

Metabolic state dependence of olfactory cortex flavor representation during binge eating

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– ECRO XXX meeting 2020 –

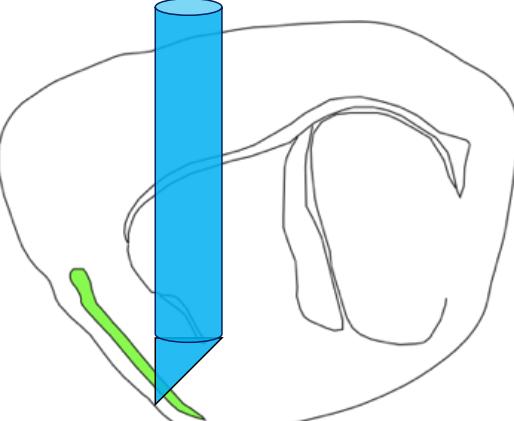
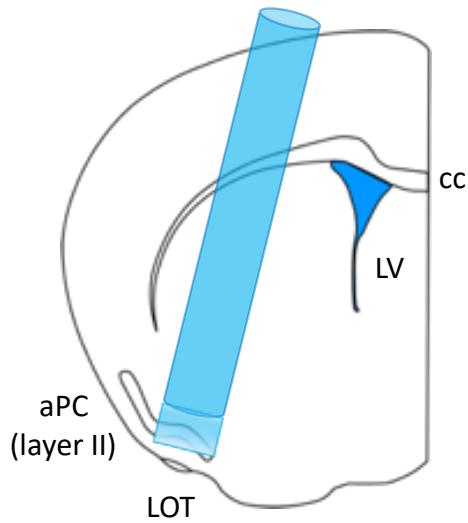
2020.09.17



Aims & Methods

Odor representation of food during eating and binge eating

- Ca^{2+} imaging in the piriform cortex
- Self-paced feeding paradigm & flavored milk

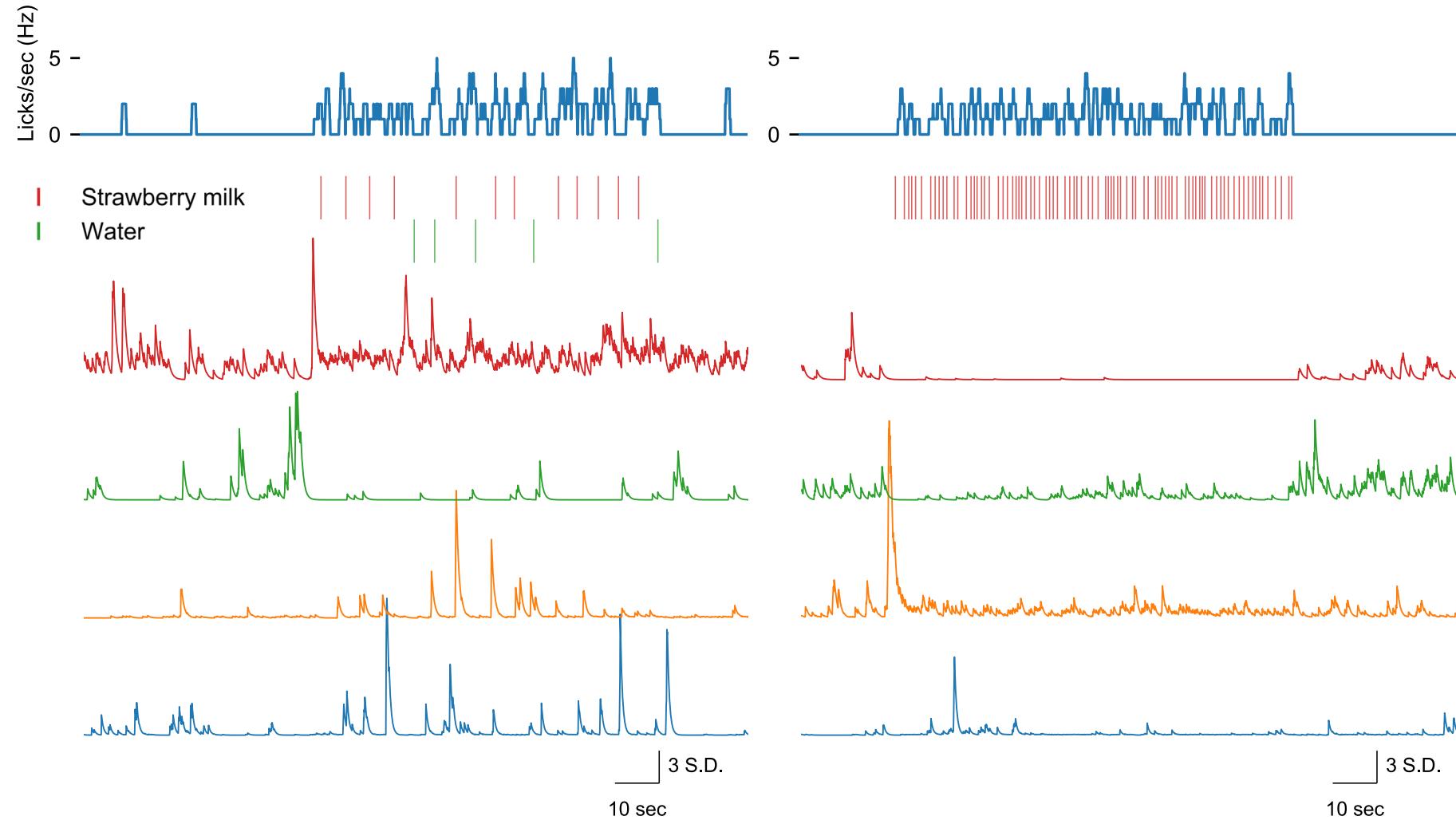


Ai93D; Rosa-tTA; CaMKII-Cre

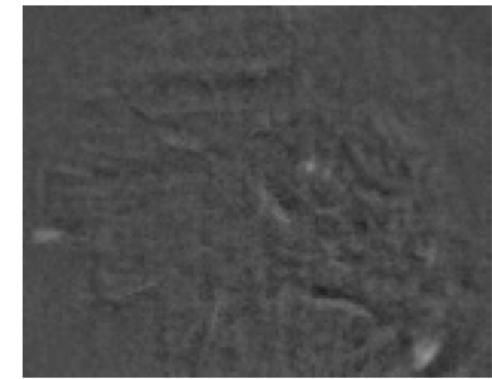


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Neuronal responses during regular eating and binge eating are different

