

# Korea-EU Horizon Europe Researchers Networking Forum

on Advanced Biotechnology



**July 1-3, 2025**



**The Hotel Brussels**  
(Bd de Waterloo 38, 1000 Bruxelles)



AGENDA

TUESDAY, 1 JULY

|               |                                |
|---------------|--------------------------------|
| 17:30         | Registration and Poster set-up |
| 18:00         | Networking Reception           |
| 18:30         | Opening                        |
| 19:00 - 20:30 | Walking Dinner                 |

WEDNESDAY, 2 JULY

|       |                            |                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8:00  | Coffee & Breakfast         |                                                                                                                                                                                                                                                                                                                                                                                                      |
| 9:30  | Policy Session             | Arjon Van Hengel (Deputy Head of Unit, Health Innovations & Ecosystems, DG RTD, European Commission)                                                                                                                                                                                                                                                                                                 |
|       | Group Photo                |                                                                                                                                                                                                                                                                                                                                                                                                      |
| 10:00 | Researchers Forum Kick-off | Chair: Kisung Ko (NCP for Health Cluster/Professor, Chung-Ang University, Korea)<br>Co-Chair: Heesoo Song (PhD Candidate, VIB-KU Leuven / PR Director, Korean Scientists & Engineers Association in Belgium)                                                                                                                                                                                         |
| 10:00 | Session 1-4                | Dan Ehninger (Senior Research Group Leader, DZNE, Germany)<br>Yong-Seok Lee (Professor, Seoul National University, Korea)<br>Cheng Zhang (Senior Lecturer, King’s College London, UK)<br>Jaewon Ko (Professor/Director, Daegu Gyeongbuk Institute of Science and Technology, Korea)                                                                                                                  |
| 11:00 | Break                      |                                                                                                                                                                                                                                                                                                                                                                                                      |
| 11:30 | Session 5-8                | Salvador Ventura (Full Professor, Universitat Autònoma de Barcelona, Spain)<br>Santiago Gómez-Ruiz (Full Professor of Inorganic Chemistry, Universidad Rey Juan Carlos, Spain)<br>Seung-Hee Lee (Associate Professor/Associate Director, KAIST/IBS, Korea)<br>Carla Gomes da Silva (Principal Investigator/Assistant Professor, University Medical Centre - Brain Division Utrecht, The Netherlands) |
| 12:30 | Lunch Break                |                                                                                                                                                                                                                                                                                                                                                                                                      |

|               |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13:30         | Session 9-12       | Philippe Marin (Research Director, Institute of Functional Genomics, CNRS, France)<br>Yun Kyung Kim (Principal Research Scientist, Korea Institute of Science & Technology, Korea)<br>Evgeni Ponimaskin (Head of Department of Cellular Neurophysiology, Hannover Medical School, Germany)<br>Jonas Steenbrugge (Postdoctoral Researcher, Ghent University, Belgium)                                                                                                                                                                                                                    |
| 11:00         | Break              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 15:00         | Session 13-18      | Min-Jun Baek (Assistant Professor, Korea Advanced Institute of Science and Technology, Korea)<br>Stefaan S. C. De Smedt (Full Professor, Ghent University, Belgium)<br>Carlos Peña (Professor/Institute Director, University of Applied Sciences Western Switzerland/Swiss Institute of Bioinformatics, Switzerland)<br>Luis Filipe Ferreira Moita (Associate Professor, School of Medicine, University of Lisbon, Portugal)<br>Hong Sook Kim (Associate Professor, Sungkyunkwan University, Korea)<br>Stefan Prekovic (Group Leader/Assistant Professor, UMC Utrecht, The Netherlands) |
| 16:30         | Break              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 17:00         | Consulting Session | Kisung Ko (NCP for Health Cluster/Professor, Chung-Ang University, Korea)<br>Sandy Broere-Lee (Grant Advisor, UMC Utrecht, The Netherlands)<br>Evi Lippens (EU Research Support Officer - Health, Ghent University, Belgium)<br>Katrien Bollen (Research Advisor International Funds - Health, KU Leuven, Belgium)<br>Ignasi Salvado (Alliance 4 - Universities Representative, Spain),<br>Marta Marin Barba (NCP for Health, Spain)<br>Balazs Kos (Founder and CEO, Blue Door Consulting)                                                                                              |
|               | Group Photo        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 18:00 - 20:00 | Networking Dinner  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |



THURSDAY, 3 JULY

|       |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8:00  | Coffee & Breakfast |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 9:30  | Session 19-22      | <b>Sureyya Ozcan Kabasakal</b> (Middle East Technical University, Turkey)<br><b>Karima Kissa</b> (Team Leader, Inserm, France)<br><b>Seung Hun Lee</b> (Assistant Professor, Dongguk University, Korea)<br><b>Mircea Cretu Stancu</b> (Head of Bioinformatics, Genomic Research Institute, Romania)                                                                                                                                                                 |
| 10:30 | Break              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 11:00 | Session 23-28      | <b>Jin-A Lee</b> (Professor, Hannam University, Korea)<br><b>Dario Gregori</b> (Full Professor Medical Statistics, University of Padova, Italy)<br><b>Joon Ho Kang</b> (Assistant Professor, Seoul National University, Korea)<br><b>Mihály Józsi</b> (Professor, Head of Department, Eötvös Loránd University, Budapest, Hungary)<br><b>Sangwook Oh</b> (Assistant Professor, Hallym University, Korea)<br><b>Young Jun Kim</b> (Researcher, KIST Europe, Germany) |
| 12:00 | Lunch Break        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 13:00 | Session 29-32      | <b>Yoojin Oh</b> (Senior Scientist, Johannes Kepler University Linz, Austria)<br><b>Natalia Beshchasna</b> (Head of Group, Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Germany)<br><b>Wout Bittremieux</b> (Assistant Professor, University of Antwerp, Belgium)<br><b>Eok-Soo Oh</b> (Professor, Ewha Womans University, Korea)                                                                                                                |
| 14:30 | Break              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 13:00 | Session 29-32      | <b>Maria Arrate Muñoz Barrutia</b> (Full Professor, Universidad Carlos III de Madrid, Spain)<br><b>Hae Woong Choi</b> (Associate Professor, Korea University, Korea)<br><b>Mohamed Shaalan</b> (Senior Research Scientist, Polymer Institute, SAS, Slovakia)<br><b>Chengchen Zhang</b> (Lecturer/Assistant Professor, University of Southamton, UK)                                                                                                                 |
| 16:00 | Wrap up & Closing  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

Korea-EU Research Centre

The Korea-EU Research Centre(KERC) was established in 2013 to promote research and innovation cooperation between Korea and the EU. Serving as a bridgehead to strengthen Korea-EU R&D cooperation, we undertake various activities, ranging from enhancing mutual understanding to facilitating opportunities for diverse matchmakings and collaborative partnerships.



**Information hub for R&I cooperation**

The KERC is the center of information on Korea-EU R&I cooperation. We gather knowledge, share it through newsletters and publications, and maintain an open-access database for everyone.

**Networking hub for R&I cooperation**

The KERC builds connections with European and Korean organisations, interacts with them, and actively engages in their activities to enhance mutual understanding and coordinate collaboration between both sides.

**Facilitator & Pathfinder for R&I cooperation**

As a bridgehead to Europe for Korea, we support governing body, funding agencies, research institutes and researchers with a tailored information and well-established network.

Korea-EU Horizon Europe Researchers Networking Forum  
on Advanced Biotechnology  
**Participants**

\*The list is arranged in alphabetical order by last name.



**Min-Jun Baek**

**Assistant Professor**

Korea Advanced Institute of Science and Technology

### Biography

Dr. Min-Jun Baek, Pharm.D., Ph.D., is an Assistant Professor in the Department of Bio and Brain Engineering (BBE) at the Korea Advanced Institute of Science and Technology (KAIST). His research focuses on engineering next-generation organic nanocarriers for precision drug/gene editor delivery, disease imaging, and phototherapy.

Dr. Baek earned both his Pharm.D. and Ph.D. from the College of Pharmacy at Seoul National University, where he conducted extensive research in pharmaceutical sciences using nanoparticles. Following his doctoral studies, he worked as a research fellow at the Gordon Center for Medical Imaging at Massachusetts General Hospital and Harvard Medical School, where he focused on the near-infrared fluorophores for image-guided theranostics.

His work lies at the intersection of pharmaceutical nanotechnology and biomedical imaging, particularly in developing organic nanocarriers for targeted drug delivery and phototherapy. His research has been published in leading journals, including Nature Nanotechnology, ACS Nano, Journal of Controlled Release and Clinical and Translational Medicine.

Dr. Baek has received numerous honors, including the K-Medi Fellowship, the KASBP Fellowship, the Outstanding Young Researcher Award from the Pharmaceutical Society of Korea, and multiple Academic Awards.

### Research Area

- Drug delivery system
- Nanomedicine
- Phototherapy
- Gene Editor Delivery
- Bioimaging



**Natalia Beshchasna**

**Head of Group**

Fraunhofer Institute for Ceramic Technologies and Systems IKTS

### Biography

N. Beshchasna received her B.S. and M.S. degrees in electronics from the Igor Sikorsky Kyiv Polytechnic Institute, National Technical University of Ukraine, Kyiv, Ukraine, in 2003 and 2005, respectively, and the Ph.D. degree in electrical engineering from Technische Universität Dresden, Germany, in 2010. She is the author of 35 articles.

Dr. Beshchasna is currently working as a Head of Group Biodegradation and Nanofunctionalization at Fraunhofer IKTS. The group develops innovative materials for biomedical, agricultural and environmental applications, electrochemical biosensors and microfluidic systems.

Dr. Beshchasna has a rich experience in coordination of international R&D projects (Eureka/Eurostars, M-Era.Net, JPIAMR, JFS STI and other.) Her responsibilities include project management, group leadership (15 scientists incl. students and PhD students), supervision of master and PhD students, international cooperation and scientific publishing.

