ELSEVIER
Neurobiology of Learning and Memory

Available online 25 May 2012

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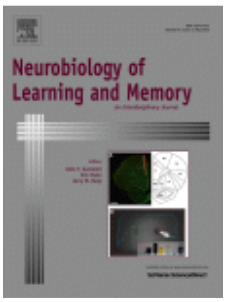

GABA, glutamate, dopamine and serotonin transporters expression on forgetting

- Ruth Tellez[a],
- Leticia Gómez-Viquez[a],
- Gustavo Liy-Salmeron[b],
- Alfredo Meneses[a],

- [a] Depto. de Farmacobiología, Mexico
- [b] Facultad de Ciencias de la Salud, Universidad Anáhuac México Norte, Huixquilucan Edo. de México, CINVESTAV-IPN, Mexico City, Mexico

- Received 29 October 2011. Revised 26 April 2012. Accepted 14 May 2012. Available online 25 May 2012.

- http://dx.doi.org/10.1016/j.nlm.2012.05.001, How to Cite or Link Using DOI

Neurobiology Learning Memory. 2012 Jul;98(1):66-77.

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Tellez R, Gómez-Viquez L, Liy-Salmeron G, Meneses A.

Notwithstanding several neurotransmission systems are frequently related to memory formation; forgetting process and neurotransmission systems or their transporters; the role of γ-aminobutyric acid (GAT1), glutamate (EACC1), dopamine (DAT) and serotonin (SERT) is poorly understood. Hence, in this paper western-blot analysis was used to evaluate expression of GAT1, EAAC1, DAT and SERT during forgetting in trained and untrained rats treated with the selective serotonin transporter inhibitor fluoxetine, the amnesic drug d-methamphetamine (METH) and fluoxetine plus METH. Transporters expression was determined in the hippocampus (HIP), prefrontal cortex (PFC) and striatum (STR). Results indicated that forgetting of Pavlovian/instrumental autoshaping was associated to up-regulation of GAT1 (PFC and HIP) and DAT (PFC) while SERT (HIP) was down-regulated; no-changes were observed in striatum. Methamphetamine administration did not affect forgetting at 216h post-training but up-regulated hippocampal DAT and EACC, prefrontal cortex DAT and striatal GAT1 or EACC1. Fluoxetine alone prevented forgetting, which was associated to striatal GAT1 and hippocampal DAT up-regulation, but prefrontal cortex GAT1 down-regulation. Fluoxetine plus METH administration was also able to prevent forgetting, which was associated to hippocampal DAT, prefrontal cortex SERT and striatal GAT1, DAT or SERT up-regulation, but prefrontal cortex GAT1 down-regulation. Together these data show that forgetting provokes primarily hippocampal and prefrontal cortex transporters changes; forgetting represent a behavioral process hardly modifiable and its prevention could causes different transporters expression patterns.