Final Program

Cell Culture Engineering IX

March 7-12, 2004

Paradisus Riviera Maya Cancún
Cancún, México

Conference Co-Chairs:

Octavio T. Ramírez
Universidad Nacional Autónoma de México

Lynne Krummen
Genentech, Inc.

ECI

Engineering Conferences International
6 MetroTech Center
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Awards

Merck & Co., Inc., an organization with over 40 years’ history in the field of biologicals production from cell culture, has agreed to establish awards to be given at the Cell Culture Engineering conference series.

The Merck Award for Cell Culture Engineering
To be given in honor of contributions to the field, and significant service and dedication to the profession. The inaugural award for Cell Culture Engineering VIII was presented to Professor Wei-Shou Hu, University of Minnesota.

The Merck Award for Best Poster
To be given to the poster which best satisfies the judges’ criteria for impact and relevance, scientific approach and methodology, and quality of presentation.

The Merck Award for Best Student Poster
To be given to the student poster that best satisfies the judges’ criteria for impact and relevance, scientific approach and methodology, and quality of presentation.

The awards will be presented at the Conference banquet
Sunday, March 7, 2004

10:00 – 17:00 Tutorial (separate registration)
Applications of Biochemical Engineering Principles to Cell Culture Process Development
Jeff Chalmers, Ohio State University, USA
Lars Nielsen, University of Queensland, Australia

14:00 – 19:00 Registration

18:00 – 18:30 Welcome
Conferences Chairs: Octavio T. Ramírez and Lynne Krummen
ECI Technical Liaison: Allen Laskin

18:30 – 19:30 KEYNOTE
Cell Proliferation and Apoptosis in Cancer: Going from in vitro to in vivo
Gerard I. Evan
Cancer Research Institute, University of California-San Francisco, USA

19:30 – 21:00 Dinner followed by Welcome Reception in Paradisu at Market Place (with Mariachis)

21:00 – Social hour at the Lobby bar
**Monday, March 8, 2004**

07:00 – 08:30 Breakfast (Market Place or Capri)

08:30 – 10:30 **SESSION 1: Post-translational Processing and Product Quality**  
Session Chairs: Mike Butler, University of Manitoba, Canada  
Theresa A. Good, University of Maryland Baltimore County, USA

08:30 – 09:15 **The Influence of Glycosylation on the Structure and Function of Human Antibody Molecules**  
Roy Jefferis, Yusuke Mimura, John Lund, Margaret Goodall, University of Birmingham, UK

09:15 – 09:40 **Optimizing Biotherapeutics for Improved Yields, Stability and Clinical Development.**  
Scott K. Wooden, Applied Molecular Evolution. USA

09:40 – 10:05 **Effect of Increased Levels of Protein Disulfide Isomerase and BIP/GRP78 on Human Antibody Production in Recombinant CHO Cells**  
Nicole Borth, Diethard Mattanovich, Renate Kunert, Hermann Katinger, Institute for Applied Microbiology, University of Applied Life Sciences, Austria

10:05 – 10:30 **Identification and Characterization of Antibody Cleavage and Deamidation in CHO cultures**  
Xuejun (Sherry) Gu, Theresa Zawistowski, Andy Rusiniak, Eli Lilly, USA

10:30 – 11:00 Coffee Break

11:00 – 12:30 **SESSION 2: Cell Physiology and Metabolism**  
Session Chairs: Dana C. Andersen, Genentech, Inc., USA  
Lena Häggström, Royal Institute of Technology, Stockholm, Sweden

11:00 – 11:36 **ER Stress Signaling Due to Over Accumulation of Proteins: Significance for Large Scale Protein Production**  
Renata E. Cudna, Idsada Lengwehasatit, Alan Dickson, University of Manchester, UK

11:36 – 11:54 **The Use of Long™ R3IGF-I for the Maintenance of CHO Cells in Serum-Free Production Media: The Role of Intracellular, Anti-Apoptotic Signalling Molecules.**  
Tony Simula, C. A. Yandell, I. P. Butler, Lawson J., B. Wade, GroPep Limited, Australia
11:54 – 12:12  Enhanced Human Thrombopoietin Production by Sodium Butyrate Addition to Serum-Free Suspension Culture of Apoptosis-Resistant CHO Cells  
Gyun Min Lee, Yun Hee Sung, KAIST, Korea

12:12 – 12:30  Pausing of CHO Cells  
Florian Wurm, Lisa Hunt, David Hacker, Martin Jordan, Maria De Jesus, Swiss Federal Institute of Technology Lausanne, Switzerland.

12:30 – 14:30  POSTER SESSION I - With Grazing Lunch  
Poster Chairs: Ilse Blumentals, Merck & Co., USA  
Georg Schmid, Hoffman-LaRoche, Switzerland  
Robert Balcarcel, Vanderbilt University, USA  
Takeshi Omasa, Osaka University, Japan

14:30 – 15:15  Ad hoc sessions, relaxation, recreation

15:15 – 17:15  WORKSHOPS I (three simultaneous workshops)  
General Workshop Coordinator: Dhinakar S. Kompala, University of Colorado  
Workshop Chairs: Sally Seaver, Seaver & Associates  
Carole Heath, Amgen, USA  
Invited Panelist: Emily Shacter, FDA, USA

B. Strategies and Systems for High Throughput Expression and Screening  
Workshop Chairs: Florian M. Wurm, Swiss Federal Institute of Technology, Switzerland  
Dawn R. Applegate, Applegate and Associates, Inc., USA

C. Scale-down Modeling of Mab and r-Protein Manufacturing Processes for Approval and Post-Market Process Changes  
Workshop Chairs: Robert Kiss, Abgenix; Craig Zupke, Amgen, USA

17:15 - 17:45  Coffee Break

17:45 – 19:15  SESSION 3: Genomic and Proteomics for Product Discovery and Process Development  
Session Chairs: David C. James, University of Queensland, Australia  
Gyun Min Lee, KAIST, Korea

17:45 – 18:08  DNA-Array Based Transcriptional Analysis of Cell-Culture Parameter Effects on Ex Vivo Expanded T Cells  
Terry Papoutsakis, Dirk Windgassen, Northwestern University, USA  
Hadar Adams, Amgen Corporation, USA  
Christopher G Ramsborg, Carlos J Paredes, Northwestern University, USA
18:08 – 18:31  Comparative Proteomic Analysis of GS-NSO Murine Myeloma Cell Lines with Varying Specific Monclonal Antibody Production  
C. Mark Smales, Daniel E. Alete, Elizabeth A. Sage, University of Kent, UK  
John R. Birch, Andrew J. Racher, Lonza Biologics, UK  
Carol T. Marshall, GlaxoSmithKline, UK  
Diane M. Dinnis, Scott H. Stansfield, David C. James, University of Queensland, Australia

18:31 – 18:53  Gene Discovery in Chinese Hamster Ovary Cells by EST Sequencing, Microarray, and a Comparative Sequence Database  
Katie F. Wlaschin, University of Minnesota, USA  
Anette Rink, University of Nevada, Reno, USA  
Peter Morin Nissom, Miranda Yap, Bioprocessing Technology Centre, A*STAR, Singapore  
Wei-Shou Hu, University of Minnesota, USA

18:53 – 19:15  Improving CHO Transgene Expression and Vector Design Through the Use of DNA Oligo Microarrays  
Mark Melville, Kevin McCarthy, Robin Heller-Harrison, Louane Hann  
Wyeth BioPharma, USA

19:15 – 20:15  SPECIAL KEYNOTE on PREHISPANIC MEXICO  
Maya-Central Mexican Relations: Interdisciplinary Approaches  
Linda Manzanilla  
Universidad Nacional Autónoma de México, Mexico

20:15 – 22:00  Dine around through any of the six hotel restaurants

22:00 – 23:00  Social Hour with light entertainment
Tuesday, March 9, 2004

07:00 – 08:30 Breakfast (Market Place or Capri)

08:30 – 10:30 SESSION 4: Cell Engineering
Session Chairs: Michael J. Betenbaugh, Johns Hopkins University, USA
Pranhitha Reddy, Amgen, USA

08:30 – 09:20 Specificity of Transcriptional Regulation through Chromatin
Beverly M. Emerson, Salk Institute for Biological Studies

09:20 – 09:40 Conditional Transdifferentiation Engineering Enables Precise Adipocyte-Monocyte-Osteoblast Lineage Control in Multipotent Cells
Martin Fussenegger, Cornelia Fux, Wilfried Weber, Beat P. Kramer
ETH Institute of Biotechnology, Switzerland

09:40 – 10:10 Biochemical Engineering of Cell Surface Sialic Acid
Rudiger Horstkorte, Werner Reutter
Charite - Universitaetsmedizin, Germany

