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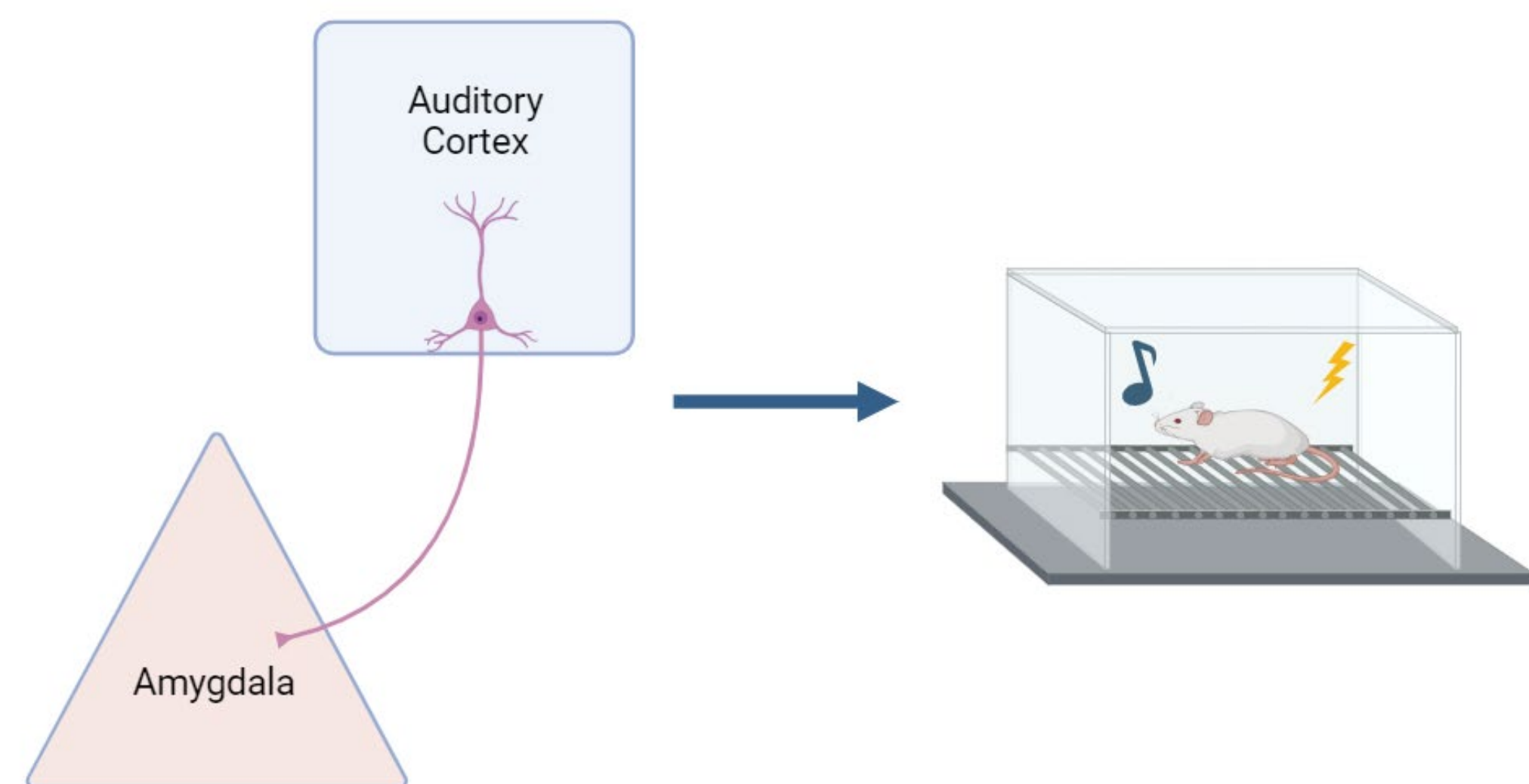
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Abstract

