

The Brain Conferences

Cortex Evolution and Development

Programme

24 – 27 September 2017

Moltke's Palæ, Copenhagen, Denmark

Sunday, 24 September 2017	
14:30-14:50	Arrival and registration
14:50-15:00	Welcome address from the Conference Chairs
Session 1: Units of the Cortex: Cortical Specialisations for Cognitive Functions	
15:00-16:00	Pasko Rakic, Yale School of Medicine, USA Role of neuronal determination and migration in formation of cortical maps
16:00-16:40	Troy Margrie, University College London, United Kingdom Ego- and allocentric motion processing in mammalian sensory cortex
16:40-17:10	Coffee break
17:10-17:50	Leah Krubitzer, University of California, Davis, California, USA Cortical Plasticity within and across Lifetimes
17:50-18:30	Paul Manger, University of the Witwatersrand, South Africa Where do thalamocortical axons terminate when there is no layer IV?
18:30-18:45	Daniel del Toro, Max-Planck-Institute of Neurobiology, Germany Regulation of cerebral cortex folding by controlling neuronal migration via FLRT adhesion molecules
18:45-19:00	Xiaoqun Wang, Institute of Biophysics, China Primate-specific gene TMEM14B promotes cortical expansion and folding
19:00-19:45	Welcome Drink
19:45-...	Free time, individual dinner

Monday, 25 September 2017

**Session 2: The Evolution of Transcriptional Regulation:
Genes, Gene Networks and Genomes**

09:00-09:40	Alessandra Pierani, Institut Jacques Monod, France Transient moving organizers: life and death in cortical development and evolution
09:40-10:20	Svante Pääbo, Max Planck Institute for Evolutionary Anthropology, Germany Modelling Human Brain Evolution
10:20-10:50	Coffee Break and Group Picture
10:50-11:30	Pierre Vanderhaeghen, Institut de Recherche Interdisciplinaire en Biologie Humaine et Moléculaire, Belgium Deciphering species-specific properties of human corticogenesis
11:30-12:10	Madeline Lancaster, MRC Laboratory of Molecular Biology, Cambridge Biomedical Campus, United Kingdom Probing human neurogenesis and neuronal migration in brain organoids
12:10-13:40	Lunch break

Session 3: Evolution of Forebrain Neurogenesis, Migration, Patterning and Specialisation

13:40-13:55	Isabel Buchsbaum, MPI of Psychiatry, Germany Modeling periventricular heterotopia in human cerebral organoids: Identification and characterization of the new candidate causative gene ECE2
13:55-14:10	Chiaki Ohtaka-Maruyama, Tokyo Metropolitan Institute of Medical Science, Japan Synaptic transmission from subplate neurons controls radial migration of neocortical neurons
14:10-14:50	Evan Eichler, University of Washington School of Medicine, USA Duplication and the Evolution of Human-specific Neurodevelopment Genes
14:50-15:30	Ed Lein, Allen Institute for Brain Science, USA A multimodal cell type and circuit approach to understand conserved and specialized features of human neocortex

15:30-15:45	<p style="text-align: center;">Poster Spotlights (9 presentations, 90 seconds each):</p> <ol style="list-style-type: none"> 1. Rodrigo Barbosa, Federal University of Rio de Janeiro, Brazil Morphological neuroplasticity of somatosensory cortex and its efferents in an animal model of limb amputation 2. Irina Bystron, University of Oxford, United Kingdom The novel pathfinding mechanism in developing human cortex and retina 3. Mathijs de Rijk, Maastricht University, the Netherlands A comparison of parcellation methods based on functional and structural connectivity imaging of the human cortex 4. Lorenzo Fabrizi, University College London, United Kingdom The emergence of hierarchical processing of somatosensory input in late prematurity 5. Heike Blockus, Columbia University, USA Exploring the roles of SRGAP2 and Robo receptors in synaptic development and circuit function 6. Katherine Long, Max Planck Institute of Molecular Cell Biology and Genetics, Germany Extracellular matrix components HAPLN1, lumican and collagen I induce in vitro folding of the developing human neocortex 7. Laura T. Jimenez-Barron, Max Planck Institute for Psychiatry, Germany Genome-wide variant analysis of simplex autism families with an integrative clinical-bioinformatics pipeline 8. Neha Rani, Indian Institute of Technology Kanpur, India A microRNA-mRNA Interactome in the Developing Human Brain 9. Daniel Hoops, McGill University, Canada The roles of Netrin-1 and its receptor DCC in coordinating prefrontal cortex dopamine innervation and development during adolescence
15:45-18:00	Poster Session & Afternoon Snack
18:00-19:00	<p>Luis Puelles, University of Murcia, Spain Do sauropsids have insular and claustrum field homologs? Antecedents of the mammalian cortical map</p>
19:15-21:30	Optional Dinner at Madklubben Bistro de Luxe

