ABSTRACT BOOK Part I

presented on-site & virtually

ON-SITE Poster Presetations on

Sunday, September 5th 2021 – Tuesday, September 6th 2021,

each 10:00 – 11:30am CEST

ONLINE Poster Presetation on

Wednesday, September 8th 2021,

1:30pm – 6:30pm CEST

On-Site Poster Number: 1

Session (On-Site): Addiction
Sunday, September 5th 2021, 10:00-11:30am

Spatial training in the Water Maze facilitates extinction and prevents reinstatement of cocaine-induced Conditioned Place Preference

Ávila-Gámiz F[1] Mañas-Padilla M[1] Gil-Rodríguez S Zambrana-Infantes E[1] Santín L[1] Ladrón de Guevara-Miranda D[1]

[1]Departamento de Psicobiología y Metodología de las Ciencias del Comportamiento, Facultad de Psicología y Logopedia, Universidad de Málaga. Instituto de Investigación Biomédica de Málaga (IBIMA) Málaga Spain

Manipulation of adult hippocampal neurogenesis has been shown to affect the establishment of cocaine-context associations as well as extinction learning and reinstatement of these maladaptive memories. In this work, we aimed to study whether spatial training in the Water Maze (WM) task was able to increase survival/differentiation of adult-born hippocampal neurons, thus facilitating extinction and preventing primed reinstatement of cocaine-context associations. For this purpose, 20 adult male C57BL/6J mice (12 weeks-old) were trained in the Conditioned Place Preference (CPP) paradigm with an ascending dosing schedule (2, 4, 8 and 16 mg/kg/day). Two days later, animals received systemic bromodeoxyuridine (BrdU) injections (75 mg/kg) to label new cells that proliferated after cocaine-CPP acquisition. One week later, a group of mice (n=10) was submitted to a 7-days spatial training in the WM while another group of mice (n=10) remained undisturbed at home cage. When BrdU+ new-born hippocampal cells reached maturation (~6 weeks-old), mice were tested for CPP memory retrieval. Then, animals were submitted to forced CPP extinction and tested for CPP extinction and reinstatement induced by a 2 mg/kg cocaine priming. The results showed that animals trained in the WM required fewer sessions to extinct cocaine-CPP and showed reduced reinstatement compared to the animals maintained at home cage. Therefore, our data suggest that learning in a spatial memory task is able to reduce long-term persistence of cocaine-context associations. Further analyses are required to elucidate the role of adult hippocampal neurogenesis on these beneficial effects.

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