### Research Area

Biocompatible packaging, nanobiotechnology, biosensors, material characterization, biostability and biodegradation, in vitro tests, material and surface engineering, implants, biocompatible coatings, drug delivery systems, scientific project management.



**Wout Bittremieux**

**Assistant Professor**  
University of Antwerp

### Biography

I am a tenure-track Assistant Professor at the University of Antwerp, where I lead a multidisciplinary research group focused on computational mass spectrometry and AI-driven analysis of large-scale proteomics and metabolomics data. I earned my PhD in Computer Science from the University of Antwerp, followed by postdoctoral research at the University of Washington and UC San Diego, which established my strong international network and collaborative mindset.

I have published extensively as first or senior author in leading journals such as Nature Methods, Nature Biotechnology, Nature Machine Intelligence, and Nature Communications. My work has earned numerous international recognitions, including the ASMS Postdoctoral Career Development Award, the HUPO Early Career Manuscript Prize, the EuPA Bioinformatics for Mass Spectrometry Award, the Metabolites Young Investigator Award, and the Junior Research Parasite Award for reproducibility and open science.

Beyond research, I contribute actively to international scientific networks. I chair the HUPO-PSI Quality Control working group, lead ISCB's CompMS initiative, and co-organize the EuBIC-MS community. I have secured funding from the Research Foundation - Flanders, the Belgian American Educational Foundation, the US NIH, and others. My track record reflects a deep commitment to interdisciplinary, cross-border collaboration and scientific excellence.

I have recently submitted a joint Human Frontier Science Program research proposal with Professor Seung Hung Lee at Dongguk University, demonstrating my emerging collaborative ties with the Korean scientific community.

### Research Area

The Bittremieux Lab develops cutting-edge computational methods to extract meaningful biological insights from mass spectrometry-based metabolomics and proteomics data. Our research sits at the intersection of machine learning, bioinformatics, and mass spectrometry,

with a focus on scalable algorithm design and artificial intelligence to address fundamental challenges in molecular data analysis. We are pioneering the application of advanced deep learning techniques to analyze extremely large datasets—often comprising hundreds of millions to billions of mass spectra—with the goal of improving molecular identification, quantification, and annotation.

Rather than focusing on a single disease area, our work creates foundational tools that are broadly applicable across the life sciences. Our software and algorithms have supported diverse research efforts in immunology, oncology, nutrition science, microbiome research, and natural product discovery. These efforts are inherently collaborative, and we routinely partner with experimentalists, medical researchers, and industry stakeholders to apply our methods to real-world biomedical problems.

By combining technical innovation with interdisciplinary collaboration, we aim to make computational mass spectrometry more accessible, reproducible, and impactful across a wide range of biological and translational research domains.



**Hae Woong Choi**

**Associate Professor**  
Korea University

### Biography

Dr. Hae Woong Choi is an Associate Professor in the Division of Life Sciences and Associate Dean of University College at Korea University in Seoul, South Korea. He received his Ph.D. in Pathology from Duke University, where he also earned a certificate in Cell and Molecular Biology under the mentorship of Dr. Soman N. Abraham. Prior to that, he completed his M.S. and B.S. in Life Sciences at Korea University.

Dr. Choi's research centers on the molecular and immunological mechanisms of bacterial infections, with a primary focus on urinary tract infections (UTIs), host-pathogen interactions, and mast cell biology. His pioneering work has illuminated how uropathogenic E. coli evade immune responses, and how commensal microbiota modulate host defense in the urinary bladder. He has also contributed significantly to the understanding of mast cell function in anaphylaxis and septic shock.

Before returning to Korea University as a faculty member in 2019, Dr. Choi held academic appointments at Duke University, including Research Scientist and Medical Instructor in the Department of Pathology. He has authored over 30 peer-reviewed publications in leading journals such as Science, Immunity, PNAS, and PLOS Pathogens, many as corresponding author. Dr. Choi currently serves on multiple academic committees, including the Basic Research Committee on UTIs of the Korean Association of Urogenital Tract Infections and Inflammation, and has delivered invited lectures at international and national symposia on microbiome-host interactions and innate immunity.

He is a recipient of several honors, including the POSCO Science Fellowship and research grants from the National Research Foundation of Korea and the U.S. National Institutes of Health. His interdisciplinary research aims to identify novel therapeutic targets for recurrent bacterial infections and inflammatory disorders.

### Research Area

- **Innate Immunity and Host-Pathogen Interactions**  
Investigating the molecular mechanisms by which innate immune cells, including mast cells and NK cells, recognize and respond to bacterial pathogens, with a focus on urinary tract infections (UTIs) and mucosal immunity.
- **Microbiome-Immune Crosstalk in the Urinary Tract**  
Exploring the role of bladder-resident commensal microbes in modulating host immunity, particularly how Lactobacillus species enhance epithelial defense and prevent pathogenic colonization.
- **Mast Cell Biology in Infection and Inflammation**  
Studying the dual role of mast cells in allergic reactions and bacterial infections, including their contribution to epithelial barrier integrity, neuroimmune signaling, and systemic inflammatory responses such as sepsis and anaphylaxis.
- **Recurrent UTI Pathogenesis and Chronic Bladder Pain**  
Elucidating how repeated UPEC infections lead to neuroimmune remodeling, axonal sprouting, and chronic pelvic pain through bladder sensory circuit sensitization and immune cell activation.
- **Therapeutic Target Discovery**  
Identifying and validating novel molecular targets (e.g., ORAI1, SLC7A11, PIEZO1) and pathways for therapeutic intervention in infectious diseases and inflammatory disorders, using in vivo models and translational approaches.



**Dan Ehninger**

**Senior Research Group Leader**  
German Center for Neurodegenerative Diseases

### Biography

Dan Ehninger is a Senior Research Group Leader at the German Center for Neurodegenerative Diseases (DZNE) in Bonn. He studied medicine at Charité University Medicine/Berlin, Harvard Medical School/Boston and University College London. From 2001 to 2004, he carried out his graduate work in the laboratory of Gerd Kempermann at the Max Delbrück Center for Molecular Medicine in Berlin, where he worked on the behavioral regulation of adult hippocampal neurogenesis and adult cell formation in the neocortex.

His postdoctoral work (2004 to 2009) with Alcino J. Silva at University of California - Los Angeles focused on molecular and cellular mechanisms of cognitive impairments in mouse models of neuropsychiatric disorders. In 2010, Dan Ehninger joined the faculty of the German Center for Neurodegenerative Diseases (DZNE). He gained Habilitation in Neuroscience at the Medical Faculty of the University of Bonn in 2016 and was promoted to a tenured Senior Research Group Leader position at the DZNE in 2017.

### Research Area

Our group investigates the pathogenesis of aging-associated and neuropsychiatric disorders, with a focus on developing novel therapeutic strategies. We use genetically engineered mouse models alongside multidisciplinary approaches spanning pharmacology, physiology, molecular biology, genomics, and epigenomics, with a strong emphasis on translational relevance.

We have a longstanding interest in the molecular basis of neuropsychiatric disorders, such as autism and intellectual disability, identifying modifiable pathways for therapeutic benefit (Ehninger et al., Nat Med 2008; Neuron 2008; Zhou et al., Neuron 2013; Lee et al., Nat Neurosci 2014). More recent work explores how conserved lifespan-regulatory pathways influence brain aging and disease susceptibility (Xie et al., Nat Commun 2022; Keshavarz et al., Mol Psychiatry 2023).

We also study age-related and environmentally induced epigenetic changes and their impact

on brain function and disease risk across generations (Ryan et al., Mol Psychiatry 2017; Xie et al., PNAS 2018). Ongoing projects test interventions such as intermittent fasting (Xie et al., Cell Metab 2025) and senolytic immunotherapy (Deng et al., Cell Death Discov 2024). These efforts support the development of innovative, mechanism-based treatments for mental and neurodevelopmental disorders.



## Santiago Gómez-Ruiz

**Full Professor of Inorganic Chemistry**  
Universidad Rey Juan Carlos

### Biography

Prof. Santiago Gómez-Ruiz is Full Professor of Inorganic Chemistry at Universidad Rey Juan Carlos (URJC), Spain, and a leading researcher in nanomedicine and health-related materials science. With a PhD from URJC and postdoctoral experience as an Alexander von Humboldt and Marie Curie Fellow.

Prof. Gómez-Ruiz has coordinated multiple national and international projects and translational potential, with industrial partnerships and a focus on non-classical drug delivery and theranostic platforms.

Recognized among the top 2% of scientists globally (Stanford University, 2021 & 2024), he is also an experienced mentor and science communicator, with a strong commitment to societal impact. He actively participates in EU-level evaluation panels (REA, Marie Curie) and serves as Associate Editor of Environmental Chemistry Letters.

Prof. Gómez-Ruiz is particularly interested in forming consortia for Horizon Europe Cluster 1 calls related to nanomedicine, personalized health technologies, and advanced therapeutic systems.

### Research Area

Prof. Gómez-Ruiz's research focuses on the development of nanostructured materials for advanced therapeutic applications, particularly targeting unmet medical needs such as difficult cancers, bacterial infections, and neurodegenerative diseases like ALS. His work emphasizes non-classical drug delivery systems and theranostic platforms that combine treatment and real-time diagnostics.

He explores multifunctional nanomaterials capable of selective targeting, controlled release, and imaging, contributing to the advancement of personalized medicine. His team also investigates photocatalytic coatings with antiviral properties, relevant for infection prevention and public health.

These innovations are supported by preclinical studies and industrial collaborations, with a focus on translational research. His approach integrates inorganic chemistry, nanomedicine, and biomedical engineering, aligning with EU health priorities in cancer, infectious diseases, and health technologies.



