRIAL COMPLEX I DEFICIENCY, NUCLEAR TYPE 10 (NDUFAF2) **negative**
 MITOCHONDRIAL COMPLEX I DEFICIENCY, NUCLEAR TYPE 17 (NDUFAF6) **negative**
 MITOCHONDRIAL COMPLEX I DEFICIENCY, NUCLEAR TYPE 19 (FOXRED1) **negative**
 MITOCHONDRIAL COMPLEX I DEFICIENCY, NUCLEAR TYPE 3 (NDUFS7) **negative**
 MITOCHONDRIAL COMPLEX I DEFICIENCY, NUCLEAR TYPE 4 (NDUFV1) **negative**
 MITOCHONDRIAL COMPLEX IV DEFICIENCY, NUCLEAR TYPE 2, SCO2-RELATED (SCO2) **negative**
 MITOCHONDRIAL COMPLEX IV DEFICIENCY, NUCLEAR TYPE 6 (COX15) **negative**

MITOCHONDRIAL DNA DEPLETION SYNDROME 2 (TK2) **negative**
 MITOCHONDRIAL DNA DEPLETION SYNDROME 3 (DGUOK) **negative**
 MITOCHONDRIAL MYOPATHY AND SIDEROBLASTIC ANEMIA (MLASA1) (PUS1) **negative**
 MITOCHONDRIAL TRIFUNCTIONAL PROTEIN DEFICIENCY, HADHB-RELATED (HADHB) **negative**
 MOLYBDENUM COFACTOR DEFICIENCY TYPE B (MOCS2) **negative**
 MOLYBDENUM COFACTOR DEFICIENCY, TYPE A (MOCS1) **negative**
 MUCOLIPIDOSIS II/III A (GNPTAB) **negative**
 MUCOLIPIDOSIS III GAMMA (GNPTG) **negative**
 MUCOLIPIDOSIS, TYPE IV (MCOLN1) **negative**
 MUCOPOLYSACCHARIDOSIS, TYPE I (HURLER SYNDROME) (IDUA) **negative**
 MUCOPOLYSACCHARIDOSIS, TYPE III A (SANFILIPPO A) (SGSH) **negative**
 MUCOPOLYSACCHARIDOSIS, TYPE III B (SANFILIPPO B) (NAGLU) **negative**
 MUCOPOLYSACCHARIDOSIS, TYPE III C (SANFILIPPO C) (HGSNAT) **negative**
 MUCOPOLYSACCHARIDOSIS, TYPE III D (SANFILIPPO D) (GNS) **negative**
 MUCOPOLYSACCHARIDOSIS, TYPE IV A (MORQUIO SYNDROME) (GALNS) **negative**
 MUCOPOLYSACCHARIDOSIS, TYPE IV B/GM1 GANGLIOSIDOSIS (GLB1) **negative**
 MUCOPOLYSACCHARIDOSIS, TYPE IX (HYAL1) **negative**
 MUCOPOLYSACCHARIDOSIS, TYPE VI (MAROTEAUX-LAMY) (ARSB) **negative**
 MUCOPOLYSACCHARIDOSIS, TYPE VII (GUSB) **negative**
 MULIBREY NANISM (TRIM37) **negative**
 MULTIPLE PTERYGIUM SYNDROME, CHRNG-RELATED/ESCOBAR SYNDROME (CHRNG) **negative**
 MULTIPLE SULFATASE DEFICIENCY (SUMF1) **negative**
 MUSCLE-EYE-BRAIN DISEASE, POMGNT1-RELATED (POMGNT1) **negative**
 MUSCULAR DYSTROPHY-DYSTROGLYCANOPATHY (RXYLT1) **negative**
 MUSK-RELATED CONGENITAL MYASTHENIC SYNDROME (MUSK) **negative**
 MYONEUROGASTROINTESTINAL ENCEPHALOPATHY (MNGIE) (TYMP) **negative**
 MYOTONIA CONGENITA (CLCN1) **negative**

