4th Annual Conference
of the German Stem Cell Network (GSCN)
12 – 14 September 2016
Hannover Medical School (MHH)

Organizer:
German Stem Cell Network (GSCN)
c/o Max Delbrück Center (MDC)
Robert-Rössle-Str. 10
13125 Berlin

phone: +49 30 9406 2487
fax: +49 30 9406 2486
e-mail: gscn.office@mdc-berlin.de
web: www.gscn.org
Greetings from Stephan Weil, Minister-President of Lower Saxony

As Minister-President of Lower Saxony, it gives me great pleasure to welcome all attendants of the 4th International Annual Conference of the German Stem Cell Network (GSCN). Each year this event brings together experts in stem cell research and regenerative medicine to present their work and to discuss their latest research findings.

I am convinced that this year, Hannover Medical School and the Cluster of Excellence “REBIRTH” as host institutions will provide a very stimulating environment to discuss the latest developments in stem cell research and genome and tissue engineering. The State of Lower Saxony is at the forefront of research in these areas, not only with the Cluster of Excellence “REBIRTH”, but also with other research institutions, innovation-minded professionals, and strong enterprises.

I am convinced that this conference represents an outstanding opportunity for national and international scientists to discuss new findings and emerging, cutting-edge advances in a stimulating and interdisciplinary atmosphere. I am proud that Lower Saxony is home to this conference.

During your visit to Hannover, I hope you will take the opportunity to enjoy everything that the capital of Lower Saxony has to offer – from its numerous cultural and scenic treasures, to its fine dining and gracious hospitality. From Hannover Medical School it is only a short trip to the City Center: home to our opera, museums and historic sites including the new and old town hall, and the famous baroque gardens at Herrenhausen.

Finally, I would like to extend a warm welcome to all participants on behalf of the State of Lower Saxony, in particular our international guests and speakers. I wish you lively discussions and active exchanges of experiences in all areas of stem cell research.

Hannover, September 2016

Stephan Weil
Minister-President of Lower Saxony
Welcome address

Dear Friends and Colleagues,

It is a great pleasure to welcome you to the 4th Annual Conference of the German Stem Cell Network (GSCN) in Hannover. This conference is hosted by the Cluster of Excellence REBIRTH and Hannover Medical School.

This year, there will be a particular focus on genome engineering and on “translation” with various relevant aspects including disease modeling and drug development, relevant technologies, clinical trials, regulatory affairs and ethical aspects. The conference will be accompanied by a symposium of ethicists on pressing questions in gene, embryo and stem cell research, will foster the interaction between scientists working in different areas of stem cell research, and aims to bring together basic scientists and clinician scientists.

Supported by the Federal Ministry of Education and Research, the GSCN is now in its 4th year. Besides organization of the annual conference and the participation in the European UniStem Day, one key activity of the recent year was the composition and publication of the first White Paper on Stem Cell Research as an updated information source for the public and politics, also aiming at raising additional funds for the German stem cell community.

Meanwhile, the GSCN annual conferences are a “must-go” event for stem cell researchers in Germany and have substantially stimulated networking in the German and European stem cell scene. Remarkably, also the number of international GSCN members and attendees is continuously increasing.

Since promotion of junior scientists is a particular aim of the GSCN, most speakers are selected from the best abstracts that have been submitted. On the other hand, we invited internationally leading researchers to contribute a keynote lecture. We are happy that Alexander Meissner (Cambridge), Sean Morrison (Dallas), Hiroshi Nagashima (Tokyo), Thomas Eschenhagen (Hamburg), Peter Zandstra (Toronto) and Pete Coffey (London) agreed to join us here in Hannover. Again, awardees of the GSCN prizes will present their results during the Presidential Symposium. The final session of the conference will be a Joined Session with the Cluster of Excellence REBIRTH further highlighting translational aspects of stem cell research and providing an outlook by the former REBIRTH member and new president of the GSCN, Lenhard Rudolph.

With best wishes for another great GSCN conference,

Yours sincerely,

Ulrich Martin (GSCN Acting president)

For the program committee

Daniel Besser (Berlin) • Thomas Braun (Bad Nauheim) • Tobias Cantz (Hannover) • Tilman Fabian (Hannover) • Ulrich Martin (Hannover) • Karl Lenhard Rudolph (Jena) • Claudia Waskow (Dresden)
Is it time to replace FBS with Stemulate™ HPL?

Expand your cells quickly, safely, and consistently.

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Stemulate has been tested with multiple types of cells in vitro. These cells include mesenchymal stem cells (MSCs) from a variety of tissue sources (such as adipose, bone marrow, and placenta), endothelial colony forming cells, and fibroblasts. Using Stemulate at concentrations of 2.5%, 5%, and 10% supported cell proliferation at levels comparable to fetal bovine serum (FBS).¹

¹Data on file.

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Stemulate human platelet lysate is the right choice for expanding human cells because it is free of animal proteins and is made from human donor platelet units screened and tested according to U.S. FDA requirements for transfusable platelets. Stemulate is produced according to GMP methodology in a purpose-built facility.

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Conference Information

Venue
Hannover Medical School, Building J01
Carl-Neuberg-Str. 1 | 30625 Hannover, Germany

Date
Monday, 12 September to Wednesday, 14 September 2016

Registration

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<tr>
<th>Fee Type</th>
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<tr>
<td>Regular fee</td>
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<tr>
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<td>200 €</td>
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<td>Technical assistant fee</td>
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<tr>
<td>Day ticket fee (onsite)</td>
<td>200 €</td>
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<tr>
<td>Day ticket member fee</td>
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The registration fee includes attendance at all scientific sessions, poster and industry exhibition, lunch and coffee breaks, the get-together, the networking evening, free internet access and conference documents including badge, final program and abstract book.

