The first inkling of a genetic basis for perceiving fat came from research on a different sensation: bitterness. One anecdotal report from the 1960s suggested that people who were more sensitive to the bitter taste of the thiourea PTC had leaner bodies than those who were less sensitive. This sensitivity correlated with other anatomical changes in the mouth that could allow for detection of fat by way of its texture.

Supertasters, or individuals who are very sensitive to the bitter taste of the thioureas PTC and PROP, have a polymorphism in TAS2R38, a gene that codes for a receptor for these bitter tasting compounds. However, supertasters appear to be more sensitive to a wide range of oral sensations. This observation could be explained by a polymorphism in a second gene, gustin, which codes for the salivary enzyme CA6, which both promotes the growth of more taste buds, and maintains their functionality. Gustin may contribute to a greater ability to perceive textures associated with fats by inducing the development of more taste buds and because somatosensory nerve endings, which respond to touch and pressure, tend to wrap around taste buds.

**SUPERTASTER ANATOMY**

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**NONTASTER**

Having fewer, loosely arranged papillae is associated with less sensitivity to bitterness and other oral sensations like heat from chili pepper and astringency from dry red wine. Taste buds on the papillae also have fewer somatosensory nerve endings.

**SUPERTASTER**

Having a larger number of papillae that are tightly arranged is associated with more sensitivity. In addition, taste buds on the papillae have a higher proportion of somatosensory nerve endings.

**GENES THAT MAKE A SUPERTASTER**

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