

SULCAL PITS REVEAL A NEURODEVELOPMENTAL CONTRIBUTION OF BROCA'S AND SPEECH-RELATED AREAS TO AUDITORY HALLUCINATIONS IN SCHIZOPHRENIA

The research group from **FIDMAG Hermanas Hospitalarias** Research Foundation (CIBERSAM-ISCIH), along with **Benito Menni CASM (FH Sant Boi)**, **Hospital Sagrat Cor (FH Martorell)**, **Hospital Mare de Déu de la Mercé (FH Barcelona Nord)**, **Hospital Sant Rafael (FH Barcelona)**, **Department of Evolutionary Biology, Ecology and Environmental Sciences from Universitat de Barcelona**, **Connectomics Lab from Centre Hospitalier Universitaire Vaudois (CHUV)**, **University of Lausanne (UNIL)**, and the **Radiology Department of Sant Joan de Déu**, have published a study in the journal *Psychiatry Research* that links a neurodevelopmentally stable structural alteration in one of the brain's main language areas to the presence of auditory verbal hallucinations in schizophrenia.

P. Salgado-Pineda, L. Barbosa, N. Hostalet, M. Á. García-León, P. Fuentes-Claramonte, J. Soler-Vidal, L. Bucur, Y. Alemán-Gómez, A. Karuk, N. Ramiro, M. Sánchez, L. Torres, C. Corte, I. B. Hoyas, B. Navarro, N. Jaurrieta, P. del Olmo-Encabo, C. Caride-Padilla, E. J. I. Clemente, S. Sarró, R. Salvador, M. Fatjó-Vilas, P. J. McKenna and E. Pomarol-Clotet. **An ontogenetic role for Broca's and related speech areas in schizophrenic auditory hallucinations? Evidence from sulcal pits analysis.**

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Introduction

Schizophrenia is a complex mental disorder whose wide range of symptoms are often grouped into so-called positive (delusions and hallucinations), negative (lack of motivation and emotional blunting), and disorganization (mainly incoherence of speech) syndromes. A developmental element in the origin for the disorder is widely accepted, in the sense that people who develop the disorder show subtle changes in early life and childhood. Brain structural changes, including a 2-3% reduction in brain volume, are another well-established finding in schizophrenia. These structural changes are believed to have a partial developmental origin, as they are present at the onset of the illness and potentially even before. However, attempts to link these brain structural changes to specific symptoms have had limited success.

Auditory verbal hallucinations (AVH, 'hearing voices'), affect 60-70% of patients with schizophrenia. Previous research has suggested an association between AVH and reduced cortical volume in regions of the temporal lobe cortex and also the insula (between the temporal and frontal lobes). However, findings have been inconsistent, and a recent meta-analysis failed to find a clear link. The current study introduces a new approach to this question by evaluating so-called sulcal pits, the deepest points in the folds ('sulci') of the cerebral cortex (see Fig. 1).