10:10 – 10:30 Identifying and Manipulating Cellular Pathways and Processes to Improve Culture Performance
Dana C. Andersen, Genentech, Inc. USA

10:30 – 11:00 Coffee Break

11:00 – 12:00 KEYNOTE
Epigenetic Gene Regulation by Small RNAs in Mammalian Cells
Thomas Tuschl
Rockefeller University, USA

12:00 – 14:00 POSTER SESSION I – With Grazing Lunch
Poster Chairs:
Ilse Blumentals, Merck & Co., USA
Georg Schmid, Hoffman-LaRoche, Switzerland
Robert Balcarcel, Vanderbilt University, USA
Takeshi Omasa, Osaka University, Japan

14:15 EXCURSION: BUS LEAVES FOR TULUM AND XCARET
Dinner

For those not going on the excursion, dinner will be at the hotel
Wednesday, March 10, 2004

07:00 – 08:30  Breakfast (Market Place or Capri)

08:30 – 10:30  **SESSION 5: Process Development and Integration into Large-Scale Cell Culture**
   Session Chairs: Thomas Ryll, Tanox, USA
   Limin Qu, Protein Design Laboratories, USA

08:30 – 08:54  **The Integration of a Predictive Small-Scale Process Model into a Program Directed at Seamless Tech Transfer, Process Variability Reduction, and Long-Term Process Optimization**
   Jesse Bergevin, Genentech, USA

08:54 – 09:18  **Improving the Production Process for Enbrel® Post Approval**
   Carole Heath, Amgen Inc. USA.

09:18 – 09:42  **Challenges and Opportunities for High Density Perfusion Cultures**
   Sadettin S. Ozturk, Centocor Inc., USA.

09:42 – 10:06  **Process Transfer, Scale-Up, and Comparability for a Co-Developed Therapeutic Antibody**
   Robert Kiss, Abgenix, Inc.
   Carole Heath, Amgen, Inc. USA.

10:06 – 10:30  **Myeloma Cells for Recombinant Human IgG4 Production - Influence of Metabolic Selectable Marker and Scale-Up Strategy**
   Ray Field, Cambridge Antibody Technology, UK

10:30 – 11:00  Coffee Break

11:00 – 12:30  **SESSION 6: Process Monitoring and Control**
   Session Chairs: Konstantin Konstantinov, Bayer Corporation, USA
   Jurgen Lehman, Bielefeld University, Germany

11:00 – 11:30  **Sensor-Based Robotics: Current State of Research, Deployment in Various Sectors of Industry and Potential for Service Robot Applications in Biotechnology**
   Alois Knoll, Technical University of Munich, Germany

11:30 – 11:50  **Monitoring Cell Concentration and Control of Cellular Environment in an Acoustic Filter for Perfusion Culture**
   James M. Piret, Volker M. Gorenflo, Joachim Ritter, Vincent Chow, Hans Drouin, Bruce D. Bowen, Department of Chemical and Biological Engineering, University of British Columbia, Canada
11:50 – 12:10 **Novel Optical Sensors for High Throughput Culture**  
*Govind Rao, Yordan Kostov, Leah Tolosa, Xudong Ge, Peter Harms, Mita Das, University of Maryland-BC, USA*

12:10 – 12:30 **Advancement of Process Monitoring/Control Technologies in High Cell Density Perfusion Culture - Total Automation**  
*Chun Zhang, Konstantin Konstantinov, Klaus Joeris, Chetan Goudar, Cary Matanguihan, Rudiger Heidermann, John Thrift, Mark Burnett, Bayer Corporation, USA  
Jürgen Lehman, Bielefeld University  
Alois Knoll, Technical University of Munich, Germany  
Thomas Scheper, University of Hannover, Germany*

12:30 – 14:30 **POSTER SESSION II - With Grazing Lunch**  
Poster Chairs:  
Ilse Blumentals, Merck & Co., USA  
Georg Schmid, Hoffman-LaRoche, Switzerland  
Robert Balcarcel, Vanderbilt University, USA  
Takeshi Omasa, Osaka University, Japan

14:30 – 16:45 Ad hoc sessions, relaxation, recreation

16:45 – 18:45 **WORKSHOPS II** (three simultaneous workshops)  
*General Workshop Coordinator: Dhinakar S. Kompala, University of Colorado*

**D. Non-pharmaceutical Applications of Animal Cell Culture**  
Workshop Chairs: Steven Reid, University of Queensland, Australia  
Mark Powers, Cambrex Bio Sciences, USA

**E. The Advent of Biogenerics: Implications for the Cell Culture Field**  
Workshop Chairs: Ana Maria Moro, Instituto Butantan, Brazil  
Reed Harris, Genentech, USA  
Invited Panelist: K.S.N. Prasad, Shanta Biotechniques Pty, Ltd. India

**F. New Strategies for Developing Cell Lines with High Specific Productivity and Good Process Performance**  
Workshop Chairs: Noelle Sunstrom, Acyte Biotec Pty. Ltd., Australia  
Mohamed Al-Rubeai, University of Birmingham, UK

18:45 - 19:15 Coffee Break

19:15 – 20:15 **SPECIAL MERCK AWARD 2002 KEYNOTE LECTURE**  
*Cell Culture Engineering- A Look to the Future*  
Weih-Shou Hu  
University of Minnesota

20:15 Dine around through any of the six hotel restaurants
Thursday, March 11, 2004

07:00 – 08:30 Breakfast (Market Place or Capri)

08:30 – 10:30 **SESSION 7: Viral Vectors for Gene Therapy and Vaccination**
Session Chairs: William Miller, Northwestern University, USA
Amine Kamen, Biotechnology Research Institute, Canada

08:30 – 09:15 **Gene Therapy: The Next Two Decades**
Inder Verma, The Salk Institute, USA

09:15 – 09:50 **HIV-1 Assembly and Release**
Eric O. Freed, HIV Drug Resistance Program, NCI-Frederick, USA

09:50 – 10:10 **Adaptation of the Wave Bioreactor to Baculoviral Production of AAV Vectors: Scale-Up Considerations**
Haifeng Chen, Shangzhen Zhou, Glenn P. Pierce, Peter Colosi, Avigen Inc., USA

10:10 – 10:30 **Manufacturing of Adenovirus Type 2 Gene Therapy Vectors at the 30 L Scale**
Jesse Keegan, Lois E.E. Horton, Donald R. Dineen, David McNeilly, Simon Godwin and Christopher K. Murphy, Genzyme Corporation, USA

10:30 – 11:00 Coffee Break

11:00 – 12:45 **SESSION 8: Microscale Tissue Engineering and Development of Biological Micro-electromechanical Systems**
Session Chairs: William Bentley, University Maryland, USA
Paul Gourley, Sandia National Laboratories, USA

11:00 – 11:15 **Overview of Biological Micro-Electromechanical Systems**
Paul Gourley, Sandia National Laboratories, USA

11:15 – 11:45 **Biological Large Scale Integration**
Stephen Quake, California Institute of Technology, USA

11:45 – 12:15 **Microdefining Cellular Habitats for Cell-based Analysis and Tissue Engineering**
Tejal Desai, Boston University, USA

12:15 – 12:45 **“Animal-on-a-Chip”: Predictive Pharmacology Using Cell Culture and Microfabrication**
Michael Shuler, Cornell University, USA
12:45 – 14:35  **POSTER SESSION II - With Grazing Lunch**
Poster Chairs:
Ilse Blumentals, Merck & Co., USA
Georg Schmid, Hoffman-LaRoche, Switzerland
Robert Balcarcel, Vanderbilt University, USA
Takeshi Omasa, Osaka University, Japan

14:45 – 16:45  Ad hoc sessions/relaxation/recreation

16:45 – 18:45  **SESSION 9: Stem Cell and Tissue Engineering**
Session Chairs: James Piret, University of British Columbia, Canada
Anthony Ratcliffe, Synthasome, USA

16:45 – 17:18  **Stem Cells, Biomaterials, and Musculoskeletal Tissue Engineering**
Jennifer H. Elisseff, Myoung Soo Kim, Christopher Williams, Michael Shamblott, and John Gearhart, Johns Hopkins U., USA

17:18 – 17:51  **Cell Therapy for Diabetes**
Fred Levine, University of California San Diego, Cancer Center, USA

17:51 – 18:24  **Stem Cell-Based Tissue Engineering: Cell Culture and Delivery Applications**
Frank Barry, Osiris, USA

18:24 – 18:45  **Cell Culture in 3-D**
Lars Keld Nielsen, Nicholas Timmins, The University of Queensland, Australia

18:45 - 19:15  Coffee Break

19:15 – 20:15  **KEYNOTE**
Clinical Applications of Stem Cells (embryonic stem cells and central nervous system)
Ronald McKay
National Institutes of Health, USA

20:15 – 22:00  Banquet at the Theater

22:00 – 23:00  Social Hour
07:00 - 08:30  Breakfast (Market Place or Capri)

08:30 – 10:30  **SESSION 10: New Technology in Expression Systems and Cell Line Development**  
Session Chairs: Daniel Allison, ICOS Corp., USA  
Richard Barnett, Biogen IDEC, USA

08:30 – 09:00  **Development of Efficient Transfection Microarray (TMA) and its Applications**  
Tomohiro Yoshikawa, Masato Miyake, Jun Miyake, TERC, AIST, Japan

09:00 – 09:30  **Episomal Expression System for Recombinant Protein Production in CHO Cells**  
Noelle-Ann Sunstrom, ACYTE Biotech, Australia  
Rajkumar Kunaparaju, Mimi Liao, University of New South Wales, Australia.