Internet

Internet access via Wireless LAN is free of charge. Please use this login data:
User: Hotspot 1; Password: mh-hannover

Posters exhibition

Posters will be displayed during the conference in two sessions on the ground floor (S0). Authors are asked to be present at their poster during the poster session. You will find the number of your poster in this abstract volume. Posters in poster session I should be mounted on Monday, 10:00 – 16:00 h and removed latest on Tuesday at 14:00 h. Posters in poster session II should be mounted on Tuesday, 14:00 – 16:30 h and removed latest on Wednesday at 16:00 h.

**Poster session I (P001 – P077)**
Monday, 12 September 2016, 17:00 – 19:00 h

Even numbers will be presented 17:00 – 18:00 h and odd numbers 18:00 – 19:00 h.

- Pluripotency and reprograming (P001 – P017)
- Somatic stem cells and development (P018 – P039)
- Hematopoietic stem cells (P040 – P053)
- Stems cells and ageing, genome stability and epigenetics (P054 – P060)
- Stem cells in diseases: cancer stem cells (P061 – P066)
- Computational stem cell biology and systems biology (P067 – P077)

The poster session I is supported by BioFroxx GmbH / Biological Industries.

**Poster session II (P078 – P147)**
Tuesday, 13 September 2016, 16:30 – 18:30 h

Even numbers will be presented 16:30 – 17:30 h and odd numbers 17:30 – 18:30 h.

- Tissue engineering and organoids (P078 – P091)
- Genome engineering and gene therapy (P092 – P097)
- Stem cells in regenerative therapies (P098 – P119)
- Stem cells in regenerative therapies: mesenchymal stem/stroma cells (P120 – P124)
- Stem cells in disease modeling and drug development (P125 – P147)

The poster session II is supported by Thermo Fisher Scientific.
GSCN Awards

Travel awards
The following participants have been selected for the GSCN travel awards.

- Birte Baudis, University Hospital of Cologne
- Christian Böhme, University of Leipzig
- Larisa Condurat, University of Freiburg
- Nora Freyer, BCRT, Charité – Universitätsmedizin Berlin
- Devy Garna, Dental Institute King’s College London, United Kingdom
- Florian Murke, University Hospital of Essen

The travel awards are supported by the GSCN member company Eppendorf AG.

Poster awards
There will be two poster awards for each poster session. Authors are asked to be present at the poster award ceremony, which will take place on Wednesday, 14 September 2016, 17:45 – 18:00 h in the lecture hall F.

The poster awards are supported by the member company Peprotech GmbH.

Scientific awards 2016
A top-class commission supported the GSCN in choosing this year’s awardees. The three awardees will give a presentation in the Presidential Symposium on Tuesday, 13 September 2016, 14:00 – 16:00 h.

- **GSCN Young Investigator Award:** Leo Kurian, Center for Molecular Medicine Cologne (CMMC), University of Cologne
- **GSCN Female Scientist Award:** Claudia Waskow, Regeneration in hematopoiesis, TU Dresden
- **GSCN Publication of the Year Award** (July 2015 to June 2016): Dr. Guangqi Song, Dr. Martin Pacher, Prof. Michael Ott and Dr. Amar Deep Sharma of the REBIRTH Center and TWINCORE Center at Hannover Medical School. Their publication “Direct Reprogramming of Hepatic Myofibroblasts into Hepatocytes In Vivo Attenuates Liver Fibrosis” appeared in the journal *Cell Stem Cell* (Song, G. et al., 2016, Cell Stem Cell, 18, 797 – 808, doi: 10.1016/j.stem.2016.01.010.).
Social events

Get-together

Monday, 12 September 2016
19:45 – 21:00 h
Hannover Medical School

All participants and exhibitors are invited to a Get-together with dinner buffet at the foyer of the MHH (Ground floor).

Networking evening

Tuesday, 13 September 2016
19:00 – 01:00 h
Yukon Market Hall
Hannover Zoo

Experience an extraordinary evening with polar bear feeding in the unique Yukon Market Hall in the Hannover Zoo. In the 1920’s flourishing fish trade was operated in the market hall. Today you can celebrate here like in Canada. Typical North American wood facades, salons, theaters and the Yukon Market Hall let dreams of the ‘Wild West’ come true. From the large terrace you have a great view to the polar bears and maybe you can hear the whine of the Timberwolves.

Shuttle buses will leave at 18:30 h from the main car entrance (Hauptefahrt) of MHH. The Networking evening with dinner buffet and DJ is included in the registration fee and open to all participants and exhibitors.

Address:
Hannover Zoo
Adenauerallee 3
30175 Hannover

supported by

Photos: © Erlebnis Zoo Hannover
Public outreach event (in German)

Moderne Zelltherapien – Stammzellen bei Herz- und Lebererkrankungen
Podiumsdiskussion zur aktuellen Forschung in Labor und Klinik

**Wann:** Mittwoch, 14. September, 19:30 – 21 Uhr
Einlass: 19 Uhr, Posterausstellung zu Stammzellen

**Wo:** HAZ Anzeiger-Hochhaus
Goseriede 9
30159 Hannover


- **Prof. Dr. Axel Haverich**, Klinik für Herz-, Thorax-, Transplantations- und Gefäßchirurgie, MHH
- **Prof. Dr. Ulrich Martin**, Leibniz Forschungslaboratorien für Biotechnologie und künstliche Organe, MHH
- **Prof. Dr. Michael Manns**, Klinik für Gastroenterologie, Hepatologie und Endokrinologie, MHH
- **Prof. Dr. Nils Hoppe**, Centre for Ethics and Law in the Life Sciences Hannover, Leibniz Universität Hannover
- **Moderation: Dr. Stefanie Seltmann**, DKFZ, Heidelberg
Satellite event (in German)

