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PC-ONE- Primary cilia is not developed in olfactory neuronal precursors obtained from schizophrenia and bipolar disease patients

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Schizophrenia (SZ) and Bipolar Disorder (BD) are diseases that can be originated during the fetal life by altered migration of neuronal precursors and a deficient formation of synaptic contacts. Microtubules play a key role in both processes and constitute primary cilia (PC) which is a rod like structures that senses extracellular signals in the fetal and adult brain. Recently, we described an aberrant microtubule organization in olfactory neuronal precursors (ONE) of SZ and BD patients. In this work we explored whether PC is present in ONE of SZ and BD patients and in healthy control subjects (HCS). Olfactory neuronal precursors were obtained by nasal cavity exfoliation of the middle turbinate, the nasal septum and the olfactory cleft of patients recruited in the Schizophrenia and Bipolar Disorder Clinics of the National Institute of Psychiatry and from healthy control subjects (HCS) paired by age and gender. PC was identified by immunofluorescence staining using an anti-acetylated-tubulin antibody. The results showed that 60% of ONE obtained from HCS (n=5) had rod-like structures with acetylated-tubulin protruding from the cell surface. By contrast, 5% of ONE of SZ patients (n=5), and 0% of the BD (n=5) cells showed these structures. The results indicate that ciliogenesis is abated in ONE of SZ and BD. Because PC plays a key role in neurodevelopment and ONE are mesenchymal cells, our data support the possibility that lack of PCs in ONE may be involved in brain alterations originated at prenatal life of SZ and BD.

Biography

Gloria Benítez-King has completed his PhD from Center of Research and Advanced Studies at the National Polytechnic Institute in México City and a research study stay from Rudolf Magnus Institute in Utrecht, Netherlands. She is the Head of the Neuropharmacology Laboratory at the National Institute of Psychiatry in México City. She has published more than 50 papers in reputed journals and has been serving as an Editorial Board Member of the *Journal of Pineal Research*.

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