



Stem Cell Research: Present and Future

Thursday, 26 September – Friday, 27 September 2019

ISSCR Organizers:

Nissim Benvenisty MD, PhD, *The Hebrew University, Israel*
Magdalena Götz PhD, *Institute of Stem Cell Research, Germany*
Hans Schöler PhD, *Max Planck Institute for Molecular Biomedicine, Germany*
Peter Zandstra PhD, *University of British Columbia, Canada*

KSSCR Organizers:

Il-Hoan Oh MD, PhD, *The Catholic University of Korea, Korea*
Youngsook Son PhD, *Kyung Hee University, Korea*
Jihwan Song DPhil, *CHA University, Korea*

Thursday, 26 September	
08:45 – 09:00	Opening ceremony and welcome remarks: Dong-Wook Kim Introduction to ISSCR Symposium: Nancy Witty
09:00 – 09:45	Keynote Lecture 1
	Introduce Shinya Yamanaka: Deepak Srivastava
35' + 10' Q&A	Speaker: <u>Shinya Yamanaka</u> , MD, PhD, Gladstone Institutes, USA and Center for iPS Cell Research & Application, Kyoto University, Japan <i>Recent Progress in iPS Cell Research and Application</i>
09:45 – 10:45	Special Session 1: Cell Fate Decisions
	Session Chair: Christine Mummery
25' + 5' Q&A	Speaker: <u>Janet Rossant</u> , PhD, Hospital for Sick Children, Canada <i>The Blastocyst and its Stem Cells: Understanding Early Cell Fate Decisions and Modeling Early Development</i>
25' + 5' Q&A	Speaker: <u>Yong-Mahn Han</u> , PhD, Korea Advanced Institute of Science and Technology, Korea <i>SHP2 Mutations Induce Early Cell Fate Determination of Noonan Syndrome-iPSCs to the Glial Lineage During Neural Development In Vitro</i>
10:45 – 11:05	Coffee Break
11:05 – 12:35	Special Session 2: Cellular Reprogramming
	Session Chair: Kevin Eggan
25' + 5' Q&A	Speaker: <u>Hans Schöler</u> , PhD, Max Planck Institute for Molecular Biomedicine, Germany <i>Unleashing the Developmental Potential of iPSCs</i>
25' + 5' Q&A	Speaker: <u>Jongpil Kim</u> , PhD, Dongguk University, Korea <i>Recent Advances in Direct Reprogramming and Gene Targeting as New Therapies for Neurodegenerative Diseases</i>
25' + 5' Q&A	Speaker: <u>Hongkui Deng</u> , PhD, Peking University, China

	<i>Using Chemical Approaches to Generate Desired Functional Cells</i>
12:35 – 13:35	Luncheon Symposium 1: Molecular Devices
30'	Speaker: <u>Minho Tak</u> , Ph.D., Molecular Devices Korea, Korea <i>Overcoming challenges of high-content imaging and analysis for 3D cell culture</i>
30'	Floor Setting
12:35 – 13:35	Luncheon Symposium 2: JSK Biomed Inc.
30'	Speaker: <u>Yoonseok Kam</u> , PhD, Cell Analysis Group, Agilent Technologies, Inc., Korea <i>What's in Your Media Matters: Applications of Cellular Metabolic Profiling in Stem Cell Research</i>
30'	Floor Setting
12:35 – 13:35	Luncheon Symposium 3: Thermo Fisher Scientific
30'	Speaker: <u>Uma Lakshmiathy</u> , PhD, Thermo Fisher Scientific, USA <i>Integrated work flow solutions from discovery to translational research</i>
30'	Floor Setting
13:35 –15:25	Concurrent Session 1: Organoids and Development
	Session chair: Il-Hoan Oh
20' + 5' Q&A	Speaker: <u>Joo-Hyeon Lee</u> , PhD, University of Cambridge, UK <i>The Inflammatory Niche Shapes Lung Regeneration</i>
12' + 3' Q&A	Speaker: <u>Paul Vulto</u> , PhD, Mimetas B.v., the Netherlands <i>In Vitro Vascularization of Human Organoids and Tissue Fragments: Cell Cultures' Missing Link?</i>
12' + 3' Q&A	Speaker: <u>Janghwan Kim</u> , PhD, Korea Research Institute of Bioscience and Biotechnology, Korea <i>Single Cell RNA-sequencing Analysis Reveals the Absence of Transient iPSCs During Pluripotency Factor-Mediated Direct Reprogramming</i>
12' + 3' Q&A	Speaker: <u>Enakshi Sinniah</u> , University of Queensland, Australia <i>Comparative Analysis of Diverse Cell States Establishes an Epigenetic Basis for Inferring Regulatory Genes Governing Cell Identity</i>
12' + 3' Q&A	Speaker: <u>Mohammad Jaber</u> , The Hebrew University, Israel <i>Direct Induction of the Three Pre-implantation Blastocyst Cell Types from Fibroblast</i>
20' + 5' Q&A	Speaker: <u>Dongho Choi</u> , MD, PhD, Hanyang University, Korea <i>Chemical derived hepatic progenitors, a silver lining of regenerative medicine of the liver</i>
13:35 –15:25	Concurrent Session 2: Stem Cells and Tissue Engineering
	Session chair: Peter Zandstra
20' + 5' Q&A	Speaker: <u>Seung-Woo Cho</u> , PhD, Yonsei University, Korea <i>Biomimetic Hydrogels for Stem Cell and Reprogrammed Cell Therapy</i>
12' + 3' Q&A	Speaker: <u>Heuijoon Park</u> , PhD, Columbia University, NY, USA <i>Bone Marrow-Derived Epithelial Cells and Hair Follicle Bulge Stem Cells Initiate and Promote Chronic Inflammation-Associated Cutaneous Neoplasms in Mice</i>
12' + 3' Q&A	Speaker: <u>Jinah Jang</u> , PhD, Postech, Korea <i>Printing Human Pancreatic Tissues for the Treatment of Diabetes</i>
12' + 3' Q&A	Speaker: <u>Sang Yoon Moon</u> , University of Western Australia, Australia <i>Modelling of Retinitis Pigmentosa Caused by a Nonsense Mutation in the Rp1 Gene Using Induced Pluripotent Stem Cells</i>
12' + 3' Q&A	Speaker: <u>Jongman Yoo</u> , MD, PhD, CHA University, Korea <i>Generation of Epithelial Organoids from Human Tonsils of Waldeyer's Ring in a Chemically Defined Medium</i>
20' + 5' Q&A	Speaker: <u>Noo Li Jeon</u> , PhD, Seoul National University, Korea <i>Vascularized 3D Organ-on-Chip Platform</i>
13:35 –15:25	Concurrent Session 3: Stem Cells and Regenerative Medicine in Asia
	Session Chairs: Youngsook Son and Ssang-Goo Cho