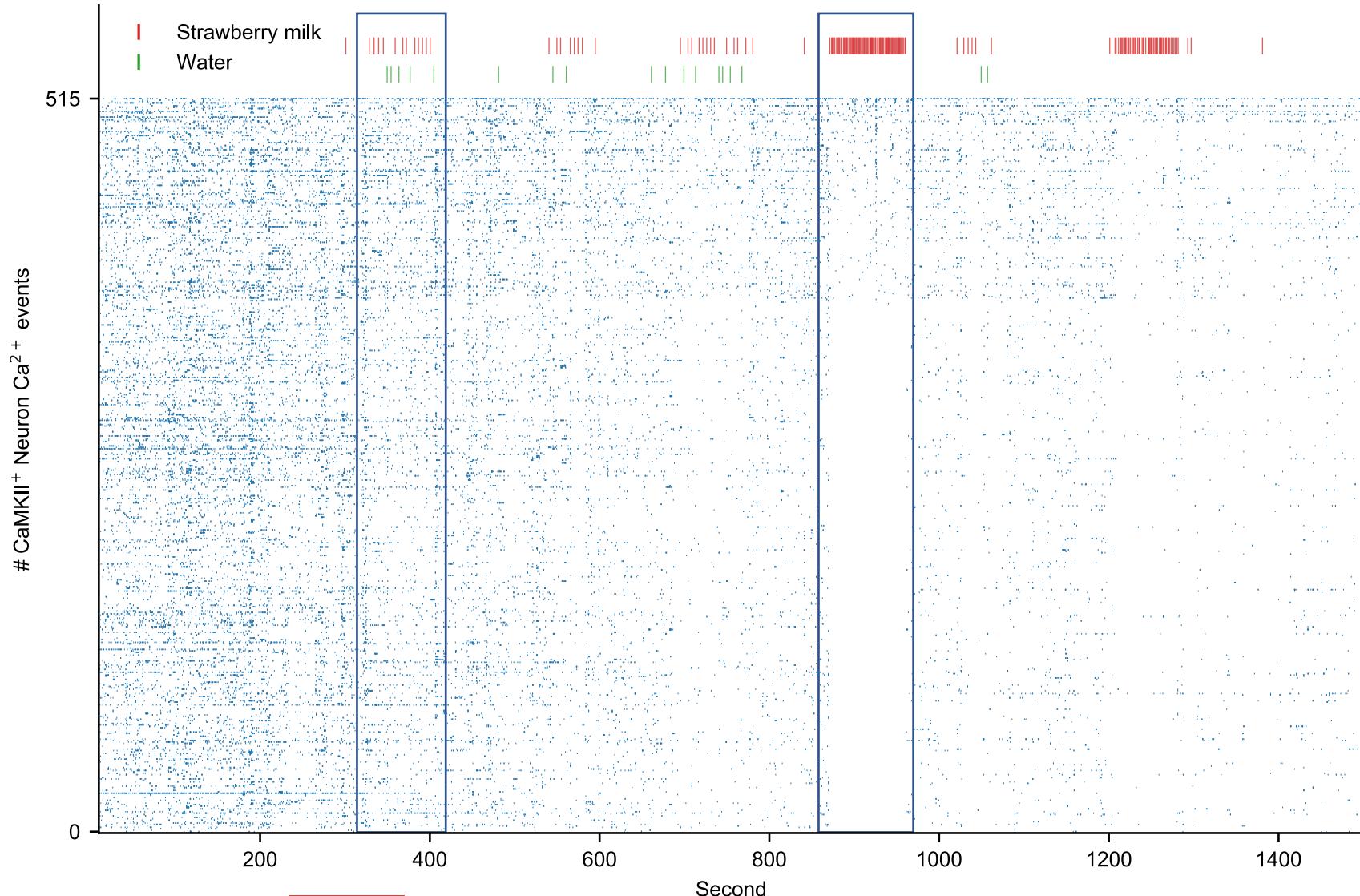


Binging!

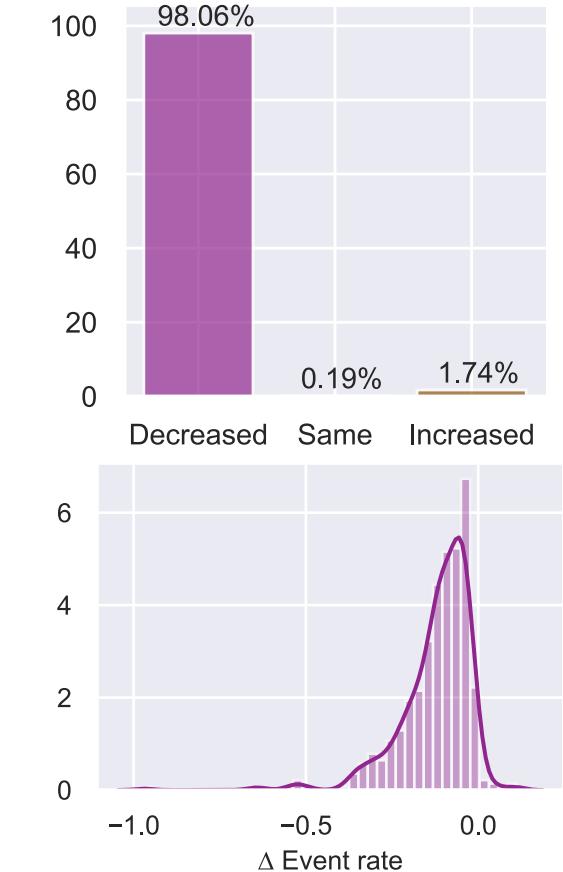


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Piriform neurons are suppressed during binge eating

