Alcohol Flush Reaction

The alcohol flush reaction is characterized by redness or flushing of the face or neck after consuming alcohol. People who experience flushing may also experience other unpleasant symptoms after drinking alcohol like headaches, sweating, or nausea. These reactions can result from variants in the ALDH2 gene, which is involved in breaking down alcohol.

Erin, you likely cannot break down alcohol normally.

Likely to flush after drinking alcohol

How To Use This Test

This test does not diagnose any health conditions or provide medical advice. Consult with a healthcare professional before making any major lifestyle changes or if you have any other concerns about your results.

Review the Wellness tutorial

See Scientific Details

Intended Uses

- To test for the ALDH2*2 variant in the ALDH2 gene.

Limitations

- Does **not** test for all possible variants related to alcohol flushing.
- Does **not** account for lifestyle or other factors that may affect alcohol flushing.

Important Ethnicities

- The variant in this report is primarily found in people of East Asian descent.

About the Alcohol Flush Reaction

The alcohol flush reaction is redness or flushing in the face or neck after consuming alcohol.

Biology

Alcohol is metabolized by several enzymes. It is first broken down into acetaldehyde, a harmful substance that is then converted to harmless acetic acid (vinegar). If acetaldehyde builds up, it can cause a number of unpleasant symptoms.

Genetics

The ALDH2 gene contains instructions for an enzyme that converts acetaldehyde into acetic acid. A variant called ALDH2*2 in this gene results in an inactive enzyme.

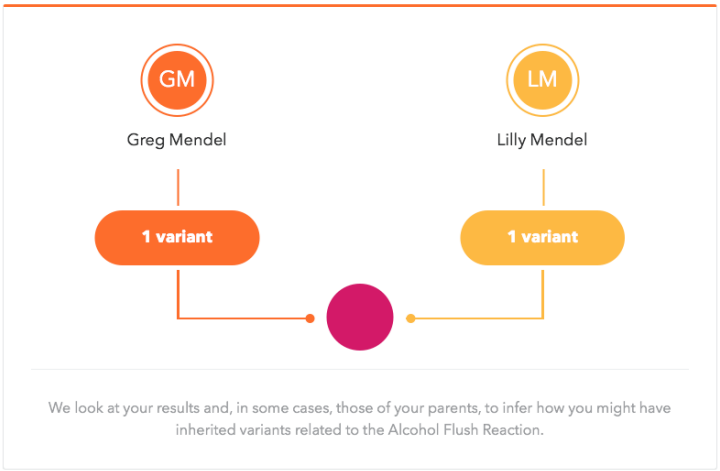
Other factors

Other factors can contribute to flushing in response to alcohol.

- Ancestry >
- Age >
- Other variants >

You inherited two variants from your parents.

Because you have two copies of the variant that we tested, you almost certainly inherited one from each of your parents.



We look at your results and, in some cases, those of your parents, to infer how you might have inherited variants related to the Alcohol Flush Reaction.

Keep exploring your Wellness results.

Learn more about the alcohol flush reaction.

Learn more

This variant may be associated with more than one health condition or trait in people who drink heavily. If you have concerns, talk to your healthcare professional about the possible impact this may have on your health.

Print report

Compare your results to your family and friends.

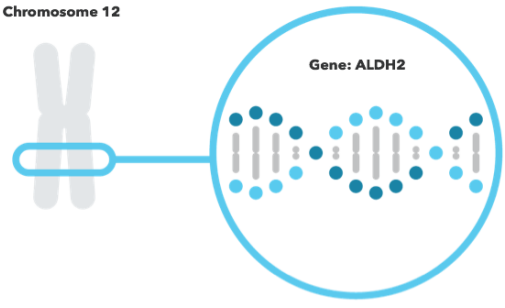
Compare

The alcohol flush reaction is usually caused by variants in the ALDH2 gene.

ALDH2

The ALDH2 gene contains instructions for making an enzyme called aldehyde dehydrogenase 2. This enzyme breaks down acetaldehyde, a harmful byproduct of alcohol metabolism.

Read more at Genetics Home Reference



You have two variants included in this report.

Variants Detected	View All Tested Markers
2	1

Marker Tested	Your Genotype*		Additional Information
ALDH2*2 Gene: ALDH2 Marker: rs671	**A** Variant copy from one of your parents	**A** Variant copy from your other parent	> **Biological explanation** > **Typical vs. variant DNA sequence(s)** > **Percent of 23andMe customers with variant** > **References** [1 , 2 , 4] | 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.

We estimate how you inherited your variants using basic principles of genetics.

We look at your results and, in some cases, those of your parents, to infer how you might have inherited these variants.

A. If you have one copy of a variant, and:

- **You don't have any parents connected:**

1. There is not enough information to determine which parent you inherited the variant from. You might have inherited the variant from either parent.

- **You have one parent connected, and if your connected parent:**

1. Doesn't have the trait variant: You likely inherited the variant from your other parent.
2. Has one copy of the trait variant: There is not enough information to determine which parent you inherited the variant from. You might have inherited the variant from either parent.
3. Has two copies of the trait variant: You likely inherited the variant from your connected parent.

- **You have both parents connected, and:**

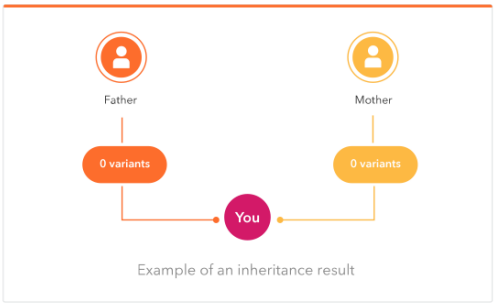
1. Only one parent has the trait variant: You likely inherited the variant from this parent.
2. Both parents have one copy of the trait variant: There is not enough information to determine which parent you inherited the variant from. You might have inherited the variant from either parent.
3. One parent has two copies of the variant: You likely inherited the variant from this parent.

B. If you have two copies of a trait variant:

- **You likely received one copy of the variant from each parent.**

C. If you do not have any copies of a trait variant:

- **You didn't inherit any copies of this variant from either parent. However, this does not mean that they didn't have any variants to pass on to you.**



Example of an inheritance result

References

1. Crabb DW et al. (1989). "Genotypes for aldehyde dehydrogenase deficiency and alcohol sensitivity. The inactive ALDH2(2) allele is dominant." J Clin Invest. 83(1):314-6.

2. Kim JS et al. (2005). "Association of ALDH2 polymorphism with sensitivity to acetaldehyde-induced micronuclei and facial flushing after alcohol intake." Toxicology. 210(2-3):169-74.

3. Macgregor S et al. (2009). "Associations of ADH and ALDH2 gene variation with self report alcohol reactions, consumption and dependence: an integrated analysis." Hum Mol Genet. 18(3):580-93.

4. Peng GS et al. (2014). "ALDH2*2 but not ADH1B*2 is a causative variant gene allele for Asian alcohol flushing after a low-dose challenge: correlation of the pharmacokinetic and pharmacodynamic findings." Pharmacogenet Genomics. 24(12):607-17.

5. Yokoyama T et al. (2003). "Alcohol flushing, alcohol and aldehyde dehydrogenase genotypes, and risk for esophageal squamous cell carcinoma in Japanese men." Cancer Epidemiol Biomarkers Prev. 12(11 Pt 1):1227-33.