20' + 5' Q&A	Speaker: <u>Yoshiki Sawa</u> , MD, PhD, President, Japanese Society for Regenerative Medicine (JSRM), Japan <i>Present and Future Perspective of Myocardial Regeneration Therapy</i>
20' + 5' Q&A	Speaker: <u>Baoyang Hu</u> , PhD, Innovation Academy for Stem Cell and Regeneration, Chinese Academy of Sciences, China <i>Neural Differentiation for Discovery and Therapy</i>
12' + 3' Q&A	Speaker: <u>Takanori Takebe</u> , MD, PhD, Tokyo Medical and Dental University, Japan and Cincinnati Children's Hospital, USA <i>Modeling Human Hepato-Biliary-Pancreatic Organogenesis from the Foregut-Midgut Boundry</i>
12' + 3' Q&A	Speaker: <u>Jie Hao</u> , PhD, Innovation Academy for Stem Cell and Regeneration, Chinese Academy of Sciences, China <i>National Stem Cell Resource Center (NSCRC) of China, and its Role in Delivering Stem Cell-based Therapies</i>
12' + 3' Q&A	Speaker: <u>Hyunjung Kim</u> , PhD, Chung-Ang University, Korea <i>Differential Effects of MEK Inhibitors on Neural Stem Cell Differentiation</i>
12' + 3' Q&A	Speaker: <u>Jeong Ho Lee</u> , PhD, KAIST, Korea <i>Deciphering Brain Somatic Mutations in Human Neurological Disorders</i>
15:25 – 15:45	Coffee Break (20') and Floor Setting
15:45 – 17:15	Special Session 3: Tissue and Cancer Stem Cells
	Session Chair: Paul Frenette
25' + 5' Q&A	Speaker: <u>Hideyuki Okano</u> , MD, PhD, Keio University School of Medicine, Japan <i>Modelling of Human Neurodegenerative Diseases Using iPSCs and Genetically Modified Non-Human Primates</i>
25' + 5' Q&A	Speaker: <u>Do Hyun Nam</u> , MD, PhD, Samsung Medical Center, Sungkyunkwan University School of Medicine, Korea <i>Pharmacogenomic Landscape of Patient-Derived Cancer Stem Cells Informs Precision Oncology Therapy</i>
25' + 5' Q&A	Speaker: <u>Ya-Chieh Hsu</u> , PhD, Harvard University, USA <i>Stress-Mediated Hyperactivation of Sympathetic Nerves Drives Melanocyte Stem Cell Depletion</i>
17:15 – 17:25	Break (10')
17:25 – 18:25	Special Session 4: Microenvironment and the Stem Cell Niche
	Session Chair: Amy Wagers
25' + 5' Q&A	Speaker: <u>Il-Hoan Oh</u> , MD, PhD, The Catholic University of Korea, Korea <i>Engineering Stem Cell Niche for Regeneration and Therapy</i>
25' + 5' Q&A	Speaker: <u>Paul Frenette</u> , MD, Albert Einstein College of Medicine, USA <i>A Novel Mechanism for Innate Immune Tolerance of Hematopoietic and Leukemic Stem Cells</i>
18:30 – 19:30	Posters I (odd numbers) and Mixer
19:30 – 20:30	Posters II (even numbers) and Mixer