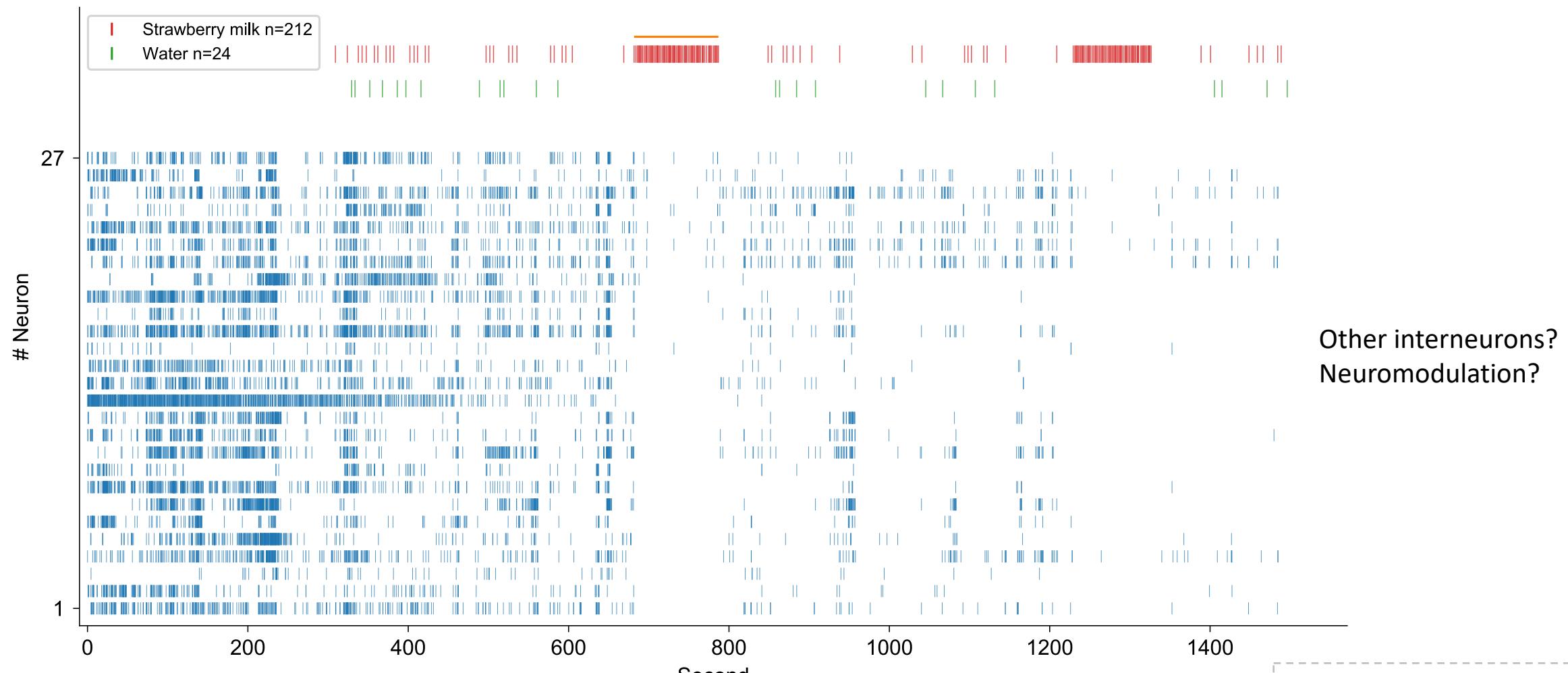


Neural activity upon binging



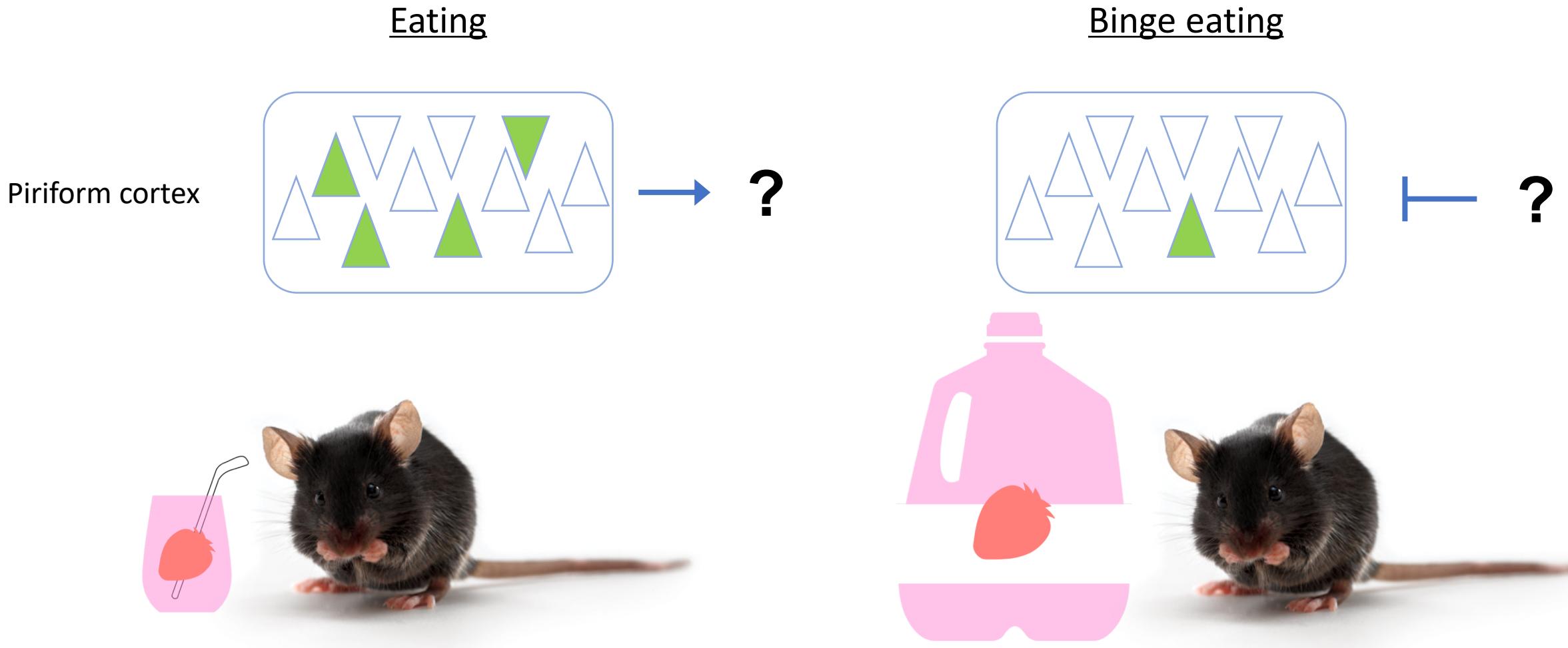
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PV⁺ interneurons are suppressed during binge eating



