| WEDNESDAY MAY 27, 2026<br>3:30–5:00 PM | | | |
|---|---|---|---|
| **Poster Board Number** | **Abstract Number** | **Presenter** | **Title** |
| **Track 1: Engineering the Next Generation of MPS<br>Theme 1.7 Engineering Complex Multi-Cellular Systems** | | | |
| 101 | 223 | Matthias Gossmann | Modeling human cardiac complexity: 3D multicellular tissues and disease models for drug development |
| 103 | 224 | Bettina Lickiss | Ready-to-use human cardiac organoids for chronic contractility-based toxicity profiling of small molecules and biologics |
| 105 | 232 | Maitrayee Chatterjee | TIM-Cell: The most physiological intestinal permeability model |
| 107 | 250 | Connor Robinson | Biaxial Engineered Aortic Tissue on a Chip for the study of calcific aortic valve disease |
| 109 | 254 | Jae-Sung Ryu | Generation of cardiac organoids from human induced pluripotent stem cell (iPSCs) using a microphysiological systems (MPS) approach |
| 111 | 263 | Nozomu Koiwa | Development of cell culture microfluidic device to create locally distinct oxygen concentration |
| 113 | 291 | Dongwoo Oh | A kidney-on-a-chip model of distal epithelial-endothelial barrier for *in vitro* study of etoposide-induced cellular senescence |
| 115 | 315 | Gabriela Silva | Reusable microfluidic platform with cylindrical geometry for BBB-on-a-chip modelling |
| 117 | 318 | Chiara Diacci | Pharmacological validation of a novel BBB-on-chip platform for reliable and predictive *in vitro* drug screening |
| 119 | 330 | Anshul Bhide | An organ-on chip device for investigating the barrier function of human placenta |
| 121 | 355 | Lauren Perez | A highly reproducible and precise measurement platform for 3D engineered cardiac muscle tissue contractility |
| 123 | 362 | Nina Hobi | Advancing preclinical findings toward application with an inflamed infant colon-on-chip |
| 125 | 374 | Stephanie Pearson | Development and characterization of a human alveolus-on-a-chip for assessing viral infection and therapeutic efficacy |
| 127 | 379 | Scott Wood | Microfluidic osteoarthritis-on-a-chip: Modeling human joint inflammation |
| 129 | 382 | Vesna Chappell | Building complex *in vitro* human placenta systems at NIEHS |
| 131 | 386 | Sarah Lloyd | Development of complex *in vitro* models for evaluation of ADC-induced lung toxicity |
| 133 | 391 | Ravi Vaidyanathan | High-throughput assessment of barrier function using human iPSC-derived brain microvascular endothelial cells |
| 135 | 408 | Cassidie Reller | Microphysiological blood–brain barrier chip for screening surface ligands on liposomes for CNS delivery |
| 137 | 428 | Noriko Matsumoto | 3D and super-resolution imaging of intestine-liver model on HUMIMIC chip3 |
| 139 | 438 | Adrienne Vaughan | Physiologically-relevant human nasal airway-on-chip model for IL-13 asthmatic phenotype induction |
| 141 | 447 | Shayne Frebert | Bioprinting spatially guided functional 3D neural circuits with agarose-xanthan gum copolymer hydrogels |
| 143 | 449 | Adelina Rogowska-Wrzesinska | Long-term hepatic microphysiology in low-shear 3D cultures |
| 145 | 458 | Pai-Wen Wang | A co-culture microfluidic platform for studying LPS-induced early vascular-immune responses with neutrophil migration and chemotaxis |

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| 147 | 463 | Elizabeth Blaber | Understanding the impact of spaceflight on the brain-liver-gut-axis: Using novel tools to adapt multi-organ microphysiological systems to spaceflight conditions |
| 149 | 490 | Hao-Chien Kao | Development of a vascularized liver-on-a-chip platform for liver tissue engineering |
| 151 | 493 | Yifan Gao | An integrated benchmark of multi-lineage human brain organoid protocols |
| 153 | 498 | Sebastien Teissier | A novel injection-compatible microfluidic skin-on-chip platform supporting full-thickness human skin biopsies with hypodermis for dynamic compound tracking and multi-modal analysis |
| 155 | 513 | Evan Cirves | Functional coupling of bone marrow and skin microphysiological systems to model human extramedullary granulopoiesis |
| ~~157~~ | ~~520~~ | ~~Jason Spence~~ | ~~Development-guided assembly of innervated, vascularized iPSC-derived human intestinal organoids with *in vitro* peristaltic function~~ |
| 159 | 521 | Mila Rep | Responsible innovation and shaping research: A qualitative study of scientists' attitudes on the development of multi-organ-on-a-chip models for obesity |
