



3rd International Annual Conference of the German Stem Cell Network (GSCN)

Otto Stern Center, Campus Riedberg, University of Frankfurt/Main
9 – 11 September 2015

PRELIMINARY PROGRAM

Wednesday, 9 September

11:00 – 12:00 Registration and light lunch

OSZ 1: Opening

12:00 – 12:15 Welcome to the Goethe University, Otto Stern Center
Enrico Schleiff, Vice President, Goethe University

12:15 – 12:30 Opening
Thomas Braun (Acting President, GSCN)

12:30 – 13:15 **Keynote lecture I**
K1 - Epigenetic reactivation of adult epicardium underpins endogenous heart repair
Paul Riley, University of Oxford, U.K. (Chair: *Thomas Braun*)

13:15 – 14:00 **Keynote lecture II**
K2 - Modeling human lung development and disease using pluripotent stem cells
Hans-Willem Snoeck, Columbia University, New York, U.S.A. (Chair: *Ulrich Martin*)

14:00 – 14:30 Coffee break/Industry exhibition

Concurrent scientific working group session I

OSZ 3: Stem cells in regenerative therapies I (Chairs: *Michael Cross/Ulrich Martin*)

14:30 – 14:45 Overview
Michael Cross, University of Leipzig

14:45 – 15:00 T01 - Atrial & ventricular stem cells from same heart show different functional competencies for cardiac repair but are superior to endothelial progenitors
Parul Dixit, University of Otago, Dunedin, New Zealand

15:00 – 15:15 T02 - Cardiomyogenesis of human pluripotent stem cells is associated with transformation of metabolism and expression of specific PDLIM5 splice variants
Sarah A. Konze, Hannover Medical School

15:15 – 15:30 T03 - Gene modification in stem cells targeting megakaryopoiesis
Lisette Johanna Latorre Rey, Paul Ehrlich Institute, Langen



15:30 – 15:45 T04 - A novel cell surface marker for the enrichment of transplantable dopaminergic precursor cells from differentiated human pluripotent stem cells

Daniela Lehnert, Miltenyi Biotec GmbH, Bergisch Gladbach

15:45 – 16:00 Working group discussion “Stem cells in regenerative therapies”

OSZ 4: Pluripotency and embryonic stem cells (Chairs: *Hans Schoeler/Mathias Treier*)

14:30 – 14:45 Overview

Hans Schöler, Max Planck Institute for Molecular Biomedicine, Münster

14:45 – 15:00 T05 - Foxd3 promotes the exit from naïve pluripotency and prevents germline specification through enhancer decommissioning

Alvaro Rada-Iglesias, CMMC, University of Cologne

15:00 – 15:15 T06 - Ground state conditions induce rapid reorganization of core pluripotency factor binding before global epigenetic reprogramming

Christina Galonska, Harvard University, Cambridge, U.S.A.

15:15 – 15:30 T07 - TDP-43 safeguards pluripotency by regulation of alternative polyadenylation

Miha Modic, Helmholtz Center Munich and MRC LMB Cambridge, U.K.

15:30 – 15:45 T08 - LncRNA Panct1 maintains mouse embryonic stem cell identity by recruiting TOBF1 to OCT-SOX sequences in early G1

Debojyoti Chakraborty, Dresden University of Technology

15:45 – 16:00 T09 - Decoding the heterogeneity of pluripotent stem cells at the single cell level

Simon Hastreiter, ETH Zürich BSSE, Basel, Switzerland

OSZ 6: Computational stem cell biology (Chairs: *Georg Füllen/Ingo Röder*)

14:30 – 14:45 Overview

Georg Füllen, IBIMA, University of Rostock

14:45 – 15:00 T10 - Morpheus: computational modeling for stem cell biologists

Walter de Back, Dresden University of Technology

15:00 – 15:15 T11 - Inference of spatiotemporal effects on cellular state transitions from time-lapse microscopy

Michael Strasser, Helmholtz Center Munich

15:15 – 15:30 T12 - Prospective identification of hematopoietic lineage choice

Carsten Marr, Helmholtz Center Munich

15:30 – 15:45 T13 - On the quantification of hematopoietic tissue remodeling in aging and disease: simulations, measures and predictions

Christoph Baldow, Dresden University of Technology

15:45 – 16:00 Working group discussion “Computational stem cell biology”

16:00 – 16:30 Coffee break/Industry exhibition

16:30 – 18:30 **Poster session I: P001 - P074**

P001 - P024: Hematopoietic stem cells

P025 - P038: Stem cells in regenerative therapies

P039 - P048: Stem cells in regenerative therapies II:

