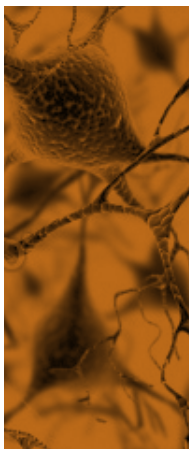
PANS – Probing the auditory novelty system

Austria Canada Finland France Germany Italy Israel Luxemburg Poland Romania Spain

Project Description Hearing it is one of the most amazing human capacities. It is at the basis human speech and communication, and thus constitutes a prerequisite towards cognitive development. A key principle in cognitive auditory function is the ability of the auditory system to extract the implicit regularity in the acoustic environment. Animal studies have identified neurons along the auditory pathway that show strong stimulus-specific adaptation but that fire vigorously to novel acoustic events. Also, human studies based on a deviance-related EEG response, the mismatch negativity (MMN), have suggested that novelty detection is paramount to auditory function. Yet, a unified picture of these two lines of research is lacking. Our project aims at the understanding of the auditory novelty system, while providing a new testing protocol of cognitive dysfunction in pre-term born infants.
This will be achieved by a multidisciplinary approach encompassing the recording of human (EEG, MEG) and animal (single unit, multi unit, local field and epidural) novelty responses elicited at multiple levels of the auditory system to common experimental protocols. The results will guide the design of new testing protocols for assessing cognitive sequelae of prematurity that should guide the rapid implementation of preventive measures.



Chareles Escera (coordinator)

PROJECT**PARTNERS:**

Carles Escera
Universitat de Barcelona (UB) \ Barcelona \ Spain

Israel Nelken
Hebrew University of Jerusalem (HUJ) \ Jerusalem \ Israel

Minna Huotilainen
University of Helsinki (UHEL) \ Helsinki \ Finland

Manuel Sánchez Malmierca
University of Salamanca (USAL) \ Salamanca \ Spain