N

N-ACETYLGUTAMATE SYNTHASE DEFICIENCY (NAGS) **negative**
 NEMALINE MYOPATHY, NEB-RELATED (NEB) **negative**
 NEPHRONOPHTHISIS 1 (NPHP1) **negative**
 NEURONAL CEROID LIPOFUSCINOSIS, CLN5-RELATED (CLN5) **negative**
 NEURONAL CEROID LIPOFUSCINOSIS, CLN6-RELATED (CLN6) **negative**
 NEURONAL CEROID LIPOFUSCINOSIS, CLN8-RELATED (CLN8) **negative**
 NEURONAL CEROID LIPOFUSCINOSIS, MFSD8-RELATED (MFSD8) **negative**
 NEURONAL CEROID LIPOFUSCINOSIS, PPT1-RELATED (PPT1) **negative**
 NEURONAL CEROID LIPOFUSCINOSIS, TPP1-RELATED (TPP1) **negative**
 NGLY1-CONGENITAL DISORDER OF GLYCOSYLATION (NGLY1) **negative**
 NIEMANN-PICK DISEASE, TYPE C1 / D (NPC1) **negative**
 NIEMANN-PICK DISEASE, TYPE C2 (NPC2) **negative**
 NIEMANN-PICK DISEASE, TYPES A / B (SMPD1) **negative**
 NIJMEGEN BREAKAGE SYNDROME (NBN) **negative**
 NON-SYNDROMIC HEARING LOSS, GJB2-RELATED (GJB2) **see first page**
 NON-SYNDROMIC HEARING LOSS, MYO15A-RELATED (MYO15A) **negative**
 NONSYNDROMIC HEARING LOSS, OTOA-RELATED (OTOA) **negative**
 NONSYNDROMIC HEARING LOSS, OTOF-RELATED (OTOF) **negative**
 NONSYNDROMIC HEARING LOSS, PJVK-RELATED (PJVK) **negative**
 NONSYNDROMIC HEARING LOSS, SYNE4-RELATED (SYNE4) **negative**
 NONSYNDROMIC HEARING LOSS, TMC1-RELATED (TMC1) **negative**
 NONSYNDROMIC HEARING LOSS, TMPRSS3-RELATED (TMPRSS3) **negative**
 NONSYNDROMIC INTELLECTUAL DISABILITY (CC2D1A) **negative**
 NORMOPHOSPHATEMIC TUMORAL CALCINOSIS (SAMD9) **negative**

O

OCULOCUTANEOUS ALBINISM TYPE III (TYRP1) **negative**
 OCULOCUTANEOUS ALBINISM TYPE IV (SLC45A2) **negative**
 OCULOCUTANEOUS ALBINISM, OCA2-RELATED (OCA2) **negative**
 OCULOCUTANEOUS ALBINISM, TYPES 1A AND 1B (TYR) **negative**
 ODONTO-ONYCHO-DERMAL DYSPLASIA / SCHOPF-SCHULZ-PASSARGE SYNDROME (WNT10A) **negative**
 OMENN SYNDROME, RAG2-RELATED (RAG2) **negative**
 ORNITHINE AMINOTRANSFERASE DEFICIENCY (OAT) **negative**
 OSTEOGENESIS IMPERFECTA TYPE VII (CRTAP) **negative**
 OSTEOGENESIS IMPERFECTA TYPE VIII (P3H1) **negative**
 OSTEOGENESIS IMPERFECTA TYPE XI (FKBP10) **negative**
 OSTEOGENESIS IMPERFECTA TYPE XIII (BMP1) **negative**
 OSTEOPECTOSIS, INFANTILE MALIGNANT, TCIRG1-RELATED (TCIRG1) **negative**
 OSTEOPECTOSIS, OSTM1-RELATED (OSTM1) **negative**

P

PANTOTHENATE KINASE-ASSOCIATED NEURODEGENERATION (PANK2) **negative**
 PAPILLON LEFÈVRE SYNDROME (CTSC) **negative**
 PARKINSON DISEASE 15 (FBXO7) **negative**
 PENDRED SYNDROME (SLC26A4) **negative**
 PERLMAN SYNDROME (DIS3L2) **negative**
 PGM3-CONGENITAL DISORDER OF GLYCOSYLATION (PGM3) **negative**
 PHENYLKETONURIA (PAH) **negative**
 PIGN-CONGENITAL DISORDER OF GLYCOSYLATION (PIGN) **negative**
 PITUITARY HORMONE DEFICIENCY, COMBINED 3 (LHX3) **negative**

Patient Information

Patient Name:

Test Information

Ordering Physician:



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P

POLG-RELATED DISORDERS (POLG) **negative**
 POLYCYSTIC KIDNEY DISEASE, AUTOSOMAL RECESSIVE (PKHD1) **negative**
 PONTOCEREBELLAR HYPOPLASIA, EXOSC3-RELATED (EXOSC3) **negative**
 PONTOCEREBELLAR HYPOPLASIA, RARS2-RELATED (RARS2) **negative**
 PONTOCEREBELLAR HYPOPLASIA, TSEN2-RELATED (TSEN2) **negative**
 PONTOCEREBELLAR HYPOPLASIA, TSEN54-RELATED (TSEN54) **negative**
 PONTOCEREBELLAR HYPOPLASIA, TYPE 1A (VRK1) **negative**
 PONTOCEREBELLAR HYPOPLASIA, TYPE 2D (SEPSECS) **negative**
 PONTOCEREBELLAR HYPOPLASIA, VPS53-RELATED (VPS53) **negative**
 PRIMARY CILIARY DYSKINESIA, CCDC103-RELATED (CCDC103) **negative**
 PRIMARY CILIARY DYSKINESIA, CCDC39-RELATED (CCDC39) **negative**
 PRIMARY CILIARY DYSKINESIA, DNAH11-RELATED (DNAH11) **negative**
 PRIMARY CILIARY DYSKINESIA, DNAH5-RELATED (DNAH5) **negative**
 PRIMARY CILIARY DYSKINESIA, DNAI1-RELATED (DNAI1) **negative**
 PRIMARY CILIARY DYSKINESIA, DNAI2-RELATED (DNAI2) **negative**
 PRIMARY CONGENITAL GLAUCOMA/PETERS ANOMALY (CYP1B1) **negative**
 PRIMARY HYPEROXALURIA, TYPE 1 (AGXT) **negative**
 PRIMARY HYPEROXALURIA, TYPE 2 (GRHPR) **negative**
 PRIMARY HYPEROXALURIA, TYPE 3 (HOGA1) **negative**
 PRIMARY MICROCEPHALY 1, AUTOSOMAL RECESSIVE (MCPH1) **negative**
 PROGRESSIVE EARLY-ONSET ENCEPHALOPATHY WITH BRAIN ATROPHY AND THIN CORPUS CALLOSUM (TBCD) **negative**
 PROGRESSIVE FAMILIAL INTRAHEPATIC CHOLESTASIS, ABCB4-RELATED (ABCB4) **negative**
 PROGRESSIVE FAMILIAL INTRAHEPATIC CHOLESTASIS, TYPE 1 (PFIC1) (ATP8B1) **negative**
 PROGRESSIVE FAMILIAL INTRAHEPATIC CHOLESTASIS, TYPE 2 (ABCB11) **negative**
 PROGRESSIVE FAMILIAL INTRAHEPATIC CHOLESTASIS, TYPE 4 (PFIC4) (TJP2) **negative**
 PROGRESSIVE PSEUDORHEUMATOID DYSPLASIA (CCN6) **negative**
 PROLIDASE DEFICIENCY (PEPD) **negative**
 PROPIONIC ACIDEMIA, PCCA-RELATED (PCCA) **negative**
 PROPIONIC ACIDEMIA, PCCB-RELATED (PCCB) **negative**
 PSEUDOXANTHOMA ELASTICUM (ABCC6) **negative**
 PTERIN-4 ALPHA-CARBINOLAMINE DEHYDRATASE (PCD) DEFICIENCY (PCBD1) **negative**
 PYCNODYSTOSIS (CTSK) **negative**
 PYRIDOXAL 5'-PHOSPHATE-DEPENDENT EPILEPSY (PNPO) **negative**
 PYRIDOXINE-DEPENDENT EPILEPSY (ALDH7A1) **negative**
 PYRUVATE CARBOXYLASE DEFICIENCY (PC) **negative**
 PYRUVATE DEHYDROGENASE DEFICIENCY, PDHB-RELATED (PDHB) **negative**

