

# Advancing Manufacture of Cell and Gene Therapies VI

## Poster Presentations

November 21, 2018

### Advances in cell processing: New technologies for new therapies

1	<b>BIO regulates the <i>ex vivo</i> expansion and function of hematopoietic stem cells by inhibiting GSK-3<math>\beta</math></b> Qihao Sun (East China University of Science and Technology, China)
2	<b>Dynamic culture in shake flask improved <i>ex vivo</i> expansion of cytokine-induced killer cells by upregulating glucose consumption rate and utilization efficiency</b> Weiwei Zhang (East China University of Science and Technology, China)
3	<b>Single Use Disposable BioSettler removes the dead cells and cell debris selectively to increase the viability percentage of mammalian cells (e.g., CAR-T) during expansion</b> Dhinakar Kompala (Sudhin Biopharma Company, USA)
4	<b>Use of the nanobridge system for the rapid production of pluri-potent stem cells and neural progenitor cells</b> Peter P. Gray (AIBN, University of Queensland, Australia)
5	<b>Challenges and opportunities for closed processing in autologous CAR-T manufacturing</b> John Wesner (Juno Therapeutics, USA)
6	<b>Scalable generation of cerebellar neurons from pluripotent stem cells</b> Carlos Rodrigues (IST Lisbon, Portugal)
7	<b>Human pluripotent stem cell expansion in vertical-wheel bioreactors</b> Carlos Rodrigues (IST Lisbon, Portugal)
8	<b>Pancreas organoids for type I diabetes mellitus - Is it feasible as a cell therapy?</b> Bart van Dijk (Lonza, Netherlands)
9	<b>Defined osmolyte-based cryopreservation strategy for efficient processing of human iPS cells</b> Rui Li (University of Minnesota, USA)
10	<b>Establishment and evaluation of the suspension culture system for umbilical cord-derived mesenchymal stromal cells</b> Hikari Hasegawa (ROHTO Pharmaceutical Co., Japan)
11	<b>Scalable manufacturing of human mesenchymal stem/stromal cells and derived exosomes in the single-use, vertical-wheel bioreactor system using a human platelet lysate culture supplement</b> Ana M. Fernandes-Platzgummer (IST Lisbon, Portugal)
12	<b>Viable manufacture of cell therapies through the integration of multiple unit processes onto a counter-flow centrifugation device</b> Alexander S. Klarer (Hitachi Chemical Advanced Therapeutic Solutions, USA)
13	<b>A novel type of 2.5D microcarriers for culture in 3D platform and monitoring/observation in 2D platform</b> EunAh Lee (Kyung Hee University, South Korea)

14	<b>Process optimization and scale-up in the iCELLis® nano bioreactor system for production of an AAV2 viral vector using transient transfection</b> Terése L. Joseph (Pall Biotech, USA)
15	<b>Developing a novel microchannel emulsification device for diabetes cell therapy</b> Christina Bitar (McGill University, Canada)
16	<b>A scalable xeno-free microcarrier suspension bioreactor system for regenerative medicine biomanufacturing of hMSCs</b> Josephine Lembong (RoosterBio Inc., USA)
17	<b>"Smart" bioreactor culturing systems for cell therapy manufacturing</b> Erika McAfee (Lonza, USA)
18	<b>Cell therapy for bone defects using umbilical cord MSC-derived osteoblasts</b> Hyun Sook Park (CEFO, South Korea)
19	<b>Process development for increased MSC production in stirred tank bioreactors</b> Kara Levine (MilliporeSigma, USA)
20	<b>Further evaluation of a novel COP container system for the cryopreservation of adherent and suspension human cell types</b> Alexander Lyness (West Pharmaceutical Services, Inc., USA)
21	<b>Enabling stem cell based therapies: adaptable and scalable manufacturing of human pluripotent stem cells</b> Inbar Friedrich Ben-Nun (Lonza, USA)
22	<b>Maintaining CD4/CD8 ratio and Th1-CTL subsets of chimeric antigen receptor (CAR)-T cells in serum-free culture conditions</b> Hsin-Lin Lu (Development Center for Biotechnology, Taiwan)
23	<b>Scale-up study for ex-vivo expansion of allogeneic natural killer cells in stirred-tank bioreactor</b> Juyoung Kim (GreenCross LabCell, South Korea)
24	<b>A step closer to industrial scale manufacture of exosomes - Adaptation of clinical grade neural stem cells from 2D to 3D culture</b> Nicola Goddard (University College London, UK)
25	<b>In vitro high expansion of chimeric antigen receptor (CAR)-T cells in serum-free process conditions</b> Wei-Kuang Chi (Development Center for Biotechnology, Taiwan)
26	<b>Reducing variability in conditions for cell handling improves MSC yields</b> Alicia D. Henn (BioSpherix, USA)
27	<b>Impact of the dynamic culture system for 3D high cell density neural differentiation of hESC in electrospun PCL scaffolds</b> Veronique Chotteau (KTH, Sweden)
28	<b>Superior expansion of long-term hematopoietic stem cells using StemPro™ HSC medium kit</b> Navjot Kaur (Thermo Fisher Scientific, USA)
29	<b>An automated and closed system for patient specific CAR-T cell therapies</b> Joseph W. O'Connor (Lonza, USA)

