

## *In Vivo* Calcium Imaging Analysis of Salt Taste Neurons in the Mouse Brainstem

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### Summary

While many studies have revealed the molecular mechanism of peripheral gustatory system including salt taste sensing in recent years, genetic and/or molecular properties of gustatory neurons in the central nervous system have so far less investigated. To address this issue, here we examined whether candidate gustatory neurons localized in parts of the parabrachial nucleus (PBN) in the mouse brainstem can really respond to salt taste using the fiber photometry based *in vivo* calcium imaging. We injected recombinant adeno-associated virus encoding Cre-dependent GCaMP6s fluorescence calcium sensor into the brainstem of Vglut2-ires-Cre mice for fiber photometry. Lick measurement was performed together with fiber photometry. Although bulk responses of GCaMP6s-expressing neurons were almost silent when the mice licked pure water, large responses were observed when they tasted 500 mM NaCl solution. Similar response was observed when they licked bitter taste solution. These results suggest that parts of PBN neurons likely function as gustatory neurons. Further calcium imaging analysis with single cell resolution allows us to identify key neurons for salt taste and bitter taste in the PBN.