Viral injection of flox-GCaMP6f in PV-Cre mouse

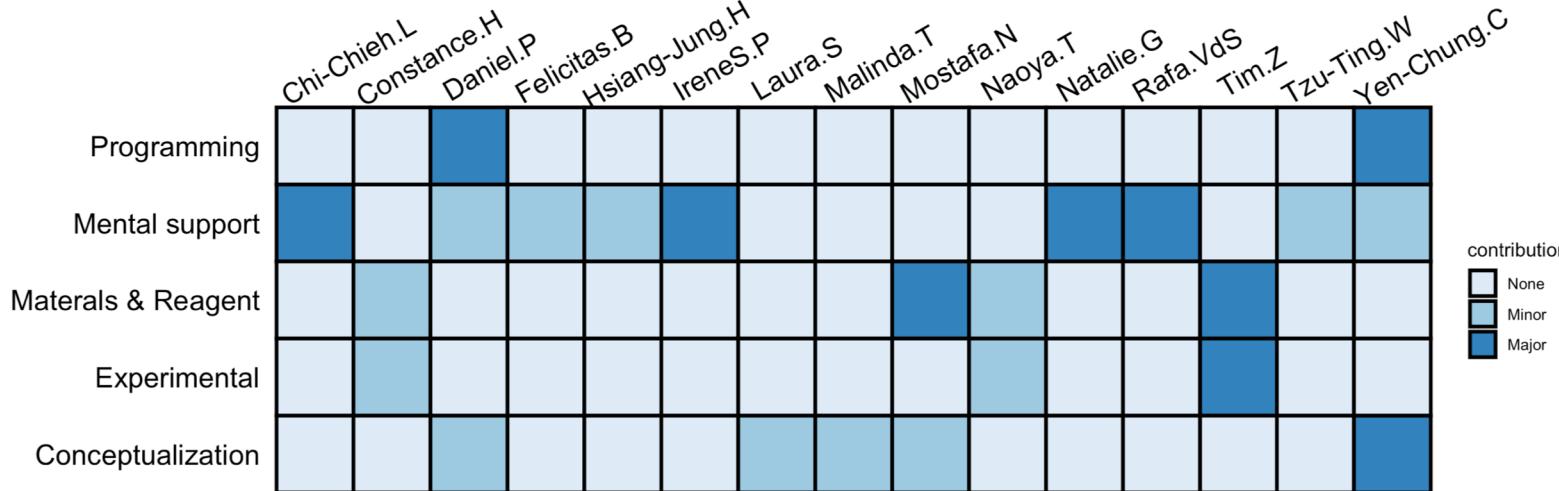
Summary



Acknowledgements



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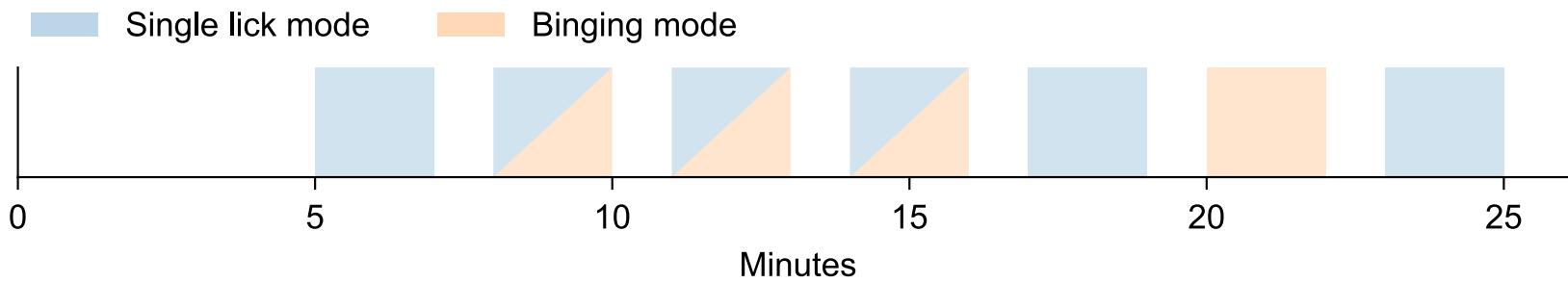
contribution
None
Minor
Major



Supplementary slides

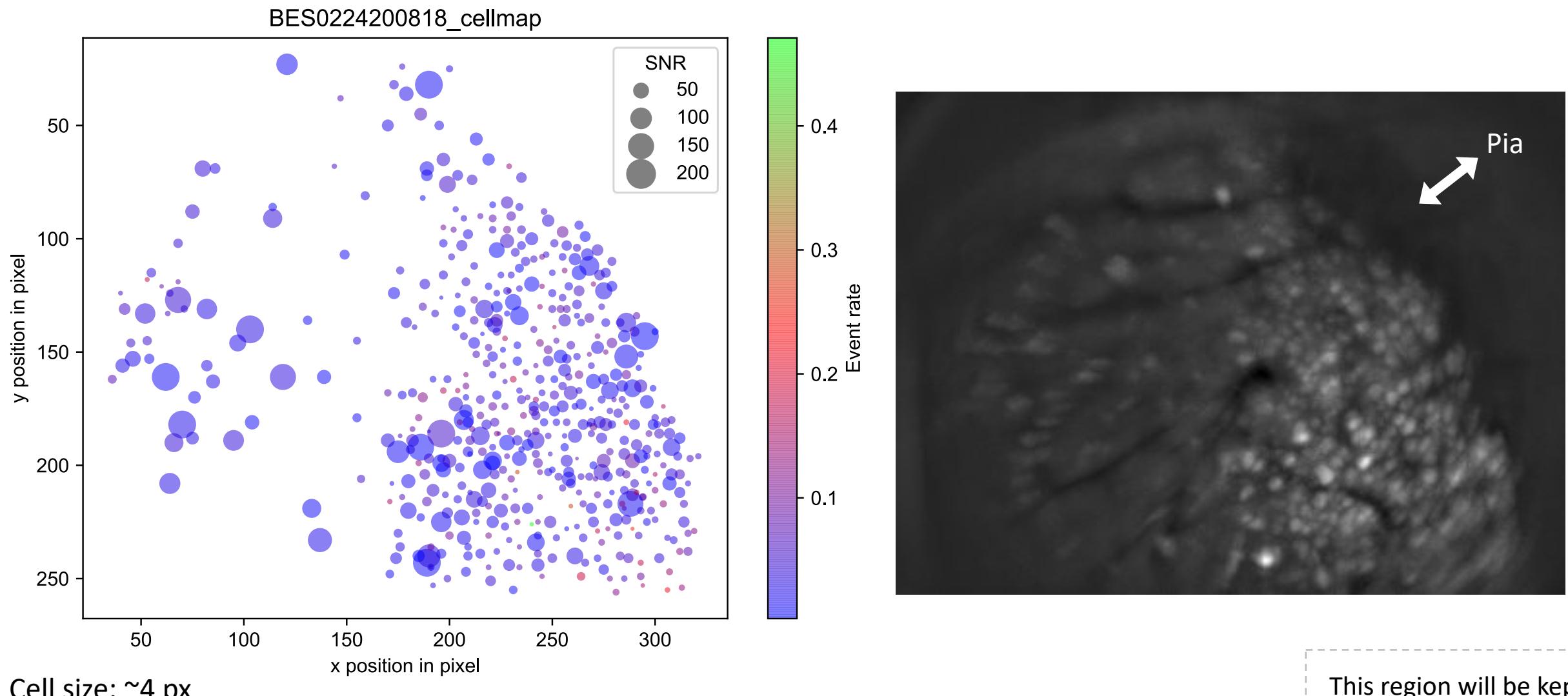
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Behavioral paradigm



