



ABSTRACT BOOK Part I
presented on-site & virtually

ON-SITE Poster Presentations on
Sunday, September 5th 2021 – Tuesday, September 6th 2021,
each 10:00 – 11:30am CEST

ONLINE Poster Presentation on
Wednesday, September 8th 2021,
1:30pm – 6:30pm CEST

Cognitive impairment and persistent changes in exploration and hyperactivity in mice after withdrawn from chronic cocaine

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Lasting neurobehavioral adaptations such as cognitive decline are induced by chronic cocaine exposure in animal models. However, persistent changes in motor and exploratory responses are rarely reported. In this study, mice were administered a cocaine dose (COC, 20 mg/kg/day) or saline (SAL) repeatedly for 12 consecutive days in their home cage. After 24 days of drug withdrawal, they were submitted to a behavioral test battery to assess motor/exploratory activity and anxiety-like behavior (elevated plus maze and open field tests), behavioral despair (forced swimming test), working and reference memory (spontaneous alternation behavior –SAB- and novel place recognition memory tests). This behavioral assessment was carried out in drug-free conditions and in unfamiliar environments, so no cocaine-associated stimuli were presented. The cocaine-withdrawn mice showed cognitive deficits in spontaneous alternation behavior and place recognition memory. Importantly, they also displayed hyperlocomotion, increased rearing activity and altered exploratory patterns in different tasks. In the forced swimming test, they were more active (struggled/climbed more) when trying to escape from the water albeit showing similar immobility behavior than controls. In conclusion, in addition to cognitive deficits, chronic cocaine may induce lasting changes in psychomotor activation even in unfamiliar environments not associated to the drug. This outcome may be influenced by factors related to exploration, energy or emotionality.

Funding: PSI2017-82604; PRE2018-085673; I Plan Propio de Investigación, Transferencia y Divulgación Científica de la Universidad de Málaga.