Mesenchymal stem/stroma cells

P049 - P074: Stem cells in disease modeling and drug development



Even numbers: please present your poster from 16:30 - 17:30

Odd numbers: 17:30 - 18:30

18:30 – 21:00

Get together for all participants

Dinner buffet in the foyer of the Otto Stern Center

Thursday, 10 September

Concurrent scientific working group session II

OSZ 3: Stem cells in disease modeling and drug development (Chairs: *Karl-Ludwig Laugwitz/Oliver Brüstle*)

- 09:00 – 09:15 Overview
Karl-Ludwig Laugwitz, Technische Universität München
- 09:15 – 09:30 T14 - Infection, innate immune signaling and cancer in the stomach – stem cell-derived organoids as a new model
Sina Bartfeld, Hubrecht Institute, Utrecht, Netherlands
- 09:30 – 09:45 T15 - Modeling reactive gliosis in mESC-derived retina organoids
Manuela Völkner, DZNE Dresden
- 09:45 – 10:00 T16 - Patient iPSC-derived NPCs as a model for mtDNA mutations reveal HCS/HTS-suitable phenotypes
Raul Bukowiecki, Max Delbrück Center, Berlin
- 10:00 – 10:15 T17 - Intracellular calcium-release and autophagy modulation trigger ataxin-3 positive nuclear inclusions in Machado-Joseph disease-specific neurons
Johannes Jungverdorben, Institute of Reconstructive Neurobiology, Bonn
- 10:15 – 10:30 Working group discussion “Stem cells in disease modeling and drug development”

OSZ 4: Stem cells in disease: cancer stem cells (Chairs: *Thomas Brabletz/Andreas Trumpp*)

- 09:00 – 09:15 Overview
Thomas Brabletz, FAU Erlangen
- 09:15 – 09:30 T18 - Epigenetic age-predictions in cancer: aging signatures are associated with malignant transformation and clinical prognosis
Wolfgang Wagner, RWTH Aachen Medical School
- 09:30 – 09:45 T19 - Triple-negative inflammatory breast cancer: syndecan-1 is a biomarker and regulator of cancer stem cell phenotype via IL-6/STAT-3 and Notch-3
Sherif A. Ibrahim, Faculty of Science, Cairo University, Egypt
- 09:45 – 10:00 T20 - Targeting tumor-initiating stem cells in colorectal carcinoma
Ilaria Lunger, Goethe University Hospital and LOEWE Center Frankfurt
- 10:00 – 10:15 T21 - Unraveling the subclonal architecture of adult B-ALL at a single cell level
Wojcik Bartosch, Goethe University Hospital and LOEWE Center Frankfurt
- 10:15 – 10:30 Working group discussion “Stem cells in disease: cancer stem cells”



OSZ 6: Stem cells in development (Chairs: *Jan Lohmann/Thomas Braun*)

- 09:00 – 09:15 Overview
Jan Lohmann, Centre for Organismal Studies (COS) Heidelberg
- 09:15 – 09:30 T22 - Understanding the curious case of trophoblast differentiation
Micha Drukker, Helmholtz Center Munich
- 09:30 – 09:45 T23 - The Ca²⁺-regulated phosphatase calcineurin controls proportional growth of zebrafish regenerating fins
Christopher Antos, Max Planck Institute for Molecular Cell Biology and Genetics, Dresden
- 09:45 – 10:00 T24 - Antagonistic roles of miR-181a and orphan nuclear receptor GCNF in regulating human neural stem cell maintenance
Laura Stappert, Institute of Reconstructive Neurobiology, Bonn
- 10:00 – 10:15 T25 - Direct Nkx2-5 transcriptional repression of Isl1 controls cardiomyocyte subtype identity
Jessica Haas, Klinikum r.d.l. der TUM, Munich
- 10:15 – 10:30 T26 - Hypoxia induced epigenetic mechanism underlying Isl1+ cardiac progenitor cell homeostasis control
Xuejun Yuan, Max Planck Institute for Heart and Lung Research, Bad Nauheim
- 10:30 – 11:00 Coffee break/Industry exhibition

Industry session: “Technologies from GSCN industry partners”

OSZ 3: Main supporter (chair: *Albrecht Müller*)

