

Background

Conditioned Context Aversion (CCA)

- Example of classical conditioning
- A single conditioning trial is sufficient to develop strong CCA (Kislal & Blizard, 2018)

Preexposure

- Described as a prior experience with a conditioned stimulus
- Brief exposure to the novel context before the conditioning trial
 - Facilitates the formation of representation of context (Wiltgen et al., 2001)
 - Reduce novelty and stress (Risinger & Cunningham, 2000)
 - Prevent neophobia (Berk & Miller, 1978)

Strains of Mice

- No significant difference between pigmented and albino mice in CCA (Kislal & Blizard, 2018)
- The variability of behavioral patterns in strains might be a result of different genetic background (Sultana et al., 2019)

In the present study, the effect of pre-exposure on CCA learning had been studied with two different mice strains.

References

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- Risinger, F. O., & Cunningham, C. L. (2000). DBA/2J mice develop stronger lithium chloride-induced conditioned taste and place aversions than C57BL/6J mice. *Pharmacology Biochemistry and Behavior*, 67(1), 17–24. [https://doi.org/10.1016/S0091-3057\(00\)00310-5](https://doi.org/10.1016/S0091-3057(00)00310-5)
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- Wiltgen, B. J., Sanders, M. J., Behne, N. S., & Fanselow, M. S. (2001). Sex differences, context preexposure, and the immediate shock deficit in Pavlovian context conditioning with mice. *Behavioral Neuroscience*, 115(1), 26–32. <https://doi.org/10.1037/0735-7044.115.1.26>

Method

Subjects: Twelve-week-old CD1 outbred and C57BL/6J inbred male mice were used. Twelve mice of each strain were assigned to the pre-exposure groups (N = 24); another twelve were assigned to the non-pre-exposure groups (N = 24).

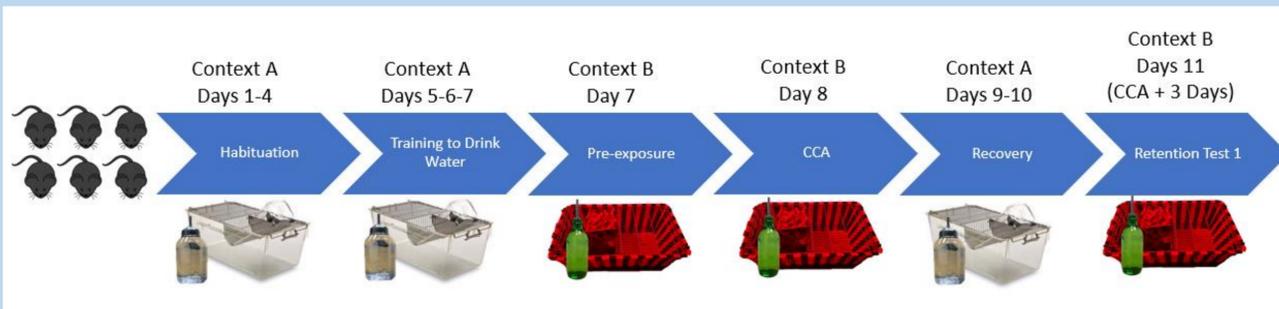
Home Cage



Novel Context



Procedure



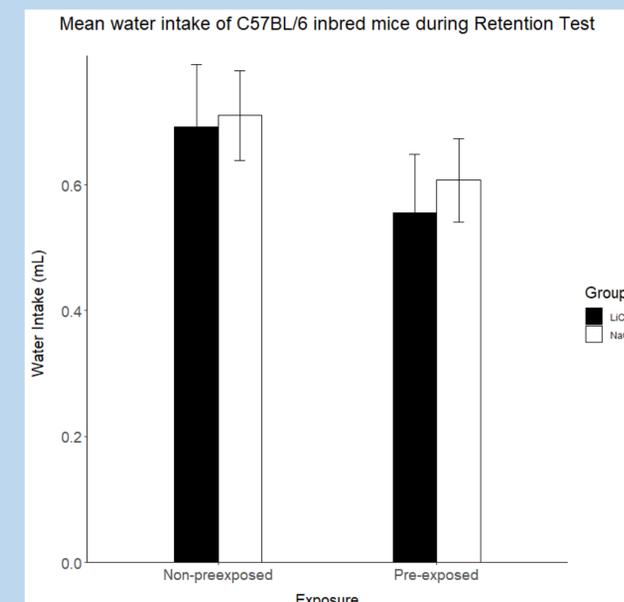
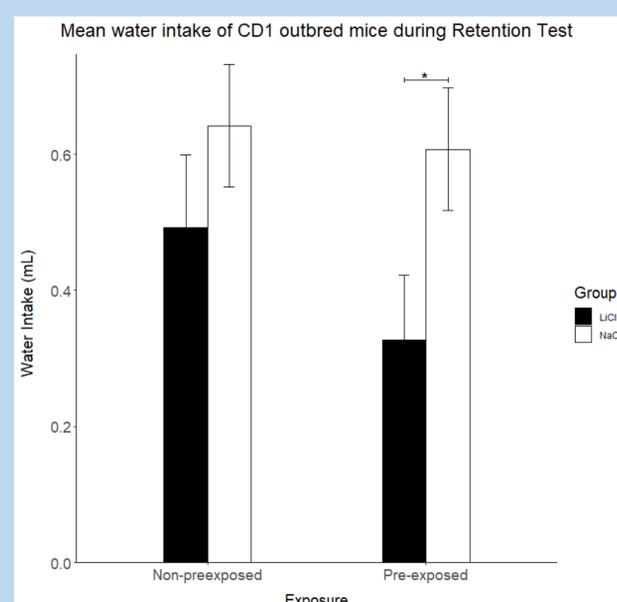
Results

CD1 outbred mice

- There was a statistically significant difference between the pre-exposed LiCl and NaCl groups but not between the non-pre-exposed groups (pre-exposed LiCl vs. NaCl, $p < .05$; non-pre-exposed LiCl vs. NaCl, $p = .30$).

C57BL/6J inbred mice

- There was no significant difference between the experimental and control groups in either condition (pre-exposed LiCl vs. NaCl, $p = 0.656$; non-pre-exposed LiCl vs. NaCl, $p = 0.99$).



Discussion

- One pairing of a specific context with LiCl-induced malaise evoked a conditioned response in CD1 outbred mice only when animals had prior experience of the context.
- No such effect was observed in C57BL/6J inbred mice.
- This result suggests that pre-exposure to the conditioned stimulus potentiates CCA learning in CD1 outbred mice.
- These findings may support the importance of strain preferences in CCA learning.