ELSA-Forschungsverbundprojekt „Entwicklungsbio logische Totipotenz: Bestimmung als normativen Kriterium in Ethik und Recht unter Berücksichtigung neuer entwick lungsbio logischer Er kenntnisse“ (Verlängerung)

Totipotente Nicht-Embryonen und nicht-totipotente Embryonen
Normative Herausforderungen durch artifi zielle Entitäten

Im deutschen Recht existieren zwei unterschiedliche Legal definitionen des menschlichen Embryos: Nach § 8 Abs. 1 ESchG gilt als Embryo bereits die befruchtete, entwick lungsfähige menschliche Eizelle, ferner jede ein em Embryo entnommene totipotente Zelle. Hingegen definiert § 3 Abs. 4 StZG den Embryo ausschließlich durch das Kriterium der Totipotenz. Im Hinblick auf artifi ziell erzeugte totipotente Entitäten, die nicht durch Befruchtung entstehen, stellt sich damit die Frage, inwieweit diese unter den Begriff des Embryos des ESchG fallen. Da Totipotenz offenbar nicht den Grund für die Schutzwürdigkeit von Embryonen darstellt, sondern als biologisches Kriterium für die Zuschreibung von Schutzwürdigkeit dient, bedarf es für die Definition eines menschlichen Embryos weiterer normativer, ontologischer und lebensweltlicher Annahmen. Diesbezüglich lassen sich Unterschiede zwischen natürlichen Embryonen und artifi ziell erzeugten totipotenten Entitäten erkennen, die die Fragen aufwerfen, ob und inwieweit artifi zielle Entitäten anders zu bewerten sind als natürliche menschliche Embryonen und welchen Argumenten und Kriterien bei der ethischen und rechtlichen Beurteilung Bedeutung zukommt.

Sofern der Gesetzgeber am Kriterium der Totipotenz für die Schutzwürdigkeit entwick lungsfähiger Entitäten festhalten möchte, ist zu fragen, ob zwischen einer natürlichen und einer artifi ziell erzeugten Totipotenz differenziert werden muss. Damit geraten Aspekte wie die Entstehung bzw. Erzeugung, die Finalität und die Eingriffstiefe der Manipulation in das Blickfeld und werfen die Frage auf, inwieweit sich diese als Kriterien einer konstitutiven Abweichung vom natürlichen Embryo qualifizieren lassen.

Teilprojekt Philosophie, Koordination
*Thomas Heinemann, Barbara Advena-Regnery, Kathrin Rottländer*
Lehrstuhl Ethik, Theorie und Geschichte der Medizin, Philosophisch-Theologische Hochschule Vallendar

Teilprojekt Rechtswissenschaft
*Hans-Georg Dederer, Franziska Enghofer, Katharina Böhm*
Lehrstuhl für Staats- und Verwaltungsrecht, Universität Passau

Teilprojekt Entwicklungsbiologie
*Tobias Cantz, Susan Sgodda*
Medizinische Hochschule Hannover
DIENSTAG, 13. September 2016

Hörsaal N
11:00 – 11:15  Begrüßung
   Thomas Heinemann, Philosophisch-Theologische Hochschule Vallendar

11:15 – 12:30  Teilprojekt Entwicklungsbiologie
   Moderation: Hans-Georg Dederer
   Die „Scoring“-Matrix – biologische Graduierung nach Natürlichkeit und Artifizialität
   Susan Sgodda, Medizinische Hochschule Hannover
   Kommentar: Michael Ott, Hannover

12.30 – 13:30 Mittagspause

13:30 – 15:15  Teilprojekt Rechtswissenschaft
   Moderation: Thomas Heinemann
   Rechtliche Kriterien für die Bewertung von „nicht-totipotenten Embryonen“ und „totipotenten Nicht-Embryonen“
   Franziska Enghofer und Katharina Böhm, Universität Passau
   Kommentar: Jens Kersten, München

15:15 – 15:45 Kaffeepause

15:45 – 17:30 Teilprojekt Philosophie
   Moderation: Tobias Cantz
   Der Embryo zwischen Sein und Sollen. Zum Verhältnis von Naturwissenschaften und Normwissenschaften
   Barbara Advena-Regnery, Philosophisch-Theologische Hochschule Vallendar
   Artifizielle embryo-ähnliche Entitäten. Zwischen Statusdebatte und Handlungskontexten
   Kathrin Rottländer, Philosophisch-Theologische Hochschule Vallendar
   Kommentar: Markus Rothhaar, Eichstätt-Ingolstadt

17:30 – 18:15 Abschlussdiskussion

Gefördert vom

Bundesministerium für Bildung und Forschung

rebirth
Cluster of Excellence: Hannover
Floor plan

Legend

AMS Biotechnology (Europe) Limited 19 Cygenia GmbH 15
Becton Dickinson GmbH 25 eBioscience, an Affymetrix company 11
BioFroxx GmbH/Biological Industries 20 Eppendorf AG 17
BioTek Instruments GmbH 14 Gilson International Deutschland 9
BIOTREND Chemikalien GmbH 26 I&L Biosystems GmbH 8
CellTool GmbH 30 Labotect GmbH 6
Cenibra GmbH 29 LLS ROWIAK LaserLabSolutions GmbH 13
Cyagen Biosciences GmbH 28 Lonza Cologne GmbH 1
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<td>NanoString Technologies Germany GmbH</td>
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<td>NEW ENGLAND BioLabs GmbH</td>
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<td>OLS – OMNI Life Science GmbH &amp; Co. KG</td>
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<td>SERVA Electrophoresis GmbH</td>
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<td>STEMCELL Technologies GMBH</td>
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<td>Sysmex Suisse AG</td>
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<td>Takara Bio Europe, SAS</td>
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<tr>
<td>Thermo Fisher Scientific</td>
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### MONDAY, 12 September 2016

