PROGRAM FOR THE CONFERENCE

Developing Brains

The Nobel Forum, Stockholm, Sweden

September 1st, 2017

Karolinska Institutet

FOREWORD

How can a single cell give rise to complex structures such as the central (brain/spinal cord) and enteric (brain in the gut) nervous systems? This is the overarching question in neural development; knowing how such intricate structures are assembled gives not only crucial knowledge about these nervous systems, but also important insight to the etiology of some of our most common diseases.

The 4th edition of the KI Conference "Developing Brains" gathers some of the leading scientists working on critical questions ranging from heterogeneity of neural cell types, their specification, to myelination and creation of mature neural circuits.

Gonçalo Castelo-Branco, Jens Hjerling-Leffler,
Ulrika Marklund and Sten Linnarsson

1st SEPTEMBER 2017, THE NOBEL FORUM STOCKHOLM, SWEDEN | 08.30–17.40 |

08.30–09.00 REGISTRATION
09.00–09.10 WELCOMING ADDRESS

SESSION 1: ENTERIC NERVOUS SYSTEM

Chair: Ulrika Marklund, Karolinska Institute, Stockholm, Sweden

09.10–10.00 **ORGANISATION AND FUNCTION OF THE ENS: LESSONS FROM DEVELOPMENT**
Vassilis Pachnis, Francis Crick Insitute, London, UK

10.00–10.20 **COFFEE BREAK**

10.20–11.10 **DEVELOPMENT OF CELL-CELL COMMUNICATION IN THE ENTERIC NERVOUS SYSTEM**
Marlene Hao, University of Melbourne, Melbourne, Australia

SESSION 2: MYELINATION IN THE CENTRAL NERVOUS SYSTEM

Chair: Gonçalo Castelo-Branco, Karolinska Institute, Stockholm, Sweden

11.10–12.00 **FROM MYELIN BIOLOGY TO MYELIN REPAIR**
Mikael Simons, Institute of Neuronal Cell Biology (TUM-NCB), Technische Universität München, Germany

12.00–12.50 **NEONATAL BRAIN INJURY AND WHITE MATTER DEVELOPMENT/ FUNCTION AND REGENERATION**
Vittorio Gallo, George Washington University School of Medicine, USA

12.50–13.50 **LUNCH BREAK**

SESSION 3: NEURONAL NETWORKS IN THE CENTRAL NERVOUS SYSTEM

Chair: Jens Hjerling-Leffler, Karolinska Institute, Stockholm, Sweden

13.50–14.40 **PEDIATRIC EPILEPSIES: FROM GENES TO NETWORKS**
Elsa Rossignol, Department of Neurosciences, Université de Montréal, Canada

14.40–15.30 **DEVELOPMENTAL DYSFUNCTION OF VIP INTERNEURONS IMPAIRS CORTICAL CIRCUITS**
Jessica Cardin, Yale University, New Haven, USA

15.30–15.50 **COFFEE BREAK**

SESSION 4: EPIGENOMICS AND TRANSCRIPTOMICS STUDIES IN THE DEVELOPING CENTRAL NERVOUS SYSTEM

Chair: Sten Linnarsson, Karolinska Institute, Stockholm, Sweden

15.50–16.40 **EPIGENETIC REGULATION OF NON-CODING DNA**
Danny Leung, Hong Kong University of Science and Technology, Hong Kong

16.40–17.30 **PROGRAMMING, REPROGRAMMING AND MODELING OF THE MAMMALIAN CEREBRAL CORTEX**
Paola Arlotta, Harvard University, USA

17.30–17.40 **CLOSING REMARKS**

VASSILIS PACHNIS
Francis Crick Institute, London, United Kingdom

"ORGANISATION AND FUNCTION OF THE ENTERIC NERVOUS SYSTEM: LESSONS FROM DEVELOPMENT"

Dr. Pachnis received his M.D. from National and Kapodistrian University in Athens, Greece, and his Ph.D. from University of Pennsylvania, PA, United States. During his postdoctoral studies he discovered the proto-oncogene Ret and subsequently showed in his own lab the essential role of Ret for the establishment of the enteric nervous system. Between 1991 and 2016 he held positions at the National Institute for Medical Research in Mill Hill, London, UK and recently moved his lab to the Francis Crick Institute in central London. His main research goal is to understand how the central and enteric nervous systems develops and is maintained in adults. In the brain, the lab studies the molecular cascades controlling cortical interneuron migration and differentiation. In the gut, the team investigates the diversification of enteric neuron and glia from common progenitors and how mature enteric cells respond to physiological attributes postnatally.