30	<b>Stem cell bioprocessing: Culture challenges and future trends for regenerative medicine</b> Marco Rito-Palomares (Tecnológico de Monterrey, Mexico)
31	<b>Automated manufacturing for iPSC-derived retinal pigment epithelial cells</b> Masahiro Kino-oka (Osaka University, Japan)
32	<b>Translational requirements for manufactured dopaminergic neurons for the treatment of Parkinson's Disease</b> James Kusena (Loughborough University, UK)
33	<b>Isolation and expansion of human bone marrow-derived mesenchymal stem cells (hMSCs) directly on microcarriers in a stirred tank bioreactor</b> Christopher J. Hewitt (Aston University, UK)
34	<b>Mitigating the risks of adventitious agents in serum: Elimination or viral inactivation</b> Kelly A. O'Neill (Celgene, USA)

### Engineering challenges of in vivo gene therapy

35	<b>LentiPro stable producer cells: delivering scalable and reliable lentiviral vector manufacturing</b> Ana S. Coroadinha (IBET, Portugal)
36	<b>Therapeutic Genome Editing for Charcot-marie-tooth Disease Type 1a</b> Jae young Lee (ToolGen Inc., South Korea)
37	<b>Outsourcing AAV Development and Manufacturing: Lessons from Multiple Campaigns</b> Michael Xenelis (Voyager Therapeutics, USA)
38	<b>Intracellular delivery of mRNA to human primary T cells with microfluidic vortex shedding</b> Ryan Pawell (Indee Labs, USA)
39	<b>Engineering characterization of a versatile vertical-wheel bioreactor for cell and gene therapy</b> Matthew Croughan (Matthew S. Croughan Consulting Services, USA)
40	<b>A novel scalable manufacturing platform for T-cell activation and expansion in adoptive T-cell therapy</b> Jian Ling (Southwest Research Institute, USA)

### Gene-modification of cells for therapy

41	<b>A scalable and physiologically relevant system for human induced pluripotent stem cell expansion and differentiation</b> Yuguo Lei (University of Nebraska-Lincoln, USA)
42	<b>Towards an allogeneic therapy for neural regeneration</b> Rachael Wood (Aston University, UK)
43	<b>Engineering and manufacturing of probiotic E. Coli to treat metabolic disorder</b>

	Eugene Antipov (Synlogic, USA)
44	<b>CAR-T cell manufacturing: Fifteen years of academic driving</b> Isabelle Riviere (Memorial Sloan Kettering Cancer Center, USA)
45	<b>Development of a closed CAR-T manufacturing process</b> Steven Loo-Yong-Kee (CCRM, Canada)
46	<b>Leveraging bioprocess platform technology for the development of a robust, scalable, and economic manufacturing process of allogeneic CAR-T cell therapy products</b> Frank Jing (AdicetBio, USA)
47	<b>Characterization of CAR-T transduction parameters using a lentiviral vector</b> Stefanie Shahan (Celgene, USA)
48	<b>Platelet lysate boosts transgene levels and maintains undifferentiated T cell subtypes following lentiviral delivery to human primary T cells</b> Christina Dann (Cook Regentec, USA)
49	<b>New viral and non-viral platforms for T-cell engineering</b> Xavier J. de Mollerat de Jeu (Thermo Fisher Scientific, USA)