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<tr>
<th>Time</th>
<th>Lecture hall F</th>
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<td>10:00 – 11:00</td>
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<td>11:00 – 11:30</td>
<td>Opening</td>
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<tr>
<td>11:30 – 12:15</td>
<td><strong>Keynote lecture I</strong>&lt;br&gt;<strong>Alexander Meissner</strong></td>
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<td>12:15 – 13:00</td>
<td><strong>Keynote lecture II</strong>&lt;br&gt;<strong>Sean Morrison</strong></td>
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<td>13:00 – 14:00</td>
<td>Lunch break / Industry exhibition</td>
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<tr>
<td>14:00 – 15:30</td>
<td><strong>Concurrent scientific working group session I</strong>&lt;br&gt;Stem cells in regenerative therapies I&lt;br&gt;Pluripotency and reprogramming&lt;br&gt;Hematopoietic stem cells&lt;br&gt;Tissue engineering and organoids</td>
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<td>Coffee break / Industry exhibition</td>
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<td>16:00 – 17:00</td>
<td><strong>GSCN Members Meeting</strong></td>
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<tr>
<td>17:00 – 19:00</td>
<td><strong>Poster Session I (P001 – P077)</strong></td>
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<td>17:00 – 18:00</td>
<td>posters with even numbers</td>
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<td>18:00 – 19:00</td>
<td>posters with odd numbers</td>
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<td>19:45 – 21:00</td>
<td><strong>Keynote lecture III</strong>&lt;br&gt;<strong>Hiroshi Nagashima</strong></td>
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<td>19:45 – 21:00</td>
<td><strong>Informal GSCN Get-together</strong>&lt;br&gt;with dinner buffet at the ground floor (S0) of the conference venue</td>
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<td><strong>Technology Exchange Workshop</strong> (by invitation only)</td>
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### TUESDAY, 13 September 2016

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<tr>
<td>09:00 – 10:30</td>
<td><strong>Concurrent scientific working group session II</strong>&lt;br&gt;Stem cells in disease modeling and drug development&lt;br&gt;Stem cells and aging, genome stability and epigenetics&lt;br&gt;Computational stem cell biology and systems biology&lt;br&gt;Genome engineering and gene therapy</td>
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<td>10:30 – 11:00</td>
<td>Coffee break / Industry exhibition</td>
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<td>11:00 – 12:35</td>
<td><strong>Industry session: “Technologies from GSCN industry partners”</strong>&lt;br&gt;PeproTech GmbH&lt;br&gt;Eppendorf AG&lt;br&gt;Takara Bio Europe&lt;br&gt;Thermo Fisher&lt;br&gt;Milenyi Biotec&lt;br&gt;Lonza&lt;br&gt;Apceth&lt;br&gt;Nanostring Techn.&lt;br&gt;STEMCELL Techn.&lt;br&gt;ELSA-Forschungsverbundprojekt&lt;br&gt;Totipotente Nicht-Embryonen und nicht-totipotente Embryonen&lt;br&gt;Normative Herausforderungen durch artifizielle Entitäten&lt;br&gt;Interdisziplinäres Symposium&lt;br&gt;S. 12 – 13</td>
<td><strong>Satellite event</strong></td>
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<tr>
<td>12:35 – 14:00</td>
<td>Lunch break / Industry exhibition / Poster viewing</td>
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<td>12:45 – 13:45</td>
<td><strong>Meet-the-expert tables in the bistro/ground floor (S0)</strong>&lt;br&gt;Please register at registration desk (limited to 10 participants each).&lt;br&gt;Ingo Roeder&lt;br&gt;Hans Schöler&lt;br&gt;Ana Martin-Villalba</td>
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<td>14:00 – 16:00</td>
<td><strong>Presidential Symposium</strong></td>
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<td>14:00 – 14:30</td>
<td><strong>Oliver Brüstle</strong></td>
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<td>14:30 – 15:00</td>
<td><strong>Young Investigator Award</strong>&lt;br&gt;Leo Kurian</td>
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<td>16:00 – 16:30</td>
<td>Coffee break / Industry exhibition</td>
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16:30 – 18:30  Poster Session II (P078 – P147)  ELSA-Forschungsverbundprojekt Session
16:30 – 17:30  posters with even numbers
17:30 – 18:30  posters with odd numbers
18:30 – 19:00  Bus transfer to Networking evening
19:00 – 01:00  GSCN Networking evening with dinner buffet and DJ at the Yukon Bay, Hannover Zoo

WEDNESDAY, 14 September 2016

09:00 – 10:30  Concurrent scientific working group session III
Somatic stem cells and development  Stem cells in regenerative therapies II  Stem cells in diseases: cancer stem cells
10:30 – 11:00  Coffee break / Industry exhibition
11:00 – 12:30  Concurrent strategic working group session
Technologies in stem cell research  Career development and funding opportunities  Clinical trials and regulatory affairs
12:30 – 14:00  Lunch break / Industry exhibition / Poster viewing
12:45 – 13:45  Meet-the-expert tables in the bistro/ground floor (S0)
Please register at registration desk (limited to 10 participants each).
Marisa Karow
Cerebral organoids
Henner Farin
Intestinal epithelial organoides
Ina Gruh
3D bioartificial cardiac tissue
14:00 – 17:35  Joined Session with Rebirth/MHH
14:00 – 14:45  Keynote lecture IV
Peter Zandstra
14:45 – 15:30  Keynote lecture V
Peter Coffey
15:30 – 15:45  GSCN Outlook 2017
Karl Lenhard Rudolph
15:45 – 16:15  Coffee break / Industry exhibition
16:15 – 17:35  Rebirth session
17:35 – 17:50  Poster award and closing ceremony
End of conference
19:00 – 21:00  GSCN public outreach event with panelists