Selected publications

Lasrado, R; Boesman W; Kleinjung J; Pin, J; Bell, D; Bhaw, L; McCallum, S; Zong, H; Luo, L; Clevers, H; Vanden Berghe, P; Pachnis, V. Lineage-dependent spatial and functional organization of the mammalian enteric nervous system. Science. 2017 May 19;356(6339):722-726.

Kabouridis PS, Lasrado R, McCallum S, Chng SH, Snippert HJ, Clevers H, Pettersson S, Pachnis V. Microbiota controls the homeostasis of glial cells in the gut lamina propria. Neuron. 2015 Jan 21;85(2):289-95.

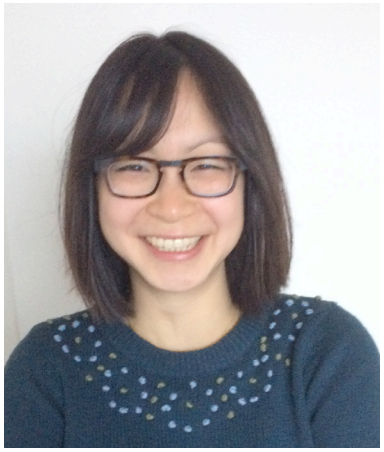
Sasselli, V; Boesmans, W; Berghe, PV; Tissir, F; Goffinet, A, M. and Pachnis, V (2013) Planar cell polarity genes control the connectivity of enteric neurons J Clin Invest. 2013 Apr;123(4):1763-72.

Lopes, R; Verhey van Wijk, N; Neves, G and Pachnis, V (2012) Transcription factor LIM homeobox 7 (Lhx7) maintains subtype identity of cholinergic interneurons in the mammalian striatum Proc Natl Acad Sci U S A. 2012 Feb 21;109(8):3119-24.

Laranjeira C, Sandgren K, Kessaris N, Richardson W, Potocnik A, Vanden Berghe P, Pachnis V. Glial cells in the mouse enteric nervous system can undergo neurogenesis in response to injury. J Clin Invest. 2011 Sep;121(9):3412-24.

Homepage: https://www.crick.ac.uk/research/a-z-researchers/researchers-p-s/vassilis-pachnis/

MARLENE HAO
Department of Anatomy and Neuroscience, University of Melbourne, Australia



"DEVELOPMENT OF CELL-CELL COMMUNICATION IN THE ENTERIC NERVOUS SYSTEM"

Dr Marlene Hao is an early career researcher, having completed her PhD in at the University of Melbourne in 2013 in the laboratory of Prof. Heather Young, studying development of the enteric nervous system. She has been awarded postdoctoral fellowships from the Research Foundation Flanders in Belgium and the National Health and Medical Research Council of Australia. She completed her postdoctoral training at the University of Leuven (KU Leuven) in Belgium, using calcium imaging and different microscopy techniques to investigate gut development. Dr Hao recently returned to the University of Melbourne in Australia and her main research interests are investigating the development of neural activity in the enteric nervous system, how enteric neurons wire together to form circuits that control gut motility and identifying the factors that influence the differentiation of the various enteric neuron subtypes.

Selected publications

Hao MM, Bergner AJ, Hirst CS, Stamp LA, Casagranda F, Bornstein JC, Boesmans W, Vanden Berghe P, Young HM (2017). Spontaneous calcium waves in the developing enteric nervous system. Developmental Biology 428(1):74-87.

Hao MM, Foong JPP, Bornstein JC, Li ZL, Vanden Berghe P, Boesmans W (2016). Enteric nervous system assembly: functional integration within the developing gut. Developmental Biology 417(2):168-181.