### Product characterization and analytics

50	<b>Xeno-free expansion of late-adherent human olfactory mucosa cells: Towards an allogeneic therapy for neural regeneration</b> Gerardo Santiago-Toledo (UCL, UK)
51	<b>Decoding human cardiac stem cells regenerative potential in acute myocardial infarction</b> Paula Marques Alves (IBET, Portugal)
52	<b>Advancing the knowledge on immunomodulatory properties of human cardiac stem cells</b> Paula Marques Alves (IBET, Portugal)
53	<b>Cryopreservation critical process parameters: Impact on post-thaw recovery of cellular product</b> Alireza Abazari (BioLife Solutions, USA)
54	<b>Optimized media and workflow for the expansion of human pluripotent stem cells as aggregates in suspension cultures</b> Eric Jervis (STEMCELL Technologies, Canada)
55	<b>Refining iPSC-based 3D neural cell models and characterization tools to address brain microenvironment-related diseases</b> Catarina Brito (IBET, Portugal)
56	<b>Development of feeder-free PSC culture system enabling translational &amp; clinical research</b> David Kuninger (Thermo Fisher Scientific, USA)

## Big data, analytics and control strategies

57	<b>Metabolite-based model predictive control of cell growth</b> Kathleen Van Beylen (KU Leuven, Belgium)
58	<b>Streamlining cell therapy manufacturing: automated production and integrated data management</b> Sébastien de Bournonville (KU Leuven, Belgium)
59	<b>Unified electronic traceability and data storage system</b> Matthew Marsh (Hitachi Chemical Advanced Therapeutic Solutions, USA)
60	<b>Application of Quality by Design tools to upstream processing of platelet precursor cells to enable in vitro manufacture of blood products</b> Elizabeth A. Cheeseman (Loughborough University, UK)
61	<b>Dielectric spectroscopy monitoring of a bioreactor process for hiPSC expansion and differentiation</b> Ines A. Isidro (IBET, Portugal)

## Bioprocess modelling

62	<b>Scaling up and industrialization the production and purification of viral vectors for therapeutic use: Challenges and progress</b> Rachel Legmann (Pall, USA)
63	<b>Updating lentiviral vector bioprocessing to accommodate biological and technological advances: Modelling the impact on workflow and suite designs</b> Fernanda Masri (Sartorius Stedim, UK)
64	<b>Continuous platform of virus production for gene therapy applications</b> Seongkyu Yoon (UMass Lowell, USA)
65	<b>Determining the role of lactate in induced pluripotent stem cell metabolism</b> Daniel Odenwelder (Clemson University, USA)
66	<b>Computational fluid dynamics (CFD) modeling of single-use, vertical-wheel bioreactors as a predictive scale-up tool for large scale stem cell culture</b> Breanna Borys (University of Calgary, Canada)
67	<b>A cost/quality analysis of primary human T-Cells in different expansion systems</b> Marco C. Rotondi (UCL, UK)
68	<b>High shear stress from a resonance phenomenon in Wave bioreactor revealed by computational fluid dynamics simulation</b> Veronique Chotteau (KHT, Sweden)
69	<b>Defining cell culture dynamics in response to growth factor provision for efficient optimization of cell based therapies</b> Katie E. Glen (Loughborough University, UK)
70	<b>Development of media production processes for CAR-T therapies</b> Ryan C. Glussi (Celgene, USA)
71	<b>Economics of lentiviral vector processes</b> Ruxandra-Maria Comisel (UCL, UK)

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## Revolutionizing/Delivering the pipelines

<b>72</b>	<b>CMC strategy for AAV gene therapies in the age of RMAT designation</b> Rajiv Gangurde (Voyager Therapeutics, USA)
<b>73</b>	<b>CAR T-cell therapies: The concept of a dynamic supply chain</b> Maria Papathanasiou (Imperial College London, UK)
<b>74</b>	<b>Advancing the robust manufacture of T-cell therapies through the application of stirred tank bioreactors</b> Alexander S. Klarer (Hitachi Chemical Advanced Therapeutic Solutions, USA)
<b>75</b>	<b>Automated filtration screening of lentiviral vectors with multiple envelope proteins</b> Christopher Perry (UCL, UK)
<b>76</b>	<b>Addressing the challenges of controlled, scalable, and affordable manufacture of Psc-derived allogeneic therapies</b> Ricardo Baptista (Cell & Gene Therapy Catapult, UK)
<b>77</b>	<b>Producer cell line engineering for large volume manufacturing of therapeutic AAV</b> Jennifer Baerenwald (Biogen, USA)
<b>78</b>	<b>Volume reduction, cell washing and affinity cell selection using multi-dimensional acoustic standing wave technology</b> Bart Lipkens (FloDesign Sonics, USA)