| 161 | 526 | Sana Surrency | A 3D Peri-implant Epi-mucosa-on-a-chip as a functional platform to study host–bacteria–material interactions |
| 163 | 529 | Byengkyu Kang | Spatiotemporal control of multi-axis gastruloids patterning using microfluidic signaling gradient |
| 165 | 540 | Maria Fernanda Grisales | Development of a human IPSC-based neural microphysiological system to model Down syndrome |
| 167 | 553 | Pim De Haan | Physiological control of circulating steroid hormones in MPS using thermodynamic properties of plasma protein binding |
| 169 | 563 | Alican Ozkan | Human IBD complex *in vitro* model to evaluate monoclonal antibodies targeting immune cell trafficking |
| 171 | 587 | Brycelyn Whitman | Generation of human organoid liver microphysiological system (MPS) |
| 173 | 597 | Wei Chen | Integrated liver-thyroid *in vitro* system for predicting human-relevant thyroid disruptors |
| 175 | 615 | Andrew Antolic | Merging central and peripheral nervous system models into a unified functional hipsc-derived human-on-a-chip model |
| 177 | 618 | Meysam Chorsi | Multi-organoid MPS for iPSC-based radiation response modeling and inter-organ crosstalk |
| 179 | 620 | Meixuan Yang | Dengue virus infection in human iPSC-derived BBB-MPS induces antiviral responses while preserving barrier integrity |
| 181 | 634 | Donia Ahmed | Epithelial cell nascent matrix deposition contributes to early lung fibrosis |
| 183 | 645 | Kanchana K Pandian | Next generation microphysiological systems for human gut–liver axis modeling in preclinical drug testing |
| 185 | 661 | Samira Aghlara-Fotovat | A microvascularized endometriosis microphysiological system to probe Borrelia burgdorferi-driven gynepathology |
| 187 | 673 | Srikanya Kundu | 3D bioprinted human neural circuitry models with physiologically relevant functional assays for disease modeling and drug screening |
| 191 | 699 | Elizabeth Lipke | Developing engineered cardiac tissues exhibit composition and functional differences when exposed to thalidomide during hydrogel-supported hiPSC differentiation |
| 193 | 708 | Shilan Ma | The effect of probiotics on inflammatory bowel disease using a microfluidic device in an anaerobic environment |

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|---|---|---|---|
| 195 | 733 | Yuwen Zhao | Functional neural microenvironment to study neuronal connection dynamics |
| 197 | 755 | Juhee Kim | Development of an advanced microfluidic platform for engineering functional 3d skeletal muscle. |
| 199 | 759 | Yunji Lee | Physiologically relevant breathing lung models enabled by soap films-inspired ultrathin hydrogel membranes |
| 201 | 762 | V Amanda Fastiggi | Bioprinted vascular inflammation model |
| 203 | 763 | Angelica Phelan | Macrophage impact on cytokine response within a bioprinted arterial model |
| 205 | 764 | Mukunth Parthasarathy | Evaluating the impact of dimensionality on neuronal network activity and compound-response *in vitro* |
| 207 | 781 | Tom Harris-Brown | Opti-ox™ deterministic cell programming to enable the industrialisation of New Approach Methodologies |
| 209 | 786 | Júlia Vallverdú | Standardizing and automating high-throughput organoid culture and downstream applications with the mo:bot |
| 211 | 787 | Zhouquan Fu | Biofabrication of 3D printed artery-on-chip |
| 213 | 811 | Tets Nagamoto | PacinO plates: morphologically-relevant lung acinus organoids attaining high-throughput reproducibility and automated scalability, with straightforward observability and months-long durability |
| **Track 2: Modeling Human Biology with MPS<br>Theme 2.1 Modeling Developmental and Reproductive Biology** | | | |
| 215 | 28 | Nipun Jain | Engineering 3D bio-printed lung-on-a-dish platform to investigate pulmonary fibrosis |
| 217 | 31 | Amanda Lima | Development and validation of a thermoplastic intestine-on-a-chip enabling dynamic epithelial–endothelial co-culture and drug transport analysis |
| 219 | 48 | Soumyadip Kundu | Predicting gastrointestinal toxicity using the assay-ready, primary-derived OrganoReady® Colon Organoid model |
| 221 | 53 | Nikita Karra-Bhardwaj | Complex respiratory disease modelling and toxicity testing |