- 11:00 – 11:05 Introduction
- 11:05 – 11:35 C1 – Robust expansion of human pluripotent stem cells: integration of bioprocess design with transcriptomic and metabolomic characterization
Margarida Serra, Instituto de Tecnologia Química e Biológica (ITQB), Universidade Nova de Lisboa (UNL), Oeiras, Portugal, representing Eppendorf AG
- 11:35 – 12:05 C2 – A human iPS cell platform to study pancreatic disease
Alexander Kleger, University Hospital Ulm, representing PeproTech GmbH
- 12:05 – 12:35 C3 – Advances in pluripotent stem cell culture and differentiation
David Kuninger, Thermo Fisher Scientific/Life Technologies GmbH

OSZ 4: Supporter (chair: *Hartmut Geiger*)

- 11:00 – 11:05 Introduction
- 11:05 – 11:35 C4 – Consistency of pluripotent stem cell culture systems and differentiation protocols for generation of functional human stem cell derived hepatocytes
Mia Emgård, Takara Clontech
- 11:35 – 12:05 C5 – Reprogramming of somatic cells to induced pluripotent stem cells using a novel synthetic self-replicating RNA vector in a feeder-free system
Alexandra Blak, STEMCELL Technologies SARL
- 12:05 – 12:35 C6 – High throughput electrospinning to generate scaffolds containing cells for regenerative medicine applications
Thomas Hayes, BioInicia S.L./I&L Biosystems GmbH



OSZ 6: Supporter (chair: Ana Martin-Villalba)

11:00 – 11:05	Introduction
11:05 – 11:35	C7 – An optimal serum-free, xeno-free culture system for the isolation, expansion and differentiation of clinical grade human mesenchymal stem cells <i>Orit Ecker-Cohen</i> , Biological Industries / Biofroxx GmbH
11:35 – 12:05	C8 – Explore what makes every stem cell unique from inside out <i>Mark Lynch</i> , Fluidigm Europe B.V.
12:05 – 12:35	C9 – GrowDex® hydrogel for 3D cell cultures <i>Lauri Paasonen</i> , UPM-Kymmene Corporation
12:35 – 14:00	Lunch buffet/Industry exhibition/Poster viewing
13:00 – 14:00	Showcase: Outreach + Patient Information (Chairs: <i>Ira Herrmann/Tobias Cantz</i>)

OSZ 1: Presidential Symposium

14:00 – 14:30	PS1 - Evolving stem cell-based strategies for targeting neurological disorders <i>Oliver Brüstle</i> , Institute of Reconstructive Neurobiology, Bonn
14:30 – 15:00	Young Investigator Award PS2 - <i>In vitro</i> cell culture models to decipher brain development and neuronal integration <i>Julia Ladewig</i> , Institute of Reconstructive Neurobiology, Bonn
15:00 – 15:30	Female Scientist Award PS3 – From neurogenesis to neural repair <i>Magdalena Götz</i> , Helmholtz Center Munich
15:30 – 16:00	Publication of the Year 2015 Award (07/14 – 06/15) PS4 – Primate-specific endogenous retrovirus-driven transcription defines naive-like stem cells <i>Jichang Wang</i> (w. <i>Zsuzsanna Izsvak</i>), Max Delbrück Center, Berlin
16:00 – 16:30	Coffee break/Industry exhibition
16:30 – 18:30	Poster session II: P074 - P147 P075 - P093: Pluripotency and embryonic stem cells P094 - P107: Programing and Reprograming P108 - P113: Somatic stem cells P114 - P130: Stem cells in development P131- P143: Stem cells in disease: Cancer stem cells P144 - P147: Computational stem cell biology Even numbers: please present you poster from 16:30 - 17:30 Odd numbers: 17:30 - 18:30
18:30 – 19:30	Membership meeting
19:30 – 20:00	Bus transfer
20:00 – 01:00	GSCN Networking evening for all participants with dinner buffet and DJ at the Banquet Hall I, Casino, Campus Westend



Friday, 11 September

Concurrent scientific working group session III

OSZ 3: Hematopoietic stem cells (Chairs: *Timm Schröder/Claudia Waskow*)

