

Poster presentation

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## Effects of microinjections of nicotine into the dorsal hippocampus on morphine-induced amnesia

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### Background

It has been shown that the dorsal hippocampus has an important role in the induction of reward-related learning by morphine [1]. Considering the hippocampal cholinergic system is critically involved in memory [2], the aim of this study was to evaluate the effects of bilateral microinjections of nicotine into the dorsal hippocampal CA1 regions on morphine-induced amnesia.

### Materials and methods

A single-trial step-through passive avoidance task was used for the assessment of memory retention in male Wistar rats. Animals were bilaterally cannulated in the CA1 regions of the dorsal hippocampi by stereotaxic instrument, and were allowed to recover one week before behavioral testing.

### Result

Post-training subcutaneous (s.c.) injection of morphine dose-dependently induced impairment of memory retention, indicating morphine-induced amnesia. Intra-CA1 microinjections of different doses of nicotine, immediately before post-training administration of morphine dose-dependently inhibited morphine-induced amnesia. While, post-training bilateral microinjections of the same doses of nicotine into the CA1 regions alone did not affect memory retention.

### Conclusions

The existing evidence supports that morphine dose- and time-dependently impairs retention of memory and thus

exerts amnesic effects in the step-through passive avoidance task. Moreover, the results suggest a possible role for nicotinic receptors of the CA1 region of the dorsal hippocampus in the improving effect of nicotine on the morphine-induced amnesia.

### References

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