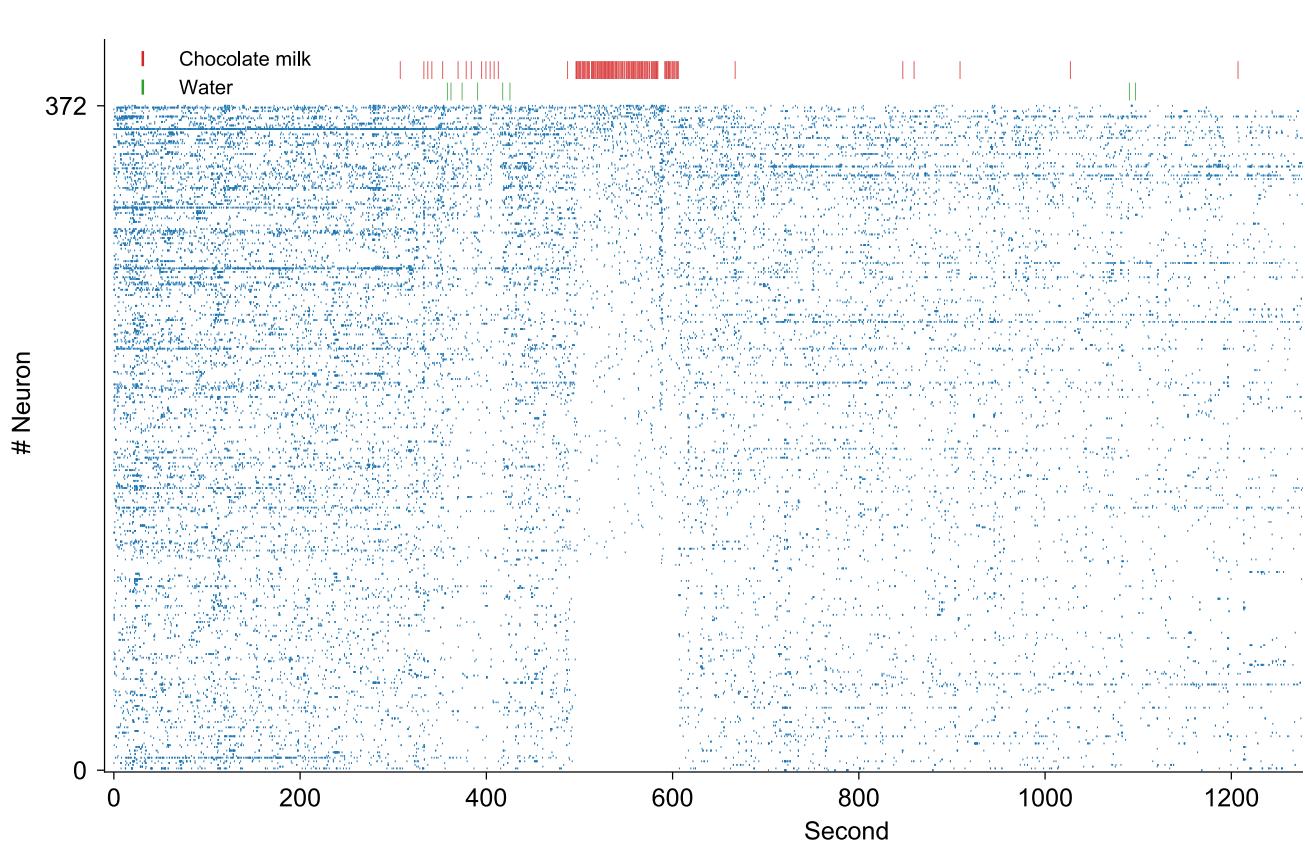
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Cell maps and laminar structures