Boesmans W, Hao MM, Vanden Berghe P (2015). Optical tools to investigate cellular activity in the intestinal wall. Journal of Neurogastroenterology and Motility 21(3): 337-351.

Hao MM, Lomax AE, McKeown SJ, Reid CA, Young HM, Bornstein JC (2012). Early development of electrical excitability in the mouse Enteric Nervous System. Journal of Neuroscience 32 (32): 10949-10960

Hao MM, Boesmans W, Van den Abbeel V, Jennings EA, Bornstein JC, Young HM, Vanden Berghe P (2011). Early emergence of neural activity in the developing mouse Enteric Nervous System. Journal of Neuroscience 31(43): 15352-15361

Homepage: http://biomedicalsciences.unimelb.edu.au/sbs-research-groups/department-of-anatomy-and-neuroscience/development-of-the-enteric-nervous-system

MIKAEL SIMONS
Institute for Neuronal Cell Biology, TU Munich, Germany

"FROM MYELIN BIOLOGY TO MYELIN REPAIR"

Mikael Simons is a Professor for Molecular Neurobiology at the TU Munich and at the Center for Neurodegenerative Diseases (DZNE) in Munich. He is board-certified clinical neurologist with specialized expertise in neuroimmunological diseases including multiple sclerosis. The main focus is on myelin biology, an insulating membrane sheath produces by specialized glial cells. Destruction of myelin leads to several neurological diseases such as multiple sclerosis, and is also associated with psychiatric and neurodegenerative disorders. His lab combines molecular, biochemical and advanced light and electron microscopy techniques in mice and zebrafish to study how myelin is formed, maintained, and broken down in diseases. In addition, the lab works on the mechanisms of CNS regeneration and on the question of how new myelin sheaths are reformed in demyelinating diseases. The overall aim is to come up with new strategies of how to promote repair of the damaged CNS in diseases such as multiple sclerosis. Dr. Simons has been awarded the Heinz-Meier-Leibnitz Award, the EMBO Young Investigator Award, the Academia Award and the Attempto-Award of the Universties of Heidelberg and Tübingen.

Selected publications

Safaiyan S, Kannaiyan N, Snaidero N, Brioschi S, Biber K, Yona S, Edinger AL, Jung S, Rossner MJ, Simons M (2016) Age-related myelin degradation burdens microglia clearance function during aging. Nature Neurosci, 9:995-8.

Sharma K, Schmitt S, Bergner CG, Tyanova S, Kannaiyan N, Manrique-Hoyos N, Kongi K, Cantuti L, Hanisch UW, Philips MA, Rossner MJ, Mann M, Simons M (2015) Cell-type and brain-region resolved mouse brain proteome. Nature Neurosci. 18:1819-1831

Nawaz S, Sánchez P, Schmitt S, Snaidero N, Mitkovski M, Velte C, Brückner BR, Alexopoulos I, Czopka T, Jung SY, Rhee JS, Janshoff A, Witke W, Schaap IA, Lyons DA, Simons M (2015) Actin filament turnover drives leading edge growth during myelin sheath formation in the central nervous system. Developmental Cell 27:139-51.

Snaidero N, Möbius W, Czopka T, Hekking L.H.P., Mathisen C, Verkleij D, Goebbels S, Edgar J, Merkler D, Lyons D.A., Nave K.A., Simons M. (2014) Myelin membrane wrapping of CNS axons by PI(3,4,5)P3-dependent polarized growth at the inner tongue. Cell 156:277-90.

Trajkovic K, Hsu C, Chiantia S, Rajendran L, Wenzel D, Wieland F, Schwille P, Brügger B, Simons M (2008) Ceramide triggers budding of exosome vesicles into multivesicular endosomes. Science 319(5867):1244-7.

