OMICS Group Conferences
Accelerating Scientific Discovery

4th International Conference on
Biomarkers & Clinical Research
July 15-17, 2013 Courtyard by Marriott Philadelphia Downtown, USA

Altered levels and distribution of DISC1 and defective primary cilia formation in neuronal precursors from patients with schizophrenia and bipolar disorder: Possible markers for disease diagnosis

Munoz-Estrada Jesus
Instituto Politecnico Nacional, Mexico

Schizophrenia (SZ) and bipolar disorder (BD) are human neurologic disorders that affect close to 1% of the world population. It has been proposed that these disorders could originate during neurodevelopment by genetic alterations, environmental factors and vitamin deficiencies among other elements. It has been suggested that gene disc-1 (Disrupted in Schizophrenia-1) is a potential risk factor associated with SZ and BD. Altered expression of DISC-1 protein in animal models as well as in cell culture has been associated with defective neuronal migration, proliferation, neuritogenesis and primary cilia formation, important events for brain maturation and function. Recently, it has been proposed that the olfactory epithelium neuronal presursors are an excellent model to study neurodevelopment in patients with SZ and BD. Thus, we have studied DISC-1 expression, subcellular distribution and cilia formation in cell cyclesynchronized neuronal precursors obtained from healthy subjects and patients. Our results showed that neural precursors from patients were defective in cilia formation and this was correlated with higher levels and aberrant subcellular distribution of DISC-1. These data suggest that DISC-1 and primary cilia formation could be specific molecular biomarkers for diagnosis of SZ and BD. These results support a possible origin of both neurologic conditions during neurodevelopment.

jesus34_5@yahoo.com.mx