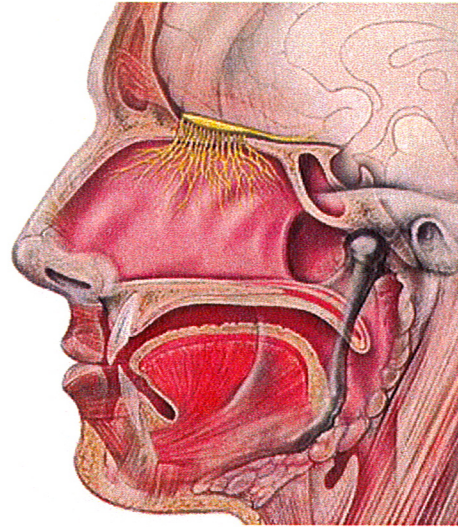


## Your Sense of Smell (Olfaction)

- Humans have a total of about 40 million olfactory receptors.
- These receptors are located at the top of the nasal passages (the yellow fibers in the diagram at the right).
- There are about 350 different types of olfactory receptors that respond to one or more types of odorants.
- Humans can distinguish about 10,000 different scents



Our perception of different scents results from stimulation of different combinations of odorant (olfactory) receptors, for example:

Odorant receptors	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Description
<b>A</b> <chem>CCCCC(=O)O</chem>					●										rancid, sour, goat-like
<b>B</b> <chem>CCCCCCO</chem>		●				●									sweet, herbal, woody
<b>C</b> <chem>CCCCC(=O)O</chem>	●			●	●		●			●	●				rancid, sour, sweaty
<b>D</b> <chem>CCCCCCO</chem>		●			●	●									violet, sweet, woody
<b>E</b> <chem>CCCCC(=O)O</chem>	●			●	●		●	●		●	●	●			rancid, sour, repulsive
<b>F</b> <chem>CCCCCCO</chem>				●	●		●			●					sweet, orange, rose
<b>G</b> <chem>CCCCC(=O)O</chem>	●			●	●		●	●		●		●		●	waxy, cheese, nut-like
<b>H</b> <chem>CCCCCCO</chem>				●	●		●			●		●			fresh, rose, oily floral

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# Your Sense of Taste (Gustation)

We can detect 5 “tastes” vs. 10,000 “smells”

Taste Sensation	What triggers the receptor	Example
Salty	Sodium ions, Na <sup>+</sup>	Table Salt
Sour	Hydrogen Ions, H <sup>+</sup>	Acids, e.g. vinegar, lemon juice, etc.
Sweet	Sugars	Sugars, e.g. sucrose
Bitter*	Compounds with large carbon rings	Quinine, caffeine,
Umami (translation = “savory”)	Salts of glutamic acid	MSG (monosodium glutamate)

*\*there are 25 different known receptors for bitter molecules*

## Gustatory Receptors and their Location on the Human Tongue