R

REFSUM DISEASE, PHYH-RELATED (PHYH) **negative**
 RENAL TUBULAR ACIDOSIS AND DEAFNESS, ATP6V1B1-RELATED (ATP6V1B1) **negative**
 RENAL TUBULAR ACIDOSIS, PROXIMAL, WITH OCULAR ABNORMALITIES AND MENTAL RETARDATION (SLC4A4) **negative**
 RETINITIS PIGMENTOSA 25 (EYS) **negative**
 RETINITIS PIGMENTOSA 26 (CERKL) **negative**
 RETINITIS PIGMENTOSA 28 (FAM161A) **negative**
 RETINITIS PIGMENTOSA 36 (PRCD) **negative**
 RETINITIS PIGMENTOSA 59 (DHDDS) **negative**
 RETINITIS PIGMENTOSA 62 (MAK) **negative**
 RHIZOMELIC CHONDRODYSPLASIA PUNCTATA, TYPE 1 (PEX7) **negative**
 RHIZOMELIC CHONDRODYSPLASIA PUNCTATA, TYPE 2 (GNPAT) **negative**
 RHIZOMELIC CHONDRODYSPLASIA PUNCTATA, TYPE 3 (AGPS) **negative**
 RLBP1-RELATED RETINOPATHY (RLBP1) **negative**
 ROBERTS SYNDROME (ESCO2) **negative**
 RYR1-RELATED CONDITIONS (RYR1) **negative**

S

SALLA DISEASE (SLC17A5) **negative**
 SANDHOFF DISEASE (HEXB) **negative**
 SCHIMKE IMMUNOSSESUS DYSPLASIA (SMARCAL1) **negative**
 SCHINDLER DISEASE (NAGA) **negative**
 SEGAWA SYNDROME, TH-RELATED (TH) **negative**
 SENIOR-LOKEN SYNDROME 4/NEPHRONOPHTHISIS 4 (NPHP4) **negative**
 SEPIAPTERIN REDUCTASE DEFICIENCY (SPR) **negative**
 SEVERE COMBINED IMMUNODEFICIENCY (SCID), CD3D-RELATED (CD3D) **negative**
 SEVERE COMBINED IMMUNODEFICIENCY (SCID), CD3E-RELATED (CD3E) **negative**
 SEVERE COMBINED IMMUNODEFICIENCY (SCID), FOXP1-RELATED (FOXP1) **negative**
 SEVERE COMBINED IMMUNODEFICIENCY (SCID), IKBKB-RELATED (IKBKB) **negative**
 SEVERE COMBINED IMMUNODEFICIENCY (SCID), IL7R-RELATED (IL7R) **negative**
 SEVERE COMBINED IMMUNODEFICIENCY (SCID), JAK3-RELATED (JAK3) **negative**
 SEVERE COMBINED IMMUNODEFICIENCY (SCID), PTPRC-RELATED (PTPRC) **negative**
 SEVERE COMBINED IMMUNODEFICIENCY (SCID), RAG1-RELATED (RAG1) **negative**
 SEVERE COMBINED IMMUNODEFICIENCY, ADA-Related (ADA) **negative**
 SEVERE COMBINED IMMUNODEFICIENCY, TYPE ATHABASKAN (DCLRE1C) **negative**
 SHORT-RIB THORACIC DYSPLASIA 3 WITH OR WITHOUT POLYDACTYL (DYNC2H1) **negative**
 SHWACHMAN-DIAMOND SYNDROME, SBDS-RELATED (SBDS) **negative**
 SIALIDOSIS (NEU1) **negative**
 SJÖGREN-LARSSON SYNDROME (ALDH3A2) **negative**
 SMITH-LEMLI-OPITZ SYNDROME (DHCR7) **negative**

SPASTIC PARAPLEGIA, TYPE 15 (ZFYVE26) **negative**
 SPASTIC TETRAPLEGIA, THIN CORPUS CALLOSUM, AND PROGRESSIVE MICROCEPHALY (SPATCCM) (SLC1A4) **negative**
 SPG11-RELATED CONDITIONS (SPG11) **negative**
 SPINAL MUSCULAR ATROPHY (SMN1) **negative** SMN1: Two copies; g.27134T>G: absent; the absence of the g.27134T>G variant decreases the chance to be a silent (2+0) carrier.
 SPINAL MUSCULAR ATROPHY WITH RESPIRATORY DISTRESS TYPE 1 (IGHMBP2) **negative**
 SPINOCEREBELLAR ATAXIA, AUTOSOMAL RECESSIVE 10 (ANO10) **negative**
 SPINOCEREBELLAR ATAXIA, AUTOSOMAL RECESSIVE 12 (WWOX) **negative**
 SPONDYLOCOSTAL DYSOSTOSIS 1 (DLL3) **negative**
 SPONDYLOTHORACIC DYSOSTOSIS, MESP2-Related (MESP2) **negative**
 STEEL SYNDROME (COL27A1) **negative**
 STEROID-RESISTANT NEPHROTIC SYNDROME (NPHS2) **negative**
 STUVE-WIEDEMANN SYNDROME (LIFR) **negative**
 SURF1-RELATED CONDITIONS (SURF1) **negative**
 SURFACTANT DYSFUNCTION, ABCA3-RELATED (ABCA3) **negative**

