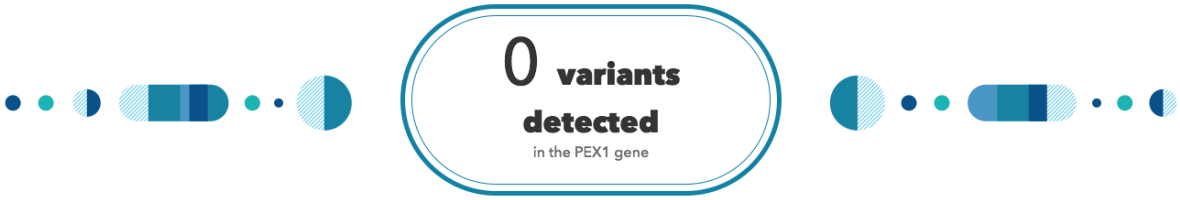
Zellweger Syndrome Spectrum (PEX1-Related)

ZSS is a group of rare genetic disorders. The form of ZSS covered by this report is characterized by impaired hearing, vision, and organ function, as well as developmental disability and early death. A person must have two variants in the PEX1 gene in order to have this form of ZSS.

Erin, you **do not have the variant** we tested.

You could still have a variant not covered by this test.



How To Use This Test

This test does not diagnose any health conditions.

Please talk to a healthcare professional if this condition runs in your family, you think you might have this condition, or you have any concerns about your results.

Review the Carrier Status tutorial

See Scientific Details

Intended Uses

- To test for the G843D variant in the PEX1 gene.
- To identify carrier status for ZSS.

Limitations

- Does **not test** for all possible variants for the condition.
- Does **not report** if someone has two copies of a tested variant.
- Does **not cover** ZSS caused by variants in other PEX genes.

Important Ethnicities

- This test does **not** include the majority of PEX1 variants that cause ZSS in any ethnicity.

You are likely not a carrier.

This result may be less relevant for you because the variants that cause ZSS are rarely found in people of your ethnicity.

We ruled out the tested variant for ZSS.

This variant is very rare in all ethnicities.

You still have a chance of being a carrier for ZSS.

We cannot estimate your chances because this condition is rare and not well studied in your ethnicity.

About Zellweger Syndrome Spectrum (PEX1-Related)

Also known as: ZSS is a group of rare genetic disorders, including Zellweger Syndrome (ZS), Neonatal Adrenoleukodystrophy (NALD), and Infantile Refsum Disease (IRD). It is a type of Peroxisome Biogenesis Disorder.

When symptoms develop

Symptoms are typically present at birth or develop during infancy.

How it's treated

There is currently no known cure. Treatment focuses on managing symptoms and preventing complications.

Typical signs and symptoms

- Decreased muscle tone
- Seizures
- Failure to gain weight
- Impaired vision and hearing
- Developmental disability
- Early death (severe form)

Ethnicities most affected

This condition affects people of all ethnicities.

Read more at

Genetics Home Reference
GeneReviews
National Organization for Rare Disorders

Consider talking to a healthcare professional if you are concerned about your results.

If you're starting a family, a genetic counselor can help you and your partner understand if additional testing might be appropriate.

Connect with a GC

Share your results with a healthcare professional.

Print report

Learn more about this condition and connect with support groups.

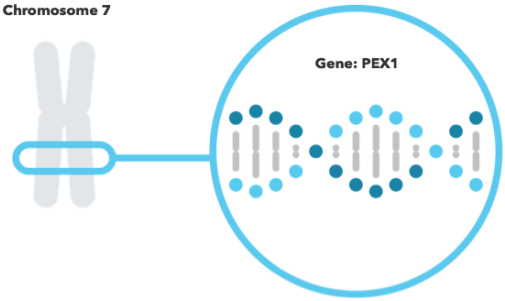
Learn more

ZSS is caused by variants in the PEX1 gene.

PEX1

The PEX1 gene contains instructions for making a protein called peroxisome biogenesis factor 1, also known as PEX1. This protein helps peroxisomes (compartments within cells that make and break down fats and other substances) work properly. Certain variants in PEX1 disrupt peroxisome function and lead to a harmful buildup of certain substances inside of cells.