Homepage: http://www.synergy-munich.de/members/members/simons/index.html

VITTORIO GALLO
George Washington University School of Medicine, United States

"NEONATAL BRAIN INJURY AND WHITE MATTER DEVELOPMENT, FUNCTION AND REGENERATION"

Dr. Gallo is presently the Chief Research Officer at Children's National Health System in Washington, DC, and Associate Dean for Child Health Research at George Washington University School of Medicine and Health Sciences. He is still serving as Interim Director of the Center for Neuroscience Research at Children's National. Dr. Gallo is also Professor of Pediatrics, Pharmacology and Physiology at the George Washington University School of Medicine, and Director of the District of Columbia Intellectual and Developmental Disabilities Research Center (DC-IDDRC). He also holds several Adjunct Professorships. Dr. Gallo obtained his PhD in Biochemistry and Neurobiology at the University of Rome, Italy working on mechanisms of neurotransmitter release during development and subsequently studied neuronal development in the cerebellar cortex and glutamate receptor channels in astrocytes during his postdoctoral work at the MRC and NIMH in London. Dr. Gallo's research team works on the early postnatal development and pathology of neurons, oligodendrocytes and astrocytes, and strategies of repair and regeneration.

Selected publications

Zonouzi M, Scafidi J, Li P, McEllin B, Edwards J, Dupree JL, Harvey L, Sun D, Hübner CA, Cull-Candy SG, Farrant M, Gallo V. GABAergic regulation of cerebellar NG2 cell development in altered in perinatal white matter injury. 2015 Nat Neurosci. May;18(5):674-82

Scafidi J, Hammond TR, Scafidi S, Ritter J, Jablonska B, Roncal M, Szigeti-Buck K, Coman D, Huang Y, McCarter RJ Jr, Hyder F, Horvath TL, Gallo V. Intranasal epidermal growth factor treatment resuces neonatal brain injury. 2014 Nature 506(7487):230-4.

Ritter J, Schmitz T, Chew LJ, Bührer C, Möbius W, Zonouzi M, Gallo V. Neonatal hyperoxia exposure disrupts axon-oligodendrocyte integrity in the subcortical white matter. J Neurosci. 2013 May 22;33(21):8990-9002.

Aguirre A, Rubio ME, Gallo V. Notch and EGFR pathway interaction regulates neural stem cell number and self-renewal. Nature. 2010 Sep 16;467(7313):323-7.

Vautier F, Belachew S, Chittajallu R, Gallo V. Shaker-type potassium channel subunits differentially control oligodendrocyte progenitor proliferation.
Glia. 2004 Dec;48(4):337-45.

Homepage: https://childrensnational.org/research-and-education/center-for-neuroscience-research/research-laboratories/gallo-laboratory

ELSA ROSSIGNOL
Department of Neurosciences, Université de Montréal, Canada

"PEDIATRIC EPILEPSIES: FROM GENES TO NETWORKS"

Dr Elsa Rossignol is a pediatric neurologist and clinician-scientist. She received her MD degree from McGill University, completed specialty residencies in Pediatrics and in Pediatric Neurology at the CHU Ste-Justine (Université de Montréal), a Master's degree in Neurosciences and neurogenetics (CHUM, Université de Montréal), and a post-doctoral training in Neurobiology in the laboratory of G. Fishell (NYU, USA). She returned to the CHU Ste-Justine (U. de Montreal) in 2010 as an associate professor. She leads a clinician-scientist career, combining an academic clinical practice in pediatric neurology and neurogenetics with a basic science career as the PI of a Neurobiology research team. Her work focuses on identifying the genetic basis of childhood epilepsies using Next Generation Sequencing and on deciphering the cellular and network mechanisms underlying genetic epilepsies, particularly with regards to the development and function of cortical GABAergic interneurons.

Selected publications

X. Jiang, M. Lachance, E. Rossignol. Involvement of cortical fast-spiking parvalbumin-positive basket cells in epilepsy. Prog Brain Res. 2016; 226:81-126.

L. Damaj, A. Lupien-Meilleur, A. Lortie, E. Riou, L. Gagnon, C. Vanasse, L. H. Ospina and E. Rossignol. CACNA1A haplo-insufficiency causes cognitive impairment, autism and epileptic encephalopathy with mild cerebellar symptoms. European Journal Human Genetics 2015;23(11):1505-1512.

E. Rossignol, K. Kobow, M. Simonato, J. Loeb, T. Grisar, K. L. Gilby, J. Vinet, S. D. Kadam, A. J. Becker. WONOEP appraisal: new genetic approaches to study epilepsy. Epilepsia, 2014; 55(8): 1170-86.