 **Dario Gregori**  
Full Professor of Medical Statistics  
University of Padova

### Biography

DG is full professor of medical statistics at University of Padova. After graduation in Statistics at Pennsylvania State University (US) he got a PhD in Applied Statistics in 1995 at University of Firenze. He is Director of the residency program in Medical Statistics and Biometrics and Coordinator of the Ph.D. Program in Specialized and Translational Medicine “G.B.Morgagni” at University of Padova.

His interests include clinical predictive modeling and machine learning algorithms for biomedical research, including big data use for primary and secondary prevention. He holds several grants in this field from national and international agencies. He published more than 700 papers (H-index 53).

### Research Area

Related to the topics of this call:

Advancing federated learning algorithms tailored to heterogeneous clinical datasets across multi-institution networks. Novel optimization schemes are devised to ensure convergence under differential-privacy and secure-aggregation constraints.

Methods integrate high-dimensional EHR, imaging, and multi-omics data into unified multimodal predictive models. Theoretical analysis establishes generalization bounds for federated models with non-IID site distributions typical of hospital cohorts. Statistical calibration techniques are developed to correct site-specific bias and enable valid pooled inference without sharing raw data.

Federated causal-inference pipelines support real-time emulation of randomized trials, leveraging inverse-probability weighting computed locally. Adaptive matching algorithms are embedded within the federated framework to design efficient patient allocations for rare-disease RCTs.



 **Mihály Józsi**  
Professor / Head of department  
Eötvös Loránd University

### Biography

I earned my PhD in Immunology on the role of complement receptors on immune cells at Eötvös Loránd University (Budapest, Hungary) in 2002, followed by a four-year postdoctoral research in Germany in the laboratory of Prof. Peter Zipfel, working on complement factor H. I headed a junior research group on complement research between 2006 and 2012. My focus gradually expanded from basic research on physiological functions of complement proteins to decipher and analyze pathological processes, particularly in atypical hemolytic uremic syndrome and C3 glomerulopathies, and creating molecules to inhibit or potentiate complement activation with future therapeutic purposes. After returning to Hungary, I established a new research group to pursue these aims. My international and national network allows me to extend our group's activity and study various aspects of complement biology. Currently, we are participants of an EU founded Horizon 2020 project (SciFiMed). Since 2020 I am a full professor of immunology and head of the Department of Immunology at Eötvös Loránd University and also director of Bolyai College, a special college for talented science and informatics students at Eötvös Loránd University.

### Research Area

- Functional characterization of the complement factor H family proteins, their role in health and disease, interaction with host ligands (extracellular matrix proteins, DNA, pentraxins etc.)
- Role of factor H family proteins in defense against microbial infections
- Non-canonical roles of factor H family proteins (influence on innate immune cell functions)
- Cross-talk between pentraxins and the complement system
- Functional characterization of anti-complement autoantibodies in inflammatory diseases
- Complement activation caused by nanomedicines and nanocarriers
- Developing complement modulatory molecules as research tools and potential therapeutics: inhibitors for complement-associated diseases and activators for infectious diseases and cancer.



**Sureyya Ozcan Kabasakal**

**Associate Professor**  
Middle East Technical University

### Biography

Dr. Sureyya Ozcan is an Associate Professor of Chemistry at Middle East Technical University (METU). She holds a Ph.D. in Chemistry from the University of California, Davis, and a B.Sc. in Chemistry from Gazi University. Her research expertise lies in analytical chemistry and mass spectrometry, with over 20 years of experience. Dr. Ozcan began her career at the Scientific and Technological Research Council of Türkiye (TÜBİTAK), focusing on small molecule and contaminant analysis.

Since 2009, she has specialized in proteomics and protein characterization, with a focus on post-translational modifications. She has participated in numerous clinical studies, including projects in oncology, inflammatory diseases, and psychiatry. Her international research experience includes a postdoctoral fellowship in South Korea and five years as a Research Associate at the University of Cambridge, where she developed proteomic platforms for biomarker discovery and clinical applications. In 2019, she founded the Q-OmicS Laboratory at METU to advance integrative proteomics workflows.

Her research spans clinical, nutritional, and structural proteomics, including glycomics and therapeutic protein analysis. Dr. Ozcan has led nationally and internationally funded projects, including EU Horizon 2020 and PRIMA initiatives. She collaborates widely with academic and clinical partners across Europe and Asia. She has published over 40 peer-reviewed articles and contributes to international scientific networks.

Her current focus includes multi-omics approaches for disease biomarker discovery and sustainable protein research. Dr. Ozcan is a member of ASMS, EuPA, and TuPA. She serves on scientific review panels and organizes international conferences.

### Research Area

Dr. Ozcan's research is rooted in applying mass spectrometry and analytical chemistry tools for discovery and validation of protein biomarkers to support clinical diagnostics and therapeutic development. She develops integrative proteomic workflows that enable biotechnology-driven analysis of disease pathways and biological systems. Structural proteomics approaches, including cross-linking mass spectrometry, are applied to study protein interactions and conformations.

Dr. Ozcan's research contributes to optimizing protein therapeutics, biopharmaceutical characterization, and process development. Her team collaborates on European and national biotechnology programs to advance translational proteomics into clinical solutions. She actively works on methodologies supporting cell therapy development and regenerative medicine. Her lab contributes to the analysis and validation of complex biologics, including antibody-based therapeutics. Dr. Ozcan explores multi-omics integration and systems biology to understand biological responses at the molecular level.

Data science and machine learning are increasingly incorporated into her biotechnology research pipelines. Her projects include supporting clinical studies for various diseases through proteomics-driven approaches. Dr. Ozcan also develops protocols for molecular characterization of alternative protein sources to address global food and health sustainability. She works with international biotechnology and clinical research networks to translate omics discoveries into practical health applications. Throughout her career, Dr. Ozcan has maintained a strong focus on bridging basic molecular research with biotechnology-based innovations for healthcare solutions.



**Joon Ho Kang**

Assistant Professor  
Seoul National University

### Biography

I earned my Ph.D. in Physics from the Massachusetts Institute of Technology (MIT), where I developed suspended microchannel resonator (SMR) technology for high-sensitivity measurements of mass, volume, and stiffness in biological samples. During my doctoral studies, I was supported by the Samsung Scholarship (2012-2017). Prior to that, I received a B.A. in Physics, with a minor in Mathematics, from Columbia University, where I was awarded the Presidential Scholarship for Overseas Studies (2008-2012), a distinction granted to only ten students nationwide.

Following my Ph.D., I worked as a Research Scientist and later Senior Research Scientist at the Brain Science Institute of the Korea Institute of Science and Technology (KIST) (2019-2023). Since Fall 2023, I have been an Assistant Professor in the Department of Mechanical Engineering at Seoul National University (SNU), where I lead the Precision Bioinstrumentation Laboratory (KANG LAB).

### Research Area

My primary research area is bioinstrumentation and biophysics, with a focus on developing advanced tools to monitor and analyze the physical and functional properties of living cells. My lab takes an interdisciplinary approach, integrating MEMS, microfluidics, and optical systems to achieve real-time, high-resolution analysis of cellular properties.

A distinctive aspect of our approach is the quantitative analysis of single-cell mechano-physical properties, such as shape, volume, density, mass, and stiffness. In particular, we are interested in capturing and interpreting the mechanical vibration signatures of individual cells. These signals provide a label-free, non-invasive means of classifying cells and uncovering diverse biophysical traits that are often overlooked by conventional biochemical assays.

The overarching goal of our work is to enable precise diagnosis and phenotyping of cellular states, with broad applications in disease monitoring (e.g., cancer, immunological conditions), neurological disorder research, and quality control for cell-based therapies.



**Yun Kyung Kim**

Principal Research Scientist  
Korea Institute of Science & Technology

### Biography

Yun Kyung Kim, Ph.D. is a tenured Principal Research Scientist at the Korea Institute of Science and Technology (KIST) and a Professor at the University of Science and Technology (UST). She received her B.S. and M.S. degrees in Biological Sciences from KAIST, and earned her Ph.D. in Chemical Biology from New York University, where she focused on the development of molecular disease platforms designed to monitor and modulate disease progression in real time—laying a solid foundation for her translational research in neurodegeneration.

Dr. Kim's research is primarily devoted to tauopathies, a heterogeneous group of neurodegenerative disorders characterized by pathological tau protein aggregation. She is internationally recognized for developing the tau-BiFC (Bimolecular Fluorescence Complementation) platform, a patented imaging technology that enables real-time visualization of tau oligomerization in living cells and in vivo models. This innovation has become a critical tool for both mechanistic investigation and therapeutic development. She holds over 100 patents related to diagnostics and therapeutics for neurodegenerative diseases. In particular, her tau-BiFC-based cell and mouse models have been successfully licensed to multiple pharmaceutical and biotechnology companies for use in drug discovery and preclinical evaluation. Among her most notable translational outcomes is the development of DA-7503, a first-in-class tau aggregation inhibitor co-developed with Dong-A ST, which is currently undergoing clinical evaluation and was selected as one of Korea's Top 10 Government-Funded Research Achievements in 2020.

In recognition of her scientific leadership and translational impact, Dr. Kim has received numerous national honors, including two Prime Minister's Commendations for Excellence in Science and Technology (2018, 2024), the KIST Grand Prize (2021), and selection as both a KIST Young Fellow (2018) and a tenured principal investigator (2023). Her work continues to bridge fundamental discovery with clinical application, driving the development of innovative solutions for neurodegenerative brain disorders.

### Research Area

Dr. Yun Kyung Kim's primary research focus is tauopathy, a clinically and pathologically heterogeneous group of neurodegenerative disorders characterized by the aberrant aggregation of tau protein. Tauopathies, including Alzheimer's disease, progressive supranuclear palsy (PSP), and corticobasal degeneration (CBD), present with diverse neuropsychiatric symptoms such as cognitive decline, executive dysfunction, personality changes, and motor impairment. This complexity reflects the spatial and cellular heterogeneity of tau pathology, posing significant challenges for early diagnosis and targeted treatment.