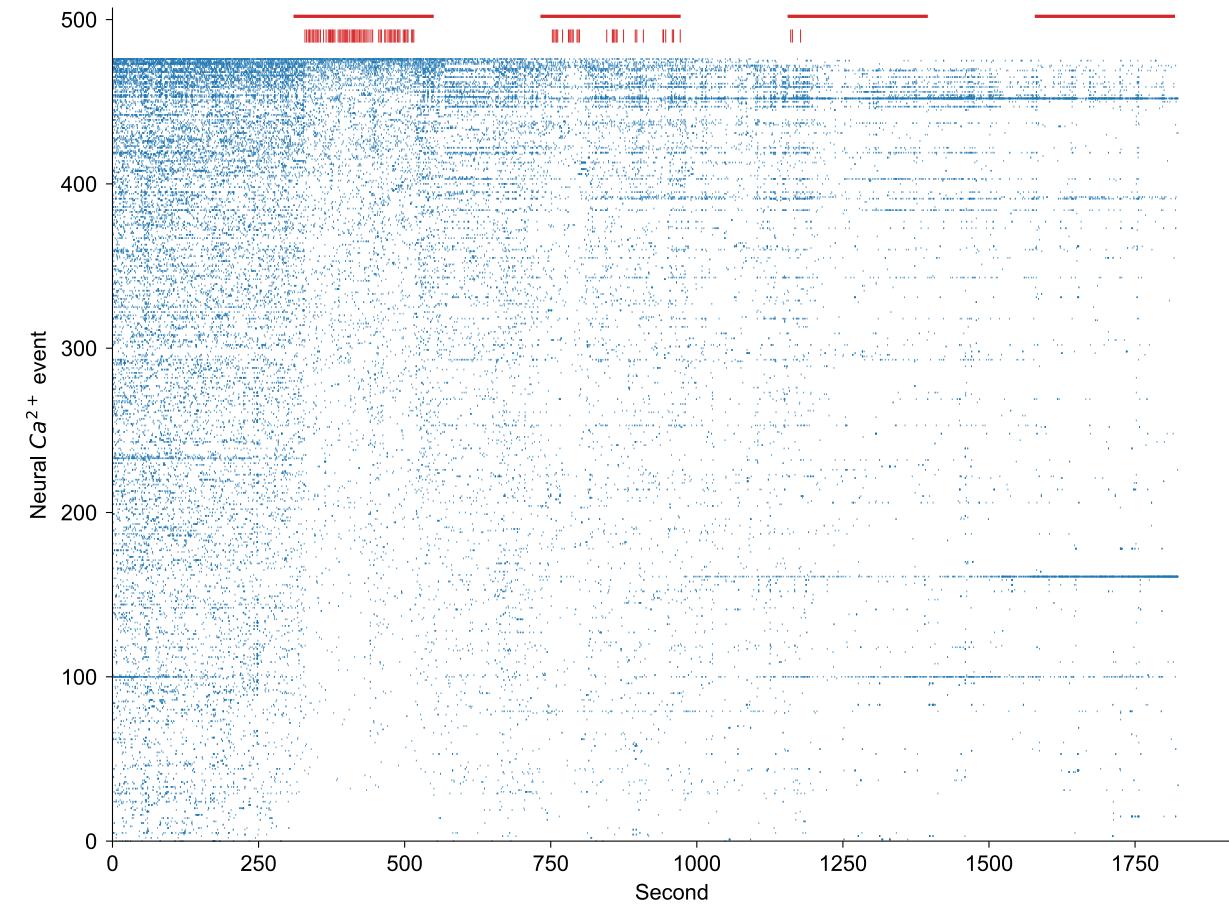


Global inhibition of piriform neurons is flavor-independent and can be observed in different mouse

Different flavor

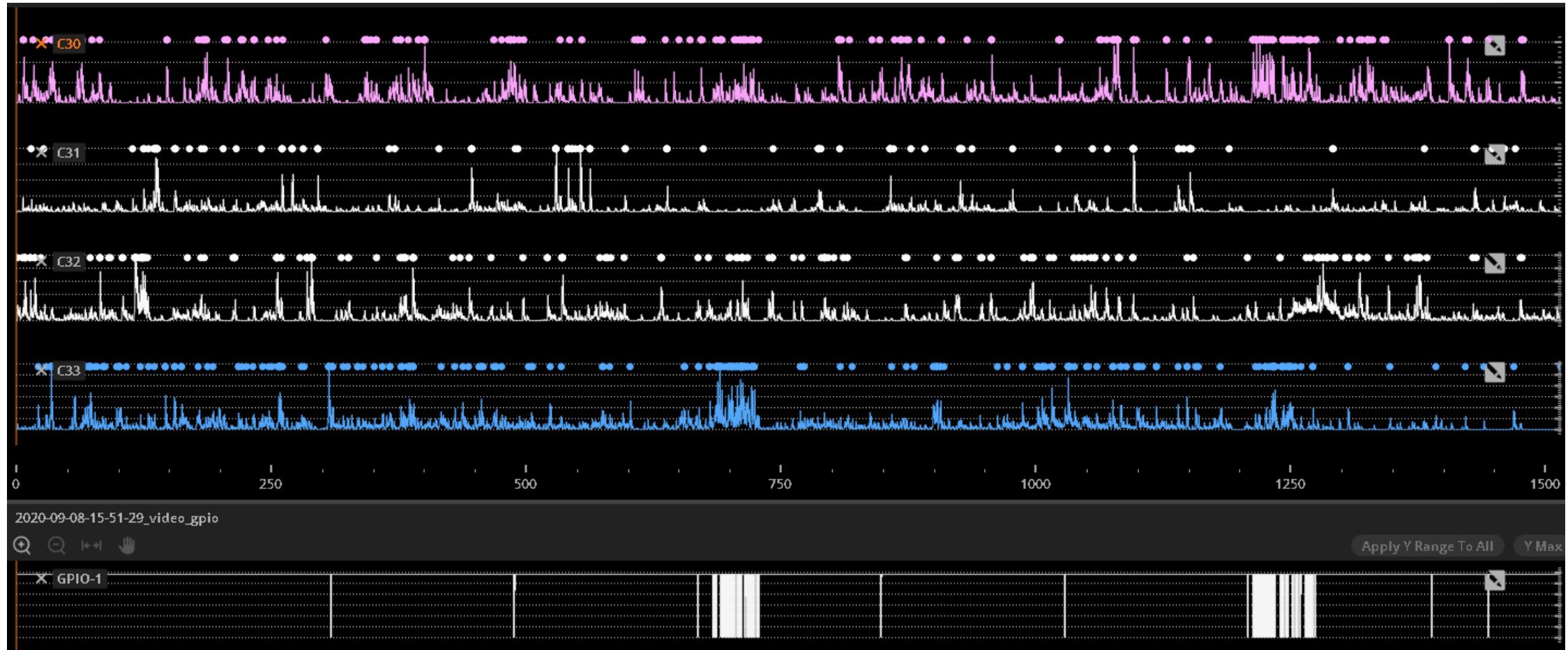


Different mouse



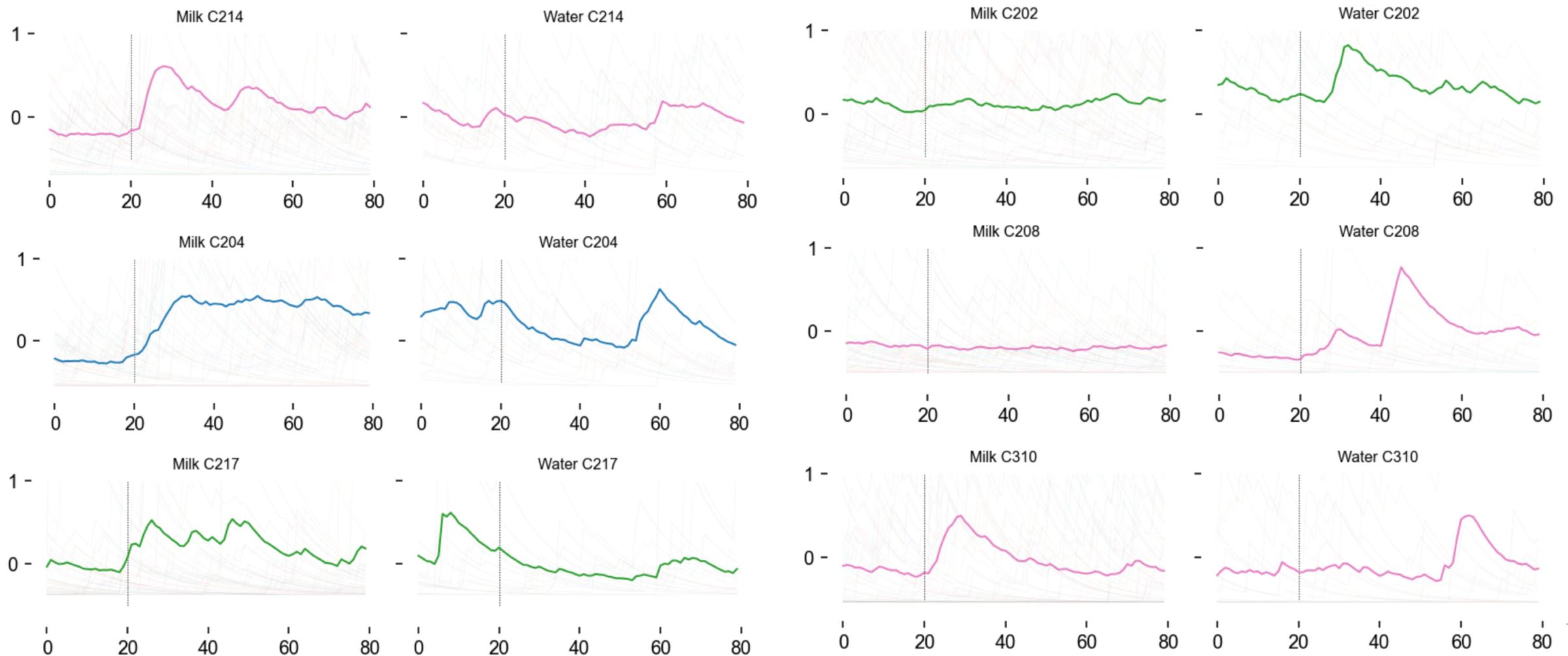
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Active piriform neurons upon binge eating