J.L. Michaud, M. Lachance, F.F. Hamdan, L. Carmant, A. Lortie, P. Diadori, P. Major, I. Meijer, E. Lemyre, P. Cossette, H. Mefford, G.A. Rouleau, E. Rossignol. Genetic landscape of infantile spasms. Human Molecular Genetics, 2014 Sept; 23(18): 4846-58.

E. Rossignol, I. Kruglikov, A.M.J.M. van den Maagdenberg, B. Rudy, G. Fishell. Cav2.1 ablation in cortical interneurons selectively impairs fast-spiking basket cells and causes generalized seizures. Annals of Neurology, Aug 2013; 74(2):209-22.

Homepage : https://research.chusj.org/en/Axes-de-recherche/Bio?id=5b83741d-1d9c-447f-8498-c8f3f5cc3126

JESSICA CARDIN
Department of Neuroscience, Yale University, United States

"DEVELOPMENTAL DYSFUNCTION OF VIP INTERNEURONS IMPAIRS CORTICAL CIRCUITS"

Dr. Cardin received her B.A. from Cornell University in 1997 and went on to complete her PhD in Neuroscience at the University of Pennsylvania in 2004. During her graduate work in the lab of Dr. Marc Schmidt, she used the avian song system to examine the state-dependence of sensory processing and the role of neuromodulators in regulating auditory responses. Dr. Cardin spent her initial postdoctoral time in the lab of Dr. Diego Contreras, working on the cellular mechanisms of synaptic integration and visual processing in the primary visual cortex using intracellular recordings in vivo. She then went on to a second postdoctoral position in the lab of Dr. Christopher Moore, where she used optogenetics and electrophysiology to examine the role of fast-spiking interneurons in the generation of the cortical gamma rhythm. In 2010, Dr. Cardin started her own lab at Yale University, where her group works on the flexible function of cortical circuits in health and disease.

Selected publications

Cardin, J.A., E.M. Carlén, K. Meletis, U. Knoblich, F. Zhang, K. Deisseroth, L.H. Tsai, and C.I. Moore. Driving fast-spiking cells induces gamma rhythm and controls sensory responses. Nature 2009, 459:663-7.

Vinck, M., Batista-Brito, R., Knoblich, U., Cardin, J.A. Arousal and locomotion make distinct contributions to cortical activity patterns and visual encoding. Neuron 2015, 86,740-54.

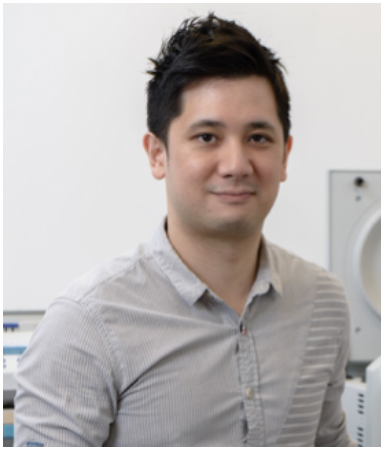
Lur, G., Vinck M., Tang, L., Cardin J.A., and Higley M.J. Projection-specific visual feature encoding by layer 5 cortical subnetworks. Cell Reports 2016, 14:2538-45.

Cardin, J.A. Snapshots of the brain in action: Local circuit interactions through the lens of gamma oscillations. J Neurosci 2016, 36:10496-10504.

Batista-Brito R., Vinck, M., Ferguson, K.A., Chang, J.T., Laubender, D., Lur, G., Mossner, J.M., Hernandez, V.G., Ramakrishnan, C., Deisseroth, K., Higley, M.J., Cardin, J.A.. Developmental Dysfunction of VIP Interneurons Impairs Cortical Circuits. Neuron 2017 95:884–895.e9

Homepage: https://medicine.yale.edu/neuroscience/people/jess_cardin.profile

DANNY LEUNG
Hong Kong University of Science and Technology, Hong Kong



"EPIGENETIC REGULATION OF NON-CODING DNA"

