

NIMSB

2ND NIMSB SYMPOSIUM

MEDICAL SYSTEMS BIOLOGY

11th December 2025 Champalimaud Foundation, Lisbon

PROGRAMME

09h00 DOOR OPENING

09h15 **WELCOME BY ANTÓNIO JACINTO**
NIMSB Scientific Director, Portugal

09h30 **ESTIBALIZ GÓMEZ-DE-MARISCAL**
ITQB NOVA, Portugal
Deciphering cellular behaviour through AI in health and disease

10h00 **ANDRÉ DIAS**
Hospital del Mar Research Institute, Spain
Unravelling the Blueprints of Life: Mammalian Body Plan Formation and the Bioengineering of 3D Human Stem Cell Embryo Models

10h30 **DANNY INCARNATO**
University of Groningen, Netherlands
Mapping, functional characterization and therapeutic targeting of RNA structural ensembles in living cells

11h30-13h30 LUNCH BREAK

13h30 **JORGE RUIZ-ORERA**
Max Delbrück Center, Germany
The role of translational control and non-canonical open reading frames in human biology and disease

14h00 **LESLIE RUBIO RODRÍGUEZ-KIRBY**
Karolinska Institutet, Sweden
Seeing the Forest and the Trees: Spatiotemporal Neuroimmune Mechanisms in CNS Health and Disease

14h30 **DAVID CASTILLO-AZOFEIFA**
Genentech, Costa Rica
Diverse renewal strategies of epithelial tissues

15h00 **CAROLINA TRENADO-YUSTE**
Princeton University, US
Effects of circulating nutrients on 3D engineered breast microtumors

15h30-16h00 COFFEE BREAK

16h00 **CLÁUDIO GOUVEIA ROQUE**
New York Genome Center, US
Cells, Circuits, and Dementia

16h30 **SARA MATIAS**
Harvard University, US
Broadly-projecting mesolimbic dopamine neurons implement a distributional critic across the striatum

17h00 **KAIYUE MA**
Bio-X Institutes, China
Improving genetic diagnostics and treatment development for genetic diseases

17h30 **J. MATTHEW FRANKLIN**
Stanford University, US
Investigating functions of the largest elements in the human genome

18h00 **FINAL REMARKS BY NIKOLAUS RAJEWSKY**
Max Delbrück Center, Germany

SPEAKERS



ESTIBALIZ GÓMEZ-DE-MARISCAL

ITQB NOVA, Portugal

Dr. Estibaliz Gómez-de-Mariscal is a Postdoctoral Researcher in Prof. Ricardo Henriques' group at ITQB NOVA. She combines AI, computational methods, and imaging to study cellular behaviors. She earned her Ph.D. in Mathematical Engineering at Universidad Carlos III de Madrid and co-develops open-source tools like deepImageJ. Her work has earned an EMBO Fellowship, a CZI EOSS grant, and the SBI2 President's Award.

09h30 - 10h00

Deciphering cellular behaviour through AI in health and disease



ANDRÉ DIAS

Hospital del Mar Research Institute, Spain

Dr. André Dias is a Portuguese developmental biologist studying the processes that build the human body. He earned his Ph.D. in Integrative Biology and Biomedicine at Instituto Gulbenkian de Ciência and Universidade Nova de Lisboa, investigating vertebrate body plan formation. As an EMBO Postdoctoral Fellow at Universitat Pompeu Fabra and now at Hospital del Mar Research Institute, he uses stem cell-based embryo models to study signalling-driven body axis and region formation.

10h00 - 10h30

Unravelling the Blueprints of Life: Mammalian Body Plan Formation and the Bioengineering of 3D Human Stem Cell Embryo Models



DANNY INCARNATO

University of Groningen, Netherlands

Dr. Danny Incarnato is a molecular biologist and Associate Professor in Molecular Genetics at the University of Groningen. He earned his Ph.D. in Molecular Biotechnologies from the University of Siena and completed postdoctoral research at the Italian Institute for Genomic Medicine. His group develops biochemical and NGS methods to study RNA structure, heterogeneity, and dynamics in living cells, with a focus on therapeutic targeting.

