PROGRAM FOR THE CONFERENCE

Developing Brains

The Nobel Forum, Stockholm, Sweden

September 6th, 2018

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 5th 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 Francois Lallemend

6th SEPTEMBER 2018, THE NOBEL FORUM
STOCKHOLM, SWEDEN | 08.30–17.40 |

08.30–09.00 REGISTRATION
09.00–09.10 WELCOMING ADDRESS

SESSION I: PRINCIPLES OF DEVELOPMENT

Chair: ***Francois Lallemend****, Karolinska Institutet, Stockholm, Sweden*

09.10–10.00 A UNIFYING THEORY OF BRANCHING MORPHOGENESIS
Edouard Hannezo, IST, Austria

10.00–10.20 COFFEE BREAK

10.20–11.10 CELL-INTRINSIC CONTROL OF INTERNEURON MIGRATION DRIVES CORTICAL MORPHOGENESIS.
Laurent Nguyen, Liege University, Belgium

SESSION II: ENTERIC NERVOUS SYSTEM

Chair: ***Ulrika Marklund****, Karolinska Institutet, Stockholm, Sweden*

11.10–12.00 HUNGRY BRAINS AND CLEVER GUTS
Irene Miguel-Aliaga, Imperial College, London, UK

12.00–12.50 ENTERIC NERVOUS SYSTEM DIFFERENTIATION AND RELATED NEUROCRISTOPATHIES: SOX10 NETWORK AND POST-TRANSCRIPTIONAL CONTROL
Nadege Bondurand, INSERM, Paris, France

12.50–13.50 LUNCH BREAK

SESSION III: GLIA IN THE CENTRAL NERVOUS SYSTEM

Chair: ***Gonçalo Castelo-Branco****, Karolinska Institutet, Stockholm, Sweden*

13.50–14.40 NOVEL FUNCTIONS OF OLIGODENDROCYTES IN AXONAL ENERGY METABOLISM: IMPLICATION FOR NEURODEGENERATIVE DISEASES
Klaus Armin Nave, Max Planck Institute for Experimental Medicine, Göttingen, Germany

14.40–15.30 THE POWER OF ONE: IMMUNOLOGY IN THE AGE OF SINGLE CELL GENOMICS
Ido Amit, Weizmann Institute of Science, Israel

15.30–15.50 COFFEE BREAK

SESSION IV: NEURONAL NETWORKS IN THE CENTRAL NERVOUS SYSTEM

Chair: ***Jens Hjerling-Leffler****, Karolinska Institutet, Stockholm, Sweden*

15.50–16.40 **DEVELOPMENTAL DYSFUNCTION OF VIP INTERNEURONS IMPAIRS CORTICAL CIRCUITS**
Renata Batista-Brito, Albert Einstein College of Medicine, NY, US

16.40–17.30 **SIGNALING MECHANISMS FOR GLUTAMATERGIC SYNAPSE FORMATION**
Yimin Zou, UCSD, CA, US

17.30–17.40 **CLOSING REMARKS**

EDOUARD HANNEZO
Institute of Science and Technology, IST, Austria

"A UNIFYING THEORY OF BRANCHING MORPHOGENESIS"

Edouard Hannezo is an Assistant Professor of Theoretical Biophysics in IST Austria since 2017. He did his PhD in Institut Curie in Paris, developing mechanical descriptions of epithelial cells and tissues, before moving to Cambridge University for a post-doc, looking at stochastic models of stem cell fate in development, homeostasis and cancer initiation, as well as the dynamics of branching morphogenesis in various mammalian organs.

Selected publications

Hannezo E*‡, Scheele CLGJ*, Moad M, Drogo N, Heer R, Sampogna RV, van Rheenen J‡, Simons BD‡. A unifying theory of branching morphogenesis. Cell, 171(1), 242-255. (2017)

Pinheiro D, Hannezo E*, Herszterg S*, Bosveld F, Gaugue I, Balakireva M, Wang Z, Cristo I, Rigaud SU, Markova O, Bellaïche Y. Transmission of cytokinesis forces via E-Cadherin dilution and actomyosin flows. Nature, 545 (7652), 103-107 (2017)