To address these unmet needs, Dr. Kim has developed a bimolecular fluorescence complementation (BiFC)-based tau sensor system and a corresponding tau-BiFC transgenic mouse model, which together enable real-time, in vivo visualization of tau oligomerization at the earliest pathological stages. These proprietary platforms have proven powerful for dissecting disease mechanisms and screening therapeutic compounds. Her team successfully identified DA-7503, a potent tau-targeting small molecule currently undergoing clinical evaluation, demonstrating the translational potential of the BiFC system.

Building upon this foundation, Dr. Kim is now advancing a next-generation therapeutic discovery program aimed at developing isoform-selective agents that differentiate between 3-repeat (3R) and 4-repeat (4R) tau species—paving the way for precision therapeutics tailored to specific tauopathy subtypes. Looking ahead, she aims to leverage the tau-BiFC platform to drive early-stage, mechanism-informed, and disease-modifying interventions for tau-driven neurodegeneration.



**Hong Sook Kim**

**Associate Professor**  
Sungkyunkwan University

### Biography

Dr. Hong Sook Kim is an Associate Professor at the Department of Biological Sciences, Sungkyunkwan University, South Korea. She earned her Ph.D. in Molecular Medicine from Seoul National University College of Medicine, and completed her postdoctoral training at the University of California, San Diego, focusing on epigenetic gene regulation and regulatory genomics.

Her academic training spans molecular biology, genomics, and biomedical informatics.

She has over 10 years of experience in next-generation sequencing (NGS)-based genomic and epigenomic research.

She utilized patient-derived samples to generate various types of genomic data such as whole genome sequencing, RNA-seq, single cell RNA-seq, ATAC-seq and others, and integrates these multi-omics datasets to identify diagnostic and therapeutic biomarkers for human disease. Her research further explores the molecular mechanism underlying these diseases using a combination of cellular, molecular and bioinformatic approaches. Her methodologies have been applied to diverse disease areas, including cancer, fibrosis, neuroinflammation and Alzheimer disease. In her recent work, she combines AI-based identification and experimental validation of non-coding variants and neo-genes to elucidate causal mechanisms in human disease.

She has led several national projects and serves as a Co-PI on a multi-institutional project that employs both bioinformatic tools and molecular/biochemical techniques. She is also experienced in international collaborations and academic-industrial interface projects.

Dr. Kim has published as first or corresponding authors in top-tier journals such as Nature, Nature Communications and Annals of Oncology.

She is committed to advancing precision medicine through the identification of diagnostic and therapeutic markers and by elucidating the regulatory networks and molecular mechanisms that drive human disease.

### Research Area

Dr. Kim's research focuses on three main areas.

#### 1. Biomarker Discovery:

She is actively engaged in biomarker discovery, aiming to identify diagnostic, prognostic and therapeutic markers through multi-omics data analyses of both tissue and liquid biopsy samples. Her research focuses not only on marker discovery but also on elucidating their underlying molecular mechanisms and functions. This includes the development of non-invasive biomarkers for disease monitoring and therapeutic response assessment.

#### 2. Genomic and Epigenetic Regulation:

She investigates the regulatory mechanisms of gene expression in human diseases, with a particular emphasis on integrative analysis of DNA mutation, chromatin accessibility, histone modifications, and transcription factor networks. Her work seeks to uncover how these regulatory layers contribute to disease onset and progression.

#### 3. Precision Medicine and Therapeutic Stratification:

She leads studies in precision medicine, classifying molecular subtypes of human disease and predicting drug responsiveness using integrated genomic, transcriptomic, and clinical datasets. Her group applies advanced computational pipelines, machine learning models, and statistical frameworks combined with in vitro/in vivo functional validation.

Recently, she has focused on identifying non-coding mutations as biomarkers using AI-based methods and experimental approaches. She also develops customized pipelines to discover novel neo-genes involved in human disease. Through these efforts, Dr. Kim aims to contribute to the development of personalized and targeted therapeutic strategies in human disease.



## Young Jun Kim

Researcher  
KIST Europe

### Biography

Dr. Young Jun Kim obtained his Ph.D. in Biophysics from the Max Planck Institute of Molecular Physiology in Dortmund, Germany (2010), with a dissertation entitled “**Characterization of the Sensory Rhodopsin II-Transducer II Complexes from Halobacterium salinarum**”, focusing on G protein-coupled receptor (GPCR) membrane signaling.

Since joining **KIST Europe** in 2010, he has served in multiple leadership and research roles. He currently heads the **Environmental Safety Group** and acts as **Principal Investigator** for projects related to the **EU Animal Protection Act**. He also serves as a **Professor** in the Division of Energy & Environment Technology at the University of Science and Technology (UST), Korea.

Dr. Kim's expertise lies in developing and validating **non-animal testing methods**, particularly **in vitro 3D cell/organoid models** and **in silico tools**. His work promotes cutting-edge toxicological science aligned with international regulatory frameworks such as the **OECD Adverse Outcome Pathway (AOP)** and **ISO/IEC standards**. He is also a recognized member of several expert committees, including OECD WPMN, ISO TC229, and IEC TC111.

### Research Area

Dr. Kim's research centers on **mechanistic toxicology**, aiming to replace conventional animal testing through advanced technologies. His core research themes include:

- **Development of AOPs** (Adverse Outcome Pathways) for predictive toxicology and chemical risk assessment.
- **High-throughput screening** platforms using **3D cultured cells, organoids, and lab-on-a-chip** systems.
- **Molecular toxicology** of pollutants (e.g., endocrine disruptors, nanoparticles, microplastics) in both **aquatic species** and **human cell lines**.
- **Multi-omics approaches** (e.g., metabolomics, transcriptomics, single-cell sequencing) to

elucidate toxicity mechanisms.

- **Biomarker discovery** for “early warning” signals of environmental contamination.
- **PBPK modeling, QSAR, and in silico chemical docking** to bridge in vitro/in vivo and cross-species extrapolations.
- **Chemical analysis** using LC-MS/MS, GC-MS, ICP-MS for fingerprinting complex mixtures.
- Development of **weight-of-evidence frameworks** to improve regulatory acceptance of alternative methods.

He is also actively engaged in collaborative research with major institutions in Europe (e.g., JRC, TU Berlin, University of Helsinki), and leads various Korea-EU projects on **environmental safety, chemical regulation, and alternative test method standardization**.



**Karima Kissa**

**Team Leader**  
Inserm

## Biography

I am a researcher in cell and developmental biology at INSERM, within the University of Montpellier, where I have been leading a research team since 2013 focused on the emergence of hematopoietic stem cells (HSCs) and cancer. My work primarily relies on the zebrafish model to study the mechanisms of endothelial-to-hematopoietic transition (EHT), which gives rise to HSCs. I am particularly interested in the influence of the microenvironment, mechanical signals such as blood flow, and cellular dynamics observed in vivo.

Murayama E, Kissa K, Zapata A, Mordelet E, Briolat V, Lin HF, Handin RI, Herbomel P. Tracing hematopoietic precursor migration to successive hematopoietic organs during zebrafish development. *Immunity*. 2006.

Kissa K, Murayama E, Zapata A, Cortés A, Perret E, Machu C, Herbomel P. Live imaging of emerging hematopoietic stem cells and early thymus colonization. *Blood*. 2008.

Kissa K, Herbomel P. Blood stem cells emerge from aortic endothelium by a novel type of cell transition. *Nature*. 2010.

Poullet N, Golushko I, Kissa K. Mechanical instabilities of aorta drive blood stem cell production: a live study. *Cellular and Molecular Life Sciences*. 2020.

## Research Area

In 2010, we demonstrated that hematopoietic stem cells (HSCs) arise directly from the endothelial lining of the dorsal aorta in zebrafish embryos. Using high-resolution live imaging, we identified a novel process that we termed endothelial-to-hematopoietic transition (EHT), during which endothelial cells change shape, detach from the aortic wall, and become functional blood stem cells. This discovery provided new insights into the developmental origin of definitive HSCs in vivo.

Building on this work, we investigated how biomechanical forces contribute to HSC emergence. We showed that mechanical instabilities in the aortic wall, driven by blood flow and tissue tension, play a crucial role in triggering the EHT process. By combining live imaging with biomechanical analysis, we revealed that dynamic changes in aortic curvature and actomyosin organization guide the emergence of HSCs. This highlighted the importance of physical cues alongside molecular signals in the specification of blood stem cells.

Our studies have helped me to better understand the complex interplay between cellular identity and mechanical forces that orchestrate the birth of the first blood stem cells during vertebrate development.



