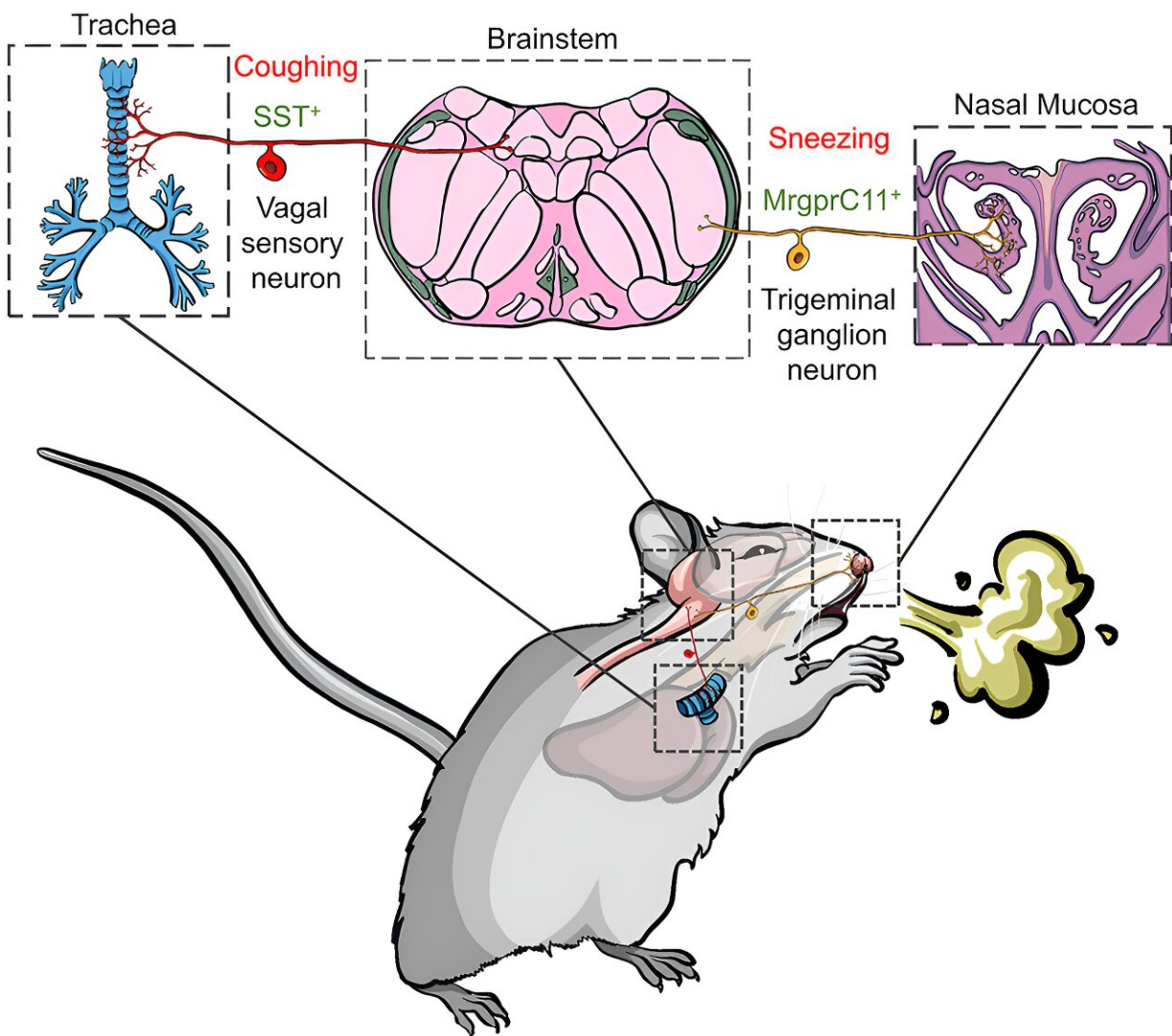


Mouse study isolates neurons responsible for triggering sneezes and coughs

September 9 2024, by Bob Yirka



Credit: *Cell* (2024). DOI: 10.1016/j.cell.2024.08.009

A team of medical researchers at the Washington University Pain Center, in St. Louis, working with colleagues from the Georgia Institute of Technology, has isolated the neurons in the airways of mice that trigger sneezes and coughs.

In their [study](#), published in the open-access journal *Cell*, the group experimented with ion channel activation in mice made to sneeze and/or cough and used the findings to isolate the [neurons](#) involved.

Prior research has led to categorization of the neurons in mouse airways based on ion channels on cell surfaces. In this new study, the researchers used this information to search for the particular neurons involved in triggering sneezes and/or [coughs](#)—a process that involved exposing [ion channels](#) to different compounds to see how they would react.

The researchers found a compound called BAM 8-22 that made mice sneeze. Prior research had already shown that the compound activates the MrgprC11 ion channel. This led the research team to suspect that neurons carrying the MrgprC11 channels were the ones that trigger sneezing.

To confirm, they removed these neurons from the airways of test mice and then infected them with the flu virus. The team found that the mice grew sick but did not sneeze—a strong sign that they had found the right neurons.

The team followed roughly the same approach to identify the neurons in [mice](#) responsible for triggering coughing. They found several in the trachea that express a chemical known to be a signaler. Once again,

removing them removed the [trigger](#) for coughing.

The team has already refocused their attention—they want to know more about the sequence of events that follows once sneeze or cough neurons are triggered. They also plan to find out whether similar types of neurons are at work in humans.

They note that prior research has shown that [sensory information](#) in most animals usually involves processing more triggers than those found; thus, there are likely more to be discovered. Learning more about such triggers, they note, could help in the development of more effective symptom remedies.

More information: Haowu Jiang et al, Divergent sensory pathways of sneezing and coughing, *Cell* (2024). [DOI: 10.1016/j.cell.2024.08.009](https://doi.org/10.1016/j.cell.2024.08.009)

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