Scheele CL*, Hannezo E*, Muraro MJ, Zomer A, Langedijk NS, van Oudenaarden A, Simons BD, van Rheenen J. Identity and dynamics of mammary stem cells during branching morphogenesis. Nature, 542 (7641), 313-317 (2017)

Sánchez-Danés A*, Hannezo E*, Larsimont JC, Liagre M, Youssef KK, Simons BD, Blanpain C. Defining the clonal dynamic leading to basal cell carcinoma initiation. Nature, 536(7616), 298-303, (2016)

Hannezo E‡, Prost J, Joanny JF. Theory of epithelial sheet morphology in three dimensions. PNAS 111 (1), 27-32 (2013)

Homepage: https://ist.ac.at/research/research-groups/hannezo-group/

LAURENT NGUYEN
GIGA Neuroscience, University of Liège, Belgium

"CELL-INTRINSIC CONTROL OF INTERNEURON MIGRATION DRIVES CORTICAL MORPHOGENESIS "

Laurent Nguyen is senior researcher of the FRS-FNRS (national fund) and Head of the Laboratory for molecular regulation of neurogenesis at GIGA-Neurosciences, University of Liège. After completing a PhD in neurobiology at the University of Liège under the direction of Prof. Gustave Moonen (1999-2003), Laurent Nguyen received an EMBO LTF and completed a postdoctoral stage in the laboratory of François Guillemot at the National Institute for Medical Research in London (2003-2006). With his group, Laurent is studying the cellular and molecular mechanisms that control the development of the cerebral cortex with emphasis on the regulation of neuronal migration. His research has been rewarded with several scientific prizes. He has authored 90 publications, including some in prestigious scientific journals.

Selected publications

Silva, C. G., Peyre, E., Adhikari, M. H., Tielens, S., Tanco, S., Van Damme, P., Magno, L., Krusy, N., Agirman, G., Magiera, M. M., Kessaris, N., Malgrange, B., Andrieux, A., Janke, C., and Nguyen, L.: Cell-intrinsic control of interneuron migration drives cortical morphogenesis. Cell (2018), 172(5): 1063-78

Gladwyn-Ng, I., Cordon Barris, L., Alfano, C., Creppe, C., Couderc, T., Morelli, G., Thelen, N., America, M., Bessières, B., Ench-Razavi, F., Bonnière, M., Susuki, I., Flamand, M., Vanderhaeghen, P., Lecuit, M., and Nguyen, L.: Loss of Stress-induced unfolded protein response contributes to Zika virus-associated microcephaly. Nature Neuroscience (2018), 21(1):63-71

Laguesse, S., Creppe, C., Nedialkova, D., Prévot, P.-P., Borgs, L., Huyseune, S., Franco, B., Duysens, G., Krusy, N., Lee, G., Thelen, N., Thiry, M., Close, P., Chariot, A., Malgrange, B., Leidel, S., Godin, J., and Nguyen, L.: A dynamic unfolded protein response contributes to the control of cortical neurogenesis Dev Cell (2015), 35(5): 553-567

Godin, J., Thomas, N., Laguesse, S., Malinouskaya, L., Close, P., Malaise, P., Purnelle, A., Raineteau, O., Campbell, K., Fero, M., Moonen, G., Malgrange, B., Chariot, A., Metin, C, Besson, A., and Nguyen, L.: p27Kip1 is a microtubule-associated protein that promotes microtubule polymerisation during neuron migration. Dev Cell (2012), 23 (4): 729-44.

Creppe, C., Malinouskaya, L., Volvert, M.-L., Gillard, M., Close, P., Malaise, O., Laguesse, S., Cornez, I., Rahmouni, S., Ormenese, S., Belachew, S., Malgrange, B., Chapelle, J.-P., Siebenlist, U., Moonen, G., Chariot, A. and Nguyen, L.: Elongator Controls the Migration and Differentiation of Cortical Neurons through Acetylation of Alpha Tubulin. Cell (2009), 132: 551-564

Homepage:http://www.giga.uliege.be/cms/c_22248/en/laboratoire-de-regulation-moleculaire-de-la-neurogenese-accueil

IRENE MIGUEL-ALIAGA
Imperial College, London, United Kingdom.