**Jaewon Ko**

**Professor / Director**

Daegu Gyeongbuk Institute of Science and Technology

### Biography

- 2023.08–2024.07 Visiting Professor, Dept. of Neurology, Stanford Univ., Stanford, CA, USA
- 2022.08–present Director, Center for Synapse Diversity and Specificity, DGIST, Daegu, Korea
- 2022.03–present Professor, Dept. of Brain Sciences, DGIST, Daegu, South Korea
- 2018.09–2022.02 Professor, Dept. of Brain & Cognitive Sciences, DGIST, Daegu, South Korea
- 2017.02–2018.08 Associate Professor (Tenured), Dept. of Brain & Cognitive Sciences, DGIST, Daegu, South Korea
- 2015.03–2017.01 Associate Professor, Dept. of Biochemistry, College of Life Sci. & Biotech., Yonsei Univ., Seoul, South Korea
- 2014.03–2017.01 Adjunct Professor, Dept. of Psychiatry, College of Medicine, Yonsei Univ., Seoul, South Korea
- 2011.09–2015.02 Assistant Professor, Dept. of Biochemistry, College of Life Sci. & Biotech., Yonsei Univ., Seoul, South Korea
- 2008.06–2011.08 Postdoctoral Researcher, Dept. of Mol. & Cell. Physiology, Stanford Univ., Palo Alto, CA, USA (Advisor: Dr. Thomas C. Südhof [2013 Nobel Laureate])
- 2007.11–2008.05 Research Fellow, Dept. of Neuroscience, UT Southwestern Medical Center, Dallas, TX, USA (Advisor: Dr. Thomas C. Südhof [2013 Nobel Laureate])
- 2005.03–2007.10 Postdoctoral Researcher, Dept. of Biological Sciences, KAIST, Daejeon, South Korea (Advisor: Dr. Eunjoon Kim)

### Research Area

- Neuroscience
- synapse biology
- brain disorders



**Seung Hun Lee**

**Assistant Professor**

Dongguk University

### Biography

Prof. Seung Hun Lee is an Assistant Professor and head of the Biomedical Tissue Engineering Lab at Dongguk University, South Korea. His research focuses on tissue engineering, biomaterials, stem cell engineering, and 3D biofabrication for regenerative medicine applications. He has particular expertise in injectable hydrogels, scaffold-based drug delivery systems, and iPSC-derived organoid and humanized mouse models. Prof. Lee received his PhD in Tissue Engineering from ETH Zurich, where he worked on stem cell-scaffold interactions and functional biomaterial design. He completed his MS in Bioengineering at Seoul National University and earned his BS in Biomedical Engineering from Boston University, establishing a multidisciplinary foundation across molecular biology, materials science, and biomedical device development. Prior to his academic appointment, Prof. Lee worked at Siemens Healthineers and Olympus as a Cardiac Angiography Product Specialist and Medical Education Trainer, gaining valuable insight into clinical needs, imaging systems, and translational challenges. This industry experience continues to inform his research, which bridges academic innovation and practical application. He has led and contributed to international collaborations across Switzerland, Sweden, Germany, Japan, and the U.S., and remains active in the academic community through peer review, invited talks, and graduate student mentorship.

### Research Area

Prof. Lee's research lies at the intersection of tissue engineering, biomaterials science, and stem cell technology, with a focus on developing clinically translatable platforms. His lab specializes in hydrogels, scaffold-guided tissue regeneration, and controlled drug delivery systems. He actively explores iPSC-derived organoids and humanized mouse models. Ongoing projects involve synthetic biomaterials for osteochondral and musculoskeletal repair, 3D printed constructs for skeletal muscle modeling, and modular platforms for stem cell differentiation. Prof. Lee is particularly interested in translational applications and international collaboration across academia and industry to bridge regenerative science and real-world impact.



**Seung-Hee Lee**  
Associate Director / Associate Professor  
IBS/KAIST

### Biography

Dr. Seung-Hee Lee is an Associate Professor at KAIST and Associate Director of the Center for Synaptic Brain Dysfunction at the Institute for Basic Science (IBS) in South Korea. A leading neuroscientist in the field of circuit-level brain function, her research focuses on the mechanisms underlying sensory perception, multisensory integration, and cognitive flexibility. Her work is especially relevant to understanding and intervening in mental, behavioral, and neurodevelopmental disorders such as autism spectrum disorder and Alzheimer's disease. Dr. Lee's interdisciplinary approach combines optogenetics, large-scale in vivo recordings, calcium imaging, neurogenetics, and human-mouse chimeric models. She has published extensively in top-tier journals including Nature Neuroscience, Neuron, Nature Communications, and Science Advances, and has received numerous international honors, including the ALBA-Elsevier Award Lecture and the Amgen-KAST Biotechnology Award. Dr. Lee is actively participating in global research networks and international symposia aimed at advancing neuroscience and brain health.

### Research Area

Dr. Seung-Hee Lee investigates the neural circuit mechanisms underlying multisensory integration and top-down modulation, with a particular focus on how dysfunctions in these processes contribute to mental disorders. Through projection-specific optogenetics, circuit mapping, and in vivo behavioral paradigms, her team uncovers how distinct brain regions communicate to guide perceptual decisions and goal-directed actions.

Employing in vivo extracellular recordings and calcium imaging, Dr. Lee maps the functional architecture of sensory circuits during naturalistic and cognitively demanding behaviors. These functional approaches are complemented by whole-brain anatomical tracing and projection-specific optogenetic perturbations with viral and chemical tools, enabling dissection of long-range cortical-subcortical communication. She also leverages human neuron transplantation into mouse brains to study disease-relevant mechanisms in a humanized context.

Dr. Lee is particularly interested in circuit-level pathophysiology underlying autism and Alzheimer's disease, and in identifying intervention points for rebalancing disrupted neural computations.

Her work directly aligns with the Horizon Europe mission to develop innovative, mechanism-based interventions for brain disorders, and she seeks to expand EU-Korea partnerships through translational neuroscience, neurotechnology, and comparative cross-species modeling.



**Yong-Seok Lee**  
Professor  
Seoul National University College of Medicine

### Biography

Yong-Seok Lee is a professor at Seoul National University College of Medicine, specializing in memory mechanisms. He also served as a Visiting Affiliated Professor at the University of Iowa. He earned his Ph.D. in Neuroscience under the supervision of Dr. Bong-Kiun Kaang at Seoul National University and completed postdoctoral research in Dr. Alcino Silva's lab at UCLA, contributing to groundbreaking studies on cognitive impairments in neurodevelopmental disorders. His research focuses on cell type-specific RAS signaling dysregulation in mouse models of Rasopathy including Noonan syndrome and CFC syndrome, social recognition memory, and cerebellar mechanisms in fear learning in mice. His laboratory is utilizing multiple technologies such as ex vivo and in vivo electrophysiology, in vivo calcium imaging, and behavioral analyses. He is an active member of neuroscience societies, including the Korean Society for Brain and Neural Sciences, Society for Neuroscience, and Molecular and Cellular Cognition Society.

### Research Area

My laboratory examines the mechanisms and potential treatments for learning and memory deficits associated with RASopathies, a group of neurodevelopmental disorders linked to mutations in the RAS-MAPK signaling pathway such as Noonan syndrome and CFC syndrome. We have been showing that mutations associated with RASopathies affect distinct cell types in the nervous system. For example, Braf mutation in CFC syndrome affects astrocytes (Kang et al., JCI 2025), whereas Ptpn11 mutation in Noonan syndrome affects excitatory neurons (Ryu et al., Sci Signaling 2019). I want to extend our research on cell-type-specific signaling networks in RASopathies to develop individualized therapeutic strategies in collaboration with European scientists.



**Jin-A Lee**

Professor  
Hannam University

### Biography

Dr. Jin-A Lee is a Professor at Hannam University and CEO of PhagytechBio, specializing in molecular mechanisms of neurodegenerative diseases, including ALS and frontotemporal dementia. She received her Ph.D. in neuroscience from Seoul National University and completed postdoctoral training at UCSF. Her research focuses on autophagy, stress granule dynamics, and the development of iPSC/3D-organoid models for brain disease. Dr. Lee has published extensively in leading journals such as Nature Communications, Molecular Brain, and Autophagy. She holds multiple patents for autophagy-based diagnostic tools and has contributed to international research initiatives across the U.S., Japan, and Europe. She serves on the editorial boards of Scientific Reports, Molecular Brain, and Frontiers in Genetics. Dr. Lee has been invited to speak at over 20 international symposia and was awarded the L'Oréal-UNESCO Fellowship for Women in Science. Her current work aims to bridge advanced cellular models with therapeutic discovery through cross-border biotechnology collaborations.

### Research Area

- Molecular and cellular mechanisms underlying neurodegenerative diseases, including ALS and frontotemporal dementia
- Autophagy regulation in neuronal homeostasis and disease progression
- Stress granule dynamics and phase separation in neurodegeneration
- Development of live-cell imaging tools and autophagy biosensors
- Human iPSC-derived 3D cerebral organoids and neuronal disease models
- Pathogenic protein aggregation and selective autophagy mechanisms
- High-content screening platforms for autophagy modulators
- Translational applications of autophagy in diagnostics and therapeutics
- CRISPR-based neuronal disease modeling and mechanistic dissection
- International collaboration on cellular biotechnology and neurotherapeutics



**Philippe Marin**

Research Director at CNRS  
Institute of Functional Genomics

### Biography

Philippe Marin is a neuropharmacologist with a longstanding expertise in proteomics. He completed a Ph.D. in Molecular and Cellular Pharmacology at Pierre et Marie Curie University (Paris) dedicated to the role of Glutamate in neuron-glia interactions in 1992. After a postdoctoral training at the Centre of Pharmacology and Endocrinology in Montpellier where he deciphered the mechanisms underlying the production of nitric oxide under the control of glutamate receptors, he obtained a permanent CNRS researcher position in 1993 to join the Laboratory of Neuropharmacology at the College de France in Paris to investigate the regulation of neuronal protein synthesis and its role in neurotoxicity.

He then moved to the Institute of Functional Genomics (IGF) in Montpellier in 1999 where he is the leader of a team that develops a neuroproteomics project dedicated to the molecular and functional characterization of signaling networks associated with serotonin and glutamate receptors. P. Marin is the author of 146 publications and four patents (h index = 65). He is the director of the IGF since 2021.

### Research Area

Philippe Marin and his team are developing a multidisciplinary strategy combining genomics and proteomics approaches with pharmacological, biochemical, cell biology, electrophysiological and behavioural studies, to decipher neuronal and synaptic mechanisms involved in various neurological and psychiatric disorders (mood disorders, psychoses, autism, Alzheimer's disease, multiple sclerosis) and identify biomarkers of these pathologies. They focus on signaling networks associated with various G protein-coupled receptors (serotonin and glutamate receptors) that are potential targets for the pathologies studied or for psychoactive drugs (psychedelics, antidepressants and antidepressants). They explore their influence of synaptic mechanisms (transmission and plasticity), as well as secretion and paracrine diffusion of pathological proteins. They are involved in a longstanding collaboration (currently funded by a bilateral ANR-DFG grant) with the lab of Prof Evgeni Ponimaskin (Hannover Medical School), to

decipher mechanisms underlying constitutive activity of several serotonin receptors subtypes and their pathophysiological outcomes. This lab also collaborates with the group of Prof Kim Yun-Kyung (Dpt of Biomedicine, Convergence Research Center for Dementia, Korea Institute of Science and Technology) who has been selected for the meeting. Due to the common interest of the three groups in neurodegenerative disease models, participating in the meeting would be a unique opportunity for P. Marin to strengthen and extend the current collaboration to a Korean lab.



