2nd DZHK Conference on Translational Medicine

PAVING THE WAY TO NEW THERAPIES

09-10 January 2019
Berlin

DZHK
DEUTSCHES ZENTRUM FÜR HERZ-KREISLAUF-FORSCHUNG E.V.
Dear Participants,

We are delighted to welcome you to the 2nd DZHK Conference on Translational Medicine and are hoping for lively discussions and a vivid exchange on translation.

The DZHK is one out of six German Centres for Health Research and was founded seven years ago with the goal to foster translation. We have set up new structures to fund basic discovery, accelerate the development of novel therapeutics and diagnostics and test new therapeutic strategies in early and guideline-relevant clinical studies. First successes are at the horizon and some will be presented during the conference. But the role of academia and public funding in the translational process remains an ongoing challenge. We want to discuss different approaches, learn from individual examples and enjoy cutting edge science that will remain the essential source of any translation. We are grateful that top-level-experts at the interface of basic and clinical science and representatives of public funders and industry have agreed to come, exchange ideas and share their view on translation.

Thank you all for your participation.
We are looking forward to two exciting days in Berlin!

Thomas Eschenhagen, Gerd Hasenfuß & Thomas Sommer
(DZHK Board of Directors)
3\textsuperscript{rd} Session: Translators

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<tr>
<td>08:30–09:00</td>
<td>Bert Klebl, Dortmund</td>
<td>LDC – A (proven) model for bridging academia to “pharmaceutical industry”</td>
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<td>09:00–09:30</td>
<td>Jérôme Van Biervliet, Ghent</td>
<td>Basic science, translational medicine and how to translate to value: the VIB experience</td>
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<td>09:30–10:00</td>
<td>Timothy A. McKinsey, Aurora</td>
<td>Early translation in academia: drugging the unthinkable for heart failure</td>
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Coffee break

4\textsuperscript{th} Translational Projects | DZHK

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<td>Stefan Luther, Göttingen</td>
<td>Low energy defibrillation</td>
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<td>10:45–11:00</td>
<td>Florian Weinberger, Hamburg</td>
<td>Engineered heart tissue transplantation for cardiac repair – towards first-in-patient</td>
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<td>11:00–11:15</td>
<td>Esther Lutgens, Munich</td>
<td>CD40-TRAF6 inhibitors in cardiovascular disease</td>
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<td>11:15–11:30</td>
<td>Patrick Most, Heidelberg</td>
<td>Peptide-based therapy development for cardiac failure treatment</td>
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<td>11:30–11:45</td>
<td>Lucie Carrier, Hamburg</td>
<td>Gene therapy for myofilament disorders</td>
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<td>11:45–12:00</td>
<td>Wolfram-Hubertus Zimmermann, Göttingen</td>
<td>GMP-Production of engineered human myocardium for heart failure repair</td>
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12:00–13:00 Lunch break

13:00–14:00 2\textsuperscript{nd} parallel poster session (posters 16-25 / 26-35)

5\textsuperscript{th} Session: Biotech

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<td>14:00–14:30</td>
<td>Martin Ungerer, Munich</td>
<td>Development of biologicals</td>
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<td>14:30–15:00</td>
<td>John T. Gray, San Francisco</td>
<td>Carefully taking genetic therapies to new tissues, diseases, and patients</td>
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<td>15:00–15:30</td>
<td>Craig T. January, Madison</td>
<td>The CDI story</td>
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Coffee break

6\textsuperscript{th} Session: Path to discovery

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<tr>
<td>16:00–16:30</td>
<td>Graziella Pellegrini, Modena</td>
<td>Epithelial stem cells can produce multiple Regenerative Medicine protocols</td>
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<td>16:30–17:00</td>
<td>Kenneth Walsh, Virginia</td>
<td>Killer clones: Clonal hematopoiesis and age-associated disease</td>
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Concluding remarks

Gerd Hasenfuß, Göttingen
Speakers

**Lucie Carrier**  
*University Medical Center Hamburg-Eppendorf (UKE), Germany*  
Lucie Carrier, PhD, is Professor of Functional Genomics of Cardiomyopathy at the University Medical Center Hamburg-Eppendorf and group leader of the German Centre for Cardiovascular Research, partner site Hamburg/Kiel/Lübeck. Her main research interest is the genetics, pathophysiology and therapy of inherited sarcomeric cardiomyopathies, with expertise in the proteasome/autophagy systems, iPSC- disease modeling, gene editing and gene therapy.