| 223 | 84 | Cristina Antich | A high-throughput three-dimensional bioprinted human placenta model recapitulating different stages of gestation as a novel predictive platform to study drug safety and pathological conditions during pregnancy |
| 225 | 719 | Breanne Kincaid | Pynapse-enabled synapse geometry analysis and functional electrophysiology identify developmental neurotoxicity of low-dose metals in human brain organoids |
| ~~227~~ | ~~740~~ | ~~Yen Diep~~ | ~~A placenta-brain microphysiological analysis platform (PB-MAP) for evaluation of neuropathogenesis in pre-eclampsia~~ |
| 229 | 771 | Tiffany Edwards | Novel 3D method to culture primary human placental cytotrophoblasts |
| 231 | 793 | Abigail Edwards | A microfluidic placenta-on-a-chip model for evaluating transplacental drug transport |
| **Track 2: Modeling Human Biology with MPS<br>Theme 2.2 Modeling Human Disease: Neurological and Neurodegenerative Disorders** | | | |
| 233 | 51 | Mubeen Goolam | Developing African origin neural rosette organoids as a genetically diverse preclinical model of neurological disease |
| 235 | 79 | Xueqi Tang | Modeling chemotherapy-induced peripheral neuropathy with hiPSC-derived sensory neuron and Schwann cell co-culture |
| 237 | 189 | Kévin Gillois | Development of a human iPSC-derived retinal microphysiological co-culture system for dry age-related macular degeneration |

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| 239 | 207 | Peter Hsi | Focused ultrasound-induced cavitation in a 3D *in vitro* human brain model recapitulates markers of blast traumatic brain injury |
| 241 | 277 | Shushant Jain | Evaluation of human induced pluripotent stem cell-derived tri-culture as *in vitro* model for Neurodegeneration and neuroinflammation |
| 243 | 328 | Daniel Bramham | Modelling neurodegeneration with 3D bio-printed ipsc-derived neural models |
| 245 | 329 | John Lamb | Advancing drug discovery and toxicology with human iPSC-derived 3D cardiac and brain microtissues |
| 247 | 331 | Cherry Gupta | Engineering a high-throughput human blood–nerve barrier-on-chip for NF1 therapeutic discovery |
| 249 | 367 | Heather Branscome | A human iPSC-derived neurosphere model for studying HIV-1 CNS infection and persistence |
| 251 | 369 | Kartik Balachandran | Design and validation of a novel blood-brain barrier-on-chip device for the study of low-magnitude traumatic brain injuries |
| 253 | 370 | Monika Rajput | A predictive *in vitro* 3D bioprinted vascularized tissue platform to study environmental toxicant-induced angiogenesis and vascular dysfunction |
| 255 | 378 | Christopher Fellin | A blood-brain-barrier model to study radiation exposure |
| 257 | 385 | Kaveena Autar | Utilizing a functional human-based central nervous system model for evaluating neurocognitive impairment and therapeutic efficacy |
| 259 | 403 | Shereen Chew | A human donor-matched iPSC-derived gut-liver-brain microphysiological system for studying interorgan crosstalk and modeling early Parkinson's disease |
| 261 | 406 | Noah Goshi | Cross-species comparison of viral infection responses in human and rodent complex neuronal cultures |
| 263 | 412 | Xiaobo Han | Developing of a MPS device for *in vitro* functional evaluation with compartmentalized cultured neural models on multiple MEA platforms |
| 265 | 418 | Kamilė Kasperavičiūtė | Chemical surface modification of porous polycarbonate membranes in two-channel microfluidic chips for enhanced cell adhesion |
| 267 | 435 | Maren Schenke | Sex and genetic background shape androgen responses in a human brain microphysiological system |
| 269 | 441 | Lauren Vetoulis | Development of a microfluidic model of the human brain-lymphatic-lymph node circuit for investigation of neurodegenerative pathogenesis |
| 271 | 446 | Margaret Magdesian | Patient-specific human neuromuscular junctions-on-a-chip for real-time, label-free profiling of NMJ responses to toxins and drug development |
| 273 | 450 | Jack Thornton | Establishment of an immunocompetent human neural organoid platform to investigate neurofibromatosis type 1-associated neuroimmune dysfunction |
| 275 | 451 | Akhmetzada Kargazhanov | Evaluating amyloid-induced neuromuscular pathology by utilizing a human iPSC-derived *in vitro* functional NMJ model |
| 277 | 471 | Zheyu Ruby Jin | *Ex vivo* modeling of preterm brain injury for high-throughput drug screening |
