

Neural Circuits for Context-dependent Control of Vocal Communication

March 12

Tuesday, 12:30 pm

Billings Building—Rosedale Room

SPEAKER:



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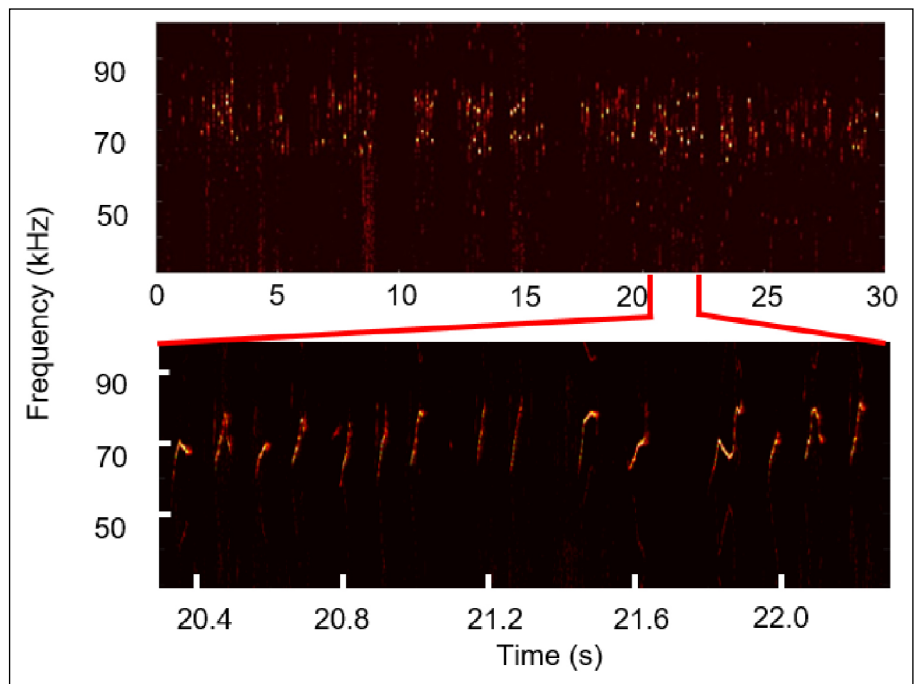
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Abstract

To communicate successfully, both humans and non-human animals must vocalize in the right way and at the right time according to behavioral context. Mice offer a unique opportunity to delineate the neural circuits that regulate the context-dependent production of vocalizations because they offer an unparalleled toolkit of viral-genetic strategies to study defined neurons and because mice produce a rich repertoire of ultrasonic vocalizations (USVs) in different contexts and over development. Mouse pups produce “distress” USVs when cold or when isolated from the nest, and juvenile and adult mice produce “social” USVs during affiliative social interactions and during courtship. I will present published and ongoing work in which we characterize forebrain-to-midbrain circuits that regulate the production of social USVs in adult mice. We are also beginning work to understand how the neural circuits that regulate vocal communication change during early postnatal development, as mice transition from producing distress USVs to producing social USVs.



Publications

1. Ziobro et al., *Midbrain neurons important for the production of mouse ultrasonic vocalizations are not required for distress calls*, *Current Biology*, 2024: <https://doi.org/10.1016/j.cub.2024.01.016>
2. Pranic et al., *Rates of ultrasonic vocalizations are more strongly related than acoustic features to non-vocal behaviors in mouse pups*, *Frontiers in Behavioral Neuroscience*, 2022: <https://doi.org/10.3389/fnbeh.2022.1015484>
3. Zhao et al., *Sex- and context-dependent effects of acute isolation on vocal and non-vocal social behaviors in mice*, *PLOS ONE*, 2021: <https://doi.org/10.1371/journal.pone.0255640>