T

TAY-SACHS DISEASE (HEXA) **negative**
 TBCE-RELATED CONDITIONS (TBCE) **negative**
 THIAMINE-RESPONSIVE MEGALOBlastic ANEMIA SYNDROME (SLC19A2) **negative**
 THYROID DYSHORMONOGENESIS 1 (SLC5A5) **negative**
 THYROID DYSHORMONOGENESIS 2A (TPO) **negative**
 THYROID DYSHORMONOGENESIS 3 (TG) **negative**
 THYROID DYSHORMONOGENESIS 6 (DUOX2) **negative**
 TRANSCOBALAMIN II DEFICIENCY (TCN2) **negative**
 TRICHOHEPATOENTERIC SYNDROME, SKIC2-RELATED (SKIC2) **negative**
 TRICHOHEPATOENTERIC SYNDROME, TTC37-RELATED (TTC37) **negative**
 TRICHOHIODYSTROPHY 1/XERODERMA PIGMENTOSUM, GROUP D (ERCC2) **negative**
 TRIMETHYLAMINURIA (FMO3) **negative**
 TRIPLE A SYNDROME (AAA5) **negative**
 TSHR-RELATED CONDITIONS (TSHR) **negative**
 TYROSINEMIA TYPE III (HPD) **negative**
 TYROSINEMIA, TYPE 1 (FAH) **negative**
 TYROSINEMIA, TYPE 2 (TAT) **negative**

U

USHER SYNDROME, TYPE 1B (MYO7A) **negative**
 USHER SYNDROME, TYPE 1C (USH1C) **negative**
 USHER SYNDROME, TYPE 1D (CDH23) **negative**
 USHER SYNDROME, TYPE 1F (PCDH15) **negative**
 USHER SYNDROME, TYPE 1J/DEAFNESS, AUTOSOMAL RECESSIVE, 48 (CIB2) **negative**
 USHER SYNDROME, TYPE 2A (USH2A) **negative**
 USHER SYNDROME, TYPE 2C (ADGRV1) **negative**
 USHER SYNDROME, TYPE 3 (CLRN1) **negative**

V

VERY LONG-CHAIN ACYL-CoA DEHYDROGENASE DEFICIENCY (ACADVL) **negative**
 VICI SYNDROME (EPG5) **negative**
 VITAMIN D-DEPENDENT RICKETS, TYPE 1A (CYP27B1) **negative**
 VITAMIN D-RESISTANT RICKETS TYPE 2A (VDR) **negative**
 VLDLR-ASSOCIATED CEREBELLAR HYPOPLASIA (VLDLR) **negative**

W

WALKER-WARBURG SYNDROME, CRPPA-RELATED (CRPPA) **negative**
 WALKER-WARBURG SYNDROME, FKTN-RELATED (FKTN) **negative**
 WALKER-WARBURG SYNDROME, LARGE1-RELATED (LARGE1) **negative**
 WALKER-WARBURG SYNDROME, POMT1-RELATED (POMT1) **negative**
 WALKER-WARBURG SYNDROME, POMT2-RELATED (POMT2) **negative**
 WARSAW BREAKAGE SYNDROME (DDX11) **negative**
 WERNER SYNDROME (WRN) **negative**
 WILSON DISEASE (ATP7B) **negative**
 WOLCOTT-RALLISON SYNDROME (EIF2AK3) **negative**
 WOLMAN DISEASE (LIPA) **negative**
 WOODHOUSE-SAKATI SYNDROME (DCAF17) **negative**

X

XERODERMA PIGMENTOSUM VARIANT TYPE (POLH) **negative**
 XERODERMA PIGMENTOSUM, GROUP A (XPA) **negative**
 XERODERMA PIGMENTOSUM, GROUP C (XPC) **negative**