Dr. Leung received his BSc. in human genetics from University College London and MSc. in human molecular genetics from Imperial College London. He then conducted his PhD research under the supervision of Prof. Matthew Lorincz at University of British Columbia. His research was focused on the epigenetic regulation of repetitive elements in mouse embryonic stem cells. He then went on to carry out his postdoctoral fellowship research under the supervision of Prof. Bing Ren at the Ludwig Institute for Cancer Research. He was also a fellow of the California Institute for Regenerative Medicine. During this time, he was the project manager of the San Diego branch of the NIH Roadmap Epigenomics Project. He has since taken up the position of assistant professor at the Division of Life Sciences, Hong Kong University of Science and Technology. Prof. Leung was the 2017 recipient of the Croucher Innovation award. His laboratory's research focuses on the interplay between epigenetic pathways in the regulation of non-coding DNA.

Selected Publications

Zhang W, Xia W, Wang Q, Towers A, Chen J, Gao R, Zhang Y, Yen C, Young Lee A, Li Y, Zhou C, Liu K, Zhang J, Chen X, Chang Z, Leung D, Gao S, Jiang Y-H and Xie W. Isoform Switch of TET1 Regulates DNA Demethylation and Mouse Development (2016) Molecular Cell 64 (1-12)

Leung D, Jung I, Rajagopal N, Schmitt A, Selvaraj S, Young Lee A, Yen C-A, Lin S, Lin Y, Qiu Y, Xie W, Yue F, Hariharan M, Ray P, Kuan S, Edsall L, Yang H, Chi N.C, Q M. Zhang, Ecker J.R, Ren B. Integrative analysis of haplotype-resolved epigenomes across human tissues. (2015) Nature 518, 350-354

Leung D, Du T, Wagner U, Xie W, Young Lee A, Goyal P, Li Y, Szulwach K.E, Jin P, Lorincz M and Ren B. Regulation of DNA methylation turnover at LTR retrotransposons and imprinted loci by the histone methyltransferase Setdb1. (2014) PNAS volume 111 no.18: 6690-6695

Leung D, Dong K, Maksakova I.A, Goyal P,, Appanah R, Lee S, Tachibana M, Shinkai Y, Lehnertz B, Mager D.L, Rossi F.M.V and Lorincz M.C. Lysine methyltransferase G9a is required for de novo DNA methylation and the establishment but not maintenance of proviral silencing. (2011) PNAS 1014660108v1-201014660.

Matsui T, Leung D, Miyashita H, Miyachi H, Kimura H, Tachibana M, Lorincz M.C, and Shinkai Y. Proviral silencing in embryonic stem cells require the histone methyltransferase ESET. (2010) Nature 464, 927-931

Homepage: http://leunglab.ust.hk/

PAOLA ARLOTTA
Department of Stem Cell and Regenerative Biology, Harvard University, United States.

"PROGRAMMING, REPROGRAMMING AND MODELING OF THE MAMMALIAN CEREBRAL CORTEX"

The execution of critical behaviors like movement, emotion, and intelligence relies on the orchestrated integration into functional circuits of an outstanding diversity of neuronal subtypes. Focusing on excitatory pyramidal neurons of the mammalian cerebral cortex, our work aims to understand the mechanistic principles that govern the establishment and maintenance of neuronal diversity in the central nervous system, how neuronal diversity affects the behavior of other neurons and glia during cortical development, and the boundaries of neurons' capacity to reprogram their class-specific identity in the adult brain. At a fundamental level, we are interested in understanding how cortical neurons and circuits are generated and how they subsequently remain unchanged for life. At an applied level, we aim to explore whether neuronal reprogramming can become a valuable therapeutic tool to probe brain plasticity and to replace lost neurons.

Selected publications

Rouaux, C. and Arlotta, P. Direct lineage reprogramming of postmitotic callosal neurons into corticofugal neurons in vivo. Nature Cell Biol. 2013; 15(2):214-21.

Tomassy, G., Berger, D.R., Chen, H.H., Kasthuri, N., Hayworth, K.J., Vercelli, A., Seung, H.S, Lichtman, J.W. and Arlotta P. Distinct profiles of myelin distribution along single axons of pyramidal neurons in the neocortex. Science 2014; 344(6181):319-24.

