Translational Medicine @ UniSa - ISSN 2239-9747 2019, Special Issue 1(56): 56

P36. POST SYNAPTIC DENSITY AND ITS MODULATION BY ANTIPSYCOTICS, PSYCHIATRIC DISORDERS AND PRENATAL STRESS. A SOFIST MACHINE: FOCUS ON HOMER GENES.

L. Vellucci, C. Avagliano, E.F. Buonaguro, F. Iasevoli, and A. de Bartolomeis

Laboratory of Molecular and Translational Psychiatry, Department of Neuroscience, Reproductive Sciences and Odontostomatology, University "Federico II" of Naples, Italy

The post-synaptic density (PSD) is an ultra-specialized structure near the post synaptic membrane of glutamatergic synapses which contains receptors, signaling and scaffolding proteins organizing signal-transduction pathways [1]. This structure takes part to many processes involved in the development of nervous system [2], synaptic plasticity [3] and regulation of transductional pathways [4]. Psychiatric disorders have been widely related to PSD disfunctions. In this work we studied alterations of PSD molecules and their modulation by antipsychotic treatments and environmental conditions. In particular we evaluated Homer 1a expression in schizophrenia and stress-related murine models and Homer 1a expression after acute administration of the typical antipsychotic Haloperidol. The expression of Homer 1a was found to be altered in different brain areas related to psychiatric disorders. Moreover, acute administration of Haloperidol produced alterations in functional connectivity among brain regions relevant to schizophrenia pathophysiology, thus inducing variations in corticosubcortical brain networks compared to control group. PSD molecules are strongly related to psychiatric disorders and are promising molecular targets of future therapeutic approaches.

Keywords: Post-synaptic density, Homer, Haloperidol, Schizophrenia, stress-related disorder, network

[1] Yamauchi T. Molecular constituents and phosphorylation-dependent regulation of the postsynaptic density. Mass Spectrom Rev. 2002 Jul-Aug;21(4):266-86.
[2] Foa L, Rajan I, Haas K, Wu GY, Brakeman P, Worley P, Cline H. The scaffold protein, Homer1b/c, regulates axon pathfinding in the central nervous system in vivo. Nat Neurosci.2001 May;4(5):499-506.
[3] Sheng M, Kim MJ. Postsynaptic signaling and plasticity mechanisms. Science. 2002 Oct 25;298(5594):776-80.
[4] Ehlers MD, Mammen AL, Lau LF, Huganir RL. Synaptic targeting of glutamate receptors. Curr Opin Cell Biol. 1996 Aug;8(4):484-9.64