## Luis Filipe Ferreira Moita

**Associate Professor**

School of Medicine, University of Lisbon

### Biography

Luís Ferreira Moita, M.D., Ph.D., is the head of the Disease Mechanisms Laboratory and Chair of the Pathology discipline at the School of Medicine, University of Lisbon (Portugal). He previously led independent laboratories at Instituto Gulbenkian de Ciência (Oeiras, Portugal, 2014-2024) and Instituto de Medicina Molecular (Lisboa, Portugal, 2006-2014).

He did post-doctoral work with Nir Hacohen at the Whitehead Institute and Mass. General Hospital (Boston, USA, 2002-2005). He completed his PhD at the European Molecular Biology Laboratory (Heidelberg, Germany, 1998-2002) under the supervision of Fotis Kafatos, and graduated from medical school at the University of Lisbon (1997). The central goals of his laboratory are to understand how stress responses modulate organismal homeostasis and how that knowledge can be harnessed for therapeutic applications.

### Research Area

Currently, the overarching goals of the Ferreira Moita laboratory are to understand how stress responses contribute to organismal homeostasis and how that knowledge can be harnessed for innovative therapeutic applications. In the past ten years, the laboratory has identified the clinical group of anthracyclines as highly protective against sepsis by inducing a DNA Damage Response (Immunity 2013, Nov 14;39(5):874-84). This work constitutes not only the first demonstration that the mechanisms of disease tolerance can be induced pharmacologically but

is also proof of principle that mild disruption of specific core cellular functions in vertebrates can trigger cytoprotective responses. Luís Ferreira Moita has been awarded an international patent for the application of these findings (European patent Nº 2753335, 11.01.2017). A German consortium of leading experts in sepsis clinical trials (where he is an investigator and advisor) has been awarded ~1.5M€ by the German Federal Government to conduct a multicenter clinical trial (EPOS-1) in Germany to test the efficacy of epirubicin to treat sepsis patients. The first patient was enrolled in September of 2022.

The laboratory has identified a second perturbation (mitochondrial Electron Transport Chain inhibition) of the clinically approved group of ribosome-targeting antibiotics as protective in sepsis (and autoimmunity) by inducing disease tolerance, independently from their direct antibacterial activity. These findings were recently published (Immunity 2021, Jan 12;54(1):53-67 and Immunity 2021, Jan 12;54(1):68-83) and will serve as the basis for a second Phase III clinical trial in sepsis patients, currently under design and planning. These two clinical trials will allow us to probe to what extent our mechanistic discoveries made in mouse models of severe infection can be translated to human sepsis, hopefully confirming our expectations supported by our pre-clinical data.



## Maria Arrate Muñoz Barrutia

**Full Professor**

Universidad Carlos III de Madrid

### Biography

Arrate Muñoz Barrutia is Full Professor at Universidad Carlos III de Madrid (UC3M) and Senior Researcher at the Gregorio Marañón Health Research Institute. She holds a Ph.D. in Electrical Engineering from the Swiss Federal Institute of Technology Lausanne (EPFL) and a Telecommunications Engineering degree from Universidad Pública de Navarra (UPNA). Her international career includes academic stays at King's College London, the California Institute of Technology (Caltech), and Johns Hopkins University, where she was Visiting Professor in 2022-2023. She has previously held positions at CIMA-Universidad de Navarra, CEIT, and TECNUN, and served as Chair of the Bioengineering and Aerospace Engineering Department at UC3M from 2019 to 2021.

She is IEEE Fellow (2024) and has been recognized with the UC3M Excellence Award for Young Researchers (2017), a BBVA Leonardo Grant (2017), and a Ramón y Cajal fellowship (2005). Arrate Muñoz Barrutia has supervised 11 PhD theses—two awarded Extraordinary Doctorate Prizes—and over 65 undergraduate and master’s theses.

She has held leadership roles such as Chair of the Steering Committee of the IEEE International Symposium on Biomedical Imaging (2022-2024) and elected member of the Administrative Committee of the IEEE Engineering in Medicine and Biology Society (2019-2021). She has also served on numerous national and international research evaluation panels. As of May 2025, she has authored 88 JCR-indexed articles (73% Q1) and has more than 6,600 citations and an H-index of 33 (GS).

### Research Area

My work focuses on the development of computational methods and AI-driven tools for the analysis of biomedical image data, with an emphasis on usability, reproducibility, and FAIR principles. I have co-led the design of open-source platforms such as deepImageJ (Nat Methods, 2021), BiaPy (Nat Methods, 2025), and the bioimage.io chatbot (Nat Methods, 2024), all aimed at democratizing access to deep learning in microscopy.

My recent research includes InterpolAI, a deep learning method for optical flow interpolation to enhance 3D tissue reconstructions (Nat Methods, 2025). I contribute to infrastructure projects like AI4Life, focusing on model reuse, evaluation, and community engagement. These efforts span multiple scales—from subcellular structures to tissue-level organization—and are applied to problems in oncology, neuroscience, and cell biology.



**Sangwook Oh**

**Assistant Professor**  
Hallym University

### Biography

I am an Assistant Professor at Hallym University in South Korea and currently serve as the Chief Technology Officer at EIONCELL Inc. I earned my Ph.D. in Biological Sciences from Seoul National University, where I investigated transcriptional regulation in T cell development. Following this, I advanced my expertise in immunotherapy as a postdoctoral researcher and later as a Senior Research Investigator at the University of Pennsylvania, where I focused on developing engineered T cell therapies for autoimmune diseases.

My work contributed to the establishment of Chimeric Autoantibody Receptor T (CAAR-T) cell therapy, demonstrating antigen-specific B cell depletion in myasthenia gravis, and has been published in leading journals such as Nature Biotechnology and Science Advances. At Hallym University, I lead the Immunotherapy Lab, focusing on next-generation cellular immunotherapies for autoimmune diseases.

I actively engage with global scientific communities and maintain collaborative partnerships with academic and industry leaders. In addition to my research activities, I am dedicated to mentoring young scientists and fostering multidisciplinary research that bridges basic immunology and clinical applications. I am eager to contribute to Horizon Europe’s mission through collaborative and translational research that addresses critical challenges in immune-mediated diseases.

### Research Area

My research focuses on developing next-generation CAR and CAAR-T cell therapies to treat cancer, autoimmune, and inflammatory diseases. I am particularly interested in designing CAR/CAAR constructs that enable selective and efficient elimination of pathogenic cells while minimizing off-target effects. A key area of my work involves dissecting the signaling pathways downstream of CAR and CAAR activation, aiming to optimize their persistence, functionality, and clinical efficacy. By understanding and modulating these intracellular signaling cascades, I

seek to overcome therapeutic challenges such as antigen heterogeneity, immune exhaustion, and treatment durability. My interests also extend to translating these mechanistic insights into clinically relevant models and human trials. Through interdisciplinary collaborations, I aim to bridge basic immunology and therapeutic innovation, ultimately advancing precision immunotherapies for patients with difficult-to-treat diseases.



## Eok-Soo Oh

Professor

Ewha Womans University

### Biography

After completing my PhD in cell biology at the University of Alabama at Birmingham, I completed postdoctoral training at Harvard Medical School and became a faculty member at Ewha Womans University in 1999. My research focuses on oncogenic signaling networks in the tumor microenvironment and cancer diagnosis and treatment. I am currently working on the development of anti-inflammatory and anticancer drugs based on the signaling mechanisms of ECM molecules.

### Research Area

- Extracellular matrix
- Inflammation
- Cancer
- Therapeutic agent
- Signal transduction



## Yoojin Oh

Senior Scientist

Johannes Kepler University Linz

### Biography

For the past 15 years I have pursued interdisciplinary research integrating biophysics, medical biology and nanoscale biotechnology, with a focus on applications of biophysically relevant phenomena. Currently, I am a senior group leader at the Institute of Biophysics at Johannes Kepler University Linz, where I use atomic force microscopy (AFM), high-resolution imaging, and nanotechnology to study microbial systems, host-pathogen interactions, antimicrobial mechanisms, and diagnostic techniques.

In particular, I conduct single-molecule-level studies of antibodies, with the goal of translating fundamental findings into clinically applicable insights. By combining nanobiophysical tools with systems biology approaches, we aim to deepen our understanding of infections, tumors, and host-pathogen communication, and bridge the gap between basic science and clinical applications. We also work to develop diagnostic technologies to maximize sensitivity.

### Research Area

Biophysics, Antibody, Pathogen, Disease, Diagnostics, Single Molecule

My research focuses on nano-metric properties of bio-materials (proteins, pathogen, antibody, oxide materials for bio-applications) that require the application of a whole portfolio of nanoscopic and microscopic techniques (atomic force microscopy, electrostatic force microscopy, near-field scanning optical microscopy, fluorescence microscopy, and electron microscopy).

I am also interested in microbial systems using single molecule methods to establish interdisciplinary medically-oriented research, by incorporating engineering, condensed matter and biophysics, microscopy, soft lithography, and microbiology.