- 09:00 – 09:15 Overview
Timm Schröder, ETH Zürich BSSE, Basel, Switzerland
- 09:15 – 09:30 T27 - CCND1/CDK4-mediated cell cycle progression provides a competitive advantage for human hematopoietic stem and progenitor cells *in vivo*
Nicole Mende, Dresden University of Technology
- 09:30 – 09:45 T28 - The H3K4 histone methyltransferase Setd1b is required for haematopoietic stem cell homeostasis in mice
Kerstin Schmidt, Biotechnology Center TU Dresden
- 09:45 – 10:00 T29 - Molecular and functional heterogeneity of dormant HSCs
Nina Cabezas-Wallscheid, German Cancer Research Center (DKFZ) Heidelberg
- 10:00 – 10:15 T30 - High efficiency gene correction in hematopoietic cells by template-free CRISPR/Cas9 genome editing
Frank Schnütgen, University Hospital Frankfurt
- 10:15 – 10:30 Working group discussion “Basic, translational and applied hematopoiesis”

OSZ 4: Somatic stem cells (Chairs: *Ana Martin-Villalba/Michael Rieger*)

- 09:00 – 09:15 Overview
Ana Martin-Villalba, German Cancer Research Center (DKFZ) Heidelberg
- 09:15 – 09:30 T31 - Visualization of the short-range Wnt gradient in the intestinal stem cell niche
Henner Farin, Georg-Speyer-Haus, Frankfurt
- 09:30 – 09:45 T32 - Clonal heterogeneity within the exocrine pancreas
Damian Wollny, German Cancer Research Center (DKFZ) Heidelberg
- 09:45 – 10:00 T33 - Single cell analysis of cellular mechanisms regulating adult neural stem cell fate
Onur Basak, Hubrecht Institute, Utrecht, Netherlands
- 10:00 – 10:15 T34 - *In vivo* Ribotag analysis reveals translational control during neural stem cell differentiation
Avni Baser, German Cancer Research Center (DKFZ) Heidelberg
- 10:15 – 10:30 Working group discussion “Somatic stem cells and development”

OSZ 5: Stem cells in reg. therapies II: Mesenchymal stem/stroma cells (Chairs: *Dirk Strunk/Karen Bieback*)

- 09:00 – 09:15 Overview
Dirk Strunk, Paracelsus Medical University, Salzburg, Austria
- 09:15 – 09:30 T35 - The transcription factor GATA2 controls mesenchymal stem cell fate
Alexander Tolkachov, Center for Cardiovascular Research, Charité, Berlin

- 09:30 – 09:45 T36 - Attenuation of alloimmunity to human endothelial colony forming cells (ECFC) by interaction with mesenchymal stem/progenitor cells (MSPC)
Naima Souidi, Berlin-Brandenburg Center for Regenerative Medicine and Institute of Medical Immunology, Charité, Berlin
- 09:45 – 10:00 T37 - Murine bone marrow derived mesenchymal stem cells as a putative therapy approach for influenza-virus induced pneumonia
Lina Jankauskaite, Universities of Giessen and Marburg Lung Center (UGMLC), Giessen
- 10:00 – 10:15 T38 - Regenerative potential of human pluripotent stem cell-derived MSCs in a Gunn rat liver injury model
Lucas-Sebastian Spitzhorn, University Hospital of Düsseldorf
- 10:15 – 10:30 Working group discussion “Stem cells in regenerative therapies” - future progress with MSCs

OSZ 6: Programing and reprograming (Chairs: *Micha Drukker/Frank Edenhofer*)

- 09:00 – 09:15 Overview
Micha Drukker, Helmholtz Center Munich
- 09:15 – 09:30 T38 - An inducible overexpression system for rapid and highly efficient induction of mature cell types from human pluripotent stem cells
Matthias Pawlowski, Cambridge Stem Cell Institute, U.K.
- 09:30 – 09:45 T39 - Reprogramming triggers endogenous LINE-1, Alu and SVA retrotransposition in human induced pluripotent stem cells affecting host gene expression
Gerald Schumann, Paul Ehrlich Institute, Langen
- 09:45 – 10:00 T40 – Efficient patterning of human pluripotent stem cells towards distinct mesendodermal subtypes simply by modulation of the bulk cell density
Henning Kempf, Hannover Medical School
- 10:00 – 10:15 T41 - Direct *in vivo* glia-to-neuron conversion in the postnatal mouse cerebral cortex
Sophie Péron, Institute of Physiological Chemistry, Johannes Gutenberg University Mainz
- 10:15 – 10:30 Working group discussion “Pluripotency and reprograming”
- 10:30 – 11:00 Coffee break/Industry exhibition

Concurrent strategic working group session

OSZ 3: Stem cell technologies (Chairs: *Frank Emmrich/Andreas Bosio*)

