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**Interaction between 5-HT<sub>4</sub> and CB1 function in the pre-limbic cortex on memory consolidation deficit in inhibitory avoidance task****Nargol Ahmadi-Mahmoodabadi<sup>1</sup>, Mohammad Nasehi<sup>1</sup>, Masoumeh Emamghoreishi<sup>1</sup> and Mohammad-Reza Zarrindast<sup>1,3</sup>**<sup>1</sup>Institute for Cognitive Science Studies, Iran<sup>2</sup>Shiraz University of Medical Sciences, Iran<sup>3</sup>Tehran University of Medical Sciences, Iran

This study performed to investigate the influence of bilateral post-training intra-pre limbic (PL) microinjections of serotonergic 5-HT<sub>4</sub> receptor agents (RS67333, as a 5-HT<sub>4</sub> receptor agonist and RS23597-190, as a 5-HT<sub>4</sub> receptor antagonist) upon amnesia induced by a cannabinoid CB1 receptor agonist, Arachidonylcyclopropylamide (ACPA) in rats. The step-through Inhibitory Avoidance (IA) and open field apparatuses were used to examine the memory consolidation and locomotion behaviors, respectively. Bilateral guide-cannulae were implanted to allow intra-PL microinjections of the drugs. Also, post-training administration of the drugs was performed with the volume of 0.6 µl/rat (0.3 µl/side). Based on our findings, post-training bilateral intra-PL microinjection of ACPA (0.1 and 0.5 µg/rat) decreased, whereas RS67333 (0.5 µg/rat) increased IA memory consolidation. Meanwhile, post-training bilateral intra-PL administration of RS23597-190 (0.005, 0.01, 0.1 and 0.5 µg/rat) did not alter memory consolidation. Moreover, intra-PL micro-infusion of RS67333 (0.005 µg/rat) plus the lower (0.001 µg/rat) or the higher (0.1 µg/rat) dose of ACPA potentiated or restored the memory consolidation impairment induced by ACPA, respectively. While, post-training administration of RS23597-190 (0.5 µg/rat) plus the higher dose of ACPA (0.1 µg/rat) potentiated the ACPA response. However none of the above interventions affect locomotors activity. In conclusion, our results suggest that the PL 5-HT<sub>4</sub>

dr.ahmadi2012@gmail.com

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