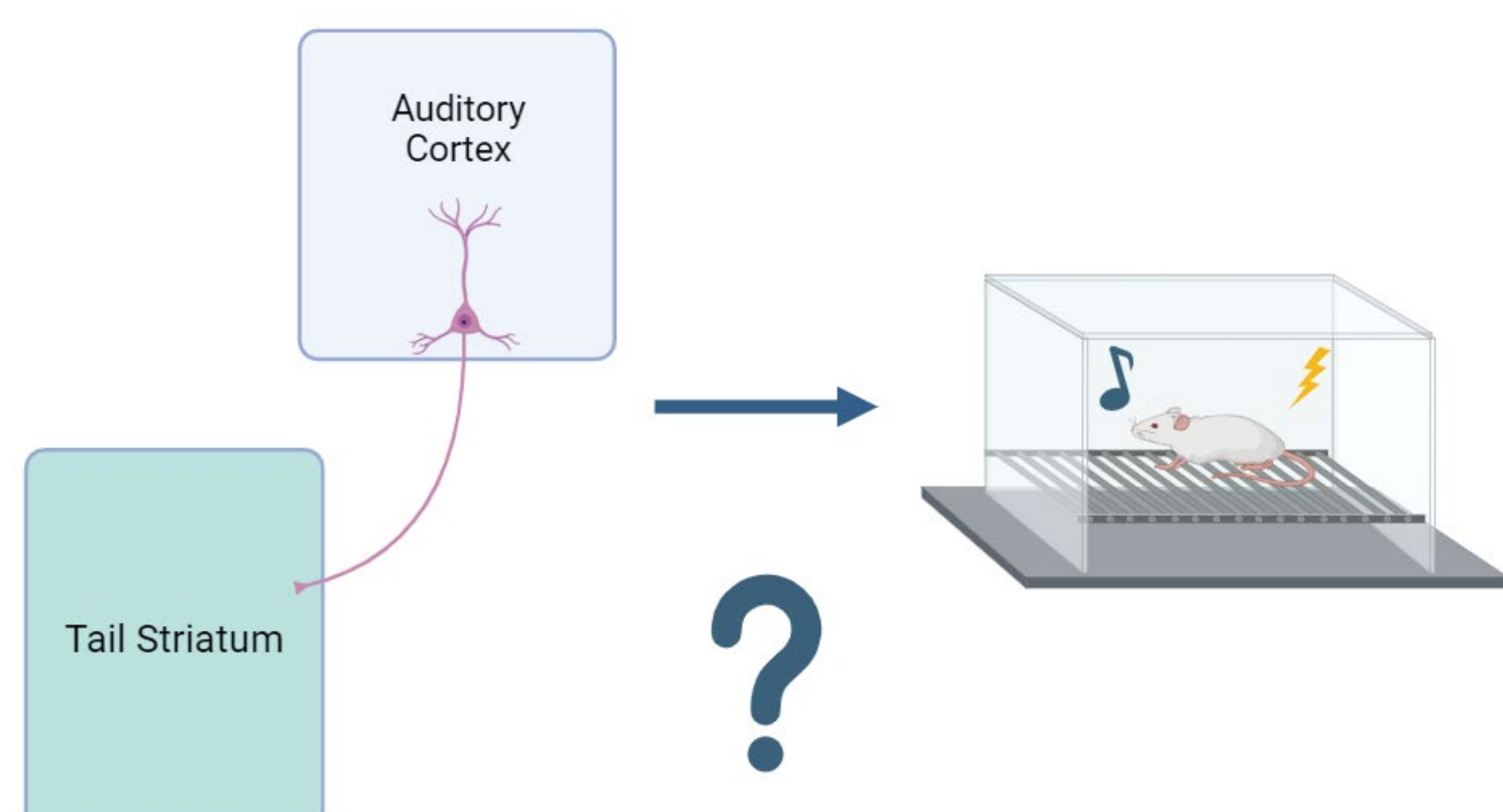
Averse conditioning, also known as fear conditioning, is a form of associative learning in which a mouse learns to associate a conditioned stimulus (an auditory stimulus) with an unconditioned stimulus (foot shock). The striatum is the main input source of the basal ganglia, a collection of subcortical nuclei that mediate learning, memory and decision making, and its role in aversive conditioning remains to be fully elucidated. Here, we seek to better understand the involvement of the tail of the striatum (TS) in auditory aversive conditioning by utilizing c-FOS immunohistochemistry to examine changes in its expression as a measure of neuronal activity following conditioning. This study contributes to a deeper understanding of the neural circuitry underlying aversive and learning behaviors.