10h30 - 11h00

Mapping, functional characterization and therapeutic targeting of RNA structural ensembles in living cells



JORGE RUIZ-ORERA

Max Delbrück Center, Germany

Dr. Jorge Ruiz-Orera is a computational biologist specializing in evolutionary genomics and translational control, currently a Senior Postdoctoral Researcher at the Max Delbrück Center (MDC), Berlin. He earned his Ph.D. in Biomedicine at Universitat Pompeu Fabra, studying primate gene evolution. At MDC, he integrates multi-omics and deep learning to investigate non-canonical ORFs, microproteins, and their roles in gene evolution, cardiovascular biology, and cancer.

13h30 - 14h00

The role of translational control and non-canonical open reading frames in human biology and disease



LESLIE RUBIO RODRÍGUEZ-KIRBY

Karolinska Institutet, Sweden

Dr. Leslie Rubio Rodríguez-Kirby is a postdoctoral fellow at Karolinska Institutet in Professor Gonçalo Castelo-Branco's lab. She studies neuroimmune mechanisms in CNS health and disease, focusing on multiple sclerosis. She earned her Ph.D. at Johns Hopkins and develops spatial multi-omic approaches to map neuroinflammation.

14h00 - 14h30

Seeing the Forest and the Trees: Spatiotemporal Neuroimmune Mechanisms in CNS Health and Disease



DAVID CASTILLO-AZOFEIFA

Genentech, Costa Rica

Dr. David Castillo-Azofeifa is a cell, stem cell, and developmental biologist and Group Leader at Genentech. He earned his Ph.D. at the University of Colorado Anschutz and completed postdoctoral training at UCSF. His research investigates how organs maintain cellular balance and regeneration, combining genetic engineering, mechanobiology, and transcriptional profiling to study long-distance tissue communication and inform therapies for aging and inflammatory diseases.

14h30 - 15h00

Diverse renewal strategies of epithelial tissues



CAROLINA TRENADO-YUSTE

Princeton University, US

Dr. Carolina Trenado-Yuste is a Damon Runyon Quantitative Biology Postdoctoral Fellow at Princeton University. She earned her Ph.D. in Quantitative Biology at Universidad Carlos III de Madrid, studying the dynamics of living systems. Her postdoctoral research combines engineered tumor models and theoretical frameworks to study triple-negative breast cancer, aiming to predict progression and therapeutic responses, and to uncover principles of tumor-microbiome interactions for personalized medicine.

15h00 - 15h30

Effects of circulating nutrients on 3D engineered breast microtumors



CLÁUDIO GOUVEIA ROQUE

New York Genome Center, US

Dr. Cláudio Gouveia Roque is a Senior Staff Scientist at the Center for Genomics of Neurodegenerative Disease, New York Genome Center. He uses multimodal spatial biology to study cellular ecosystems in neurodegeneration, focusing on Alzheimer's and ALS-FTD. He earned his Ph.D. at the University of Cambridge on neuronal circuitry development and did postdoctoral research at Columbia University on transcriptional changes in Alzheimer's disease.

16h00 - 16h30

Cells, Circuits, and Dementia



SARA MATIAS

Harvard University, US

Dr. Sara Matias studied Biomedical Engineering at Instituto Superior Técnico and earned her Ph.D. in Bioengineering through the MIT-Portugal Program. At the Champalimaud Foundation, she developed methods to monitor serotonin neuron activity during reversal learning. As a postdoctoral researcher at Harvard, she applies AI-inspired distributional reinforcement learning to biological brains, studying how dopamine and serotonin shape learning, cognitive states, and adaptive behavior in complex environments.

16h30 - 17h00

Broadly-projecting mesolimbic dopamine neurons implement a distributional critic across the striatum



KAIYUE MA

Bio-X Institutes, China

Dr. Kaiyue Ma earned his Ph.D. at Yale University under Dr. Monkol Lek and is currently a Siyuan Postdoctoral Fellow at the Evo-Geno-Disease Lab, Shanghai Jiao Tong University. His research focuses on improving genetic disease diagnostics and developing therapies, using long-read sequencing, comparative genomics, and previous work in deep mutational scanning and gene therapy.

17h00 - 17h30

Improving genetic diagnostics and treatment development for genetic diseases



J. MATTHEW FRANKLIN

Stanford University, US

Dr. J. Matthew Franklin completed a research fellowship at EMBL Hamburg before earning his Ph.D. in Chemical Engineering at Stanford University, studying mechanotransduction and Hippo pathway signaling. As a postdoc at UC San Diego, he discovered Hippo effectors bind repetitive DNA elements, and continued this research as a postdoc at Stanford under Nicolas Altemose.

17h30 - 18h00

Investigating functions of the largest elements in the human genome