09:30 – 10:00  **Improved Sindbis Viral Expression Systems for Mammalian Cell Culture**  
Michael J. Betenbaugh, Toey Nivitchanyong, Yien Che Tsai, Johns Hopkins University, USA  
Paul S. Fishman, George A. Oyler, University of Maryland Medical Center, USA

10:00 – 10:30  **High-level Protein Production in CHO Cells Using a New Inducible Expression System: The Cumate Gene-Switch**  
Bernard Massie, Rénald Gilbert, Alaaka Mullick, Bruno Gaillet, Claire Guilbault, Mélanie Leclerc, Félix Malenfant, Penelope Harakidas  
Groupe de Vecteurs de Génomique et Thérapie Génique, Institut de Recherche en Biotechnologie, Conseil National de Recherches, Canada

10:30 - 11:00  Closing remarks

Departures after lunch

**Post-conference excursion to Chichén Itza.** This activity is not directly organized by ECI. Please check the web page for reservations with the organizing travel agency.
A. Posttranslational Processing and Product Quality.

P.I.A.1. COMPARISON OF PROTEOLYTIC ACTIVITY IN SF9 AND HIGH-5 CELLS - OPTIMISATION OF EXPRESSION USING PROTEASE INHIBITORS
Gary Pettman and Joanna Holmes, GlaxoSmithKline, UK

P.I.A.2. SECRETED PRODUCTION OF HUMAN GLYCOPROTEINS IN STABLY TRANSFORMED DROSOPHILA S2 CELLS AND ANALYSIS OF THEIR N-GLYCAN PATTERNS
Hyung Joon Cha, Yeon Kyu Kim, Hye Jung Lim, and Dong Gyun Kang, Pohang University of Science and Technology, Korea

P.I.A.3. PRODUCTION AND GLYCOSYLATION OF RECOMBINANT BETA-INTERFERON IN SUSPENSION AND CYTOPORE MICROCARRIER CULTURES OF CHO CELLS
Maureen Spearman, Jose Rodriguez, Norm Huzel, and Michael Butler, University of Manitoba, Canada

P.I.A.4. A SINGLE MONOCLONAL ANTIBODY AS PROBE TO DETECT THE ENTIRE SET OF NATIVE AND PARTIALLY UNFOLDED RHEPO GLYCOFORMS
Marcos Oggero Eberhardt, Gabriel Amadeo, Maria Laura Zenclussen, Ricardo Kratje, and Marina Etcheverrigaray, Universidad Nacional del Litoral, Argentina

P.I.A.5. EFFECT OF THE CONCENTRATION OF MANNOSAMINE, CYTIDINE AND N-ACETYLmannOSAMINE ON THE GLYCOSYLATION OF HUMAN RECOMBINANT ALKALINE PHOSPHATASE PRODUCED IN INSECT CELLS
Adrián Delgado-Bustos, Octavio T. Ramírez and Sandino Estrada-Mondaca, Instituto de Biotecnología, Universidad Nacional Autónoma de México, Mexico

P.I.A.6. GLYCOSYLATION ANALYSIS OF EPO PRODUCED IN HOLLOW FIBER AND STIRRED TANK PERFUSION PROCESS
Eduardo Ojito Magaz, Antonio Vallín, Lourdes Bouzo, Miguel A. Arias, and Ernesto Chico Veliz, Center of Molecular Immunology, Cuba

P.I.A.7. A METHOD FOR INCREASING GLYCO PROTEIN SIALYLATION IN MAMMALIAN CELLS
Brian D. Follstad, Amgen Corporation, USA

P.I.A.8. PERFORMANCE OF A HYBRIDOMA CELL LINE GROWING IN COMMERCIAL SERUM-FREE MEDIA VS SERUM-SUPPLEMENTED MEDIUM: COMPARISON OF GROWTH AND GLYCOSYLATION PROFILE
J. Antonio Serrato, Vanessa Hernández, Sandino Estrada-Mondaca, Laura A. Palomares, and Octavio T. Ramírez, Instituto de Biotecnología, Universidad Nacional Autónoma de México, México

P.I.A.9. N-GLYCAN SITE VARIABILITY IN MAMMALIAN CELL CULTURES
Michael J. Betenbaugh, Jullian Jones, Karthik Viswanathan, Sharon S. Krag, Johns Hopkins University, USA
Steve Gorffien, David Judd and Scott Jacobia, Gibco-Invitrogen Corporation, USA

P.I.A.10. GLYCOSYLATION PATHWAYS IN INSECT CELLS
Karthik Viswanathan, Noboru Tomiya, Johns Hopkins University, USA
Karen Palter, Temple University, USA
Y. C. Lee, Michael J. Betenbaugh, Johns Hopkins University, USA
P.I.A.11. ADDITION OF BISECTING N-ACETYLGLUCOSAMINE RESIDUES TO MONOCLONAL ANTIBODIES IN VITRO BY RECOMBINANT N-ACETYLGLYCOSAMINYLTRANSFERASE III FOR ENHANCED BIOLOGICAL ACTIVITY
Yuan Zhi Zheng, Jason Hodoniczky, and David C. James, University of Queensland, Australia

P.I.A.12. STABILITY OF CELL CULTURE HARVEST FROM A RECOMBINANT CHO CELL LINE AT TWO DIFFERENT TEMPERATURES
Elias Nelson Rodríguez, Yalina Ordaz Contreras, Mayté Pérez Caballero, Lázaro Martínez Leyva, and Noel Herrera Batista, Center for Genetic Engineering and Biotechnology, Cuba

P.I.A.13. A RECOMBINANT CHO CELL BIOASSAY FOR RELEASE TESTING OF NESIRITIDE (NATRECOR®) IN THE US FOR TREATMENT OF ACUTE CONGESTIVE HEART FAILURE
James A. Zanghi, Susan Silver, Anny Wong, Nick Gaspar, Bioanalytical Methods Development, Scios Inc., USA
B. Cell Physiology and Metabolism

P.I.B.1. IS GLUTAMINE REALLY ONE OF THE MAIN ENERGY SOURCES OF MAMMALIAN CELLS?
Yvonne Genzel, Max Planck Institute for Dynamics of Complex Technical Systems, Germany
Rüdiger Alt, University of Leipzig, IZKF, Molecular Medicine, Germany
Udo Reichl, Max Planck Institute for Dynamics of Complex Technical Systems, Germany

P.I.B.2. PRODUCTION INSTABILITY IN LONG TERM CULTURES OF CHO CELLS
Dhinakar S. Kompala, Matthew L. Lipscomb, and Mark C. Mowry, University of Colorado, Boulder, USA

P.I.B.3. ISOLATION, PURIFICATION, CHARACTERIZATION AND CELL CULTURE BIOACTIVITY OF PROTEINS ISOLATED FROM LONOMIA OBLIGA OBOLIQUA HEMOLYMPH
Alvaro P.B. Soares, Cristina C. Peixoto, Luis Maranga, Ana V. Carvalhal, Manuel J. T. Carrondo, Instituto de Biologia Experimental e Tecnológica (IBET), Portugal
Rita M.Z Mendonça, Roberto H. P. Moraes, Dalva A. P. Mancini, Carlos A. Pereira, Ronaldo Z. Mendonça, Instituto Butantan, São Paulo, Brazil

P.I.B.4. QUANTITATIVE AND QUALITATIVE ANALYSIS OF THE PRODUCTION OF AGMPNPV POLYHEDRA THROUGH SERIAL PASSAGING IN SF9 INSECT CELLS
Carlos Augusto Pereira, V. Rodas, D.S. Medeiros, Ronaldo Z. Mendonça, Instituto Butantan, Brazil
F.H Marques, A. Tonso, Escola Politécnica, Brazil
L.A.S. Melo and C. Medugno, Embrapa-Meio Ambiente, Brazil

P.I.B.5. INVESTIGATION OF METABOLIC DECLINE IN MAMMALIAN-CELL-BASED BIOPHARMACEUTICAL PRODUCTION PROCESSES
Robert Balcarcel, Vanderbilt University, USA

