

## Bitter Taste



## A bitter warning

Scientists believe the bitter taste sense developed to help animals detect toxins or poisons in food. But not everyone can taste the same things.

## Your Traits Result



kary\_mullis, your genetics make you **unlikely to detect certain bitter tastes.**

Of 23andMe research participants with genetics like yours:



Do raw broccoli or brussels sprouts taste bitter to you?

## How did we calculate your result?

We looked at a place in your **DNA** (a genetic **marker**) that affects your chances of being able to detect a certain bitter chemical called "PTC." Some vegetables like raw broccoli and brussels sprouts, contain bitter chemicals similar to PTC. Your combination of **variants** at this marker is usually found in people who are unable to detect these bitter chemicals.



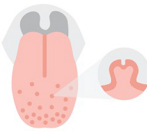
Chromosome 7

[See Scientific Details](#)

## More about bitter taste

## Biology of taste

Taste buds are covered with tiny molecular sensors, called "taste receptors," that specialize in detecting the five basic tastes: sweet, salty, sour, bitter, and umami (a savory, meat-like taste). The types of taste receptors you have determine what tastes you can, or cannot, detect in foods. Some vegetables, like broccoli and brussels sprouts, contain naturally bitter chemicals. Scientists think some people may be unable to detect these bitter chemicals based on what taste receptors they have.



## Genetics of bitter taste detection

The TAS2R38 gene contains instructions for a protein, or taste receptor, that can detect the bitter chemical called "PTC." PTC isn't usually found in the human diet, but it is similar to chemicals present in vegetables like broccoli and brussels sprouts. People with the G variant have a taste receptor that can detect these PTC-like chemicals. This means people with the G variant may taste bitterness in these foods and avoid them all together.

Genetic result	What it means
GG	Likely able to detect certain bitter tastes
GC	Likely able to detect certain bitter tastes
CC	Likely unable to detect certain bitter tastes

## Humans aren't the only ones with food preferences related to genetics

Giant pandas cannot detect umami (a savory, meat-like taste) because their umami taste receptors don't work properly. This means they can't taste meatiness, and don't show a preference for meat. Scientists believe this explains their strict bamboo diet, despite being closely related to other carnivores.



## Keep exploring your Traits results.



## Contribute

Join the research effort and contribute to new discoveries.



## Compare

Compare your results to your family and friends.



## Discuss

Join the discussion with other 23andMe customers interested in Traits.

## Overview

## Scientific Details

Bitter Taste

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We use one of two different methods to calculate your trait results.

## Statistical Model

Most traits are influenced by many different factors, including genetics, lifestyle, and environment. Usually, a statistical model using many factors provides better predictions than looking at single factors by themselves. To develop our models, we first identify genetic **markers** associated with a trait using data from tens of thousands of 23andMe customers who have consented to research. Then, we use statistical methods to generate a "score" for that trait using your **genotype** at the relevant genetic markers as well as your age and sex. We predict your likelihood of having different versions of the trait based on the survey responses of 23andMe customers with similar scores. These predictions apply best to customers who are of the same ethnicity as the people whose data contributed to the model. The accuracy of these predictions varies from trait to trait.


[Read more about our statistical methodology](#)

## Curated Model

For some traits, just a few genetic markers can strongly predict whether a person will have a particular version of the trait. For curated models, we first evaluate published scientific studies to identify genetic markers with well-established associations with the trait. Then, we look at genetic and survey data from tens of thousands of 23andMe customers who have consented to research. We estimate your likelihood of having different versions of the trait based on survey responses from customers who are genetically similar to you at those markers. These results apply best to customers who are of the same ethnicity as the people whose data contributed to the predictions.

## About your Bitter Taste result

Your result for this trait was calculated using a **curated model**.

Variants Detected		View All Tested Markers
Marker Tested	Your Genotype*	Additional Information
<b>A49P</b> Gene: TAS2R38 Marker: rs713598	<b>C</b> Typical copy from one of your parents  <b>C</b> Typical copy from your other parent	<ul style="list-style-type: none"><li>Biological explanation</li><li>Typical vs. variant DNA sequence(s)</li><li>Percent of 23andMe customers with variant</li><li>References [ 1, 3, 6, 8 ]</li></ul>

\*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.

## References

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[See all references](#) ▼

## Change Log

Your report may occasionally be updated based on new information. This Change Log describes updates and revisions to this report.

Date	Change
<b>Dec. 15, 2017</b>	Bitter Taste report updated with revised content and design.
<b>June 22, 2017</b>	Bitter Taste report separated from the Taste and Smell report.
<b>May 12, 2016</b>	Customers with a "Not Determined" genotype for a genetic marker used for Bitter Taste previously received a result based on the typical genotype for that marker. These customers will now receive a "Not Determined" result.
<b>Feb. 18, 2016</b>	Due to improvements in data analysis, some customers who previously received a "Not Determined" result for rs713598 may see a genotype at this marker. This may also update the Bitter Taste result in the Taste report for these customers.
<b>Oct. 21, 2015</b>	Taste and Smell report created.