Z

ZELLWEGER SPECTRUM DISORDER, PEX13-RELATED (PEX13) **negative**
 ZELLWEGER SPECTRUM DISORDER, PEX16-RELATED (PEX16) **negative**
 ZELLWEGER SPECTRUM DISORDER, PEX5-RELATED (PEX5) **negative**
 ZELLWEGER SPECTRUM DISORDERS, PEX10-RELATED (PEX10) **negative**
 ZELLWEGER SPECTRUM DISORDERS, PEX12-RELATED (PEX12) **negative**
 ZELLWEGER SPECTRUM DISORDERS, PEX1-RELATED (PEX1) **negative**
 ZELLWEGER SPECTRUM DISORDERS, PEX26-RELATED (PEX26) **negative**

Patient Information

Patient Name: [REDACTED]

Test Information

Ordering Physician: [REDACTED]



Date Of Birth: [REDACTED]

Case File ID: [REDACTED]

Clinic Information:

Report Date:

Z

ZELLWEGER SPECTRUM DISORDERS, PEX2-RELATED (PEX2) **negative**
ZELLWEGER SPECTRUM DISORDERS, PEX6-RELATED (PEX6) **negative**

Patient Information

Patient Name: [REDACTED]

Test Information

Ordering Physician: [REDACTED]



Clinic Information:

Date Of Birth: [REDACTED]

Case File ID: [REDACTED]

Report Date:

Testing Methodology, Limitations, and Comments:**Next-generation sequencing (NGS)**

Sequencing library prepared from genomic DNA isolated from a patient sample is enriched for targets of interest using standard hybridization capture protocols and PCR amplification (for targets specified below). NGS is then performed to achieve the standards of quality control metrics, including a minimum coverage of 99% of targeted regions at 20X sequencing depth. Sequencing data is aligned to human reference sequence, followed by deduplication, metric collection and variant calling (coding region +/- 20bp). Variants are then classified according to ACMGG/AMP standards of interpretation using publicly available databases including but not limited to ENSEMBL, HGMD Pro, ClinGen, ClinVar, 1000G, ESP and gnomAD. Variants predicted to be pathogenic or likely pathogenic for the specified diseases are reported. It should be noted that the data interpretation is based on our current understanding of the genes and variants at the time of reporting. Putative positive sequencing variants that do not meet internal quality standards or are within highly homologous regions are confirmed by Sanger sequencing or gene-specific long-range PCR as needed prior to reporting.

Copy Number Variant (CNV) analysis is limited to deletions involving two or more exons for all genes on the panel, in addition to specific known recurrent single-exon deletions. CNVs of small size may have reduced detection rate. This method does not detect gene inversions, single-exonic and sub-exonic deletions (unless otherwise specified), and duplications of all sizes (unless otherwise specified). Additionally, this method does not define the exact breakpoints of detected CNV events. Confirmation testing for copy number variation is performed by specific PCR, Multiplex Ligation-dependent Probe Amplification (MLPA), next generation sequencing, or other methodology.

This test may not detect certain variants due to local sequence characteristics, high/low genomic complexity, homologous sequence, or allele dropout (PCR-based assays). Variants within noncoding regions (promoter, 5'UTR, 3'UTR, deep intronic regions, unless otherwise specified), small deletions or insertions larger than 25bp, low-level mosaic variants, structural variants such as inversions, and/or balanced translocations may not be detected with this technology.

SPECIAL NOTES

For ABCC6, sequencing variants in exons 1-7 are not detected due to the presence of regions of high homology.

For CFTR, when the CFTR R117H variant is detected, reflex analysis of the polythymidine variations (5T, 7T and 9T) at the intron 9 branch/acceptor site of the CFTR gene will be performed. Multi-exon duplication analysis is included.

For CYP21A2, targets were enriched using long-range PCR amplification, followed by next generation sequencing. Duplication analysis will only be performed and reported when c.955C>T (p.Q319*) is detected. Sequencing and CNV analysis may have reduced sensitivity, if variants result from complex rearrangements, in trans with a gene deletion, or CYP21A2 gene duplication on one chromosome and deletion on the other chromosome. This analysis cannot detect sequencing variants located on the CYP21A2 duplicated copy.

For DDX11, sequencing variants in exons 7-11 and CNV for the entire gene are not analyzed due to high sequence homology.

For GJB2, CNV analysis of upstream deletions of GJB6-D13S1830 (309kb deletion) and GJB6-D13S1854 (232kb deletion) is included.