Legend
- Opening/Evening events/Members meeting/Rebirth session
- Keynote Lectures/GSCN Awardees/Outlook
- Concurrent scientific working group sessions/Meet-the-expert-tables
- Concurrent strategic working group sessions/Meet-the-expert-tables
- Industry session
- Technology Exchange Workshop/Satellite event
- Poster Sessions and Poster award ceremony
Program

MONDAY, 12 September

10:00 – 11:00  Registration

Lecture hall F  Opening
11:00 – 11:10  Welcome to Hannover Medical School (MHH)
   Christopher Baum, President, Hannover Medical School
11:10 – 11:20  Welcome to Hannover and Lower Saxony
   MPräs. Stephan Weil (Minister-President of Lower Saxony)
11:20 – 11:30  Ulrich Martin, Acting President, GSCN
11:30 – 12:15  Keynote lecture I
   K1 – Mechanisms of epigenetic regulation in stem cells and development
   Alexander Meissner, Harvard University, Cambridge, U.S.A. (Chair: Ulrich Martin)
12:15 – 13:00  Keynote lecture II
   K2 – Identification of niches for hematopoietic stem cells and osteogenesis
   Sean Morrison, UT Southwestern, Dallas, U.S.A. (Chair: Claudia Waskow)
13:00 – 14:00  Lunch break / industry exhibition

Concurrent scientific working group session I

Lecture hall H  Stem cells in regenerative therapies I
   (Chairs: Wolfgang Wagner / Ulrich Martin)
14:00 – 14:15  Overview
   Wolfgang Wagner, RWTH Aachen
14:15 – 14:30  T01 – HLA-silenced platelets derived from induced pluripotent stem cells are protected against refractoriness in a platelet transfusion mouse model
   Dorothee Eicke, Hannover Medical School
14:30 – 14:45  T02 – Immunogenicity of embryonic stem cell-derived cardiomyocytes in recipients mismatched for minor and major histocompatibility antigens
   Birte Baudis, University of Cologne
14:45 – 15:00  T03 – BSA-free differentiation of hPSCs into cardiomyocytes
   Hanna Möller, Hannover Medical School
15:00 – 15:15  T04 – A registry of pluripotent stem cells for clinical application
   Andreas Kurtz, Berlin-Brandenburg Center for Regenerative Therapies, Charité, Berlin
15:15 – 15:30  Working group discussion

Lecture hall G  Pluripotency and reprograming
   (Chairs: Micha Drukker / Mathias Treier)
14:00 – 14:25  T05 – Pluripotency keynote – Trophoblast stem cells from murine fibroblasts – can the mouse serve as blueprint for the human situation?
   Hubert Schorle, University of Bonn
14:25 – 14:40 T06 – Nanotopography guides morphology and spatial patterning of induced pluripotent stem cell colonies
Giulio Abagnale, RWTH Aachen

14:40 – 14:55 T07 – Propagation of the early murine inner cell mass state in cell culture
Xiushan Yin, Max Delbrück Center, Berlin

14:55 – 15:10 T08 – Contribution of cynomolgus monkey induced pluripotent stem cells to porcine embryos
Monika Nowak-Imialek, Friedrich Loeffler Institute, Mariensee

15:10 – 15:25 T09 – Characterization and potential immunomodulatory properties of human induced pluripotent stem cell (hiPSC)-derived trophoblast cells
Svitlana Malysheva, Hannover Medical School

15:25 – 15:30 Working group discussion

Lecture hall M  Hematopoietic stem cells (Chairs: Timm Schröder / Claudia Waskow)

14:00 – 14:25 T10 – HSC keynote – Hematopoietic stem cell fate realized in vivo
Hans-Reimer Rodewald, German Cancer Research Center, Heidelberg

14:25 – 14:40 T11 – The bulk of the hematopoietic stem cell population is dispensable for murine steady-state and stress hematopoiesis
Kristina Schödel, TU Dresden

14:40 – 14:55 T12 – Heterogeneity and in vivo regulation of dormant hematopoietic stem cells
Nina Cabezas-Wallscheid, German Cancer Research Center, Heidelberg

14:55 – 15:10 T13 – Essential role for Setd1a-mediated histone methylation in adult hematopoietic stem cell function
Kathrin Arndt, TU Dresden

15:10 – 15:25 T14 – Biomimetic bone marrow analogs as artificial hematopoietic stem cell niches
Cornelia Lee-Thiedeck, Karlsruhe Institute of Technology

15:25 – 15:30 Working group discussion

Lecture hall N  Tissue engineering and organoids (Chairs: Robert Zweigerdt / Benedikt Berninger)

14:00 – 14:30 Overview
Robert Zweigerdt, Hannover Medical School
Benedikt Berninger, University Medical Center, Mainz

14:30 – 14:45 T15 – Stirred suspension culture for the scalable generation of billions of human induced pluripotent stem cells
Chee Keong Kwok, University of Würzburg

14:45 – 15:00 T16 – Biofabrication of a perfusable 3D liver tissue construct using organoids
Kerstin Schneeberger, Utrecht University, Netherlands

15:00 – 15:15 T17 – Human pluripotent stem cell-derived acinar/ductal organoids generate human pancreas upon orthotopic transplantation and allow disease modeling
Alexander Kleger, University Medical Center, Ulm

15:15 – 15:30 T18 – Differentiation of pericytes from hiPSCs for the vascularization of bioartificial cardiac tissues
Mónika Szepes, Hannover Medical School

15:30 – 16:00 Coffee break / industry exhibition
**Lecture hall H**

16:00 – 17:00  **GSCN General Membership Meeting**

17:00 – 19:00  **Poster session I: P001 – P077** supported by Biofroxx GmbH / Biological Industries

Pluripotency and reprogramming (P001 – P017)
Somatic stem cells and development (P018 – P039)
Hematopoietic stem cells (P040 – P053)
Stem cells and ageing, genome stability and epigenetics (P054 – P060)
Stem cells in diseases: cancer stem cells (P061 – P066)
Computational stem cell biology and systems biology (P067 – P077)