"HUNGRY BRAINS AND CLEVER GUTS"

Irene Miguel-Aliaga is Professor of Genetics and Physiology at Imperial College London and Programme Leader at the MRC London Institute of Medical Sciences, London. She obtained her DPhil in Genetics from the University of Oxford, working with Prof. Kay E. Davies, and explored how neurons acquire their identity during postdoctoral work with Prof. Stefan Thor at Harvard, Linkoping University and Prof. Alex Gould at NIMR (now Crick Institute), London. First at Cambridge and now in London, her research group is investigating the plasticity of internal organs, with a major focus on the gastrointestinal tract and its neurons. Her work in flies (and, more recently, mice) has revealed new roles for enteric neurons in adaptations to malnutrition and reproduction, and has uncovered sex differences in the intestinal epithelium relevant to whole-body physiology and the plasticity of organ size. She was elected to the EMBO YIP programme in 2012 and to EMBO in 2017. She has also received an ERC Starting Grant and, more recently, an ERC Advanced Grant.

Selected publications

Perea, D., Guiu, J., Hudry, B., Konstantinidou, C., Milona, A., Hadjieconomou, D., Carroll, T., Hoyer, N., Natarajan, D., Kallijärvi, J., Walker, J.A., Soba, P., Thapar, N., Burns, A.J., Jensen, K.B., Miguel-Aliaga, I. (2017) Ret receptor tyrosine kinase sustains proliferation and tissue maturation in intestinal epithelia. EMBO J 36(20):3029-3045.

Hudry, B., Khadayate, S., Miguel-Aliaga, I. (2016) The sexual identity of adult intestinal stem cells controls organ size and plasticity. Nature 530:344-8.

Reiff, T., Jacobson, J., Cognigni, P., Antonello, Z.A., Ballesta, E., Tan, K.J., Yew, J.Y., Dominguez, M., Miguel-Aliaga, I. (2015) Endocrine remodelling of the adult intestine sustains reproduction in Drosophila. Elife 4:e06930.

Linneweber, G.A., Jacobson, J., Busch, K.E., Hudry, B., Christov, C.P., Dormann, D., Yuan, M., Otani, T., Knust, E., de Bono, M., Miguel-Aliaga, I. (2014) Neuronal control of metabolism through nutrient-dependent modulation of tracheal branching. Cell 156(1-2):69.

Cognigni, P., Bailey, A.P., Miguel-Aliaga, I. (2011) Enteric neurons and systemic signals couple nutritional and reproductive Status with intestinal homeostasis. Cell Metab 13(1): 92.

Homepage: http://www.miguelaliagalab.com/

NADÈGE BONDURAND
INSERM, Imagine Institute, Paris, France

"ENTERIC NERVOUS SYSTEM DIFFERENTIATION AND RELATED NEUROCRISTOPATHIES : SOX10 NETWORK AND POST-TRANSCRIPTIONAL CONTROL"

Nadège Bondurand is a Research Director at INSERM, Imagine Institute, Paris, France. She obtained her PhD in Human Genetics exploring the transcription factor SOX10 in different neurocristopathies at the University of Paris 12. She completed her postdoctoral training in the lab of Vassilis Pachnis at the National Institute for Medical Research in London, UK, where she studied the role of SOX10 and endothelin-3 during enteric nervous system development. Nadège was recruited at INSERM in 2003 and focused on Sox10 and Edn3 networks in Waardenburg syndrome and other neurocristopathies. In 2016 she relocated within Imagine Institute (Paris) and has taken an increased interest in the transcriptional and post-transcriptional control of neural crest development.

Selected publications

Watanabe Y, Stanchina L, Lecerf L, Gacem N, Conidi A, Baral V, Pingault V, Huylebroeck D, and Bondurand N. Differentiation of Mouse Enteric Nervous System Progenitor Cells is Controlled by Endothelin 3 and Requires Regulation of Ednrb by SOX10 and ZEB2, Gastroenterology, 2017 152(5):1139-1150

Chaoui A, Kavo A, Baral V, Watanabe Y, Lecerf L, Colley A, Mendoza-Londono R, Pingault V and Bondurand N. Subnuclear re-localization of SOX10 and p54NRB correlates with a unique neurological phenotype associated with SOX10 missense mutations. Hum Mol Genet, 2015 1;24(17):4933-47

