Advancing Manufacture of Cell and Gene Therapies VI

Poster Presentations

December 26, 2018

Advances in cell processing: New technologies for new therapies

1. **BIO regulates the *ex vivo* expansion and function of hematopoietic stem cells by inhibiting GSK-3β**
   Qihao Sun (East China University of Science and Technology, China)

2. **Dynamic culture in shake flask improved *ex vivo* expansion of cytokine-induced killer cells by upregulating glucose consumption rate and utilization efficiency**
   Weiwei Zhang (East China University of Science and Technology, China)

3. **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**
   Dhinakar Kompala (Sudhin Biopharma Company, USA)

4. **Use of the nanobridge system for the rapid production of pluipotent stem cells and neural progenitor cells**
   Peter P. Gray (AIBN, University of Queensland, Australia)

5. **Challenges and opportunities for closed processing in autologous CAR-T manufacturing**
   John Wesner (Juno Therapeutics, USA)

6. **Scalable generation of cerebellar neurons from pluripotent stem cells**
   Carlos Rodrigues (IST Lisbon, Portugal)

7. **Human pluripotent stem cell expansion in vertical-wheel bioreactors**
   Carlos Rodrigues (IST Lisbon, Portugal)

8. **Pancreas organoids for type I diabetes mellitus - Is it feasible as a cell therapy?**
   Bart van Dijk (Lonza, Netherlands)

9. **Establishment and evaluation of the suspension culture system for umbilical cord-derived mesenchymal stromal cells**
   Hikari Hasegawa (ROHTO Pharmaceutical Co., Japan)

10. **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**
    Ana M. Fernandes-Platzgummer (IST Lisbon, Portugal)

11. **Viable manufacture of cell therapies through the integration of multiple unit processes onto a counter-flow centrifugation device**
    Alexander S. Klarer (Hitachi Chemical Advanced Therapeutic Solutions, USA)

12. **A novel type of 2.5D microcarriers for culture in 3D platform and monitoring/observation in 2D platform**
    EunAh Lee (Kyung Hee University, South Korea)

13. **Process optimization and scale-up in the iCELLis® nano bioreactor system for production of an AAV2 viral vector using transient transfection**
    Terése L. Joseph (Pall Biotech, USA)

14. **Developing a novel microchannel emulsification device for diabetes cell therapy**
    Christina Bitar (McGill University, Canada)

15. **A scalable xeno-free microcarrier suspension bioreactor system for regenerative medicine biomanufacturing of hMSCs**
    Josephine Lembong (RoosterBio Inc., USA)

16. **"Smart" bioreactor culturing systems for cell therapy manufacturing**
    Erika McAfee (Lonza, USA)

17. **Cell therapy for bone defects using umbilical cord MSC-derived osteoblasts**
    Hyun Sook Park (CEFO, South Korea)

18. **Process development for increased MSC production in stirred tank bioreactors**
    Kara Levine (MilliporeSigma, USA)

19. **Further evaluation of a novel COP container system for the cryopreservation of adherent and suspension human cell types**
    Alexander Lyness (West Pharmaceutical Services, Inc., USA)

20. **Enabling stem cell based therapies: Adaptable and scalable manufacturing of human pluripotent stem cells**
    Haritha Vallabhaneni (Lonza, USA)

21. **Maintaining CD4/CD8 ratio and Th1-CTL subsets of chimeric antigen receptor (CAR)-T cells in serum-free culture conditions**
    Hsin-Lin Lu (Development Center for Biotechnology, Taiwan)

22. **Scale-up study for *ex-vivo* expansion of allogeneic natural killer cells in stirred-tank bioreactor**
    Juyoung Kim (GreenCross LabCell, South Korea)

23. **A step closer to industrial scale manufacture of exosomes - Adaptation of clinical grade neural stem cells from 2D to 3D culture**
    Nicola Goddard (University College London, UK)