Introduction

- The basal lateral amygdala is essential for fear memory consolidation (Vasdarjanova et al., 1999).

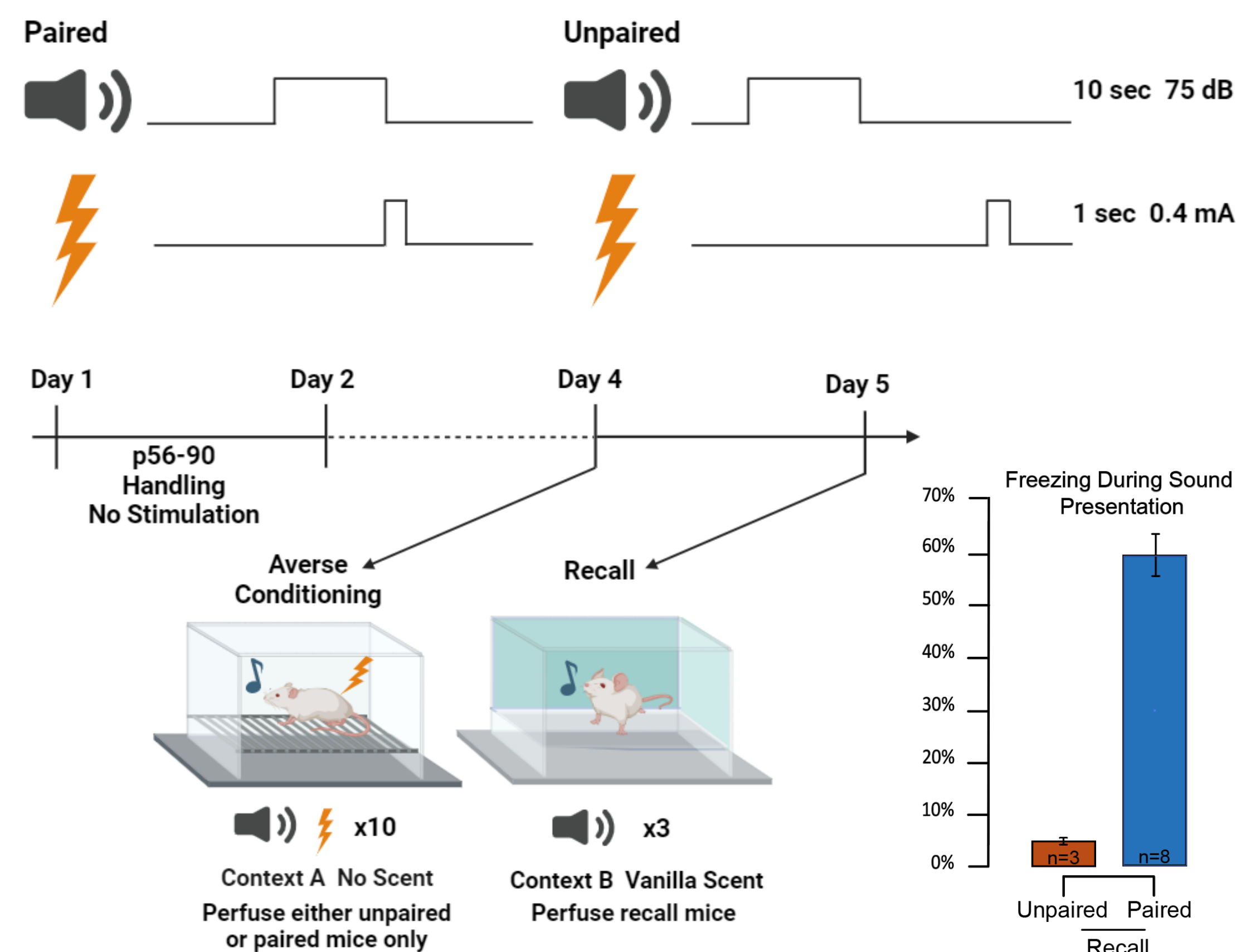


- The TS receives projections from the primary auditory cortex and the amygdala (Jiang et al, 2018; LeDoux, et al., 1991)