Pingault V, Bodereau V, Baral V, Marcos S, Watanabe Y, Chaoui A, Fouveaut C, Leroy C, Vérier-Mine O, Francannet C, Dupin-Deguine D, Archambaud F, Kurtz FJ, Young J, Bertherat J, Marlin S, Goossens M, Hardelin JP, Dodé C, and Bondurand N. Loss-of-function mutations in SOX10 cause Kallmann syndrome with deafness. Am. J. Hum. Genet, 2013 92(5):707-24

Watanabe Y, Broders-Bondon F, Baral V, Paul-Gilloteaux P, Pingault V, Dufour S and Bondurand N. Interaction between Sox10 and Itgb1controls enteric neural crest cells migration. Dev Biol, 2013 379(1):92-106

Bondurand N, Natarajan D, Barlow A, Thapar N, Pachnis V. Maintenance of mammalian enteric nervous system progenitors by Sox10 and Endothelin-3 signalling. Development, 2006 133(10):2075-86.

Homepage: http://cvscience.aviesan.fr/cv/1561/nadege-bondurand

KLAUS ARMIN NAVE
Max Planck Institute for Experimental Medicine,
Göttingen, Germany

"NOVEL FUNCTIONS OF OLIGODENDROCYTES IN AXONAL ENERGY METABOLISM: IMPLICATION FOR NEURODEGENERATIVE DISEASES"

Klaus-Armin Nave studied biology, chemistry and physics, and obtained a Ph.D. degree in Neuroscience from the University of California, San Diego in 1987. After postdoctoral work at the Salk Institute for Biological Studies in La Jolla, he moved to Germany as an independent Research Group Leader of the Center for Molecular Biology (ZMBH) in Heidelberg. In 1998, he became full professor of the University of Heidelberg and was recruited a year later by the Max Planck Society to direct the Department of Neurogenetics at the Max Planck Institute of Experimental Medicine in Göttingen. His research focuses on neuron-glia interactions, mechanisms of myelination, and rodent models of neuropsychiatric diseases. Recently, he discovered a novel role of oligodendrocytes in supporting axonal energy metabolism, which is relevant for myelin diseases and neurodegenerative disorders. His research has been supported by grants from ERC.

Selected publications

Nave, K.-A. (2010). Myelination and support of axonal integrity by glia.
Nature 468, 244-252 (Review)

Fünfschilling, U., Supplie, L.M., Mahad, D., Boretius, S., Saab, A.S., Edgar, J.,Brinkmann, B.G., Kassmann, C.M., Tzvetanova, I.D., Möbius, W., Diaz, F., Meijer, D., Suter, U., Hamprecht, B., Sereda, M.W., Moraes, C.T., Frahm, J, Goebbels, S., and Nave, K.-A. (2012). Glycolytic oligodendrocytes maintain myelin and long-term axonal integrity. Nature 485, 517-521.

Saab, A.S., Tzvetavona, I.D., Trevisiol, A., Baltan, S., Dibaj, P., Kusch, K., Möbius, W., Goetze, B., Jahn, H.M., Huang, W., Steffens, H., Schomburg, E.D., Pérez-Samartín, A., Pérez-Cerdá, F., Bakhtiari, D., Matute, C., Löwel, S., Griesinger, C., Hirrlinger, J., *Kirchhoff, F., and *Nave, K.-A. (2016). Oligodendroglial NMDA receptors regulate glucose import and axonal energy metabolism. Neuron 91, 119-132

Janova, H., Arinrad, S., Balmuth, E., Mitjans, M., Hertel, J., Habes, M., Bittner, R., Pan, H., Goebbels, S., Begemann, M., Gerwig, U.C., Langner, S., Werner, H.B., Kittel-Schneider, S., Homuth, G., Davatzikos, C., Völzke, H., West, B.L., Reif, A., Grabe, H.J., Boretius, S., *Ehrenreich, H., and *Nave, K.-A. (2018). Myelin-associated catatonia and its treatment by microglia ablation. J Clin Invest. 128, 734-745

Homepage: http://www.em.mpg.de/index.php?id=51&L=1

IDO AMIT
Weizmann Institute of Science, Israel

"THE POWER OF ONE: IMMUNOLOGY IN THE AGE OF SINGLE CELL GENOMICS"