For HBA1/HBA2, CNV analysis is offered to detect common deletions of -alpha3.7, -alpha4.2, --MED, --SEA, --FIL, --THAI, --alpha20.5, and/or HS-40.

For OTOA, sequencing variants in exons 25-29 and CNV in exons 21-29 are not analyzed due to high sequence homology.

For RPGRIP1L, variants in exon 23 are not detected due to assay limitation.

For SAMD9, only p.K1495E variant will be analyzed and reported.

Friedreich Ataxia (FXN)

The GAA repeat region of the FXN gene is assessed by trinucleotide PCR assay and capillary electrophoresis. Variances of +/-1 repeat for normal alleles and up to +/-3 repeats for premutation alleles may occur. For fully penetrant expanded alleles, the precise repeat size cannot be determined, therefore the approximate allele size is reported. Sequencing and copy number variants are analyzed by next-generation sequencing analysis.

Friedreich Ataxia Repeat Categories

Categories	GAA Repeat Sizes
Normal	<34
Premutation	34 - 65
Full	>65

Patient Information

Patient Name: [REDACTED]

Test Information

Ordering Physician: [REDACTED]



Date Of Birth: [REDACTED]

Clinic Information:

Case File ID: [REDACTED]

Report Date:

Spinal Muscular Atrophy (SMN1)

The total combined copy number of SMN1 and SMN2 exon 7 is quantified based on NGS read depth. The ratio of SMN1 to SMN2 is calculated based on the read depth of a single nucleotide that distinguishes these two genes in exon 7. In addition to copy number analysis, testing for the presence or absence of a single nucleotide polymorphism (g.27134T>G in intron 7 of SMN1) associated with the presence of a SMN1 duplication allele is performed using NGS.

Ethnicity	Two SMN1 copies carrier risk before g.27134T>G testing	Carrier risk after g.27134T>G testing	
		g.27134T>G ABSENT	g.27134T>G PRESENT
Caucasian	1 in 632	1 in 769	1 in 29
Ashkenazi Jewish	1 in 350	1 in 580	LIKELY CARRIER
Asian	1 in 628	1 in 702	LIKELY CARRIER
African-American	1 in 121	1 in 396	1 in 34
Hispanic	1 in 1061	1 in 1762	1 in 140

Variant Classification

Only pathogenic or likely pathogenic variants are reported. Other variants including benign variants, likely benign variants, variants of uncertain significance, or inconclusive variants identified during this analysis may be reported in certain circumstances. Our laboratory's variant classification criteria are based on the ACMG and internal guidelines and our current understanding of the specific genes. This interpretation may change over time as more information about a gene and/or variant becomes available. Natera and its lab partner(s) may reclassify variants at certain intervals but may not release updated reports without a specific request made to Natera by the ordering provider. Natera may disclose incidental findings if deemed clinically pertinent to the test performed.

Negative Results

A negative carrier screening result reduces the risk for a patient to be a carrier of a specific disease but does not completely rule out carrier status. Please visit <https://www.natera.com/panel-option/h-all/> for a table of carrier rates, detection rates, residual risks and promised variants/exons per gene. Carrier rates before and after testing vary by ethnicity and assume a negative family history for each disease screened and the absence of clinical symptoms in the patient. Any patient with a family history for a specific genetic disease will have a higher carrier risk prior to testing and, if the disease-causing mutation in their family is not included on the test, their carrier risk would remain unchanged. Genetic counseling is recommended for patients with a family history of genetic disease so that risk figures based on actual family history can be determined and discussed along with potential implications for reproduction. Horizon carrier screening has been developed to identify the reproductive risks for monogenic inherited conditions. Even when one or both members of a couple screen negative for pathogenic variants in a specific gene, the disease risk for their offspring is not zero. There is still a low risk for the condition in their offspring due to a number of different mechanisms that are not detected by Horizon including, but not limited to, pathogenic variant(s) in the tested gene or in a different gene not included on Horizon, pathogenic variant(s) in an upstream regulator, uniparental disomy, de novo mutation(s), or digenic or polygenic inheritance.

Additional Comments

These analyses generally provide highly accurate information regarding the patient's carrier status. Despite this high level of accuracy, it should be kept in mind that there are many potential sources of diagnostic error, including misidentification of samples, polymorphisms, or other rare genetic variants that interfere with analysis. Families should understand that rare diagnostic errors may occur for these reasons.