P.I.B.6 DEVELOPMENT OF A HIGH YIELDING CHEMICALLY DEFINED ANIMAL COMPONENT FREE CELL CULTURE MEDIUM FOR THE PRODUCTION OF RECOMBINANT HUMAN IgG4 USING NS0 MYELOMA CELL LINES
Matthew Osborne, Jonathan Dempsey, Christy Ritchie, Alison Ridley, and Ray Field, Cambridge Antibody Technology (CAT), UK

P.I.B.7. EXTENDING CELL VIABILITY BY PEPTIDES SUPPLEMENTED TO CULTURE MEDIA
František Franek, Institute of Experimental Botany, Czech Republic

P.I.B.8. THE HAPPY MARRIAGE OF PEI AND WAVE IN LARGE-SCALE TRANSIENT TRANSFECTION
Sabine Geisse, Thomas Cremer, Klaus Memmert and Mario Henke, Novartis Pharma Research, Switzerland

P.I.B.9. INSIGHTS INTO THE CENTRAL METABOLISM OF SPODOPTERA FRUGI PERDA (SF-9) AND TRICHOPHUSIA NI (HIGH-FIVE™) INSECT CELLS BY RADIOLABELLING STUDIES
Cynthia B. Elias, Chouki Benslimane, Jalal Hawari, and Amine Kamen, Biotechnology Research Institute (NRC), Canada

P.I.B.10. SUCCESSFUL REPLACEMENT OF SERUM BY PLANT PROTEIN HYDROLYSATES IN CELL CULTURE MEDIA
Samad Radjai, Quest International, Inc. USA
P.I.B.11. KINETIC STUDIES OF MANY POLYHEDRA AND FEW POLYHEDRA HASNPV BACULOVIRUSES
Marcia Regina da Silva Pedrini, Federal University of Rio Grande do Norte, Brazil
Steven Reid, Lars Keld Nielsen, Leslie C.L. Chan, Chemical Engineering Department, The University of Queensland, Australia

P.I.B.12. A CALCIUM-DEPENDENT SERINE PROTEASE IDENTIFIED IN SPENT SF9 INSECT CELL CULTURE MEDIUM
Eva Lindskog, Lena Häggström, Royal Institute of Technology, Sweden

P.I.B.13. THE EFFECT OF MEDIA ADDITIVES AND DISSOLVED OXYGEN ON HUMAN BETA INTERFERON (H-β-IFN) EXPRESSION AND PRODUCTION
Jose Rodriguez, Maureen Spearman, Norm Huzel and Michael Butler, University of Manitoba, Canada

P.I.B.14. PHENOTYPIC DRIFT IN RECOMBINANT CELL LINES: CONSEQUENCES FOR USE AS HOSTS FOR RECOMBINANT PROTEIN PRODUCTION
Louise M Barnes, University of Manchester, UK
Nicola Moy, Catherine Bentley, GlaxoSmithKline, UK
Alan Dickson, University of Manchester, UK

P.I.B.15. TWO NOVEL MEDIUM ADDITIVES FOR SERUM AND SERUM-FREE MEDIA
Karlheinz Landauer, Lucia Strommer, Manuela Kainer, Guenter Waxenecker, and Hans Loibner, Igeneon, Immunotherapy of Cancer, Australia

P.I.B.16. GLYCOLYTIC CONTROL OF APOPTOSIS IN MAMMALIAN CELL CULTURE
Lindsey M. Clark, R. Robert Balcarcel, Vanderbilt University, USA

P.I.B.17. APPLICATION OF METABOLIC FLUX ANALYSIS IN DEVELOPMENT OF KINETIC MODELS
Rasmus Bjerre-Nielsen, Novo Nordisk A/S, Denmark
Charles L. Cooney, Massachusetts Institute of Technology, USA
John Villadsen, Technical University of Denmark

P.I.B.18. PHYSIOLOGICAL EFFECTS (AND POTENTIAL INHIBITION) OF HYDRODYNAMIC FORCES ON ANIMAL CELLS
Mike Mollet, The Ohio State University, USA
Nilou Arden, Johns Hopkins University, USA
Ruben Godoy, The Ohio State University, USA
Mike Betenbaugh, Johns Hopkins University, USA
Jeffrey J. Chalmers, The Ohio State University, USA

P.I.B.19. THE EFFECT OF METHOTREXATE SELECTIVE PRESSURE ON PRODUCTIVITY AND PRODUCT QUALITY IN MICROCARRIER-BASED PERFUSION CHO CELL CULTURES
Janani Swamy, Franqui Jimenez-Marrero, Melissa Steeves, Cordula Schwarz, and Christopher Hwang, Genzyme Corporation, USA

P.I.B.20. MILK WHEY PROTEINS AS SUPPLEMENTS FOR INSECT CELL CULTURE
Angela Maria Moraes, Fabiana R. X. Batista, Carlos A. Pereira, Ronaldo Z. Mendonça, Laboratory of Viral Immunology - Butantan Foundation Brazil
P.I.B.21. TRICHOPLUSIA NI CELLS PRODUCE AN EXTRACELLULAR METALLOPROTEASE, WHICH INFLUENCES GROWTH IN SERUM FREE CULTURES
Ulrika Eriksson, Royal Institute of Technology, Sweden
Jenny Blomqvist, Elke Lüllau, AstraZeneca, Sweden
Lena Häggström, Royal Institute of Technology, Sweden

P.I.B.22. COMPARATIVE ANALYSIS OF CELL SPECIFIC RECOMBINANT MONOCLONAL ANTIBODY PRODUCTION BY STABLY TRANSFECTED CHO CELLS USING EITHER CHEMICAL OR PHYSICAL CONTROL OF CELL CYCLE PROGRESSION
Catherine J. Brown, Douglas J. Gilbraith, Andrew S. Tait, Charlie Ahn, Amit Patel, Diane M. Dinnis, Scott H. Stanfield, The University of Queensland, Australia
John R. Birch, Lonza group, Switzerland
David C. James, The University of Queensland, Australia

P.I.B.23. INVESTIGATING THE ROLE OF METABOLIC INTERMEDIATES IN CHO METABOLISM
Todd Luman, Alice Chuck, Amgen Inc., USA

P.I.B.24. CHARACTERIZING CELLULAR SIGNAL TRANSDUCTION NETWORKS
Arthi Narayanan, Rosalyn Upson and Frank Chaplen, Oregon State University, USA

P.I.B.25. CONDITIONED MEDIUM FACTORS IN PROTEIN-FREE NS0 MYELOMA CELL CULTURES
Erika Spens, Lena Häggström, Department of Biotechnology, KTH Royal Institute of Technology, Sweden

P.I.B.26. THE EFFECTS OF CYCLODEXTRIN, FATTY ACIDS, CHOLESTEROL AND INSULIN ON PROCESS ROBUSTNESS FOR PER.C6™ CELLS GROWN IN SERUM-FREE MEDIUM
Gargi Maheshwari, Eileen Higham, Carrie Giordano, Charles Goochee, Merck & Co. USA
C. Genomics, Proteomics and Cell Engineering

P.I.C.1. INCREASED PRODUCTIVITY AND IMPROVED PRODUCT SIALYLATION IN CELLS TRANSFECTED WITH THE GLUTAMINE SYNTHETASE GENE
Robert Boraston, Mohsan Khan, Martyn Shaw, Zillah Boraston, Lonza Biologics. United Kingdom

P.I.C.2. IDENTIFICATION OF TARGET GENES FOR CELL ENGINEERING VIA A METABOLIC MODEL
Ziomara P. Gerdtzen, Marcela de Leon Gatti, Jongchan Lee, Prodromos Daoutidis, and Wei-Shou Hu, University of Minnesota, USA

P.I.C.3. LARGE SCALE GENE EXPRESSION ANALYSIS OF CHOLESTEROL DEPENDENCE IN NS0 CELLS
Gargi Seth, Wei-Shou Hu, University of Minnesota, USA
Robin J. Philp, Bioprocess Technology Center, A-Star, National University of Singapore
Puja Billis, Katherine Mcgrath, Marie Zhu, Mark BERGE, Claudio Denoya, Kim Stutzman-Engwall, Bioprocess Research, Pfizer Inc., USA

P.I.C.4. BCL-2 OVER-EXPRESSION REDUCES APOPTOTIC DEATH RATE AND PROLONGS G1 PHASE IN CHEMOSTAT CULTURES OF NS0 CELLS
B.T. Tey, University of Putra, Malaysia
R. P. Singh and M. Al-Rubeai, Department of Chemical Engineering, University of Birmingham, UK

P.I.C.5. COMBINATION OF A METABOLIC ENGINEERING APPROACH WITH AN ENVIRONMENTAL CONTROL STRATEGY TO INCREASE THE CELLULAR PRODUCTIVITY OF HGM-CSF-PRODUCING CHO CELLS
Mariela Bollati Fogolín, Roland Wagner, German Research Institute for Biotechnology, Germany
Marina Etcheverrigaray and Ricardo Kratje, Universidad Nacional del Litoral, Argentina