Born on Kibbutz Hatzor, Prof. Ido Amit earned his PhD in biological regulation at the Weizmann Institute of Science in 2007. He was a postdoctoral fellow at the Broad Institute of Harvard University and the Massachusetts Institute of Technology, before joining the Weizmann Institute in 2011. Ido Amit is a Professor at the Immunology Department at the Weizmann Institute of Science. His lab pioneered single cell genomic technologies and their application to characterize the immune system. Amit's research answers some of the most fundamental questions in immunology which are being translated into innovate new targets for immunotherapy in autoimmune diseases, neurodegeneration and cancer. Prof. Amit is known in the science community as a leader in the field of immunogenomics, aimed at detecting and engineering genome sequences that are essential for the immune system in physiology and disease. Among others, Prof. Amit is a recipient of the EMBO Gold Medal award and an HHMI International Research Scholar for his work on immune system function.

Selected publications

Bornstein C, Nevo S, Giladi A, Kadouri N, Pouzolles M, Gerbe F, David E, Machado A, Chuprin A, Tóth B, Goldberg O, Itzkovitz S, Taylor N, Jay P, Zimmermann VS, Abramson J, Amit I. Single-cell mapping of the thymic stroma identifies IL-25-producing tuft epithelial cells. Nature. 2018 Jul 18

Giladi A, Paul F, Herzog Y, Lubling Y, Weiner A, Yofe I, Jaitin D,Cabezas-Wallscheid N, Dress R, Ginhoux F, Trumpp A, Tanay A, Amit I. Single-cell characterization of haematopoietic progenitors and their trajectories in homeostasis and perturbed haematopoiesis. Nat Cell Biol. 2018 Jul;20(7):836-846

Deczkowska A, Keren-Shaul H, Weiner A, Colonna M, Schwartz M, Amit I. Disease-Associated Microglia: A Universal Immune Sensor of Neurodegeneration. Cell. 2018 May 17;173(5):1073-1081.

Keren-Shaul H, Spinrad A, Weiner A, Matcovitch-Natan O, Dvir-Szternfeld R, Ulland TK, David E, Baruch K, Lara-Astaiso D, Toth B, Itzkovitz S, Colonna M, Schwartz M, Amit I. A Unique Microglia Type Associated with Restricting Development of Alzheimer's Disease. Cell. 2017 Jun 15;169(7):1276-1290.e17.

Homepage: https://www.weizmann.ac.il/immunology/AmitLab/front

RENATA BATISTA-BRITO
Albert Einstein College of Medicine

"DEVELOPMENTAL DYSFUNCTION OF VIP INTERNEURONS IMPAIRS CORTICAL CIRCUITS"

Renata Batista-Brito is an assistant professor at Albert Einstein School of Medicine. She is interested in understanding how the development of inhibition shapes sensory representation, and how this process is altered in neurodevelopmental disorders. Renata did her graduate work at NYU with Gordon Fishell, focused on the role of genetic factors in interneuron development. As a postdoctoral research fellow with Jessica Cardin at Yale, Renata investigated how specific populations of neurons affect sensory processing and behavior. Renata's work has been supported by a variety of awards including the Brown-Coxe, Jane Coffin Childs, NARSAD Young Investigator, and SFARI Bridge to Independence Awards.

Selected Publications

Batista-Brito R#, Vinck M, Zagha E. Top down modulation of cortical circuits in health and disease. Current Opinion in Neurobiology, issue 52. 2018, in print.

Mayer C, Hafemeister C, Bandler C, Machold R, Batista-Brito R, Allaway K, Jaglin X, Butler A, Fishell G. Developmental diversification of cortical inhibitory interneurons. Nature, 2018 Mar 22;555(7697): 457-462.

Batista-Brito R, Vinck M, Ferguson KA, Chang JT, Laubender D, Lur G, Mossner JM, Hernandez VG, Ramakrishnan C, Deisseroth K, Higley MJ, Cardin JA. Developmental dysfunction of VIP interneurons impairs cortical circuits. Neuron, 2017, 95(4):884-895.