Tuesday, 26 September 2017

Session 4: Evolution and Development of Cell Types, Cell Numbers and Circuits

09:00-09:40	Jon Kaas, Vanderbilt University, USA The evolution of the dorsal stream of sensory-motor cortical processing in primates
09:40-10:20	Suzana Herculano-Houzel, Vanderbilt University, USA Evolutionary generation of brain diversity: How to build a bigger cortex by tweaking just three variables
10:20-10:50	Coffee Break
10:50-11:30	Fernando García-Moreno, Achucarro Basque Center for Neuroscience, Spain Developmental divergences that contributed to the evolutionary origin of the neocortex
11:30-11:45	Noemi Picco, University of Oxford, Oxford, UK From mouse to human, what can mathematical modeling tell us about cortex evolution?
11:45-12:00	Henry Kennedy, Inserm SBRI U1208, France Cortical connectivity in a macaque model of Congenital Blindness
12:00-13:50	Lunch break
13:30-15:50	Guided city tour walk
16:00-16:40	Kun Zhang, University of California, San Diego, USA Integrative single-cell analysis by transcriptional and chromatin states in human adult brain
16:40-17:20	Gilles Laurent, Max-Planck Institute for Brain Research, Germany Single-cell transcriptomics of the reptilian telencephalon and cerebral cortex evolution
17:20-17:35	Pavel Němec, Charles University, Czech Republic Neuronal Numbers in Avian Pallium: Implications for Evolution of Bird Intelligence
17:35-18:35	Arnold Kriegstein, University of California, San Francisco, USA Genomic insights into human cortical development and evolution
18:35-19:00	End of the day: comments & group discussions
19:00-...	Free time, individual dinner

Wednesday, 27 September 2017

Session 5: How unique is human brain development?

09:00-09:40	Dean Falk, Florida State University, USA Chimpanzee brains, australopithecine endocasts, and the evolution of material culture
09:40-10:20	L. Mahadevan, Harvard University, USA Towards a biophysical basis for cortical convolutions
10:20-10:50	Coffee Break
10:50-11:30	Zoltán Molnár, University of Oxford, United Kingdom Evolution of cortical subplate
11:30-12:10	Guillermina López-Bendito, Instituto de Neurociencias, Alicante, Spain Development of the thalamocortical circuit and its role in sensory cortical areas plasticity

Session 6: Brain Folding – Development of Connectivity

12:10-14:00	Lunch break
14:00-14:40	Rustem Khazipov, Institut de Neurobiologie de la Méditerranée INMED, UMR901, France Early activity patterns in the developing brain
14:40-15:20	Linda Richards, Queensland Brain Institute, Australia Mechanisms regulating the formation of commissural projections in placental and marsupial brain development
15:20-15:35	Jean Rossier, Université Pierre et Marie Curie Paris, France On the role of the PeriNeuronal Net (PNN) enveloping Fast Spiking (FS) neocortical interneurons in long-term memory
15:35-16:00	Coffee Break
16:00-16:40	Roberto Lent, Institute of Biomedical Sciences, Federal University of Rio de Janeiro, Brazil Long distance plasticity: on connectomes and dysconnectomes
16:40-17:10	Conclusions/Tying it all together (group discussions)
18:30-19:00	Farewell drink
19:00-22:00	Gala Dinner and Poster Awards