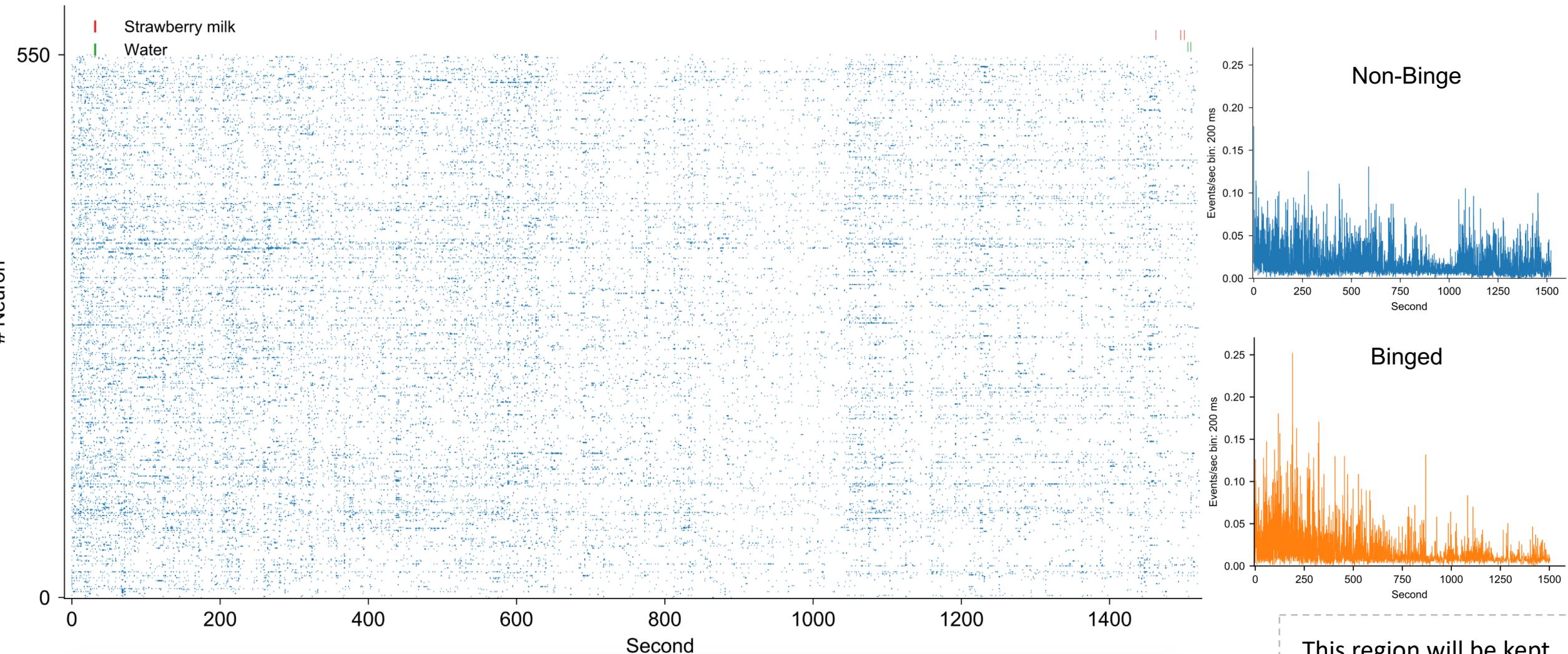


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Trial-averaged neuronal responses