Vinck M*, Batista-Brito R*, Knoblich U, Cardin JA. Arousal and locomotion make distinct contributions to cortical activity patterns and visual encoding. Neuron, 2015, 86(3):740-54. * equal contributions

Batista-Brito R, Rossignol E, Hjerling-Leffler J, Denaxa M, Wegner M, Lefebvre V, Pachnis V, Fishell G. The cell-intrinsic requirement of Sox6 for cortical interneuron development. Neuron, 2009, 63(4):466-81.

Homepage: https://einstein.pure.elsevier.com/en/persons/renata-a-batista-brito

YIMIN ZOU
University of San Diego, United States

"SIGNALING MECHANISMS FOR GLUTAMATERGIC SYNAPSE FORMATION"

Yimin Zou received his Bachelor's degree in Genetics from Shanghai Fudan University and PhD from University of California, Davis and San Diego. He did postdoctoral training with Marc Tessier-Lavigne at UCSF and started his own laboratory at the University of Chicago in 2000. He was promoted to tenured Associate Professor at the University of Chicago and moved to UCSD where he became Full Professor in 2011. Dr Zou has served as Vice Chair of the Neurobiology Section and Chair of the Neurobiology Section from 2014-2017. Dr. Zou's lab has discovered that the Wnt family morphogens are conserved axon guidance cues that provide directional and positional information for axon pathfinding and topographic organization. More recent work from his lab show that planar cell polarity signaling components are essential regulators of glutamatergic synapse assembly and are associated with brain disorders, including autism and epilepsy. Amongst others, Dr. Zou has received the Schweppe Career Development Award and the W. M. Kech Research Achievement Award.

Selected publications

Lyuksyutova AI, Lu CC, Milanesio N, King LA, Guo N, Wang Y, Nathans J, Tessier-Lavigne M and Zou Y. Anterior-posterior guidance of commissural axons by Wnt-Frizzled signaling. Science. 2003. 302, 1984-1988.

Schmitt A, Shi J, Wolf A, Lu CC, King LA and Zou Y. Wnt-Ryk signaling mediates medial-lateral retinotectal topographic mapping. Nature. 2006. 439(7072):31-7.

Shafer B, Lo C, Onishi K and Zou Y. Vangl2 Promotes Wnt/Planar Cell Polarity-like Signaling by Antagonizing Dvl1-Mediated Feedback Inhibition in Growth Cone Guidance. Developmental Cell. 2011 Feb 15;20(2):177-91.

Hollis II ER, Ishiko N, Yu T, Lu CC, Haimovich A, Tolentino K, Richman A, Tury A, Wang SH, Pessian M, Jo E, Kolodkin A and Zou Y*. Wnt-Ryk signaling controls remapping of motor cortex during functional recovery after spinal cord injury. Nature Neuroscience. 2016 May;19(5):697-705.

Thakar S, Wang L, Yu T, Ye M, Onishi K, Scott J, Qi J, Fernandes C, Berg D and Zou Y. Evidence for opposing roles of Celsr3 and Vangl2 in glutamatergic synapse formation. Proc Natl Acad Sci U S A. 2017 Jan 5. pii: 201612062. doi: 10.1073/pnas.1612062114.

Homepage: http://labs.biology.ucsd.edu/zou/

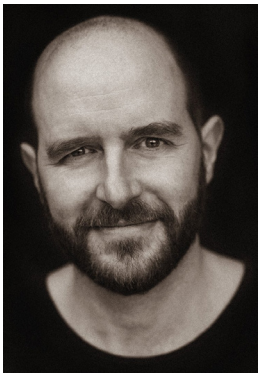
SCIENTIFIC ORGANIZERS

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

FRANCOIS LALLEMEND

Francois is an associate professor at the Department of Neuroscience, Karolinska Institutet, Stockholm, Sweden. His research group is interested in understanding the molecular principles underlying the neuronal specification and neural circuit formation in the peripheral nervous system. His group particularly focuses on the integration of sensory neurons into functional circuits involved in the control of motor behavior and in hearing process. Research in his lab concentrates both on early development aspects and circuit mapping and function in adult.

https://ki.se/en/neuro/lallemend-laboratory

Karolinska Institutet

This conference is supported by the Ming Wai Lau Center for Reparative Medicine, Strategic Research Area in Stem Cells and Regenerative Medicine, and Frontier Courses in Neuroscience.

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