Friday, 27 September	
08:45 – 09:00	Opening remarks: Dong-Youn Hwang
09:00 – 10:00	Special Session 5: Epigenetics and Aging of Stem Cells
	Session Chair: Ya-Chieh Hsu
25' + 5' Q&A	Speaker: <u>Amy Wagers</u> , PhD, Harvard University, USA <i>Activating Muscle Stem Cell Function Through Immediate Early Transcription Factors and Lipid Mediators</i>
25' + 5' Q&A	Speaker: <u>Amander Clark</u> , PhD, University of California, Los Angeles, USA <i>Restoring the Human Germline</i>
10:00 – 11:00	Special Session 6: New Technologies in Stem Cells
	Session Chair: Hongkui Deng
25' + 5' Q&A	Speaker: <u>Nissim Benvenisty</u> , MD, PhD, The Hebrew University, Israel <i>Haploid Human Embryonic Stem Cells: Derivation and Applications</i>
25' + 5' Q&A	Speaker: <u>Peter Zandstra</u> , PhD, University of British Columbia, Canada <i>Patterning Mesoderm and Blood Development from Human Pluripotent Stem Cells</i>
11:00 – 11:20	Coffee Break (20')
11:20 – 12:50	Special Session 7: Disease Modeling and Stem Cells
	Session Chair: Malin Parmar
25' + 5' Q&A	Speaker: <u>Kevin Eggan</u> , PhD, Harvard University, USA <i>Villages in a Dish: Scaling the Use of Human Cell Models to Detect Drug Genotype Interactions</i>
25' + 5' Q&A	Speaker: <u>Dong-Wook Kim</u> , PhD, Yonsei University, Korea <i>Harnessing the Potential of ES cells and iPS Cells: New Opportunities for Therapeutics, Disease Modeling, and Genome Editing</i>
25' + 5' Q&A	Speaker: <u>Christine Mummery</u> , PhD, Leiden University, The Netherlands <i>Cardiovascular Diseases and Drugs: Where are We with hiPSC Models?</i>
12:50 – 13:50	Luncheon Symposium 4: KANGSTEM BIOTECH
30'	Speaker: TBA Title: TBA
30'	Floor Setting
12:50 – 13:50	Luncheon Symposium 5: Bio-Techne
30'	Speaker: <u>Stanley Kim</u> , Country Manager, Bio-Techne Korea LLC, Korea <i>GMP Compliant Ancillary Small Molecules for Stem Cell Therapies</i>
30'	Floor Setting
12:50 – 13:50	Luncheon Symposium 6: Ajinomoto Co., Inc.
30'	Speaker: <u>Yoichi Kosodo</u> , PhD, Korea Brain Research Institute, Korea <i>Use of Biomaterials to Regulate Neural Differentiation from Human iPSCs</i>
30'	Floor Setting
13:50 – 15:15	Concurrent Session 4: Genome Editing in Stem Cells
	Session Chair: Hans Schöler
20' + 5' Q&A	Speaker: <u>Yong-Sam Kim</u> , PhD, Korea Research Institute of Bioscience and Biotechnology, Korea <i>Highly Efficient Genome Editing by CRISPR-Cpf1 Using CRISPR RNA with a U-rich 3'-Overhang</i>
12' + 3' Q&A	Speaker: <u>Mi-Yoon Chang</u> , PhD, Hanyang University, Korea <i>A Lin28a Loss-of-Function Associated with Early-Onset Parkinson's Disease</i>
12' + 3' Q&A	Speaker: <u>Huaigeng Xu</u> , MD, PhD, Centre for iPS Cell Research and Application, Japan <i>Enhanced Immunocompatibility of iPS Cells by CRISPR-Cas9 Targeted Disruption of HLA Genes</i>