**Carlos Peña**

Professor and Institut director

University of Applied Sciences Western Switzerland /  
Swiss Institute of Bioinformatics

### Biography

Professor Carlos Andrés Peña-Reyes is a full professor of computer engineering at the School of Business and Engineering Vaud (HEIG-VD), University of Applied Sciences and Arts Western Switzerland. He heads the Computational Intelligence for Computational Biology (CI4CB) group, leads the Institute for Information and Communication Technologies, and serves as a group leader at the Swiss Institute of Bioinformatics, bridging AI and national life-science data. An electronic-engineering graduate of Universidad Distrital in Bogotá with a PhD in computer science from EPFL, he subsequently worked as a researcher at the Novartis Institutes for BioMedical Research in Basel. His research blends fuzzy systems, evolutionary algorithms and neural networks with gene-expression analysis, biomarker discovery and predictive genomics. Recent projects include the EU Horizon-2020 consortium IMPTOX, which probes the toxicity of micro- and nanoplastics, and the SNSF-funded EXPLaiN programme on explainable AI for mobile-health data. Author of more than sixty peer-reviewed papers cited over 1,600 times, he teaches bioinformatics to engineering students from his base in Yverdon-les-Bains.

### Research Area

- (1) Methods and tools for Explainable AI (XAI), spanning from inherently interpretable ML algorithms (such as Fuzzy CoCo) to the extraction of rules and domain knowledge from black-box predictive models. These XAI approaches are primarily applied to life science problems, including medical diagnostic decision support and the elucidation of mechanisms of action from multi-omics data.
- (2) Predictive modelling using biological sequence data, including genomics and proteomics, with a focus on sequence-based patterns for inference and classification tasks. Particular interest in genome-based phage-bacteria interaction prediction.
- (3) Machine learning-based, data-driven biomarker discovery and characterisation, particularly from high-dimensional datasets such as RNA-seq transcriptomics. We have developed pipelines combining feature selection and fuzzy modelling, which are currently being applied to model biotechnological production processes in industrial environments.



**Evgeni Ponimaskin**

Head of Department of Cellular Neurophysiology

Hannover Medical School

### Biography

- 1991 • Diploma in Biology at the Carl von Ossietzky University Oldenburg, Germany
- 1994 • Doctoral thesis at the Institute of Immunology and Molecular Biology, Department of Veterinary Medicine, Free University (FU) Berlin
- 2003 • Habilitation with Venia legendi in Physiology at the Medical Faculty of the Georg-August-University of Goettingen
- 1994-2000 • Research assistant at Special Research Area "Cellular Signal Recognition and Transduction."
- 2000-2002 • Group leader at the Institute of Physiology, University Medical Center Goettingen, Germany.
- 2002-2008 • Head of an independent research group within the DFG Research Center "Molecular Physiology of the Brain".
- 2008 • Heisenberg Professorship "Physiology of intracellular signaling networks" of the German Research Foundation (DFG).
- since 2009 • Professorship "Cellular Neurophysiology," Hannover Medical School (tenured civil servant)
- 2021 • International Annika-Liese Research Award for outstanding neuroscientific research in the fields of depression, anxiety disorder and suicidality
- 2022 • Research Award of the Alzheimer Forschung Initiative e.V. (AFI)

### Research Area

Expertise in molecular mechanisms regulating neuronal morphology and synaptic plasticity under physiological and pathological conditions, including depression, anxiety, and dementia.

Leading research on serotonin G-protein coupled receptors (GPCRs) in neurodegenerative and psychiatric disorders, with significant contributions to understanding Alzheimer's disease and depression (DOI: 10.1038/s41467-019-11876-5; 10.1016/j.pneurobio.2020.101900).

Analyses of the role of serotonin receptors in myocardial remodeling and depression following myocardial infarction, bridging cardiovascular and neuropsychiatric research.

Expertise in quantitative molecular microscopy in vitro and in vivo, combined with FRET-based assays for high-resolution analysis of protein interactions and intracellular signaling dynamics.

Proven track record of successful long-term collaboration with Korean colleagues from the Korean Institute of Science and Technology (KIST), leading to high-impact joint publications (DOI: 10.1002/alz.13090; 10.1186/s12964-024-01612-y).



**Stefan Prekovic**

Group Leader / Assistant Professor  
UMC Utrecht

### Biography

Stefan Prekovic obtained his PhD in Biochemistry/Bioinformatics at KU Leuven (Belgium) in 2017, under the supervision of Prof. Frank Claessens, specializing in nuclear receptor biology. Subsequently, he joined Prof. Wilbert Zwart's lab at the Netherlands Cancer Institute (NKI), advancing from postdoctoral fellow to Senior Postdoctoral Fellow after securing funding from the Dutch Cancer Foundation. In 2023, he became Group Leader and Assistant Professor at the Centre for Molecular Medicine, UMC Utrecht, where he established his independent Computational Omics Lab. Since 2025, he also serves as scientific lead of the Utrecht Bioinformatics Core.

His interdisciplinary research combines functional genomics, single-cell and spatial transcriptomics, and computational approaches to understand how nuclear receptors integrate signaling with chromatin organization to control gene expression in hormone-driven cancers. Stefan has secured over €3.9 million in competitive funding (including funding from the Dutch Cancer Foundation, NWO), published 48 papers in leading journals including Nature (2x), Nature Communications (4x), EMBO Molecular Medicine, JCO, and Cancer Research (2x), and holds a European patent.

He received multiple awards including two Best Fundamental Article awards from the Dutch Endocrine Society (2021, 2024). He is actively engaged in mentoring, having supervised over 30 trainees, and is deeply involved in scientific networking as co-founder of the EndoXcel European network spanning 14 countries. His commitment to outreach includes patient advocacy initiatives, collaboration with patient organisations, and curriculum development for Bioinformatics Master's programs in both the Netherlands and Serbia.

### Research Area

Stefan Prekovic's research focuses on elucidating how transcription factors, specifically nuclear receptors such as androgen receptor (AR), glucocorticoid receptor (GR), and others, integrate cellular signaling with chromatin organization to precisely control gene expression, thereby

influencing tumor plasticity and therapy resistance. Initially specializing in AR biology, he uncovered critical structural determinants shaping receptor function and therapeutic responses in prostate cancer. His lab now explores broader nuclear receptor signaling networks, identifying their roles in drug-tolerant dormancy, tumor subtype classification, and treatment responses across multiple cancer types, including breast and lung cancers. By integrating functional genomics, single-cell and spatial transcriptomics, and advanced computational modeling, the Prekovic lab aims to decipher molecular mechanisms underlying transcription factor dynamics, ultimately identifying novel therapeutic targets and predictive biomarkers for personalized oncology.



**Mohamed Shaalan**

Senior Research Scientist  
Polymer institute, SAS

## Biography

Dr. Mohamed Shaalan is currently working as a senior scientific researcher (IIa) at the Polymer Institute. He got his doctoral degree from the University of Veterinary Medicine in Vienna, Austria in 2017. His research interests focus on the antimicrobial evaluation of nanoparticles in addition to the nanoparticles synthesis. He shared authorship in 54 articles (Citations = 1300, H-index = 17). In addition, his research results were presented at national and international conferences as posters, oral presentations, and keynote lectures. Several master's and PhD students had conducted their theses with his supervision.

He is involved in different research projects as PI, Co-PI, or team member which are funded by national and international funding bodies. Currently, he is a member of Horizon 2020 project (NOVA). He was awarded national and international scientific awards such as the Charles Capen Award for toxicologic pathology and the Cairo University Encouragement Award for excellence in scientific research. He is a reviewer and editorial board member for different Q1 international journals such as PLoS One, Frontiers on Materials, and BMC Veterinary Research.

## Research Area

Microbiology, Nanomedicine, Toxicology, Polymers



**Carla Gomes da Silva**

Principal Investigator / Assistant Professor  
University Medical Centre – Brain Division Utrecht

## Biography

Dr. Carla Gomes da Silva is a Group Leader and Assistant Professor at the University Medical Centre in Utrecht, The Netherlands where she studies molecular mechanisms involved in brain development across species. She is a leading scientist in the field of interneuron dynamics during brain development and the focus of her research is in understanding how the trajectory of inhibitory neurons and their interactions in the developing brain shape their integration and function in neuronal circuits.

Dr. Silva uses multidisciplinary approaches, including transgenic mouse models, ex-vivo live imaging, gene manipulations, omics, electrophysiology and behaviour to elucidate the molecular crosstalk established between interneurons and other cell populations during brain maturation and the final function of interneurons in the mature brain.

Dr. Silva published several seminal scientific publications in the field, in leading journals such as Cell, Science Translational Medicine and Science and her research was funded by several European Funding Agencies, such as ERANET-Neuron, Fonds de la Recherche Scientifique (FNRS), Dutch Research Council (NWO). Dr. Silva is also actively participating and contributing to international symposia and training the new generation of neuroscientists.

## Research Area

Dr. Carla G. Silva is a developmental neuroscientist exploring how migration shapes the formation of neuronal circuits. Inhibitory neurons are cells that migrate extensively in the developing brain and Dr. Silva explores how intrinsic developmental programs as well as the extracellular microenvironment influence interneurons to establish selective synapses with excitatory neurons or settle in specific cortical layers or hippocampal strata. Microcircuits are often altered in developmental disorders.

Dr. Silva aims now at exploring signaling pathways and cellular crosstalks passive of being dysregulated in neurodevelopmental disorders. The identification of those can be essential to

design therapeutic strategies and identify timings of intervention to prevent neuronal circuit malformation or correct neuronal circuit function. She is particularly interested in the crosstalk between interneurons and early generated glial cells of the oligodendrocyte precursor cell lineage since several lines of evidence suggest that they have a prominent role in guiding interneuron migration and integration into cortical circuits during brain development.

Dr. Silva is now engaged and establishing scientific collaborations with system neuroscientists to perform long-term studies linking causally early circuit alterations to late functional outcomes. This work is essential to understand and tackle complex neurodevelopmental disorders, a goal that perfectly aligns with the Horizon Europe mission.



**Stefaan S.C. De Smedt**

Full Professor  
Ghent University

### Biography

In 1999 Stefaan De Smedt became Professor in Physical Pharmacy and Biopharmacy at Ghent University where he initiated research on advanced delivery of biologics/nanomedicines and founded the Ghent Research Group on Nanomedicines. Currently he is the director of the Laboratory of General Biochemistry & Physical Pharmacy which houses 4 research teams (2 of them ERC funded): the Biophotonic Research Team, the Ocular Delivery Team, the Lung Delivery team and the Vaccine delivery Team.

