

The selective dopamine D3 receptor antagonist, SR 21502, reduces reinstatement of methamphetamine seeking in rats

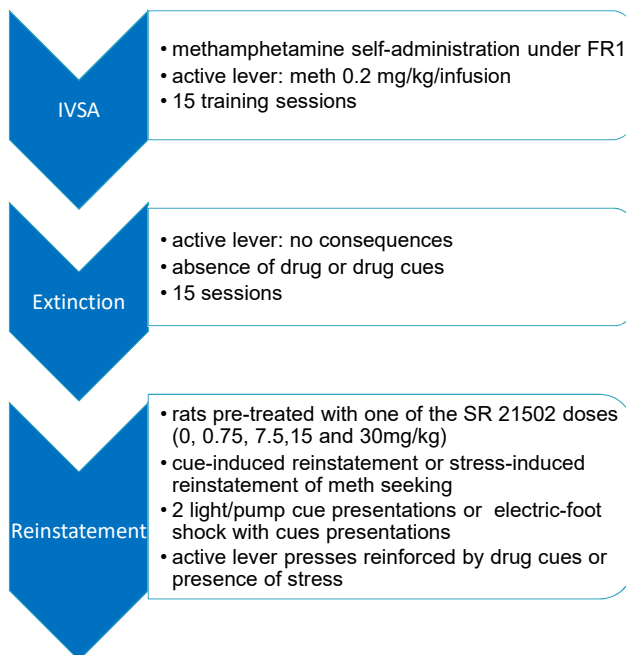
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Introduction

- The D3 receptor antagonist such as SR 21502 is suggested to reduce drug craving and aid in the reduction of relapse.
- The drug of abuse methamphetamine (meth) produces both reward and reinforcing effect in the brain ($p < .05$).
- This study tested the hypothesis that the dopamine D3 receptor antagonist, SR 21502, will reduce reinstatement of methamphetamine seeking.

Methods



Results

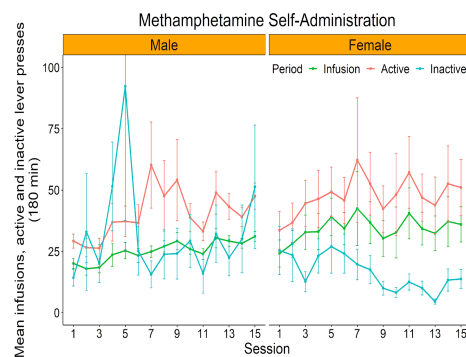


Figure 1. Methamphetamine infusions, active and inactive lever presses across 15 self-administration session.

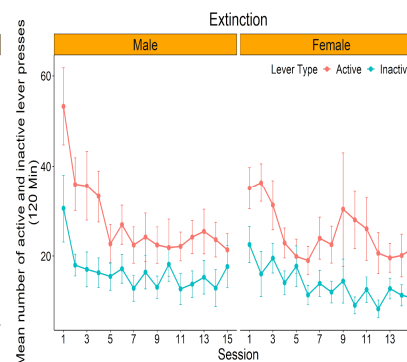


Figure 2. Active lever presses during extinction.

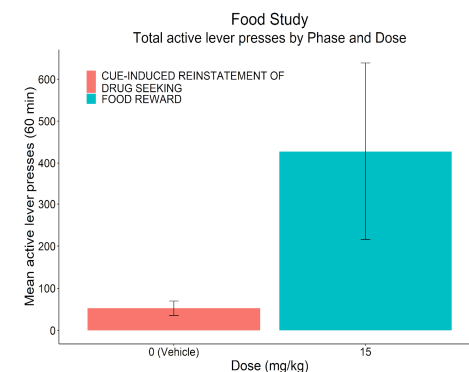


Figure 4: Active lever presses during extinction.

- A significant SR 21502 dose-related reduction in cue-induced reinstatement of lever pressing was seen at 15mg and 30mg.
- This procedure produced a robust reinstatement effect; SR 21502 reduced active lever presses.

Conclusions

- Our findings suggest that dopamine D3 antagonist SR 21502 has the potential to be an effective pharmacotherapeutic agent for methamphetamine relapse.

References

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- Galaj, E., Ewing, S., & Ranaldi, R. (2018). Dopamine D1 and D3 receptor polypharmacology as a potential treatment approach for substance use disorder. *Neuroscience & Biobehavioral Reviews*, 89, 13-28. <https://doi.org/10.1016/j.neubiorev.2018.03.020>
- Peck, J., & Ranaldi, R. (2014). Drug abstinence: exploring animal models and behavioral treatment strategies. *Psychopharmacology*, 231(10), 2045-2058. doi: 10.1007/s00213-014-3517-2

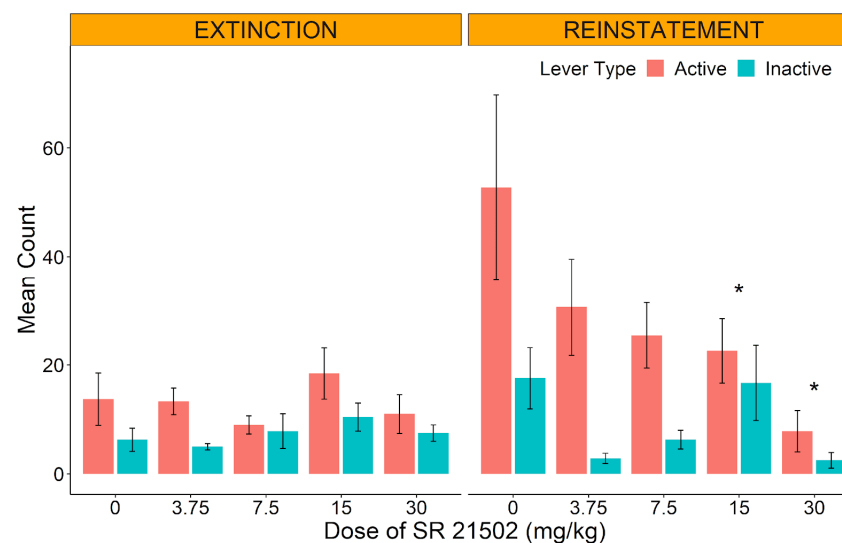


Figure 3: Left Graph: Active and inactive lever presses during the last 3 days of extinction. Right graph: Active and inactive lever presses during the cue-induced reinstatement test (drug-seeking/relapse).