P.I.C.6. TRANSCRIPTIONAL ANALYSIS OF AUTOLOGOUS PLASMA EFFECTS ON EX VIVO EXPANDED HUMAN T-LYMPHOCYTES
Dirk Windgassen, Christopher G. Ramsborg, Jonathan K. Fallon, Carlos J. Paredes, and E. Terry Papoutsakis, Northwestern University, USA

P.I.C.7. GENOME-SCALE RECONSTRUCTION OF THE MUS MUSCULUS METABOLIC NETWORK
Lars Keld Nielsen, Kashif Sheikh, The University of Queensland, Australia

P.I.C.8. OVER-EXPRESSION OF A CHAPERONE PROTEIN INHIBITS APOPTOSIS AND ENHANCES RFVIII PRODUCTIVITY IN BHK-21 CELLS
Adiba Ishaque, John Thrift, Yvette Tang, Sam Chan, John Murphy and Konstantin Konstantinov, Bayer Corporation, USA

P.I.C.9. GENOMIC AND PROTEOMIC TOOLS FOR THE DEVELOPMENT OF CELL CULTURE MEDIA
Laurel M. Donahue, Daniel W. Allison, Kathryn A. Aboytes, Terrell K. Johnson, Heather N. Loke, Danny K. Fong, Stacy L. Leugers, Anne E. Dennett, Sigma-Aldrich, USA
P.I.C.10. GENE DISCOVERY IN CHINESE HAMSTER OVARY CELLS BY EST SEQUENCING, MICROARRAY, AND A COMPARITIVE SEQUENCE DATABASE
Katie F. Wlaschin, University of Minnesota
Anette Rink, University of Nevada, Reno, USA
Peter Morin Nissom, Miranda Yap, Bioprocessing Technology Centre, A*STAR, Singapore
Wei-Shou Hu, University of Minnesota, Minneapolis, USA
D. Stem Cell and Tissue Engineering

P.I.D.1. IMPROVED EX VIVO EXPANSION OF FUNCTIONAL CD34+ CELLS USING STEMLINE™ II HEMATOPOIETIC STEM CELL EXPANSION MEDIUM
Daniel W. Allison, Stacy L. Leugers, Sigma-Aldrich, USA
Barry J. Pronold, Gary Van Zant, University of Kentucky, College of Medicine, Markey Cancer Center, USA
Jenny A. Harrington, Ian K. McNiece, Johns Hopkins University, Division of Hematologic Malignancies
Laurel M. Donahue, Sigma-Aldrich, USA

P.I.D.2. ALLOREACTIVE T-CELL DEPLETION: THE SOLUTION TO THE CHALLENGE OF BONE MARROW TRANSPLANTS?
Jeff Chalmers, Sherif Farag, The Ohio State University
Maciej Zborowski, The Cleveland Clinic Foundation, USA

P.I.D.3. COUNTERACTING HYPOXIA-INDUCED APOPTOSIS IN BIOHYBRID ARTIFICIAL ORGANS
Chong Yung, William E. Bentley, Timothy A. Barbari, University of Maryland at College Park, USA

P.I.D.4. EFFECT OF RETINOIC ACID ON PROLIFERATION AND NERVE GROWTH FACTOR GENE EXPRESSION OF CULTURED KERATINO CYTES
Yong Kwon Lee, College of Life and Environmental Sciences, Korea University, Korea
Jin-Woo Lee, College of Medicine, Kyung Hee University, Korea
Bok-Hwan Chun and Nahmhyun Chung, College of Life and Environmental Sciences, Korea University, Korea

P.I.D.5. REACTOR EVALUATION FOR BIOARTIFICIAL LIVER SUPPORT SYSTEM - BAL CLEARANCE AND AHP ANALYSIS
Takeshi Omasa, Masaya Kawase, Osaka University, Japan
Shin Enosawa, National Research Institute for Child Health and Development, Japan

P.I.D.6. TARGETS FOR ENGINEERING IMPROVED LIVER-SPECIFIC PHENOTYPE IN HEPATIC CELL LINES
A.J. Dickson, S. Armitage, University of Manchester, UK
M. Dickins, GlaxoSmithKline, UK
L. Rosenbrier, C.L. Varley, University of Manchester, UK

P.I.D.7. HEMATOPOIETIC CELL INTERACTIONS WITH LIPID-LINKED PEPTIDES IN HYBRID BI LAYER MEMBRANES
Shara M. Dellatore, Tor W. Jensen, Bi-Huang Hu, Phillip B. Messersmith, William M. Miller, Northwestern University, USA

P.I.D.8. A CELL CULTURE MODEL FOR THE EVALUATION OF RENAL FUNCTION
Mark J. Powers, Sorin Damian, Cambrex Bio Science, USA

P.I.D.9. SINGLE-CELL MEASUREMENTS OF KINASE ACTIVITY IN PRIMARY HEMATOPOIETIC CELLS
Julie Audet, University of Toronto, Canada
Joseph S. Soughayer, Christopher E. Sims, S. Tiong Ong, and Nancy L. Allbritton, University of California, Irvine, USA
P.I.D.10. IN-VITRO EXPANSION OF CHONDROPROGENITOR CELLS FROM THE SUPERFICIAL ZONE OF THE ARTICULAR CARTILAGE
Mohamed Al-Rubeai, Juan M. Melero Martin, University of Birmingham, UK
Debby Heath, Smith & Nephew Research Centre, UK
E. Process Monitoring and Control

P.I.E.1. AUTOMATIC 24/7 MONITORING OF CELL CULTURE BEHAVIOUR IN PILOT SCALE CULTIVATIONS OF MAMMALIAN CELLS USING AN AUTONOMOUS SERVICE ROBOT
Iris Poggendorf, Dirk Lütkmeyer, Institute of Cell Culture Technology, University of Bielefeld
Torsten Scherer and Alois Knoll, Institute of Robotics and Embedded Systems, Technical University of Munich
Jürgen Lehmann, Institute of Cell Culture Technology, University of Bielefeld, Germany

P.I.E.2. USE OF TEMPERATURE MODULATION FOR PROCESS CONTROL OF LONG-TERM MICROCARRIER CULTURES
Claudia W. Buser, Janani Swamy and Christopher Hwang, Genzyme Corporation USA

P.I.E.3. CONTROL OF TEMPERATURE AND pH ENHANCES HUMAN MONOCLONAL ANTIBODY PRODUCTION IN CHO CELL CULTURE
Satoshi Oguchi, Hiroyuki Saito, Masayoshi Tsukahara, and Haruhiko Tsumura, Pharmaceutical Division, Kirin Brewery Co., Ltd., Japan

P.I.E.4. OVERNIGHT QUANTIFICATION OF BACULOVIRUS STOCK
Chao-Min Liu, Li-Na Hong, Hoffmann-La Roche Inc., USA

P.I.E.5. CONTROLLED PROLIFERATION STRATEGY IN CHO CELLS: EFFECT OF TEMPERATURE REDUCTION ON HGM-CSF PRODUCTIVITY AND PRODUCT QUALITY
Guillermina Forno, Laboratorio de Cultivos Celulares, Facultad de Bioquímica y Ciencias Biológicas, Universidad Nacional del Litoral, Argentina
Mariela Bollati Fogolín, Harald S. Conradt, Manfred Nimtz, German Research Centre for Biotechnology (GBF), Germany
Marina Etcheverrigaray, Ricardo Kratje, Universidad Nacional del Litoral, Argentina

P.I.E.6. ON-LINE MEASUREMENT OF VIABLE CELL DENSITY IN ANIMAL CELL CULTURE PROCESSES
Georg Schmid, Sven Ansorge and Dorthe Zacher, F. Hoffmann-LaRoche Ltd., Switzerland

P.I.E.7. TWO CIRCUITS OR ONE? SHOULD O₂ ADDITION AND CO₂ REMOVAL BE UNCOUPLED
Weiwei Hu, Mike Mollet, Jim Rathman, Jeff Chalmers, The Ohio State University, USA

P.I.E.8. STUDIES IN QUANTITATION OF ANTIBODY IN HOLLOW-Fiber BIOREACTOR HARVEST POOLS
Jennifer Jois, Veronika Wirth, Anna Kypridis, and Roger Murphy, Ludwig Institute for Cancer Research, Australia

P.I.E.9. EVALUATION AND IMPLEMENTATION OF AN AUTOMATED CELL COUNTING DEVICE FOR MAMMALIAN CELL CULTURE
Suzanne Kuo, Thomas Stapp, Polina Rapoport, Arlis Corbett, Kate Bishop, Martin Gawlitzek, Jesse Bergevin, Ron Taticek, Genentech, Inc., USA

