

Introduction

Currently there are no FDA- approved medications to treat stimulant addiction¹. Salvinorin A (Sal A) activates the kappa opioid receptor (KOPr) in the brain and reduces drug-seeking behaviour. Unfortunately a short duration of action and adverse side-effects such as sedation and depression limit its clinical development. We altered the chemical structure of Sal A to make 16-Ethynyl Sal A (Ethy), which is longer lasting.

This summer research project looked into the behavioural side effects of Ethy in tests of sedation and depression.

Conclusions

- Ethy has no sedative effect (locomotor activity).
- Ethy shows no depressive-like effects (forced swim test).
- Further research is required to establish a full side-effect profile of both Ethy and Sal A.

Reference

Drugabuse.gov, (2016). *Treating addiction to prescription stimulants*. Retrieved from <https://www.drugabuse.gov/publications/research-reports/prescription-drugs/treating-prescription-drug-addiction/treating-addiction-to-prescription-stim>

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Breaking the Cycle of Addiction

Investigating the side-effects of 16-Ethynyl Sal A (a potential anti-addiction drug)

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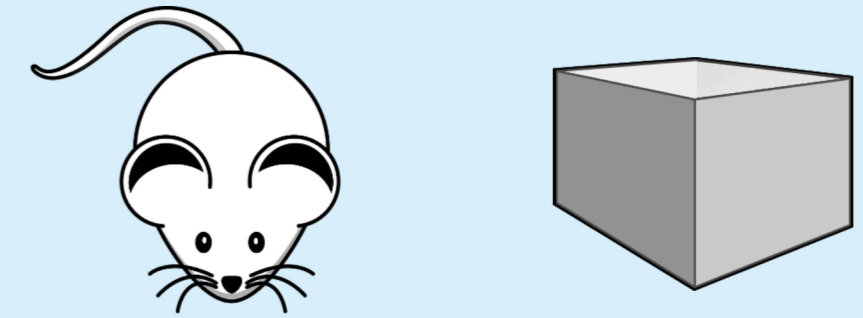
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Methods

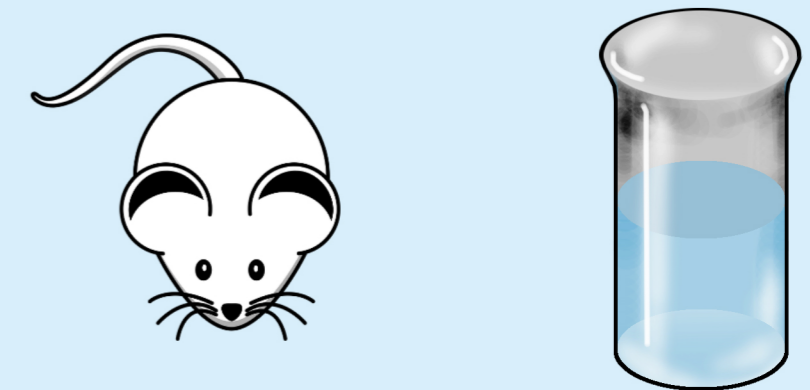
Locomotor Test (Sedation)

Inject rat with drug → Place rat in box → Track rat movement using SMART software

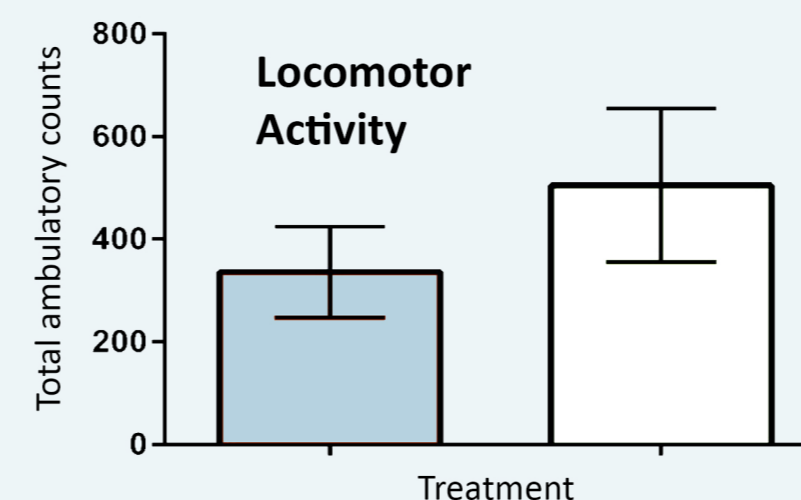


Forced Swim Test (Depression)

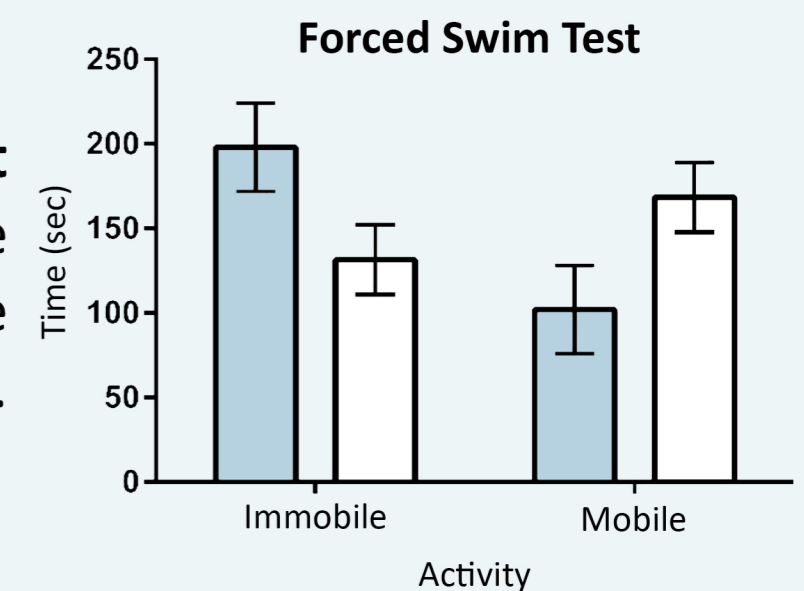
Inject rat with drug → Place rat in water filled cylinder → Track rat swimming behaviour using SMART software.



Results



Forced Swim Test
Ethy compared to vehicle is displaying no depressive-like effect.



Locomotor Activity

Ethy has no significant difference to vehicle thus showing no sedative effect with an n=7.