- 11:00 - 11:30 S1 - Technologies in genetic engineering of stem cells
Ulrich Martin, Hannover Medical School
- 11:30 - 12:00 S2 - Genetic engineering of human pluripotent stem cells using TALENs nucleases
Sebastian Diecke, Max Delbrück Center, Berlin
- 12:00 - 12:30 S3 - Mammalian genome engineering in the era of CRISPR/Cas
Ralf Kühn, Max Delbrück Center, Berlin



OSZ 4: Career development (Chairs: *Insa Schröder/Hartmut Geiger*)

- 11:00 - 11:15 Introduction
Insa Schröder, GSI Helmholtzzentrum für Schwerionenforschung GmbH, Darmstadt
- 11:15 - 12:00 S4 – How to apply in research and industry
Hanna Proner, academics/Die Zeit, Hamburg
- 12:00 - 12:30 Panel discussion

OSZ 5: Clinical trials and regulatory affairs (Chairs: *Andreas Kurtz/Halvard Bönig*)

- 11:00 - 11:05 Introduction
Andreas Kurtz, Berlin-Brandenburg Center for Regenerative Medicine, Charité, Berlin
- 11:05 - 11:25 S5 – Regulatory aspects and classifications of stem cell based medicinal products
Egbert Flory, Paul Ehrlich Institute, Langen
- 11:25 - 11:45 S6 – Accelerating the clinical development of cell based therapies
Natalie Mount, Cell Therapy Catapult, London, U.K.
- 11:45 - 12:00 S7 - The ADIPOA-1/-2 trial - Adipose tissue derived stromal cells for osteoarthritis therapy
Oliver Pullig, Fraunhofer IGB, Würzburg branch
- 12:00 - 12:15 S8 - Cell Therapy for bone defects: *in vitro*, *in vivo*, and first clinical results
Ingo Marzi, Goethe University Hospital, Frankfurt
- 12:30 – 14:00 Lunch buffet/Industry exhibition /Poster viewing
- 12:45 – 13:45 Meet-the-expert table: Stem cell technologies – CRISPR/Cas Technology (*Ralf Kühn*) and – TALENs Technology (*Sebastian Diecke*) limited to 10 registered participants each
- 12:45 – 13:45 Drop-in booth on regulatory affairs and clinical trials with *Egbert Flory*, *Natalie Mount*, u.a.

OSZ 1: Joined Session with LOEWE Center for Cell and Gene Therapy Frankfurt (CGT)

- 14:00 – 14:45 **Keynote lecture III**
K3 - Pluripotency in the artificial cell space
Andras Nagy, Lunenfeld-Tanenbaum Research Institute, Toronto, Canada
(Chair: *Harald von Melchner*)
- 14:45 – 15:30 **Keynote lecture IV**
K4 - Modeling and treating neural disease using human pluripotent stem cells
Lorenz Studer, Memorial Sloan Kettering Cancer Center, New York (Chair: *Lenhard Rudolph*)
- 15:30 – 16:00 Coffee break/Industry exhibition



CGT Session (Chair: *Lenhard Rudolph*)

- 16:00 - 16:20 CGT1 - Regulation of second heart field progenitor cells: discovering key molecular players
Gergana Dobрева, Max Planck Institute for Heart and Lung Research, Bad Nauheim
- 16:20 - 16:40 CGT2 - Functional systems analysis of the adult muscle stem cell identifies crucial regulators of muscle regeneration
Johnny Kim, Max Planck Institute for Heart and Lung Research, Bad Nauheim
- 16:40 - 17:00 CGT3 - Hematopoietic stem cell fate decision control at single cell resolution
Michael Rieger, Goethe University Hospital and LOEWE Center Frankfurt
- 17:00 - 17:20 CGT4 - The Sleeping Beauty transposon system for genetic engineering in stem cells
Zoltán Ivics, Paul Ehrlich Institute, Langen

Closing ceremony

- 17:30 – 17:45 Poster award ceremony and announcement of industry quiz winners
(*Daniel Besser; GSCN*)
- 17:45 – 18:00 Outlook and closing remarks
Incoming president: *Ulrich Martin*

End of GSCN conference

Announcement (please inform the registration desk for transfer)

- 19:00 – 20:00 Campus Westend, Hall West – GSCN Öffentlichkeitsveranstaltung
Hubert Serve (Frankfurt), Andreas Zeiher (Frankfurt), Thomas Braun (Bad Nauheim)
Movies and panel discussion with Stefanie Seltsmann (DKFZ)
(*Stefanie Mahler/Ira Herrmann/Tobias Cantz*)
- 20:00 – 21:00 Reception Public event