P.I.E.10. A SCALABLE BIOPROCESS FOR GENERATING ES CELL-DERIVED CARDIOMYOCYTES
Celine Bauwens, Ting Yin, Stephen Dang, and Peter Zandstra, University of Toronto, Canada
P.I.E.11. USE OF ON-LINE OUR MEASUREMENTS TO MONITOR INSECT CELL CONCENTRATION, ACTIVITY AND VIRAL INFECTION PROGRESS IN BIOREACTOR CULTURES
Francesc Godia, M. Lecina, A. Soley, J. de Gràcia, J.J. Cairó, Universitat Autònoma de Barcelona, Spain; E. Espuña, INGENASA, Spain; C. Vela, HIPRA, Spain

P.I.E.12. SIMULTANEOUS MEASUREMENTS OF OXYGEN AND CO₂ MASS TRANSFER COEFFICIENTS

P.I.E.13. ON-LINE MONITORING OF PER.C6 SUSPENSION CULTURES FOR THE PRODUCTION OF ADENOVIRUS: COMPARISON OF TURBIDITY AND CAPACITANCE MEASUREMENTS
Ilse J. Blumentals, James Warren, Rosario Scott, Jose Manuel Otero, Merck Research Laboratories, USA
F. Process Development and Integration/Scale-up and Scale-down

P.II.F.1. PRODUCTION OF PASSIVE IMMUNOTHERAPEUTICS AGAINST BONT ANTIGEN
Anu Subramanian, Mark Mowry, Ananth Parampalli and Michael Meagher, University of Nebraska, Lincoln, USA

P.II.F.2. FROM GENE TO PROTEIN: A STREAM-LINED, MULTI-PARALLEL, SEMI-AUTOMATED PROCESS FOR BACULOVIRUS-DERIVED RECOMBINANT PROTEIN PRODUCTION
Sabine Geisse, Marion Mahnke, Klaus Memmert, Jean-Marc Schlaeppi, and Rita Schmitz, Novartis Pharma Research, Switzerland

P.II.F.3. NEW PROCESS DEVELOPMENT AND SCALE UP TECHNIQUES FOR HOLLOW FIBER BIOREACTOR OPTIMIZATION
Michael J. Gramer, BioVest International, USA

P.II.F.4. USE OF A MINIATURE BIOREACTOR AS A SCALE-UP TOOL FOR MAMMALIAN CELL CULTURE
Wellae Williams-Dalson, Hu Zhang, Sally Lamping, University College London, UK
Karen Hansen, Novo Nordisk
Frank Baganz, University College London, UK

P.II.F.5. ADVANCES IN MEDIA OPTIMIZATION: TWO AUTOMATED APPROACHES THAT INCREASE EXPRESSION WHILE REDUCING DEVELOPMENT TIME
Stacy Holdread, Cindy Hunt, Toyin Oshunwusi, Jim Short, and James Brooks, BD Diagnostic Systems, USA

P.II.F.6. MONOCLONAL ANTIBODY PRODUCTION: DETERMINATION OF APPROPRIATE SYSTEM AND MEDIA FOR PRODUCTION ENHANCEMENT AND DECREASE OF OVERALL PRODUCTION TIME
Kathie S. Frichman, Becton Dickinson, USA
Chakib Tilsaghani, BD Pharmingen
Kurt Harbordt, BDSDS, USA

P.II.F.7. ANALYSIS OF MANUFACTURING DATA FOR PROCESS TROUBLESHOOTING, VARIABILITY REDUCTION, AND PROCESS OPTIMIZATION
Oliver Yu, Genentech, Inc., USA

P.II.F.8. THE EFFECT OF PERFUSION RATE ON CELL GROWTH AND THE PRODUCTION RATE OF A HYBRIDOMA CELL CULTURE PRODUCING MONOCLONAL ANTIBODY IN A CERAMIC MEMBRANE BIOREACTOR
Jean-Francois Hamel, Ryo Ohashi, Massachusetts Institute of Technology, USA

P.II.F.9. A TWO-COMPARTMENT SCALE-DOWN SYSTEM FOR SIMULATING DISSOLVED OXYGEN GRADIENTS IN ANIMAL CELL CULTURES
Argel Gastélum, Octavio T. Ramírez and Laura A. Palomares, Instituto de Biotecnología, Universidad Nacional Autónoma de México, Mexico

P.II.F.10. PUSHING THE CELL MASS LIMITS FOR FED-BATCH CELL CULTURE WITH NSO CELLS
Feng Li, Edmund Kao, Cynthia Peacock, Kajijo Guya, and Thomas Ryll, Tanox, Inc., USA
P.II.F.11. EPO AS A POTENTIAL BIOGENERIC: A CASE STUDY OF EQUIVALENCE BETWEEN HOLLOW FIBER AND STIRRED TANK BASED PROCESSES.
Miguel Arias, Eduardo Ojito, Lourdes Bouzo, Antonio Vallin, and Ernesto Chico, Center of Molecular Immunology, Cuba

P.II.F.12. A FED BATCH STRATEGY FOR ANTI-TNP MONOCLONAL ANTIBODY PRODUCTION BASED ON GLUCOSE LIMITATION
Elisabeth de Fatima Pires Augusto, Chang Youn Lee and Thomaz de Gouveia, IPT - Institute for Technical Research, Brazil
Wirla Maria S.C. Tamashiro, IB-Instituto de Biologia da Unicamp - LIIC, Brazil

P.II.F.13. SIMULATING THE DYNAMICS OF NUTRIENTS AND PROTEINS IN A CYCLING HOLLOW FIBER FERMENTER
Ernesto Chico, Eduardo Ojito, Reynaldo Cuervo, Meylen Chea, and Grisel Rodriguez, Center of Molecular Immunology, Cuba

P.II.F.14. PROCESS DEVELOPMENT AND SUPPLEMENT FEEDS TO INCREASE YIELDS FROM CHO CELLS USING PROTEIN-FREE CHEMICALLY DEFINED CELL CULTURE MEDIUM
Joseph Camire, Paula Decaria, Bill Barnett, HyClone, Inc. USA

P.II.F.15. SCALE-UP OF BIOPESTICIDE PRODUCTION USING INSECT CELL CULTURES
Leslie C.L. Chan, Gary Butterworth, Duncan Smith, and Steve Reid, The University of Queensland, Australia

P.II.F.16. EVALUATION OF RECOMBINANT INSULIN IN THE CULTIVATION OF CHO CELL LINE
Elias Nelson Rodríguez, Yalina Ordaz Contreras, Mayté Pérez Caballero, Lázaro Martínez Leyva, and Noel Herrera Batista, Center for Genetic Engineering and Biotechnology, Cuba

P.II.F.17. CARBON DIOXIDE IN PRODUCTION-SCALE FED-BATCH CHO CELL CULTURE AND ITS IMPACT ON PRODUCTIVITY OF A THERAPEUTIC PROTEIN
Marie M. Zhu, Asti Goyal, Steven S. Lee, Bristol-Myers Squibb Company, USA

P.II.F.18. PROCESS DEVELOPMENT FOR A RECOMBINANT CHINESE HAMSTER OVARY (CHO) CELL CULTURE WITH A METALLOTHIONEIN EXPRESSION SYSTEM
Edwin P. Huang, Christopher P. Marquis and Peter P. Gray, The University of New South Wales, Australia

P.II.F.19. APPLICATION OF A 2-L SCALE-DOWN MODEL TO CELL AGE CHARACTERIZATION STUDIES
Wendy Chaderjian, Genentech, Inc., USA

P.II.F.20. CASE STUDY: PROCESS CHARACTERIZATION OF A RECOMBINANT PROTEIN PROCESS
Neil Kitchen, Anne Potter, Matthew Leith, Amy Guo, and Carole Heath, Amgen USA

P.II.F.21. DESIGN AND START-UP DESIGN OF GENENTECH’S R&D CELL CULTURE & FERMENTATION PILOT PLANT
Steven Meier, Sid Haskell, Richard Reineke, Tony Green, and Wayne Stribling, Genentech, USA

P.II.F.22. DEVELOPMENT OF A LARGE-SCALE CELL BANK FOR THE PRODUCTION OF BIOLOGICS
Ashraf Amanullah, Eric Burden, Maria Jug-Dujakovic, Mark M. Mikola, Christy Pearre and Wayne Herber, Merck & Co., USA
P.II.F.23. APPLICATIONS OF STATISTICAL PROCESS CONTROL TO ESTABLISHING THE ROBUSTNESS OF A HIGH-PRODUCTIVITY CHO-BASED CELL CULTURE PLATFORM
Eric Fallon, Roger DeWames, Alan Sonnenfeld, Christopher Bork, David Y.H. Chang, Biogen IDEC, Inc., USA

