

PROGRAM



AIMS 2025

“Modelling aging in microphysiological systems and organoids”

Satellite Conference to the MPS World Summit

Brussels 9th of June

Program

1st session: Hallmarks and measures of ageing (session chair: Lynne Cox)

08:30	08:40	Welcome Stefan Krauss (U. Oslo) and Lynne Cox (U. Oxford)	
08:40	09:00	Lynne Cox	Which hallmarks of ageing and health are relevant to in vitro models including MPS?
09:00	09:15	Federico Pietrocola	Biophysical Properties as Integrative Markers of Cellular Ageing
09:15	09:30	Niharika Duggal	Tools to measure immune ageing and immosenescence
09:30	09:45	Anthony Molina	Human Cell Models of Aging and Mitochondrial Bioenergetic Decline
09:45	10:05	Mikolaj Ogrodnik	Modelling of Skin Cellular Senescence Ex Vivo and in Organ Equivalents: Advances and Challenges

2nd session: Building physiologically-relevant MPS (Short Talks) (session chair: Andrea Dalmao)

10:05	10:10	Deepa Chaturvedi	From Design to Validation: A Microfluidic Organ-on-Chip Model for Human Skin and Drug Testing.
10:10	10:15	Huiting Zhang	Three-Dimensional Microfluidic Blood-Brain Barrier Model with In vivo-like Functional Properties for Simplified Drug Permeability testing
10:15	10:20	Jae-Sung Ryu	Generation of multi-organoids from individual induced pluripotent stem cells (iPSCs) using a microphysiological system (MPS) approach
10:20	10:25	Mathias Busek	The pumpless recirculating organ on chip to model aging on chip
10:25	10:40	Coffee break	



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3rd session: Cell-extrinsic ageing features in MPS (session chair: Andreas Stahl)

10:40	11:00	Andreas Stahl	Aging in human microphysiological systems closely recreates the in vivo process with insights on rejuvenation
11:00	11:15	Bradley Elliot	Impact of heterochronic plasma on muscle
11:15	11:30	Liz Laird	Considerations for modelling extracellular matrix ageing in MPS and organoids
11:30	11:45	Hannes Campo	An engineered ovarian somatic organoid model preserves cellular heterogeneity and reveals cellular contributions to ovarian aging
11:45	12:00	Young C. Jang	Engineering 3D Microphysiological Systems to Rejuvenate Aging Skeletal Muscle

4rd session: Modelling ageing and age-related diseases I (session chair: Alexandra Stolzing)

12:00	12:15	Alexandra Stolzing	In vitro Blood-Brain Barrier model incorporating aging features
12:15	12:30	Emre Kapucu	Modeling Age-Related Neurodegenerative Diseases in Microphysiological Systems: An On-Chip Approach to Parkinson's Disease
12:30	12:45	Silvia Bolognin	Astrocyte Senescence as an Early Driver of Neurodegeneration in Parkinson's Disease: Insights from Patient-Derived Midbrain Organoids
12:45	13:30	Lunch break	



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Modelling ageing and age-related diseases II (session chair: George Truskey)

13:30	13:50	George Truskey	Modeling aging using vascular microphysiological systems
13:50	14:05	Laura de Rooij	Deciphering the heterogeneity of human endothelial cell aging: Integrating single-cell transcriptomics with in vitro modelling
14:05	14:20	Deok-Ho Kim	Advanced Heart-on-a-Chip Platform for Cardiac Aging Research
14:20	14:35	Georgina Ellison	Modelling ageing cardiomyopathy in human cardiac organoids
14:35	14:50	Hagar Labouta	Genomic Instability and Shear Stress Influence Nanoparticle-Induced Endothelial Cell Responses and Gene Expression
14:50	15:05	Zeynep Elif Yesilyurt-Dirican	SGLT2i Empagliflozin shows senotherapeutic properties in human cardiac cell types and organoids

Modelling ageing and age-related diseases III (session chair: Simon Jones)

15:05	15:25	Simon Jones	Human Primary Myotubes and Adipose Tissue Cross-talk: Preclinical Models of Sarcopenia and Sarcopenic Obesity
15:25	15:40	Elena Vatrano	Screening the efficacy of natural compounds within uKnee, a human osteoarthritis model
15:40	15:55	Aleksandra Aizenshtadt	Liver organoids as an in vitro model in aging research
15:55	16:05	Short break	



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5th session: Modelling ageing and age-related diseases (short talks) (session chair: Andrea Dalmao)

16:05	16:10	Fran Lukšić	Effects of Cellular Aging on N-Glycome and Secreted IgG Glycosylation in FreeStyle 293-F Cells
16:10	16:15	Azmeer Sharip	Bone Marrow on Chip for Advancing In Vitro Models in Preclinical Acute Myeloid Leukemia Studies
16:15	16:20	Virginia Cora	Modeling human midbrain aging: an iPSC-based platform to explore aging and age-related neurodegenerative disorders
16:20	16:25	Nicolai Winter-Hjelm	Engineered Neural Microcircuits for Investigating Alzheimer's Disease Mechanisms and Therapeutic Interventions
16:25	16:30	Julian Gonzalez Rubio	Mesenchymal stromal cell rejuvenation by iPSC reprogramming and redifferentiation decreases their angiogenic potential in a vascularization-on-a-chip platform

16:30 16:45 **Coffee break**

16:45 17:25 **Round table: Modelling ageing and investigating strategies for interventions. Chair: Lynne Cox**

17:25 17:30 **Main meeting round-up (Stefan Krauss)**

17:30 18:30 **Position paper drafting: Modelling ageing in MPS and organoids (by invitation)**