12' + 3' Q&A	Speaker: <u>Suresh Ramakrishna</u> , PhD, Hanyang University, Korea <i>Genome-Wide Screening of Functional Deubiquitinating Enzymes Regulating Stemness-Related Proteins Using CRISPR/Cas9-Mediated Dubs Knockout Library</i>
12' + 3' Q&A	Speaker: <u>Shin-II Kim</u> , PhD, AceRNA Technologies Co., Japan <i>Efficient Detection and Purification of Human PSC-Derived Cell Populations Using RNA Switches</i>
13:50 – 15:15	Concurrent Session 5: Application of Stem Cell Technologies
	Session Chair: Janet Rossant
20' + 5' Q&A	Speaker: <u>Hyo-Soo Kim</u> , MD, PhD, Seoul National University Hospital, Korea <i>Discovery of a New Functional Specific Surface Marker of the Cardiac Lineage from Pluripotent Stem Cells and Its Significance in Heart Development and Therapeutic Application</i>
12' + 3' Q&A	Speaker: <u>Hyun Jung Park</u> , PhD, CHA University, Korea <i>Human iPSC-Derived Astroglia Delay Disease Progression in YAC128 Huntington's Disease Mice</i>
12' + 3' Q&A	Speaker: <u>Tae-Hee Kim</u> , PhD, The Hospital for Sick Children/University of Toronto, Canada <i>Promotion of Pancreatic Beta Cell Differentiation by Modulating Organ-Specific Stromal Niche Signals</i>
12' + 3' Q&A	Speaker: <u>Yoon Khei Ho</u> , PhD, National University of Singapore, Singapore <i>Therapeutic Potential of Prodrug Solid Tumour Therapy by Non-Viral Modified Mesenchymal Stem Cells in Mice Model and Companion Animal</i>
12' + 3' Q&A	Speaker: <u>Jae Ho Kim</u> , PhD, Pusan National University College of Medicine, Korea <i>Therapy of Ischemic Diseases Using Human Induced Pluripotent Stem Cells</i>
13:50 – 15:15	Concurrent Session 6: Stem Cell Quality Control for Cell Therapy Co-organized by GAIT/K-NIH/ISCB
	Session Chair: Jihwan Song
5'	Speaker: <u>Jihwan Song</u> , DPhil, CHA University and GAIT, Korea <i>Usefulness of the Korean HLA-Homozygous iPSC Lines to Multiple Populations</i>
8' + 2' Q&A	Speaker: <u>Stephen Sullivan</u> , PhD, The Global Alliance for iPSC Therapies (GAiT), UK <i>The Global Alliance for iPSC Therapies (GAiT): Quality Testing of Clinical-Grade Induced Pluripotent Stem Cells</i>
8' + 2' Q&A	Speaker: <u>Soo Kyung Koo</u> , PhD, Korea NIH, Korea <i>Latest Accomplishments of the National Center for Stem Cell and Regenerative Medicine</i>
12' + 3' Q&A	Speaker: <u>Glyn Stacey</u> , PhD, International Stem Cell Banking Initiative, UK <i>Characterization and Quality Control of Human Stem Cell Lines: Safety and Quality of Cell Therapies</i>
12' + 3' Q&A	Speaker: <u>Uma Lakshmiopathy</u> , PhD, Thermo Fisher Scientific, USA <i>Integrated iPSC Characterization Optimal for Cell Therapy Manufacturing</i>
12' + 3' Q&A	Speaker: <u>Nissim Benvenisty</u> , MD, PhD, The Hebrew University, Israel <i>Cancer-related mutations in primed and naive human pluripotent stem cells</i>
12' + 3' Q&A	Speaker: <u>Kapil Bharti</u> , PhD, NIH/National Eye Institute, USA <i>Autologous iPS Cell Therapy for Macular Degeneration: From Bench-to-Bedside</i>
15:15 – 15:35	Coffee Break (20') and Floor Setting
15:35 – 17:05	Special Session 8: Stem Cells in Translation
	Session Chair: Hideyuki Okano
25' + 5' Q&A	Speaker: <u>Malin Parmar</u> , PhD, Lund University, Sweden <i>Towards a Patient-Specific Treatment for Parkinson's Disease</i>
25' + 5' Q&A	Speaker: <u>Youngsook Son</u> , PhD, Kyung Hee University, Korea <i>Trafficking of Endogenous Stem Cells in the Bone Marrow for Tissue Repair</i>
25' + 5' Q&A	Speaker: <u>Insoo Hyun</u> , PhD, Case Western Reserve University, USA <i>Stem Cell Ethics and Policy: Converging Paths and New Synergies</i>
17:05 – 17:15	Break (10')

17:15 – 18:00	Keynote Lecture 2
	Introduce Deepak Srivastava: Shinya Yamanaka
35' + 10' Q&A	Speaker: <u>Deepak Srivastava</u> , MD, Gladstone Institutes, USA <i>Cellular Reprogramming Approaches in Human Genetics and Regenerative Medicine</i>
18:00 – 18:25	Poster award and closing ceremony: Eekhoon Jho Closing remarks: Youngsook Son
18:30 – 21:00	Conference dinner (invitees only)