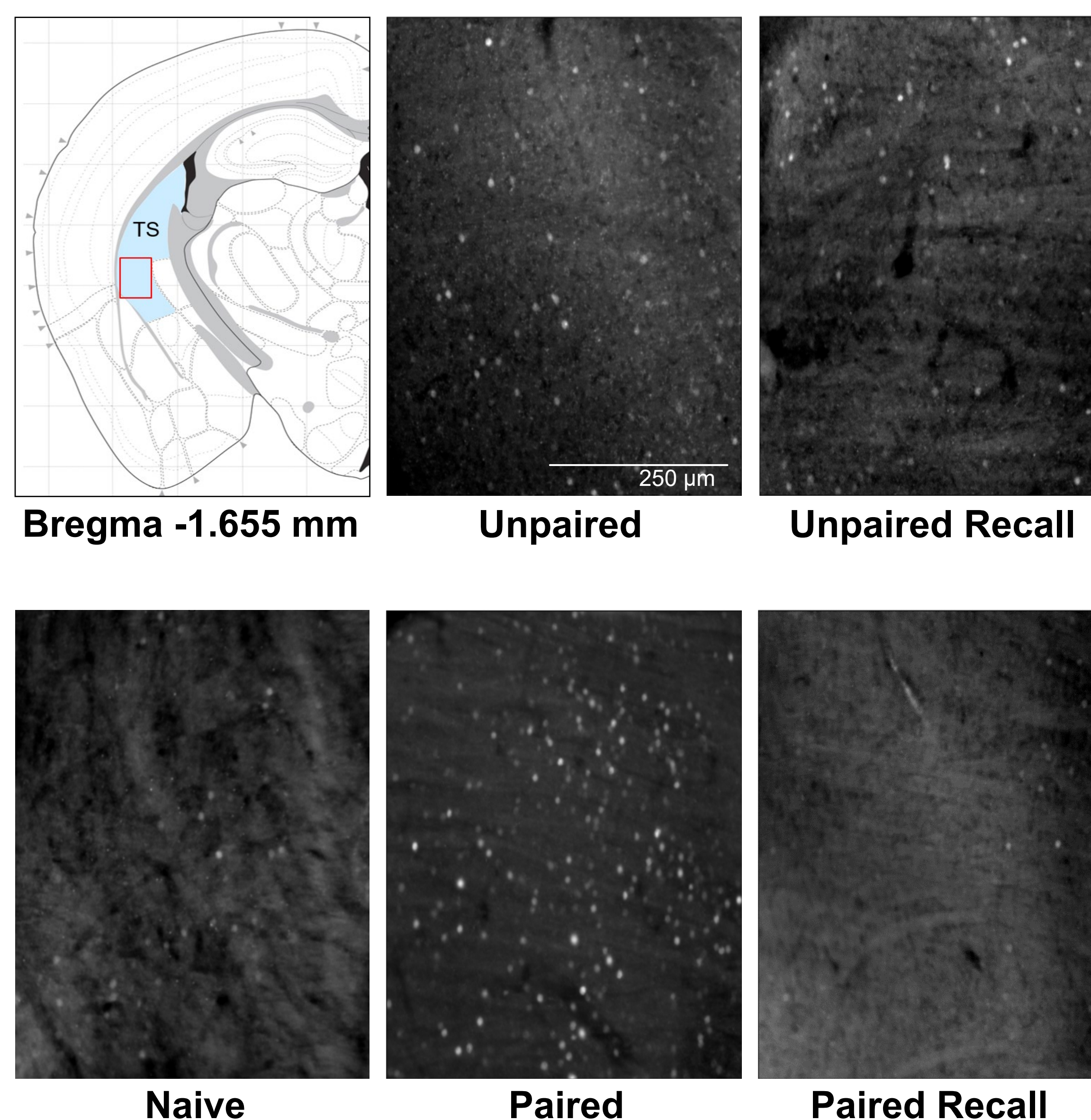
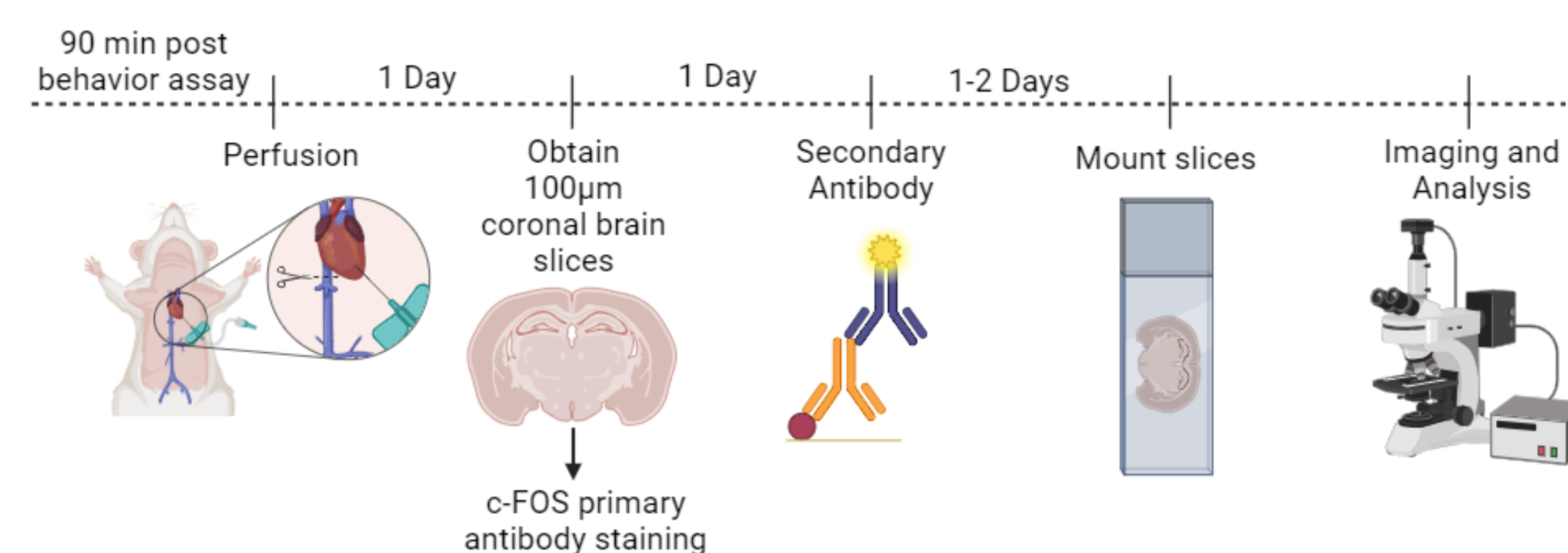


- Is the TS active in aversive conditioning?