He has been a member of many Belgian and (non-)European scientific expert panels, including the European Research Council (ERC) panel for Advanced Grants. From 2025 he will serve as chair of the ERC panel for Advanced Grants for the life science.

Dr. De Smedt is the author or co-author of about +400 manuscripts to Nature Reviews Drug Discovery (2002), Nature Materials (2003), Nature Biotechnology (2015), Nature Communications (2016, 2018, 2022), Nature Nanotechnology (2021, 2022, 2023), Nature Protocols (2024) among other top journals. In 2018, 2022, 2023 and 2024 he became awarded Highly Cited Researcher (interdisciplinary sciences) by Web of Science (Thomson Reuters).

### Research Area

Advanced Drug Delivery / Bio-therapeutics / Nanomedicines. The global research focus in my lab is on the delivery of bio-therapeutics, especially nucleic acids, for future therapies of lung and ocular diseases and cancer (through mRNA vaccination and cell therapies).

The teams offer a multifaceted portfolio of competencies including drug delivery expertise, pharmacology, material knowledge, nanotechnology, cell biology, immunology, biophysics, optics and bio-photonics. Together with partners in academia and industry they develop and evaluate delivery concepts and technologies for novel advanced therapies.



**Mircea Cretu Stancu**

Head of Bioinformatics  
Genomic research institute

### Biography

Bioinformatics scientist, from a technical background. I studied computer science and electrical engineering, followed by a masters in computing science and a PhD in human genetics. After my PhD i moved to industry for ~5 years working with world wide leading and smaller biotechs.

I focused on private research and content driven data management/exploration platforms, including consulting and go-to-market work. Inspired by a public initiative in my home country, i am now coordinating the bioinformatics efforts of the Genomic Research Institute in Romania, with plans to accelerate genomic sequencing and biobanking for research and personalized medicine.

### Research Area

Bioinformatics scientist with experience in public research but also in industry. Public research expertise revolves around whole genome sequencing, personalized medicine, AI and multiomic data integration. Industry experience involves neoantigen discovery, multiomics and multiomic integration, diagnostics testing and bringing innovative (data management) products to market.



**Jonas Steenbrugge**

Postdoctoral Researcher  
Ghent University

### Biography

Jonas Steenbrugge was born on 28th June 1991 in Ghent. He graduated Magna cum laude as Master of Science in Biomedical Sciences in 2014 at KU Leuven. In October 2015, he started his joint PhD entitled “Characterization of an immunocompetent intraductal mouse model for triple-negative breast cancer (TNBC)” at Ghent University (Laboratory of Biochemistry, Faculty of Veterinary Medicine) in close collaboration with the Faculty of Medicine and Health Sciences of the University of Antwerp as partner institution and Ghent University as head institution.

He obtained a 1-year Emmanuel van der Schueren research grant from Kom op tegen Kanker (Stand up to Cancer), the Flemish cancer society, for his PhD work in 2016. After obtaining his PhD in December 2019, he continued his academic career as postdoctoral researcher at Ghent University in January 2020, investigating candidate immunotherapeutic targets in TNBC, for which he obtained an FWO junior postdoctoral fellowship in October 2021.

He is currently employed as senior postdoctoral researcher funded by the Special Research Fund of Ghent University as of October 2024, in continuation of his work on improving immunotherapy in TNBC patients. Besides his postdoctoral work, Dr. Steenbrugge is frequently involved in R&D services provided to industrial partners.

### Research Area

My experimental work focuses on identifying and validating novel therapeutic targets that can enhance immunotherapeutic efficacy in triple-negative breast cancer (TNBC), the most aggressive breast cancer subtype with the worst outcome. Potential targets are routinely explored through an intraductal mouse model for TNBC that I’ve characterized during my PhD and closely recapitulates the complete human disease process, from the early ductal carcinoma in situ stage to the invasive carcinoma stage and subsequent metastasis to distant organs. Besides target exploration, the model is also of interest to translate potential therapies to human patients.



**Salvador Ventura**

Full Professor  
Universitat Autònoma de Barcelona

### Biography

Salvador Ventura is Full Professor of Biochemistry and Molecular Biology at the Universitat Autònoma de Barcelona (UAB) and Scientific Director of the Parc Taulí Research and Innovation Institute (I3PT), a CERCA and ISCIII center.

He is also an ICREA Acadèmia researcher and co-founder of Eureka NanoBioEngineering. Ventura earned his PhD in Biological Sciences from UAB in 1998.

He conducted postdoctoral research at EMBL-Heidelberg, Harvard Medical School, and the Karolinska Institutet.

In 2003, he returned to UAB as a Ramón y Cajal researcher.

Since 2005, he leads the “Protein Folding and Conformational Disorders” group at the Institute of Biotechnology and Biomedicine (IBB), which he directed from 2017 to 2020.

His lab integrates computational and experimental tools to combat protein aggregation.

He has led 47 competitive research projects and 11 contracts with industry.

Author of over 310 scientific articles, he has supervised 20 PhD theses and holds 19 patent families.

One of the most cited researchers in protein aggregation, he ranks among the top 2% in his field globally.

He has received the Narcís Monturiol Medal, the Bruker “Manuel Rico” Award, and three ICREA Acadèmia distinctions.

Ventura also received the UAB Knowledge Transfer and Research Excellence Awards.

He is an elected member of the Academia Europaea.

He serves on the Governing Board of CIBER-ISCIII and on juries and boards supporting science and innovation.

His work bridges basic research, clinical application, and biotech transfer.

### Research Area

Our laboratory combines computational and experimental approaches to address the complexities of protein folding, misfolding, and aggregation. Our multidisciplinary strategy integrates cutting-edge bioinformatics with state-of-the-art laboratory technologies to tackle these challenges from complementary perspectives.

Our mission goes beyond deciphering the fundamental mechanisms driving these processes; we aim to understand how their disruption leads to human conformational diseases, with a particular focus on Parkinson's disease. By bridging basic science and translational research, we strive to pioneer novel therapeutic strategies to combat these debilitating conditions.

A core strength of our lab is protein design and engineering, which enables the development of next-generation protein-based pharmaceuticals that overcome the limitations of current medical solutions. We also harness the unique properties of protein self-assembly to create nanoscale materials tailored for diagnostics and therapeutics, opening new avenues in nanotechnology.

By merging fundamental research, advanced protein engineering, and translational applications, we aim to push the frontiers of protein science in health and biotechnology—offering impactful solutions to improve lives and drive innovation forward.



**Cheng Zhang**

Senior Lecturer  
King's College London

### Biography

Dr. Cheng Zhang is a Senior Lecturer at the Roger Williams Institute of Liver Studies, King's College London, and a Group Leader at the Science for Life Laboratory (SciLifeLab), Royal Institute of Technology (KTH), Sweden. With a background in bioengineering and systems biology, Dr. Zhang has over a decade of experience in integrating computational modeling with translational biomedical research. His academic track spans multiple institutions across Europe and Asia, with over 100 peer-reviewed publications and more than 13,000 citations. He has held principal investigator roles on nationally and internationally funded research programs, including multiple Horizon Europe projects. Dr. Zhang also brings industrial perspective as a co-founder and strategic advisor to biotech startups focusing on digital health and AI-driven drug development. His leadership has been recognized with a Docent title in Systems Medicine from KTH, and he remains committed to bridging fundamental science with therapeutic innovation and education.

### Research Area

Dr. Zhang's research focuses on building digital platforms for cell-based and data-driven therapeutic development, aligning with Horizon Europe priorities such as synthetic biology, ATMP optimization, and GenAI in biomedical research. His group develops genome-scale metabolic models and digital twins of immune cells, particularly regulatory T cells (Tregs), to support the design of CAR-Treg therapies with enhanced stability, proliferation, and efficacy. He is also pioneering the use of generative AI to integrate and interpret multimodal omics and clinical datasets, accelerating biomarker discovery and treatment personalization. A parallel research stream addresses ATMP manufacturing by simulating nutrient fluxes and metabolic bottlenecks under different production conditions. Dr. Zhang's long-term vision is to create interoperable, AI-enhanced simulation platforms that connect omics data, cellular behavior, and clinical translation. He is eager to collaborate internationally on EU-Korea initiatives to advance smart therapeutic design, precision immunology, and robust digital infrastructures for biotechnology.



**Chengchen Zhang**

Lecturer / Assistant Professor  
University of Southampton

### Biography

Dr. Chengchen Zhang is a Lecturer (Assistant Professor) in Digital Health and Biomedical Engineering at the University of Southampton, UK. Her interdisciplinary research bridges artificial intelligence, biosensing, and molecular diagnostics, focusing on innovative technologies for global health challenges. She currently leads a research group dedicated to the development of intelligent diagnostic systems and is currently pioneering AI-powered, image-based point-of-care biosensors for the rapid and accurate detection of disease biomarkers.

These portable systems integrate deep learning algorithms with smartphone-compatible platforms to enable early diagnosis in resource-limited settings. Her research has received recognition through multiple grants/fellowship and awards. She is also actively engaged in international collaborations and committed to translating biomedical advances into impactful healthcare applications.

### Research Area

Dr. Zhang's research focuses on the intersection of artificial intelligence and biosensor technology for healthcare applications. Her lab is developing next-generation image-based point-of-care diagnostic devices that leverage AI for real-time analysis of molecular biomarkers. These systems aim to support rapid disease detection, outbreak surveillance, and personalized treatment strategies.

She is particularly interested in integrating deep learning with smartphone-based platforms to enable decentralized diagnostics. Her work aligns with Horizon Europe themes on advancing biotech tools and leveraging AI for health preparedness. Dr. Zhang is eager to explore collaborative opportunities in digital health, synthetic biology, and translational diagnostics through Horizon Europe frameworks.