Even numbers: please present your poster from 17:00 – 18:00
Odd numbers: 18:00 – 19:00

**Lecture hall F**

19:00 – 19:45  **Keynote lecture III**

K3 – Generation of human organs in pigs

*Hiroshi Nagashima*, Meiji University, Tokyo, Japan (Chair: *Tobias Cantz*, in collaboration with ELSI project “induced totipotency”)

19:45 – 21:00  **Informal GSCN Get-together for all participants**

with dinner buffet at the ground floor (S0) of the conference venue

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**TUESDAY, 13 September**

**Concurrent scientific working group session II**

**Lecture hall H**  **Stem cells in disease modeling and drug development** supported by Takara Bio Europe, SAS

(Chairs: Karl-Ludwig Laugwitz / Oliver Brüstle)

09:00 – 09:15  **Overview**

*Karl-Ludwig Laugwitz*, TU München

09:15 – 09:30  **T19 – Stiff matrix induces switch to pure beta-cardiac myosin heavy chain expression in human embryonic stem cell-derived cardiomyocytes**

*Natalia Weber*, Hannover Medical School

09:30 – 09:45  **T20 – A new model to study neurotoxicity of drug metabolites based on chemical conversion to neurons-on-a-chip in tandem with liver-on-a-chip**

*Xinlai Cheng*, Heidelberg University

09:45 – 10:00  **T21 – Employing rapid phenotypic assays in SPG4 patient neurons for drug discovery and rescue**

*Kristina Rehbach*, University of Bonn

10:00 – 10:15  **T22 – Patient-specific iPS cell-based modeling of Transthyretin-Related Familial Amyloid Polyneuropathy**

*Jeannine Hoepfner*, Hannover Medical School

10:15 – 10:30  **Working group discussion**

10:30 – 11:00  **Coffee break / industry exhibition**
Lecture hall G  Stem cells and aging, genome stability and epigenetics  
(Chairs: Hartmut Geiger / Karl Lenhard Rudolph)

09:00 – 09:15  Overview  
Hartmut Geiger, Ulm University

09:15 – 09:30  T23 – Dnmt3b-dependent intragenic DNA methylation prevents RNA Polymerase II spurious entry on gene bodies and cryptic transcription initiations  
Francesco Neri, Leibniz Institute on Aging, Jena

09:30 – 09:45  T24 – Aging shifts the mode and outcome of the hematopoietic stem cell division  
M. Carolina Florian, University of Ulm

09:45 – 10:00  T25 – Bone marrow niche and hematopoietic stem cell differentiation are regulated by the microbiota  
Aline Bozec, University of Erlangen-Nuremberg

10:00 – 10:15  T26 – Restricted regeneration of hematopoietic stem cells in vivo following chronic inflammatory stress  
Ruzhica Bogeska, German Cancer Research Center, Heidelberg

10:15 – 10:30  T27 – Hoxa9 induced developmental signals impair stem cells and regeneration of aging muscle  
Simon Schwörer, Leibniz Institute on Aging, Jena

Lecture hall M  Computational stem cell biology and systems biology  
(Chairs: Georg Fuellen / Ingo Roeder)

09:00 – 09:15  Overview  
Carsten Marr, Helmholtz Center Munich

09:15 – 09:30  T28 – Scoring cell identity from transcription profiles  
Nancy Mah, Berlin-Brandenburg Center for Regenerative Therapies, Charite, Berlin

09:30 – 09:45  T29 – Understanding and predicting regulatory mechanisms in early differentiation of human pluripotent stem cells  
Erika Gaspari, University of Bologna, Italy

09:45 – 10:00  T30 – FGF/MAPK signaling sets the switching threshold of a bistable circuit controlling fate decisions in embryonic stem cells  
Christian Schröter, Max Planck Institute of Molecular Physiology, Dortmund

10:00 – 10:15  T31 – Reconstructing lineage branching from single cell RNA-seq in adult haematopoiesis via diffusion pseudo time  
Maren Büttner, Helmholtz Center Munich

10:15 – 10:30  Working group discussion

Lecture hall N  Genome engineering and gene therapy  
(Chairs: Axel Schambach / Hans Schöler)  
in collaboration with ELSI project “induced totipotency”

09:00 – 09:15  Overview – Germ Cell Differentiation  
Hans Schöler, MPI f. Molecular Biomedicine, Münster

09:15 – 09:30  Overview – Gene Therapy & Genome Engineering  
Axel Schambach, Hannover Medical School
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<th>Time</th>
<th>Session</th>
<th>Speaker</th>
<th>Institution/Location</th>
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<tr>
<td>09:30 – 09:45</td>
<td>T32 – Designer-nuclease mediated knockout of HIV co-receptor CCR5 – a promising gene-therapy approach to protect T cells from HIV infection</td>
<td>Boris Fehse</td>
<td>UKE Hamburg</td>
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<td>09:45 – 10:00</td>
<td>T33 – Efficient introduction of homo- and heterozygous mutations with CRISPR/Cas9 and applications to disease modeling in stem cells</td>
<td>Dominik Paquet</td>
<td>The Rockefeller University, New York, U.S.A.</td>
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<td>10:00 – 10:15</td>
<td>T34 – Efficient and accurate precision genome engineering of transcriptionally silent disease-related loci by CRISPR/Cas9 nickase</td>
<td>Reto Eggenschwiler</td>
<td>Hannover Medical School</td>
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<td>10:15 – 10:30</td>
<td>T35 – Generation of HLA depleted human pluripotent stem cell lines for modulation of the immunogenicity of iPSC derivatives</td>
<td>Lena Engels</td>
<td>Hannover Medical School</td>
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<td>10:30 – 11:00</td>
<td>Coffee break / industry exhibition</td>
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**Industry session: “Technologies from GSCN industry partners”**