Behavior Paradigm

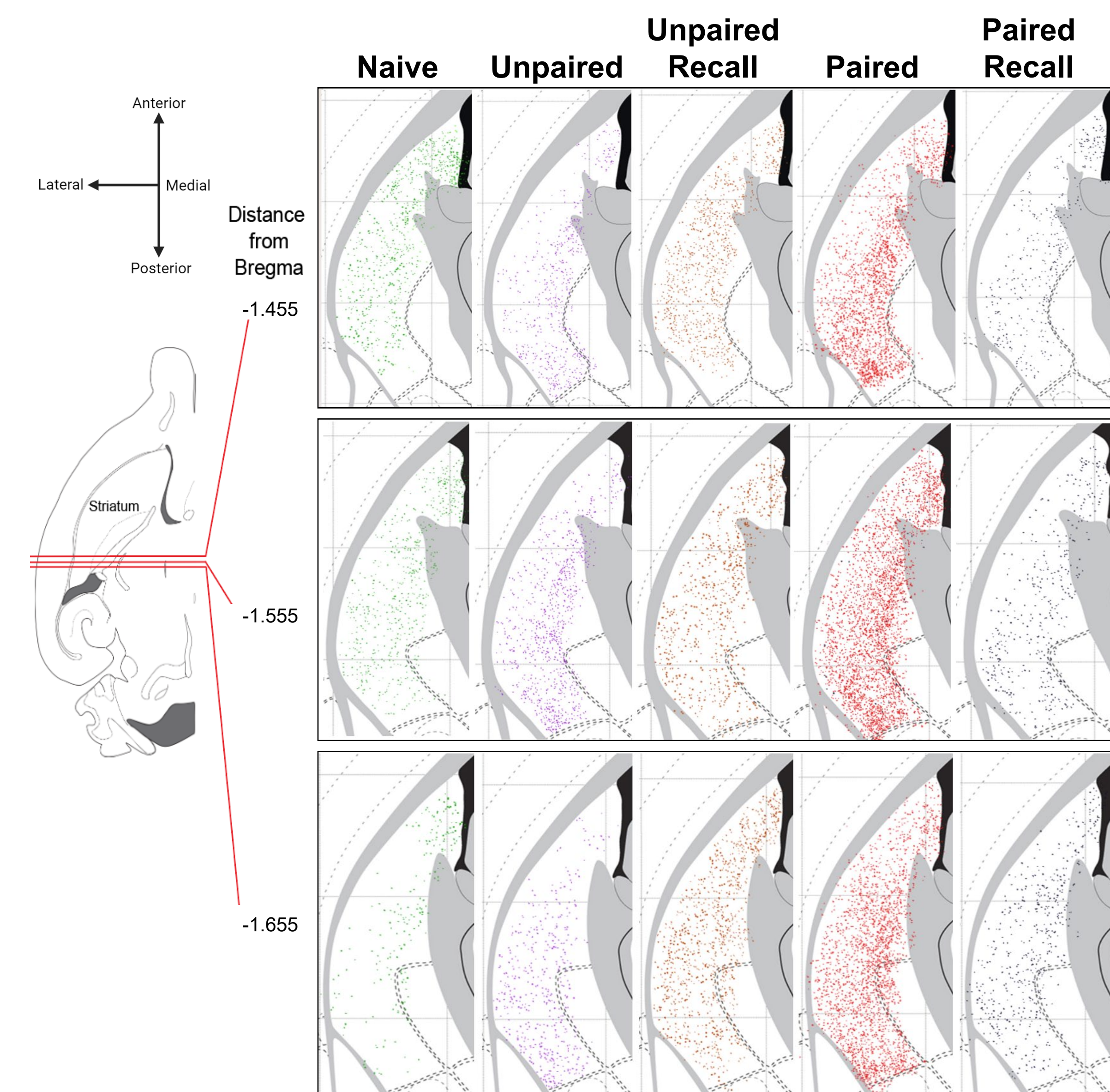


Tissue Processing

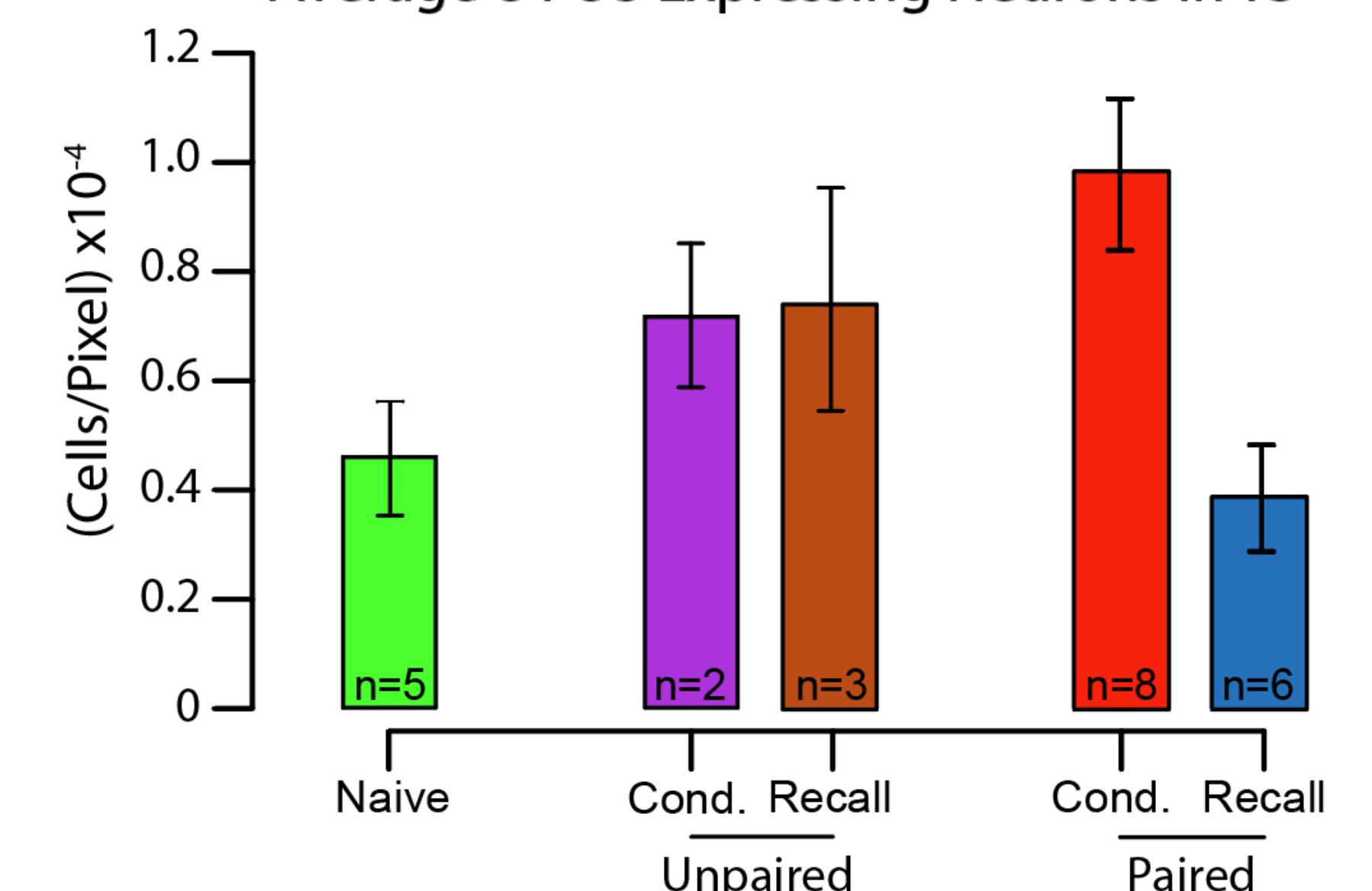


Analysis

Density of Neurons Expressing c-FOS



Average c-FOS Expressing Neurons in TS



Conclusions

- Conditioning with paired stimuli produces a freezing response.
- The paired paradigm shows an increase of c-FOS activity during conditioning and a decrease during recall, whereas there is not a difference in activity in the unpaired paradigm.
- This data suggests that the TS plays a role in the conditioning phase of associative learning tasks and may be an important part of auditory aversive learning circuitry.

Acknowledgements

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