24. ***In vitro* high expansion of chimeric antigen receptor (CAR)-T cells in serum-free process conditions**
    Wei-Kuang Chi (Development Center for Biotechnology, Taiwan)

25. **Reducing variability in conditions for cell handling improves MSC yields**
    Ken Rando (BioSpherix, USA)

26. **Impact of the dynamic culture system for 3D high cell density neural differentiation of hESC in electrospun PCL scaffolds**
    Veronique Chotteau (KTH, Sweden)

27. **Superior expansion of long-term hematopoietic stem cells using StemPro™ HSC medium kit**
    Chad MacArthur (Thermo Fisher Scientific, USA)

28. **An automated and closed system for patient specific CAR-T cell therapies**
    Joseph W. O'Connor (Lonza, USA)

29. **Automated manufacturing for iPSC-derived retinal pigment epithelial cells**
    Masahiro Kino-oka (Osaka University, Japan)

30. **Translational requirements for manufactured dopaminergic neurons for the treatment of Parkinson's Disease**
    James Kusena (Loughborough University, UK)

31. **Isolation and expansion of human bone marrow-derived mesenchymal stem cells (hMSCs) directly on microcarriers in a stirred tank bioreactor**
    Christopher J. Hewitt (Aston University, UK)

32. **Mitigating the risks of adventitious agents in serum: Elimination or viral inactivation**
    Kelly A. O'Neill (Celgene, USA)

Engineering challenges of in vivo gene therapy

33. **LentiPro stable producer cells: Delivering scalable and reliable lentiviral vector manufacturing**
    Manuel Carrondo (IBET, Portugal)

34. **Therapeutic genome editing for Charcot-marie-tooth disease type 1a**
    Jae young Lee (ToolGen Inc., South Korea)

35. **Outsourcing AAV development and manufacturing: Lessons from multiple campaigns**
    Michael Xenelis (Voyager Therapeutics, USA)

36. **Intracellular delivery of mRNA to human primary T cells with microfluidic vortex shedding**
    Ryan Pawell (Indee Labs, USA)

37. **Engineering characterization of a versatile vertical-wheel bioreactor for cell and gene therapy**
    Matthew Croughan (Matthew S. Croughan Consulting Services, USA)

38. **A novel scalable manufacturing platform for T-cell activation and expansion in adoptive T-cell therapy**
    Jian Ling (Southwest Research Institute, USA)

Gene-modification of cells for therapy

39. **A scalable and physiologically relevant system for human induced pluripotent stem cell expansion and differentiation**
    Yuguo Lei (University of Nebraska-Lincoln, USA)

40. **Towards an allogeneic therapy for neural regeneration**
    Rachael Wood (Aston University, UK)

41. **Engineering and manufacturing of probiotic E. Coli to treat metabolic disorder**
    Eugene Antipov (Synlogic, USA)

42. **Development of a closed CAR-T manufacturing process**
    Steven Loo-Yong-Kee (CCRM, Canada)

43. **Leveraging bioprocess platform technology for the development of a robust, scalable, and economic manufacturing process of allogeneic CAR-T cell therapy products**
    Bernadette Dahlin (AdicetBio, USA)

44. **Characterization of CAR-T transduction parameters using a lentiviral vector**
    Stefanie Shahan (Celgene, USA)

45. **Platelet lysate boosts transgene levels and maintains undifferentiated T cell subtypes following lentiviral delivery to human primary T cells**
Christina Dann (Cook Regentec, USA)

46. **New viral and non-viral platforms for T-cell engineering**
Xavier J. de Mollerat de Jeu (Thermo Fisher Scientific, USA)

Product characterization and analytics

47. **Xeno-free expansion of late-adherent human olfactory mucosa cells: Towards an allogeneic therapy for neural regeneration**
Gerardo Santiago-Toledo (UCL, UK)

48. **Decoding human cardiac stem cells regenerative potential in acute myocardial infarction**
Margarida Serra (IBET, Portugal)