**Thomas Eschenhagen**  
*University Medical Center Hamburg-Eppendorf (UKE), Germany*  
Thomas Eschenhagen is chairman of the Board of Directors of the German Centre for Cardiovascular Research. He pioneered the engineered heart tissue (EHT) technology in 1994, which, in combination with human embryonic and induced pluripotent stem cell (hiPSC)- derived cardiomyocytes, provides a medium throughput assay for drug testing and hiPSC-based disease modeling. He is President-Elect of the International Society for Heart Research (ISHR).

**Gerd Hasenfuss**  
*Clinic for Cardiology and Pneumology and Heart Center Göttingen, University Medical Center Göttingen, Germany*  
Gerd Hasenfuss is Professor of Internal Medicine and Cardiology. Since 2011 he is member of the Board of Directors of the German Centre for Cardiovascular Research and since 2012 spokesperson of the SFB 1002, CRC (Collaborative Research Center) “Modulatory Units in Heart Failure”. Dr. Hasenfuss has won several prizes and obtained a number of fellowships, awards and honours. He has been a Principal Investigator of several clinical trials.

**John T. Gray**  
*Audentes Therapeutics, San Francisco, USA*  
Dr. Gray develops genetic therapies based on parvoviral (AAV) and lentiviral (HIV) vectors. He has contributed significantly to the design, manufacturing, and development of successful treatments for Hemophilia B, Hemophilia A, X-Linked Severe Combined Immunodeficiency, and Myotubular Myopathy (XLMTM). He now directs the research group at Audentes, which develops AAV based therapies for severe monogenic diseases with unmet medical need.

**Gary Gintant**  
*Department of Integrative Pharmacology, Integrated Science and Technology, AbbVie, North Chicago, USA*  
Dr. Gary Gintant is involved in multiple drug discovery and safety activities with a focus on translation of in vitro and in-vivo models to clinical findings. His research interests include cardiovascular pharmacology, cellular electrophysiology/ion channels, arrhythmias, human stem-cell derived cardiomyocytes and tissues, and biomarkers-translational medicine. He gained his PhD from the College of Physicians and Surgeons of Columbia University.

**Terri Gaskell**  
*Cell and Gene Therapy Catapult, London, UK*  
Terri Gaskell holds a degree in Biochemistry from the University of Dundee and a PhD in Molecular Biology and Genetics from the University of Edinburgh. Terri has 9 years of academic experience in cell and developmental biology followed by four years in senior roles in industrial R&D. She has now been at CGT Catapult for over five years where she is involved in strategy development and leads the team responsible for delivery of a diverse portfolio of cell and gene therapy projects.
Speakers

Craig T. January

University of Wisconsin-Madison, School of Medicine and Public Health, Madison, USA

Dr. January’s pioneering research demonstrated an essential role of the L-type Ca++ channel and its ‘window current’ in generating early afterdepolarizations, a trigger for potentially lethal cardiac arrhythmias. His recent research focuses on the molecular mechanisms of the acquired and congenital long QT syndrome. He received his medical degree in 1976 and a doctorate in Physiology and Biophysics in 1978 from the University of Iowa.

Stefan Luther

Max Planck Institute for Dynamics and Self-Organization, Göttingen, Germany

Stefan Luther is a DZHK professor at the University Medical Center Göttingen and head of the Biomedical Physics Group at the Max Planck Institute for Dynamics and Self-Organization in Göttingen. He studied physics in Hannover and Göttingen. During his postdoctoral training, he worked at the University of Twente, Netherlands, and at the Cornell University, Ithaca, NY. His research focuses on modelling, imaging, and control of cardiac arrhythmias.

Bert M. Klebl

Lead Discovery Center, Dortmund, Germany

Bert Klebl has gathered almost 20 years of professional experience in the life sciences industry. Since 2008, he is the managing director and chief scientific officer of the Lead Discovery Center GmbH (LDC), a drug discovery incubator, which has been established by the Max-Planck Society. He earned his PhD in biochemistry at the University of Konstanz and did postdoctoral work at the NRC Biotechnology Research Institute in Montréal, Canada.