| 279 | 488 | Vasiliki Machairaki | Proteomic profiling of brain organoids and extracellular vesicles identifies early alzheimer’s biomarkers and predictors of drug response |
| 281 | 514 | Kaustubh Joshi | Human olfactory neurogenic organoids derived from induced pluripotent stem cells recapitulate the complete olfactory niche for disease modeling |
| 283 | 518 | Olivier Uwishema | A human neurovascular microphysiological system to model blood-brain barrier dysfunction under inflammatory conditions |

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|---|---|---|---|
| 285 | 531 | Cosmo Mitchell | A high-throughput neurovascular-unit-on-a-chip for ischemic stroke modeling and therapeutic screening |
| 287 | 541 | Belen Zylberman | Investigation of sensorimotor pathology in Alzheimer's disease with a human iPSC-derived microphysiological system |
| 289 | 559 | Alan Kim | Gene expression variance as a disease signature in neurological organoid models |
| 291 | 560 | Lixuan Ding | Midbrain-Striatum microphysiological system to model dopaminergic reward circuitry *in vitro* |
| 293 | 564 | Aditya Raghunandan | CirculationSiM: A new blood-brain barrier (BBB)-on-a-chip system to study the role of cerebrospinal fluid circulation in health and in neurodegeneration |
| 295 | 574 | Xiufang (Nadine) Guo | Investigation of bioenergic therapy for Amyotrophic lateral sclerosis and Alzheimer's disease in human functional microphysiological systems |
| 297 | 591 | Krysten Jones | An *in vitro* to *in vivo* extrapolation (IVIVE) for the detection of aberrant neuronal activity |
| 299 | 610 | Deepshikha Mitra | A functional human-on-a-chip model of autoimmune-mediated peripheral neuropathies |
| 301 | 612 | Shovan Naskar | Characterization of a functional brain-region-specific 3D neural spheroid model for high-throughput therapeutics screening |
| 303 | 639 | Vincent Truong | A functional human iPSC-derived DRG-dorsal horn neuron pain circuit model |
| 305 | 678 | Nicholas Coungeris | Integration of microglia into 3D CNS functional organoids for modeling Alzheimer's disease |
| 307 | 685 | Victoria Alstat | The advantages of CNS-3D organoids for functional neuromodulation studies |
| 309 | 695 | Anukriti Dey | Characterization of a human isogenic neurovascular unit on a chip for modeling blood-brain barrier transport and neuroinflammation |
| 311 | 696 | Randolph Ashton | RosetteArray® Platform: Off-the-shelf human developmental neurotoxicity screening and modeling of neurodevelopmental disorders |
| 313 | 697 | Andre Wimberly | A vascularized microfluidic gut–brain axis model demonstrates synergistic effects of alcohol and tbi-associated microbiome dysbiosis |
| 315 | 753 | Neal Lojek | Electrophysiological and neuroimmune phenotype characterization in an engineered 3D cortical tissue model to deep space-relevant doses of chronic gamma radiation |
| 317 | 795 | Antonella Di Bello | Functional characterization of L-Dopa responses in midbrain organoids using 3D HD-MEA technology |
| 319 | 796 | Jerry Skefos | Characterizing ACROBiosystems human iPSC-derived cerebral organoids using the BioCAM Duplex and CorePlate™ 38/60 |
| 321 | 801 | Krithika Shankar Iyer | Development of a novel serum free directed differentiation protocol for functional hiPSC-derived endothelial cells |
| 323 | 815 | Aliyah Penn | Using iPSC-derived brain organoids as a tool for precision medicine in rare neurodevelopmental diseases |
| **Track 2: Modeling Human Biology with MPS<br>Theme 2.3 Modeling Human Disease: Cancer** | | | |
| 325 | 63 | Shuai Shao | Quantifying the dual effect of anti-tumor and pro-tumor human neutrophils on natural killer cell behaviors in a microphysiological system |

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| 327 | 77 | Silvia Scaglione | Modeling the esophageal adenocarcinoma microenvironment under dynamic flow: A milli-fluidic multi-organ approach to study stromal crosstalk |
| 329 | 92 | Saumya Jaiswal | A brain tumor-on-chip model to mimic glioblastoma-induced blood-brain barrier dysfunction |
| 331 | 99 | Shota Koishi | Development of a pancreatic ductal adenocarcinoma model for evaluating the effects of dynamic ECM remodeling on drug efficacy |
| 333 | 118 | Seyoum Ayehunie | Use of patient-derived 3D tumoroids harboring diverse mutations to scaleup screening of therapeutic safety and efficacy of metastatic colorectal cancer |