P.II.F.24. BIOREACTORS COMPARISON FOR EPO PRODUCTION
Ana Maria Moro, Angélica Garbuio, Maria Teresa Alves Rodrigues, Roselaine Campos Targino, Instituto Butantan, Brazil
Aldo Tonso, Depto. Engenharia Química, Universidade de São Paulo, Brazil

P.II.F.25. DEVELOPMENT OF HIGH YIELDING, CHEMICALLY DEFINED, PROTEIN-FREE AND ANIMAL COMPONENT-FREE PROCESSES FOR BIOPHARMACEUTICAL MANUFACTURING FROM MAMMALIAN CELL LINES
Martyn Shaw, David Mainwaring, Tracy S. Root, Emma E. Allen, Lonza Biologics, United Kingdom

P.II.F.26. HIGH CELL DENSITY PERFUSION CULTURES USING A DEPTH FILTER PERFUSION SYSTEM APPLIED FOR PRODUCTION OF RECOMBINANT MONOCLONAL ANTIBODIES FROM CHO CELLS AND ADENOVIRUS VECTORS FROM HEK293 CELLS
Duk Jae Oh, Sejong University
Joon Chul Lee, KAIST
Hyun Joong Hwang, Sejong University
Ho Nam Chang, KAIST, Korea

P.II.F.27. DEVELOPMENT OF FED BATCH CULTURES: OPTIMIZING MEDIUM, CELL LINES, AND BIOREACTOR OPERATIONS BASED ON DENSITY AND PRODUCTIVITY
Shawn Lawrence, Michelle LaFond, Christopher Hartnett, Scott Carver, Kevin Bailey. Regeneron Pharmaceuticals, USA

P.II.F.28. DEVELOPMENT OF INCLINED PLATE SETTLER FOR HIGH DENSITY PERFUSION CULTURES
Peter Brown, Biotechnology Solutions, USA

P.II.F.29. PROCESS DEVELOPMENT AND SCALE-UP OF CETUXIMAB PRODUCTION PROCESS
Girish J. Pendse, Katarzyna Case, Lori DelMauro, Michael Prentice, Maya Grosh, Elizabeth Piotrowski, Jose Santiago, Diane Blumenthal, Richard Crowley, Qinwei Zhou, Joseph Tarnowski, Daniel Velez
ImClone Systems Incorporated, USA

P.II.F.30. PROCESS OPTIMIZATION OF THE HUMAN CELL LINE PER.C6 FOR THE PRODUCTION OF BIOPHARMACEUTICALS
John Crowley, Maike Wübben, Edith Olthof, Jose M.Coco Martin, DSM Biologics
G. Viral Vectors for Gene Therapy and Vaccination

P.II.G.1. CONCEPTS FOR VACCINE PRODUCTION: MATHEMATICAL MODELING OF CELL GROWTH AND INFLUENZA VIRUS REPLICATION
Prof. Udo Reichl, Dr. Yvonne Genzel, Max Planck Institute for Dynamics of Complex Technical Systems
Lars Möhler, Otto-von-Guericke University
Iouri Sydorenko and Heiner Sann, Max Planck Institute for Dynamics of Complex Technical Systems, Germany

P.II.G.2. DIFFERENCES IN THE PRODUCTION OF RETROVIRUS TRANSGENE VECTOR AND REPLICATION-COMPETENT RETROVIRUS IN PA317 CELLS: A STUDY OF MICROCARRIER CULTIVATION AND MEDIUM EXCHANGE PROCEDURE
Suh-Chin (Samuel) Wu, Weili Hung, National Tsing Hua University, Taiwan
Jin-Hwang Liu, Division of Medical Oncology, Veterans General Hospital-Taipei, Taiwan

P.II.G.3. EVALUATION OF PRODUCTION CELL LINE FOR THE VACCINIA VIRUS EXPRESSION SYSTEM
Joseph Shiloach, National Institutes of Health, NIDDK, USA
W.E. Bentley, University of Maryland College Park, USA
N. A. Bleckwenn, National Institutes of Health, NIDDK, USA

P.II.G.4. CHOLESTEROL SUPPLEMENTATION INCREASES THE PRODUCTION OF RETROVIRAL AND LENTIVIRAL VECTORS PSEUDOTYPED WITH THE VESICULAR STOMATITIS VIRUS GLYCOPROTEIN (VSV-G)
Yong Chen, Ashok Aiyar, Northwestern University, USA
Pappasani Subbaiah, Rush University, USA
William M. Miller, Northwestern University, USA

P.II.G.5. PRODUCTION OF ADENOVIRAL VECTORS FOR GENE THERAPY IN SUSPENSION CULTURE - UPSTREAM PROCESS CHARACTERIZATION
Erik M. Whiteley, Laura Lange, John Garbutt, Gary Schoofs, and Tom Monica, Berlex Biosciences, USA

P.II.G.6. SCALABLE PROCESSES FOR RECOMBINANT AAV MANUFACTURING
Barbara Thorne, Targeted Genetics Corporation, USA

P.II.G.7. PRODUCTION OF ADENO-ASSOCIATED VIRUS BY BACULOVIRUS/INSECT CELLS SYSTEM IN SUSPENSION CULTURES
Amine Kamen, Jamal Meghrous, Danielle Jacob, Parminder Chahal, Normand Arcand, Marc G. Aucoin Biotechnology Research Institute, National Research Council, Canada

P.II.G.8. EFFECT OF BCG ON ANTIBODY AND CYTOKINE PRODUCTION
Vera L. PETRICEVICH, Faculty of Medicine, UAEM, Mexico;
Wilmar Dias da Silva, Biologia do Reconhecer UENF, Brazil

P.II.G.9. THE USE OF PACKAGING CELL LINES FOR THE PRODUCTION OF AAV-VECTORS. AN OPTIMISATION STUDY.
Merten, O.-W., Jenny C. Géry-Fiamma, Genethon, France
V. Blouin, P. Moullier, INSERM ERM, France
O. Danos, Généthon, France
A. Salvetti, INSERM ERM, France
P.II.G.10. PRODUCTION OF ROTAVIRUS-LIKE PARTICLES USING A MULTIGENE BACULOVIRUS-INSECT CELLS EXPRESSION SYSTEM
Filipa P. Mendes, Cristina Peixoto, Marcos F. Q. Sousa, Paula M. Alves, IBET, Portugal
Manuel J. T. Carrondo, IBET/ITQB and FCT/UNL, Portugal

P.II.G.11. OPTIMISED REFEEDING STRATEGIES FOR ADENOVIRUS PRODUCTION AT HIGH CELL DENSITIES
Tiago B. Ferreira, Ana L. Ferreira, Paula M. Alves, IBET/ITQB, Portugal
M. J. T. Carrondo, IBET/ITQB and FCT/UNL, Portugal

P.II.G.12. ACOUSTICALLY ENHANCED VIRAL TRANSFECTION
Volker M. Gorenflo, Pascal Beauchesne, Connie J. Eaves, Bruce D. Bowen, and James M. Piret, University of British Columbia, Canada

P.II.G.13. CELL LINE AND CELL CULTURE MODIFICATIONS FOR COMMERCIALIZATION OF A HUMAN GLYCOPROTEIN VACCINE
Sridhar Reddy, Christiane Koehne, Vaxgen, Inc., USA

P.II.G.14. TOWARDS THE EFFICIENT AND RATIONAL PRODUCTION OF VIRUS-LIKE PARTICLES IN INSECT CELLS
Jimmy A. Mena, Octavio T. Ramírez and Laura A. Palomares, Instituto de Biotecnología. Universidad Nacional Autónoma de México, Mexico

P.II.G.15. PRODUCTION, OPTIMIZATION AND PURIFICATION OF FIRST AND THIRD GENERATION ADENOVIRUS VECTORS FOR GENE THERAPY
B.A. Andrews, E. Olivares, F. Zuñiga, Y. Israel, and J.A. Asenjo, University of Chile, Chile

P.II.G.16. DEVELOPMENT OF A HIGH CELL DENSITY PROCESS FOR THE PRODUCTION OF RETROVIRAL VECTORS BY 293GPG CELLS
Karim Ghani, Laval University and National Research Council, Canada
Alain Garnier, Laval University, Canada
Helene Coelho, Pierre Trudel, and Amine Kamen, National Research Council, Canada

P.II.G.17. A NOVEL SCALEABLE APPROACH FOR RETROVIRUS VECTOR PURIFICATION
Maria de las Mercedes Segura, Laval University and National Research Council, Canada
Amine Kamen, National Research Council, Canada
Pierre Trudel, Laval University and National Research Council, Canada
Julia Transfiguracion, National Research Council, Canada
Alain Garnier, Laval University, Canada