**Lecture hall H**  
**Main supporter** (Chair: Michael Cross)

11:00 – 11:05  
Introduction

11:05 – 11:35  
C1 – Simplified dopaminergic neuron and cardiac differentiation of single episome reprogrammed fibroblasts  
*Rick I. Cohen*, Rutgers University, Piscataway, U.S.A., representing PeproTech GmbH

11:35 – 12:05  
C2 – Expansion of Human Bone Marrow-Derived Mesenchymal Stem Cells in BioBLU® 0.3c Single-Use Bioreactors  
*Aurélie Tachen*, Eppendorf Application Technologies S.A., Namur, Belgium

12:05 – 12:35  
C3 – A novel system to generate HPS cell-derived hepatocytes with potential application to drug discovery and metabolism, and hepatotoxicity studies  
*Barbara Küppers-Munther*, Takara Bio Europe, Gothenburg, Sweden

**Lecture hall G**  
**Supporter** (Chair: Dirk Strunk)

11:00 – 11:05  
Introduction

11:05 – 11:35  
C4 – Generation of dopaminergic precursor cells and terminally differentiated neurons from human pluripotent cells for drug discovery and cell therapy  
*Mohan C Vemuri*, Thermo Fisher Scientific, Frederick, U.S.A.

11:35 – 12:05  
C5 – Enabling GMP-compliant iPSC expansion and differentiation on the CliniMACS® Prodigy platform  
*Sebastian Knöbel*, Miltenyi Biotec GmbH, Bergisch Gladbach

12:05 – 12:35  
C6 – Using Pluripotent Stem Cells in the Age of Genome Editing  
*Theresa Dsouza*, R&T Lonza Bioscience, Cologne

**Lecture hall M**  
**Supporters** (Chair: Michael Rieger)

11:00 – 11:05  
Introduction

11:05 – 11:35  
C7 – Translation of cell-based gene therapy into clinical application  
*Elena Meurer*, apceth GmbH & Co. KG, Munich

11:35 – 12:05  
C8 – Simultaneous single-molecule quantification of DNA, RNAs & Proteins  
*Maik Pruess*, Nanostring Technologies, Hamburg
12:05 – 12:35  C9 – STEMdiff™ Kits for Robust and Efficient Differentiation of Human Pluripotent Stem Cells  
Katharina Debowski, Stem Cell Technologies SARL, Cologne

Lecture hall N  Satellitensymposium “Totipotente Nicht-Embryonen und Nicht-totipotente Embryonen”

11:00 – 18:15  open to GSCN participants (in German, program see page 12 – 13)

12:35 – 14:00 Lunch break / industry exhibition / poster viewing supported by Apceth GmbH & Co. KG

12:45 – 13:45 Meet-the-expert tables (Bistro/ground floor): Ingo Roeder (Bioinformatic analysis of biological data), Hans Schöler and Ana Martin-Villalba; please register at the registration desk (limited to 10 participants each)

Lecture hall F  Presidential Symposium (Chair: Ulrich Martin)

14:00 – 14:30  PS1 – Engineered human heart muscles for disease modelling and cardiac repair  
Thomas Eschenhagen, UKE, Hamburg

14:30 – 15:00  Young Investigator Award 2016

PS2 – Developmental programming by IncRNA-TF pairs during the induction of the embryonic heart  
Leo Kurian, University of Cologne

15:00 – 15:30  Female Scientist Award 2016

PS3 – Generation and regeneration of human and murine hematopoietic stem cells  
Claudia Waskow, TU Dresden

15:30 – 16:00  Publication of the Year 2016 Award (June 2015 – 2016)

PS4 – Direct reprogramming of hepatic myofibroblasts into hepatocytes in vivo attenuates liver fibrosis  
Guanqgi Song, Hannover Medical School

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

16:30 – 18:30 Poster session II: P078 – P147 supported by Thermo Fisher Scientific

Tissue engineering and organoids (P078 – P091)
Genome engineering and gene therapy (P092 – P097)
Stem cells in regenerative therapies (P098 – P119)
Stem cells in regenerative therapies: mesenchymal stem/stroma cells (P120 – P124)
Stem cells in disease modeling and drug development (P125 – P147)

Even numbers: please present your poster from 16:30 – 17:30
Odd numbers: 17:30 – 18:30

18:30 – 19:00 Bus transfer

19:00 – 01:00 GSCN Networking evening for all participants with dinner buffet and DJ at the Yukon Bay, Hannover Zoo
**WEDNESDAY, 14 September**

**Concurrent scientific working group session III**

**Lecture hall H  Somatic stem cells and development** *(Chairs: Ana Martin Villalba / Thomas Braun)*

09:00 – 09:15  Overview
  *Jan Lohmann,* Centre of Organismal Studies, Heidelberg University

09:15 – 09:30  T36 – Fate-restriction precedes stemness during massive post-embryonic growth in the fish branchia
  *Lazaro Centanin,* Centre of Organismal Studies, Heidelberg University

09:30 – 09:45  T37 – Visualization of stem cell induction and differentiation in real time
  *Rasmus Freter,* University of Oxford

09:45 – 10:00  T38 – Embryo-derived macrophages regulate the dendritic cell pool size in the adult spleen
  *Gulce Percin,* TU Dresden

10:00 – 10:15  T39 – A role for YAP and TAZ signaling in human neural crest development
  *Alexandra Larisa Condurat,* Freiburg University

10:15 – 10:30  Working group discussion

**Lecture hall G  Stem cells in regenerative therapies II: mesenchymal stem cells** *(Chairs: Richard Schäfer / Dirk Strunk)*

09:00 – 09:15  Overview
  *Karen Bieback,* Medical Faculty Mannheim, Heidelberg University