Read more at Genetics Home Reference



You have no variants detected by this test.

Variants Detected	View All Tested Markers
0	1

Marker Tested	Your Genotype*		Additional Information
G843D Gene: PEX1 Marker: i5012688	**C** Typical copy from one of your parents	**C** Typical copy from your other parent	> **Biological explanation** > **Typical vs. variant DNA sequence(s)** > **Percent of 23andMe customers with variant** > **References** [1 , 2 , 3 , 4 , 6] | ClinVar

*This test cannot distinguish which copy you received from which parent. This test also cannot determine whether multiple variants, if detected, were inherited from only one parent or from both parents. This may impact how these variants are passed down.

23andMe always reports genotypes based on the 'positive' strand of the human genome reference sequence (build 37). Other sources sometimes report genotypes using the opposite strand.

Test Interpretation

Post-test carrier risk for ZSS is the chance of still being a carrier for the condition if you do not have the variant tested. This chance depends on how common it is to be a carrier for ZSS and whether the variants we tested tend to be found in people of your ethnicity.

Because you do not have the variant we tested, your chances of still being a carrier are lower than for someone who has not been tested. However, we cannot provide an exact estimate because the information needed to calculate post-test carrier risk is not available for your ethnicity.

Test Details

Indications for Use

The 23andMe PGS Carrier Status Test for Zellweger Syndrome Spectrum (PEX1-related) is indicated for the detection of the G843D variant in the PEX1 gene. This test is intended to be used to determine carrier status for ZSS in adults, but cannot determine if a person has two copies of a tested variant.

Special Considerations

- This test does not include the majority of PEX1 variants that cause ZSS in any ethnicity.
- There are currently no professional guidelines in the U.S. for carrier testing for this condition.

Test Performance Summary

Carrier Detection Rate & Relevant Ethnicities

The "carrier detection rate" is an estimate of the percentage of carriers for this condition that would be identified by this test. Carrier detection rate differs by ethnicity and is provided only where sufficient data is available.

European	41%	[4 , 5]

Analytical Performance

Accuracy was determined by comparing results from this test with results from sequencing for 49 samples with known variant status. 49 out of 49 genotype results were correct. Fewer than 1 in 100,000 samples may receive a **Not Determined** result. This can be caused by random test error or unexpected DNA sequences that interfere with the test. It can also be caused by having two copies of a variant tested.

Warnings and Limitations

- This test does not cover all variants that could cause this condition.*
- This test does not diagnose any health conditions.
- Positive results in individuals whose ethnicities are not commonly associated with this condition may be incorrect. Individuals in this situation should consider genetic counseling and follow-up testing.
- Share results with your healthcare professional for any medical purposes.
- If you are concerned about your results, consult with a healthcare professional.

See the Package Insert for more details on use and performance of this test.

* Variants not included in this test may be very rare, may not be available on our genotyping platform, or may not pass our testing standards.

References

1. Ebberink MS et al. (2011). "Genetic classification and mutational spectrum of more than 600 patients with a Zellweger syndrome spectrum disorder." Hum Mutat. 32(1):59-69.
2. Hiebler S et al. (2014). "The Pex1-G844D mouse: a model for mild human Zellweger spectrum disorder." Mol Genet Metab. 111(4):522-32.
3. Maxwell MA et al. (1999). "A common PEX1 frameshift mutation in patients with disorders of peroxisome biogenesis correlates with the severe Zellweger syndrome phenotype." Hum Genet. 105(1-2):38-44.
4. Steinberg S et al. (2004). "The PEX Gene Screen: molecular diagnosis of peroxisome biogenesis disorders in the Zellweger syndrome spectrum." Mol Genet Metab. 83(3):252-63.
5. Steinberg SJ et al. (1993). "Peroxisome Biogenesis Disorders, Zellweger Syndrome Spectrum"
6. Walter C et al. (2001). "Disorders of peroxisome biogenesis due to mutations in PEX1: phenotypes and PEX1 protein levels." Am J Hum Genet. 69(1):35-48.