

ESF Research Conference

Gene Expression to Neurobiology and Behaviour: human brain development and developmental disorders

Hotel Eden Roc, Sant Feliu de Guixols (Costa Brava) ■ Spain

20-25 September 2009

How does the genome, interacting with the multi-faceted environment, translate into the development by which the human brain achieves its astonishing adaptive array of cognitive and behavioural capacities? Why and how does this process sometimes lead to neuro-developmental disorders with a major, lifelong personal and social impact? These are central and intrinsically interdisciplinary problems of human development which can only be understood by a concerted effort of neurobiologists, geneticists, psychologists, neurologists, psychiatrists, cognitive and computational scientists. Scientists working in the areas of neuroscience, molecular genetics and neuroimaging will need to understand theories, methods and insights in human cognitive development, and conversely cognitive and developmental psychologists and neuroscientists will need to appreciate the possibilities, limitations and issues of interpretation in the new biological technologies. In addition, the opportunities in relation to developmental disorders will only be realised through intellectual and practical interchange with medical specialists in neuropsychiatry and pediatric neurology.

A key requirement in achieving these goals is that in all these fields, young scientists' training should include an understanding of the other disciplines, and this is a primary goal of this conference.

The topic of the meeting lies at the intersection between genetics, neurobiology, medicine, developmental neuropsychology and cognitive neuroscience and engineering. The meeting aims to draw on European and North American expertise to add value to the quality of European research in the currently separate disciplines. To develop this synthesis, and in particular to provide and train young researchers with an interdisciplinary perspective, the meeting will draw on a linked range of topics:

- Genetics of neurodevelopmental disorders and animal models with genetic modifications (e.g. knock-outs)
- Biology of neuronal organisation and connectivity in the developing brain
- Infant cognitive and sensorimotor development and its relation to developing brain mechanisms
- Cognitive and sensorimotor characteristics of specific neurodevelopmental disorders
- Neuroimaging and neurophysiology of function in normal and atypical development



Chair: Janette Atkinson, *University College London, UK*

Co-chairs: Oliver Braddick, *University of Oxford, UK*

Giorgio Innocenti, *Karolinska Institute, SE*

Invited Speakers will include:

Ursula Bellugi, *Salk Inst. San Diego, US*

Laura Bosch, *U. de Barcelona, ES*

Anna-Katharina Braun, *Otto von Guericke U., DE*

Giovanni Cioni, *Stella Maris Scientific Inst. and U. of Pisa, IT*

Ghislaine Dehaene-Lambertz, *Service Hospitalier Frédéric Joliot, FR*

Adele Diamond, *U. of British Columbia, CA*

Francesca Happe, *KCL, UK*

Claes von Hofsten, *Uppsala U., SE*

Terry Jernigan, *U. of California, San Diego, US*

Mark Johnson, *Birkbeck, U. of London, UK*

Annette Karmiloff-Smith, *Birkbeck, U. of London, UK*

Peter Klaver, *U. Children's Hospital, Zurich, CH*

Pasco Rakic, *Yale U., US (tbc)*

Kerstin Rosander, *Uppsala U., SE*

Giulio Sandini, *DIST - U. of Genova, IT*

Gaia Scerif, *U. of Oxford, UK*

Francesca Simion, *U. degli Studi di Padova, IT*

Joan Stiles, *U. of California, San Diego, US*

David Van Essen, *Washington Un., US*

Kate Watkins, *U. of Oxford, UK*

John Wattam-Bell, *U. College London, UK*

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Closing Date for Application 5 June 2009

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