09:15 – 09:30  T40 – Stepwise maturation of human iPS cells into immunosuppressive mesenchymal stem/progenitor cells
  *Cornelia Scharler,* Paracelsus Private Medical University of Salzburg, Austria

09:30 – 09:45  T41 – Cryopreserved or fresh mesenchymal stromal cells: only a matter of taste or key to unleash the full clinical potential of MSC therapy?
  *Guido Moll,* Charité Berlin

09:45 – 10:00  T42 – Synthetic niche to modulate regenerative potential of mesenchymal stromal cells (MSCs) and enhance skeletal muscle regeneration
  *Sven Geißler,* Charite Berlin

10:00 – 10:15  T43 – Extracellular vesicles – From bench to bedside
  *Verena Börger,* University Hospital Essen

10:15 – 10:30  Working group discussion

**Lecture hall N  Stem cells in diseases: cancer stem cells** *(Chairs: Thomas Brabletz / Andreas Trumpp)*

09:00 – 09:20  Overview
  *Andreas Trumpp,* German Center Reserach Center, Heidelberg

09:20 – 09:40  T44 – ZEB1 turns into a transcriptional activator by interacting with YAP1 in aggressive cancer types
  *Julia Kleemann,* University of Erlangen-Nuremberg

09:40 – 10:00  T45 – Heterotrimeric G-proteins are indispensable for FLT3-ITD autophosphorylation and oncogenic function
  *Michael Rieger,* Goethe University Hospital and LOEWE Center Frankfurt
10:00 – 10:20  T46 – A mathematical model approach to study the immunological effects in CML patients during and after TKI treatment
  Ingmar Glauche, TU Dresden
10:20 – 10:30  Working group discussion
10:30 – 11:00  Coffee break / industry exhibition

Concurrent strategic working group session

Lecture hall H  Technologies in stem cell research (Chairs: Frank Emmrich / Andreas Bosio)
11:00 – 11:25  S1 – Intestinal epithelial organoids – an accessible model for mammalian stem cell niche biology
  Henner Farin, Georg-Speyer-Haus, Frankfurt
11:25 – 11:50  S2 – 3D bioartificial cardiac tissue from pluripotent stem cells
  Ina Gruh, REBIRTH, Hannover Medical School
11:50 – 12:15  S3 – Using cerebral organoids for studying human disease modeling and lineage reprogramming
  Marissa Karow, LMU Munich
12:15 – 12:30  Panel discussion

Lecture hall G  Career development and funding opportunities (Chairs: Insa Schröder/ Hartmut Geiger)
11:05 – 11:40  S4 – Career paths for scientists – suitable application strategies
  Anke Raloff, ZEIT Verlagsgruppe/ACADEMICS
11:40 – 12:15  S5 – tba
  tbd
12:15 – 12:30  Panel discussion

Lecture hall N  Clinical trials and regulatory affairs (Chairs: Torsten Tonn / Andreas Kurtz)
11:00 – 11:25  S6 – Investigator initiated trials (IIT) of advanced therapy medicinal products
  Felipe Prosper, University Clinic Navarra, Pamplona, Spain
11:25 – 11:50  S7 – EU research perspective on advanced therapies
  Arnd Hoeveeler, European Commission, Brussels
11:50 – 12:15  S8 – Mapping the European landscape for patenting stem cell related inventions
  Aliki Nichogiannopoulou, European Patent Office, Munich
12:15 – 12:30  Panel discussion
12:30 – 14:00  Lunch break / industry exhibition / poster viewing

12:45 – 13:45  Meet-the-expert tables (Bistro/ground floor): Marisa Karow (Cerebral organoids), Henner Farin (Intestinal epithelial organoids) and Ina Gruh (3D bioartificial cardiac tissue); register at the registration desk (limited to 10 participants each)

Lecture hall F  Joined session with REBIRTH/Hannover Medical School (MHH)
14:00 – 14:45  Keynote lecture IV
  K4 – Patterning mesoderm and blood development from human pluripotent stem cells
  Peter Zandstra, University of Toronto, Canada (Chair: Karl Lenhard Rudolph)
14:45 – 15:30  **Keynote lecture V**  
K5 – Stemming vision loss using stem cells – seeing is believing  
*Peter Coffey,* University College London, U.K. (Chair: *Thomas Braun*)

15:30 – 15:45  **GSCN Outlook 2017**  
Incoming president: *Karl Lenhard Rudolph*

15:45 – 16:15  **Coffee break / industry exhibition**

**Lecture hall F**  
**REBIRTH Session** (Chair: *Ulrich Martin*)

16:15 – 16:35  RB1 – From cell to product: governance issues along the translational pathway  
*Nils Hoppe,* CELLS – Centre for Ethics and Law in the Life Sciences, Leibniz University Hannover

16:35 – 16:55  RB2 – Emerging protein- and small molecule-based therapies for cardiac repair  
*Kai Wollert,* Hans Borst Center for Heart and Stem Cell Research, Hannover Medical School

16:55 – 17:15  RB3 – Therapeutic noncoding RNA based approaches of heart failure  
*Thomas Thum,* Institute of Molecular and Translational Therapeutic Strategies (IMTTS), Hannover Medical School

17:15 – 17:35  RB4 – Manufacturing human pluripotent stem cells and their progenies  
*Robert Zweigerdt,* Hannover Medical School

**Lecture hall F**  
**Closing ceremony**

17:35 – 17:50  **Poster award ceremony and announcement of industry quiz winners**  
*Daniel Besser,* GSCN supported by PeproTech GmbH

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**End of GSCN conference 2016**

**Announcement** (please inform the registration for transfer)

19:00 – 21:00  **GSCN Public outreach event with panelists:**  
Moderne Zelltherapien – Stammzellen bei Herz- und Lebererkrankungen  
(in German, see page 11)