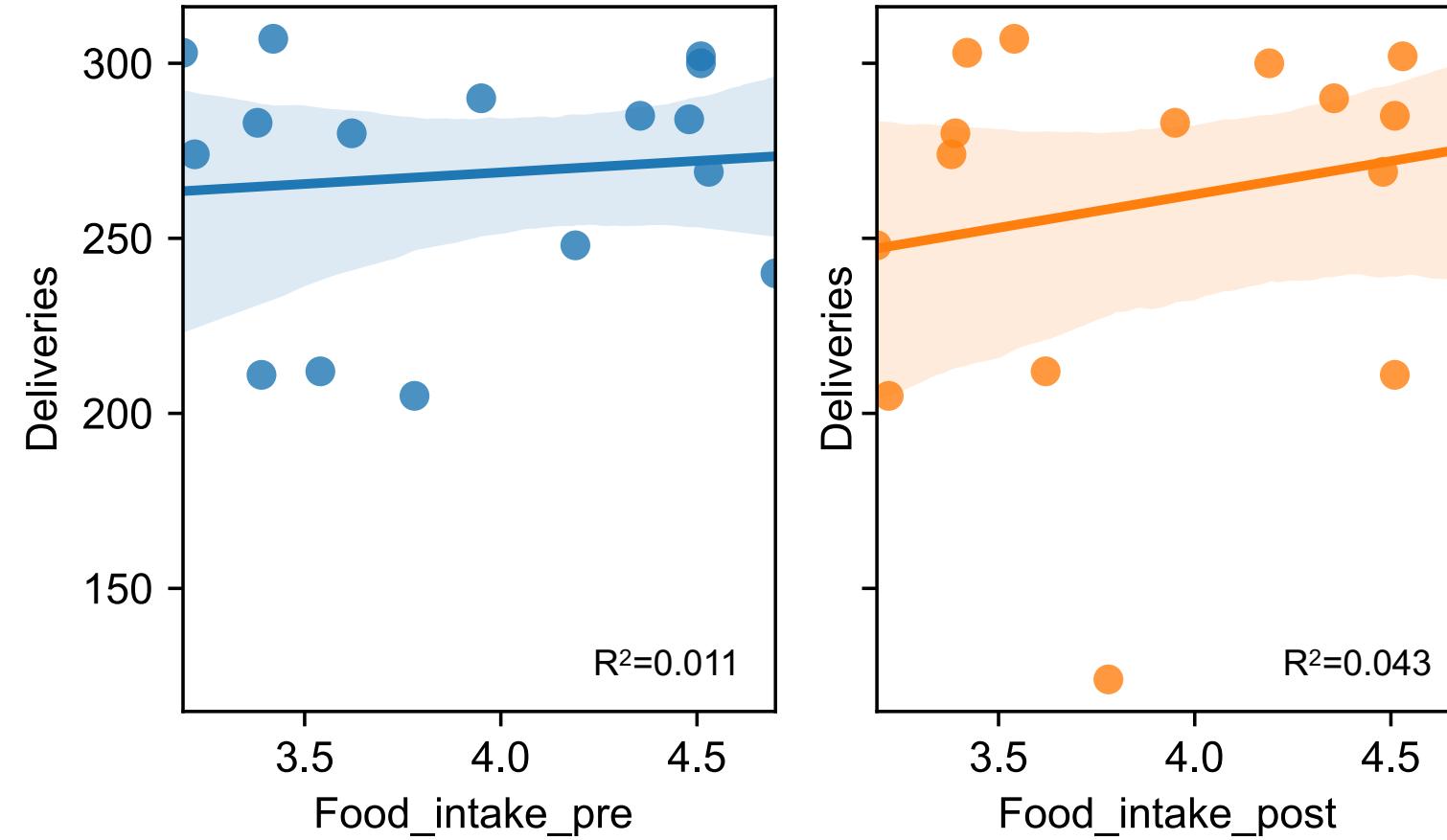


Piriform CaMKII⁺ neuron activities remain stable without eating

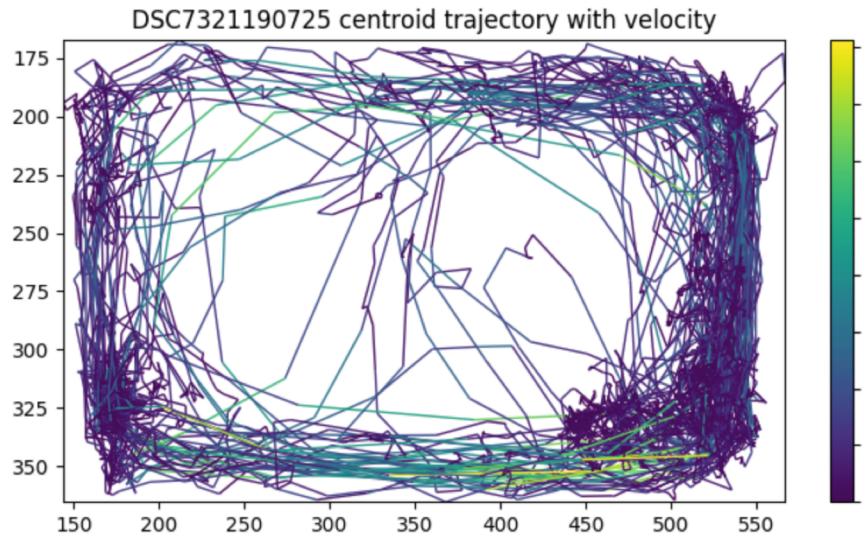
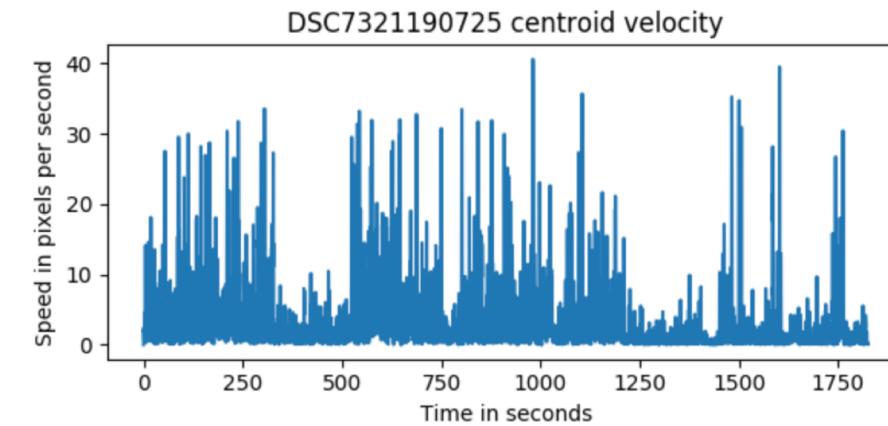


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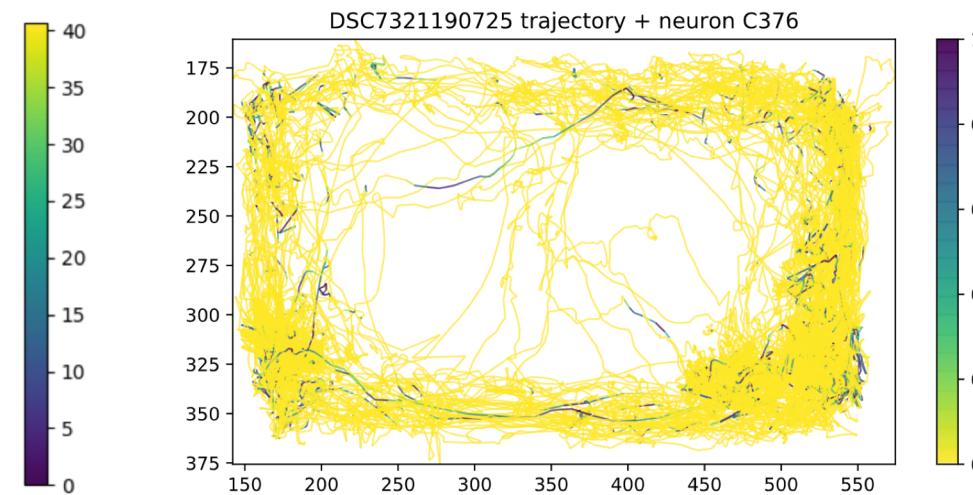
Binge level doesn't correlate with the amount of food intake before or after experiment



Body movement and spatial correlation



Pose estimation by *DeepLabCut*



Binge-suppressed neuron

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