49. **Advancing the knowledge on immunomodulatory properties of human cardiac stem cells**
Margarida Serra (IBET, Portugal)

50. **Cryopreservation critical process parameters: Impact on post-thaw recovery of cellular product**
Alireza Abazari (BioLife Solutions, USA)

51. **Optimized media and workflow for the expansion of human pluripotent stem cells as aggregates in suspension cultures**
Eric Jervis (STEMCELL Technologies, Canada)

52. **Refining iPSC-based 3D neural cell models and characterization tools to address brain microenvironment-related diseases**
Margarida Serra (IBET, Portugal)

53. **Development of feeder-free PSC culture system enabling translational & clinical research**
David Kuninger (Thermo Fisher Scientific, USA)

Big data, analytics and control strategies

54. **Metabolite-based model predictive control of cell growth**
Kathleen Van Beylen (KU Leuven, Belgium)

55. **Streamlining cell therapy manufacturing: Automated production and integrated data management**
Sébastien de Bournonville (KU Leuven, Belgium)

56. **Unified electronic traceability and data storage system**
Matthew Marsh (Hitachi Chemical Advanced Therapeutic Solutions, USA)

57. **Application of quality by design tools to upstream processing of platelet precursor cells to enable *in vitro* manufacture of blood products**
Elizabeth A. Cheeseman (Loughborough University, UK)

58. **Dielectric spectroscopy monitoring of a bioreactor process for hiPSC expansion and differentiation**
Pedro Vicente (IBET, Portugal)

Bioprocess modelling

59. **Scaling up and industrialization the production and purification of viral vectors for therapeutic use: Challenges and progress**
Rachel Legmann (Pall, USA)

60. **Optimization of HEK293T suspension cultivation with a DoE-approach in ambr®15 microbioreactor**
Franziska Bollmann (Sartorius Stedim Biotech GmbH, Germany)

61. **Continuous platform of virus production for gene therapy applications**
Seongkyu Yoon (UMass Lowell, USA)

62. **Determining the role of lactate in induced pluripotent stem cell metabolism**
Daniel Odenwelder (Clemson University, USA)

63. **Computational fluid dynamics (CFD) modeling of single-use, vertical-wheel bioreactors as a predictive scale-up tool for large scale stem cell culture**
Breanna Borys (University of Calgary, Canada)

64. **A cost/quality analysis of primary human T-Cells in different expansion systems**
Marco C. Rotondi (UCL, UK)

65. **High shear stress from a resonance phenomenon in Wave bioreactor revealed by computational fluid dynamics simulation**
Veronique Chotteau (KHT, Sweden)

66. **Defining cell culture dynamics in response to growth factor provision for efficient optimization of cell based therapies**
Katie E. Glen (Loughborough University, UK)

67. **Development of media production processes for CAR-T therapies**
Ryan C. Glussi (Celgene, USA)

68. **Economics of lentiviral vector processes**
Ruxandra-Maria Comisel (UCL, UK)

Revolutionizing/Delivering the pipelines

69. **CMC strategy for AAV gene therapies in the age of RMAT designation**
Rajiv Gangurde (Voyager Therapeutics, USA)

70. **CAR T-cell therapies: The concept of a dynamic supply chain**
Maria Papathanasiou (Imperial College London, UK)

71. **Advancing the robust manufacture of T-cell therapies through the application of stirred tank bioreactors**
Alexander S. Klarer (Hitachi Chemical Advanced Therapeutic Solutions, USA)

72. **Automated filtration screening of lentiviral vectors with multiple envelope proteins**
    Christopher Perry (UCL, UK)

73. **Producer cell line engineering for large volume manufacturing of therapeutic AAV**
    Jennifer Baerenwald (Biogen, USA)

74. **Volume reduction, cell washing and affinity cell selection using multi-dimensional acoustic standing wave technology**
    Bart Lipkens (FloDesign Sonics, USA)