P.II.G.18. DESIGNING ADENOVIRUS FOR ENHANCED TRANSGENE EXPRESSION: APPLICATION IN CANCER GENE THERAPY WITH A SUICIDE GENE
Bernard Massie, Denis Boubeau, Geneviève Lavoie, Sophie Adjalle, Inst. Rech. Biotech. CNRC, Canada

P.II.G.19. DEVELOPING A PRODUCTION PROCESS FOR A LIVE, ATTENUATED CHIMERIC VIRUS VACCINE CANDIDATE
Inn H. Yuk, Gina Brower, Ajit Subramanian, Richard Schwartz, Eric Tsao, J. Michael Berry, MedImmune Vaccines, Inc., USA
H. Expression Systems and Cell Line Development

P.II.H.1. NON-VIRAL TRANSIENT GENE EXPRESSION AT SCALES FROM MILLILITERS TO 100 LITERS
Florian Maria Wurm, Swiss Federal Institute of Technology Lausanne, Switzerland

P.II.H.2. OPTIMIZATION OF THE CULTURE OF NEURONAL CELL LINES FOR THE DEVELOPMENT OF CELL TRANSPLANT MATERIAL
J.A. Asenjo, L. Sörvik, M.C. Castillo, D. Sepúlveda, R. Caviedes, P. Caviedes and B.A. Andrews, University of Chile, Chile

P.II.H.3. EVALUATION OF MULTIGENE EXPRESSION VECTORS
Michele Underhill, University of Kent, U
John Birch, Lonza Biologics plc, UK
Louise Naylor, University of Kent
David James, University of Queensland, Australia
C. Mark Smales, University of Kent, UK

P.II.H.4. OPTIMISING TRANSLATION OF PROTEINS IN CHO CELLS THROUGH CODON MODIFICATION
Ian Frazer, Coridon Pty Ltd., Australia
Liz Tomlinson, The University of Queensland, Australia

P.II.H.5. OPTIMIZED STRATEGIES FOR PRIMARY BRAIN CELL CULTURING IN STIRRED TANK BIOREACTORS
Paula M. Alves, Sónia Sá Santos, IBET/ITQB, Portugal
Luís L. Fonseca, ITQB, Portugal
Miguel A.R. Monteiro, IBET/ITQB, Portugal
Manuel J.T. Carrondo, IBET/ITQB and FCT/UNL, Portugal

P.II.H.6. EFFICIENT ISOLATION OF PRODUCTION CELL LINES BASED ON SECRETION LEVELS
James P. Fandl, Gang Chen, Neil Stahl, and George Yancopoulos, Regenron Pharmaceuticals, Inc., USA

P.II.H.7. DEVELOPMENT OF A SEMI-AUTOMATED SYSTEM FOR SINGLE COLONY IDENTIFICATION IN 96 WELL PLATES USING A ZEISS AXIOVERT 200 MOTORIZED INVERTED MICROSCOPE.
Ray Davis, Amgen, USA
Tim Murphy, Zeiss, USA
Stefan Ponko, Joel Parrelli, and Pranhitha Reddy, Amgen, USA

P.II.H.8. ACCELERATING CELL LINE DEVELOPMENT BY STARTING FROM EXISTING HIGH-PRODUCING CELL LINES
Taymar Hartman, Nalin Sar, Kimberly Duncan, Diana Barritt, and Paul Sauer, Protein Design Labs, Inc. USA

P.II.H.9. ACTIVATION OF THE CUMATE-INDUCIBLE PROMOTER RESULTS IN EXCEPTIONALLY HIGH LEVEL EXPRESSION IN COMPARISON TO WIDELY-USED TETRACYCLINE-INDUCIBLE SYSTEM
Bernard Massie, Alaka Mullick, Claire Guibault, and Penny Harrakides, Institut de Recherche en Biotechnologie, Conseil National de Recherches Canada
Amélie Pilotte, Département de Biologie Moléculaire, Université de Montréal
P.II.H.10. TRANSIENT PRODUCTION OF RECOMBINANT PROTEINS BY CHINESE HAMSTER OVARY CELLS USING POLYETHYLENEIMINE/DNA COMPLEXES IN COMBINATION WITH MICROTUBULE DISRUPTING ANTI-MITOTIC AGENTS
Andrew S. Tait, University College London, UK
Catherine J. Brown, Michael J. Hines, Douglas J. Galbraith, University of Queensland, Australia
Mike Hoare, University College London, UK
John Birch, Lonza Group, Switzerland
David C. James, University of Queensland, Australia

P.II.H.11. OPTIMIZATION OF LARGE-SCALE TRANSIENT TRANSFECTION OF HEK293/EBNA1 CELLS FOR THE PRODUCTION OF SECRETED, CYTOSOLIC AND MEMBRANE R-PROTEINS.
Yves Durocher, National Research Council, Canada

P.II.H.12. EFFECTS OF MEDIUM SUPPLEMENTS ON TRANSIENT GENE EXPRESSION
Elke Lüllau, Sebastian Baumann, AstraZeneca, Sweden
Eelco Docter and Ian Hampton, AstraZeneca, UK

P.II.H.13. A METHOD FOR RAPIDLY GENERATE HIGHLY PRODUCTIVE STABLE CLONES WITH DIRECT METHOTREXATE SELECTION IN CHO CELLS
Amy Shen, John Joly, Kim Leach, Stefanie Weikert, Donna Hinkert, Wendy Chaderjian, Ben Pelletier and Lynne Krummen, Genentech, Inc., USA

P.II.H.14. SELECTION AND ENRICHMENT OF HIGH-PRODUCING, GS CELL LINES USING FLOW CYTOMETRY AND CELL SORTING
Perani A., Metcalfe, H., Khan, P., Turner, S., Regmi, KC S, and Morris, H., Lonza, UK

P.II.H.15. COMPARISON OF GS/CHO-K1-SV AND DHFR/CHO-DG44 EXPRESSION SYSTEMS FOR DEVELOPMENT OF HIGH EXPRESSION CELL LINES OF MONOCLONAL ANTIBODIES
Chanyong Lee, Krista Alvin, Lily Chu, Celina Edmonds, and David Robinson, Merck & Co., USA

P.II.H.16. EXTENSIVE USE OF SP2/0 CELLS AS A VERSATILE TOOL TO PRODUCE MONOCLONAL ANTIBODIES FOR MARKET AND CLINICAL TRIALS
Burkhard Wilms, Novartis Pharma AG, Switzerland

P.II.H.17. APPROACHES AND CHALLENGES IN SERUM-FREE SINGLE CELL SUBCLONING
Bob Valamehr, Lynette Buck, Selam Ogbagabriel and Thomas Seewoester, Amgen Inc. USA

P.II.H.18. SELECTION AND CHARACTERIZATION OF RECOMBINANT CELL LINES WITH IMPROVED PHENOTYPES
Adolfo José Castillo, Kathya R. de Luz Hernández, and Svieta Victores, Center of Molecular Immunology, Cuba
I. High throughput Expression and Screening

P.II.I.1. RAPID RECOMBINANT PROTEIN PRODUCTION BY PEI-MEDIATED TRANSIENT TRANSFECTION OF CHO CELLS IN BATCH CULTURE
Catherine J. Brown, University of Queensland, Australia
Andrew S. Tait and Mike Hoare, University College London, UK
John Birch, Lonza Biologics, UK
David C. James, University of Queensland, Australia

P.II.I.2. RC-SELDI-MS: A RAPID APPROACH TO THE OPTIMIZATION AND ANALYSIS OF PROTEIN EXPRESSION
James Spencer, Tom Bronzert, and Lisa Bradbury, Ciphergen BioSystems, USA

P.II.I.3. APPLICATION OF HIGH THROUGHPUT EXPRESSION SCREENING
Rohini Deshpande, Amgen, Inc., USA

P.II.I.4. AN INTEGRATED ANALYTICAL PLATFORM FOR RAPID MOLECULAR CHARACTERIZATION OF RECOMBINANT MONOCLONAL ANTIBODIES
Mark J. Bailey, University of Queensland, Australia
Andrew Hooker, Pfizer Central Research, UK
David C. James, University of Queensland, Australia

P.II.I.5. A MICROFLUIDIC CELL CULTURE DEVICE FOR PROCESS DEVELOPMENT
H. Brett Schreyer, Andrey J. Zarur, BioProcessors Corp., USA

P.II.I.6. UTILIZATION OF DASGIP MINI BIOREACTOR SYSTEM AS A TOOL FOR CELL LINE EVALUATION AND SELECTION
Sadettin S. Ozturk, K. Knowles, R. Monsell, Centocor, Inc., USA

P.II.I.7. ISOLATION AND CLONING OF MAMALIAN CELLS SUBPOPULATIONS
Amihay Freeman, Ramat Aviv, Marina Volpe, Tel Aviv University, Israel
Shaul Reuveny, Israel Institute for Biological Research, Israel