Lodato, S., Molyneaux, BJ., Zuccaro, E., Goff, A.L., Chen H.H., Yuan, W., Meleski, A., Takahashi, E., Mahony, S., Rinn, J.L., Gifford, DK. and Arlotta, P. Gene co-regulation by Fezf2 selects neurotransmitter identity and connectivity of corticospinal neurons. Nature Neurosci. 2014; 17(8):1046-54.

Quadrato, G., Nguyen, T., Macosko, E.Z., Sherwood, J.L., Min Yang, S., Berger, D.R., Maria, N., Scholvin, J., Goldman, M., Kinney, J.P., Boyden, E.S., Lichtman, J.W., Williams, Z.M., McCarroll, S.A., and Arlotta, P. Cell diversity and network dynamics in photosensitive human brain organoids. Nature 2017; 545:48–53.

Homepage: https://hscrb.harvard.edu/res-fl-arlotta

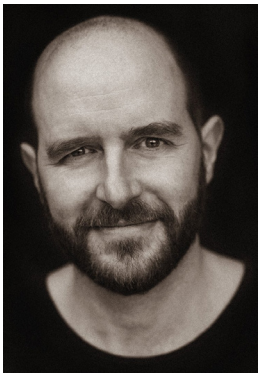
SCIENTIFIC ORGANIZERS

GONÇALO CASTELO-BRANCO

Gonçalo is an associate professor at the Department of Medical Biochemistry and Biophysics, Karolinska Institutet, Stockholm, Sweden. His research group is interested in the molecular mechanisms defining the epigenetic state of stem/progenitor cells, such as pluripotent cells and oligodendrocyte precursor cells. His group is particularly focused on how interplay between transcription factors, non-coding RNAs and chromatin modifying enzymes contributes to the transition between epigenetic states in oligodendrocyte precursor cells, with the aim to design epigenetic based-therapies to induce regeneration (remyelination) in demyelinating diseases, such as multiple sclerosis.

http://ki.se/en/mbb/goncalo-castelo-branco-group

JENS HJERLING-LEFFLER



Jens is an associate professor at the Department of Medical Biochemistry and Biophysics, Karolinska Institutet, Stockholm, Sweden. His group's research is focused on how functional neuronal identity is regulated during postnatal and adolescent brain maturation and different brain states from a molecular and network point of view. The laboratory applies methods such as advanced mouse genetics, human genetics, single-cell transcriptomics and electrophysiology to analyze the role of distinct cell classes in normal behavior as well as to increase understanding of genetically complex disorders and traits including Schizophrenia

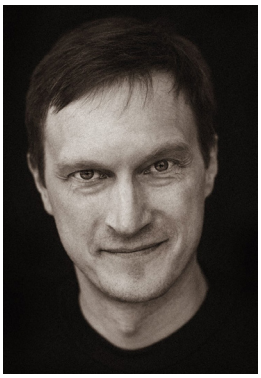
http://www.hjerling-leffler-lab.org

ULRIKA MARKLUND

Ulrika is an assistant professor at the Department of Medical Biochemistry and Biophysics, Karolinska Institutet, Stockholm, Sweden. Her research focuses on the developing enteric nervous system in the bowel wall. In particular she is interested in understanding the gene regulatory networks and signaling mechanisms that regulate the diversification of enteric stem cells into the many functionally distinct neuronal subtypes. The ultimate goal is to recapitulate fate determination events in the purpose of disease modeling and cell-based therapy of bowel neuropathology.

http://ki.se/en/mbb/ulrika-marklund-group

STEN LINNARSSON



Sten is a Professor of Molecular Systems Biology at the Department of Medical Biochemistry and Biophysics, Karolinska Institutet, Stockholm, Sweden. Linnarsson's research focuses on single-cell biology, in particular applying single-cell gene expression analysis to characterize the cell types and lineages of the mouse nervous system. The long-term goal of his research is to map the stable cellularstates ('cell types') that human organs are made of, and to understand the regulatory networks that induce and maintain them; both in normal tissues and in cancer.

http://linnarssonlab.org/

Karolinska Institutet

This conference is supported by the Ming Wai Lau Centre for Reparative Medicine and Frontier Courses in Neuroscience.

http://ki.se/en/research/education-in-neuroscience