| 335 | 125 | Moo-Yeal Lee | High-throughput 3D immune-tumor co-culture in a pillar/perfusion plate with dynamic immune perfusion for immunotherapy screening |
| 337 | 128 | Nathachit Limjunyawong | Establishment of a biobank of Thai patient-derived lung organoid as a model for studying lung cancer pathogenesis |
| 339 | 144 | Irene Mariam Jacob | Modeling the Blood Brain Barrier (BBB) using an organ-on-chip platform for therapeutic screening |
| 341 | 146 | Fahimeh Shahabipour | A bioprinted vascularized tumor tissue model of non-small cell lung cancer to screen for cancer drugs targeting the tumor microenvironment |
| 343 | 171 | Gatha Adhikari | Evaluation of ethyl cellulose–ethanol ablation in a human-scale microphysiological model of high-grade cervical dysplasia |
| 345 | 202 | Evren Oktem | Tissue-specific vascularized tumor microenvironment chips: Modeling angiogenesis in epithelial cancers |
| 347 | 217 | Paul Vulto | Development of organotypic patient-derived ovarian cancer model for therapy testing |
| 349 | 242 | Cristina Sanchez De Diego | Engineering human microphysiological systems to recapitulate bone, lymph node, and liver metastases in prostate cancer |
| 351 | 255 | Morgan Hamon | A workflow integrating multi-omics with patient-specific 3D cell models for interrogating precision medicine approaches in clinically-relevant timeframes |
| 353 | 266 | Tesi Liu | A novel pumpless microphysiological platform for long-term glioblastoma tissue slice culture towards personalized radiotherapy |
| 355 | 267 | Pavan Hallur | Extracellular matrix stiffness influences molecular profiles and chemoresponse in oral squamous cell carcinoma |
| 357 | 284 | Chung-Chung Hung | A vascularized microphysiological platform for angiogenesis assessment in colorectal cancer patient-derived tumor organoids and hepatic tumor spheroids |
| 359 | 290 | Volodymyr Kuzmenko | Development of *in vitro* 3D liver tissue model with bile duct network using LUMEN X DLP printer |
| 361 | 305 | Maurizio Aiello | A nutrient-responsive cancer-on-chip platform for translational testing of fasting-based therapies |
| 363 | 308 | Serge Roux | Neuron-as-a-Sensor (NaaS) methodology in compartmentalized MPS to model chemotherapy-induced peripheral neuropathy (CIPN) |
| 365 | 309 | Adriana Toma | Neuron-as-a-Sensor (NaaS) applications for *in vitro* monitoring of 3D tumor organoid treatment responses |
| 367 | 341 | Mandy Esch | A pumpless, recirculating microfluidic platform for investigating nanoparticle-modulated cancer transendothelial migration |
| 369 | 345 | Thomas Sommermann | A dynamic micro-vascularized organ-on-chip model of pancreatic cancer reveals T cell exclusion and modulation |

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| 371 | 356 | Orna Rabinovich Ernst | Hypoxia-focused 3D tumor models for target identification and translational drug development |
| 373 | 360 | Agnieszka Sadowska | Development of microphysiological systems for evaluating next-generation TCE and CAR-T therapies for solid tumors |
| 375 | 373 | Jane Miglo | It's not just a phase! Luteal influences on early events in ovarian cancer development |
| 377 | 388 | Chris Yankaskas | Standardizing tumor-on-chip Inputs with OncoPro™ Tumoroid Cell Lines |
| 379 | 389 | Tanysha Chi-Ying Chen | Modelling subtype-specific gastric cancer using patient-derived organoid (PDOs) in microphysiological systems |
| 381 | 397 | Twinkle Jina Minette Manoharan | A 3D glioblastoma tumor-on-a-chip for evaluating targeted biomimetic nanomedicine |
| 383 | 398 | Mehdi Nikkhah | A patient-derived brain-tumor-on-a-chip model to elucidate perivascular niche-driven glioblastoma heterogeneity |
| 385 | 424 | Ilva F. Souza | Evaluation of the behavior of MDA-MB-231 tumor spheroids mimicked in a microfluidic device with different collagen concentrations |
| 387 | 434 | Libardo A. Gonzalez-Torres | Mimicking the tumor microenvironment of triple-negative breast cancer using MDA-MB-231 spheroids in a microfluidic device |
| **Track 2: Modeling Human Biology with MPS<br>Theme 2.6 Modeling Host Pathogen and Microbiome Interactions** | | | |
| 389 | 151 | Naokata Kutsuzawa | Evaluation of the effects of gut microbiota on a cocultured intestinal model using a double-layered microfluidic chip (Fluid3D-X®) |