Timothy A. McKinsey

School of Medicine, Division of Cardiology, University of Colorado, Aurora, USA

Dr. McKinsey is also Director of the University of Colorado’s newly formed Consortium for Fibrosis Research & Translation (CFReT; www.cfret.org). Prior to joining the university, Dr. McKinsey was Associate Director of Biology at Myogen/Gilead, where he was engaged in drug discovery for cardiovascular and pulmonary diseases. Dr. McKinsey received his PhD from Vanderbilt and did postdoctoral training with Eric Olson at UT Southwestern in Dallas.

Esther Lutgens

Hospital of the Ludwig-Maximilians-University Munich, Germany

Esther Lutgens, is a Professor of Experimental Vascular Immunopathology at the LMU and at the Amsterdam UMC (AMC). She did both her MD and PhD studies in Medicine at Maastricht University, the Netherlands. During her post-doctoral training, she worked at Harvard Medical School, Boston, USA and Dartmouth University, Hanover, USA. She received a Sofja Kovalevskaja grant in 2008, and started her laboratory at the RWTH, and later at the LMU. Prof. Lutgens focuses on the interactions of the immune system in cardiovascular disease.

Patrick Most

Department of Internal Medicine III, University of Heidelberg, Germany

Patrick Most is currently professor for molecular and translational cardiology at Heidelberg University and DZHK PI, partner site Heidelberg. His translational work focuses on ATMP/GTMP development for heart failure harnessing novel know-how about molecular cardiac performance control. As a serial entrepreneur, he founded e.g. the academic spin-off InoCard GmbH and worked for many years in successive biotechs in the cardiac gene therapy field.

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Speakers

Pierluigi Nicotera

*German Center for Neurodegenerative Diseases (DZNE), Bonn, Germany*

Pierluigi Nicotera is a renowned scientist and leading international expert in the field of neuronal cell death. He studied General Medicine, Cardiology and Biochemical Toxicology in Pavia and Stockholm. From 1995 to 2000 Nicotera headed the division of Molecular Toxicology at the University of Konstanz and was then appointed Director of the UK Medical Research Council Toxicology Unit. Since 2009 he is Scientific Director of DZNE in Bonn.

Ugur Sahin

*Translational Oncology (TRON), University Medical Center of the Johannes Gutenberg University Mainz, Germany*

Prof. Sahin is the founding director of the translational research institute TRON and the the co-founder and CEO of BioNTech AG. He is a translational researcher and a pioneer in cancer target discovery using high throughput immunological methods and bioinformatics approaches. Prof. Sahin holds more than 50 independent patent applications covering novel cancer biomarkers and targeted therapeutics platforms.

Benjamin L. Prosser

*University of Pennsylvania, Perelman School of Medicine, Philadelphia, USA*

Ben Prosser is an Assistant Professor of Physiology at Pennsylvania in the School of Medicine. He earned his B.S. in Biomechanics at Wake Forest before earning his Ph.D in Molecular Medicine at the University of Maryland School of Medicine, where he also performed post-doctoral training in Molecular Cardiology under Dr. W. Jonathan Lederer. In 2014, Ben started his own research group focusing on Cardiac Mechanics and Mechanobiology.

Graziella Pellegrini

*Centre for Regenerative Medicine “Stefano Ferrari”, Unimore, Modena, Italy*

Graziella Pellegrini is Full Professor at the University of Modena e Reggio Emilia. She is Cell Therapy Program Coordinator at the Centre for Regenerative Medicine “Stefano Ferrari” (UNIMORE) and one of the two inventors of the technology for culture and transplantation of limbal stem cells for treatment of blindness due to corneal stem cell deficiency. She is currently working with her team on oral mucosa, urethra and airway epithelium.

Thorsten Stafforst

*Interfaculty Institute of Biochemistry, University of Tübingen, Germany*

Thorsten Stafforst is professor of nucleic acid biochemistry at the Biochemistry Institute of the University of Tübingen. He studied chemistry in Göttingen and expanded to chemical biology and bio-engineering during his postdoctoral stay in Zürich. In 2011, he started his independent junior lab in Tübingen, supported by an ERC Consolidator Grant. Since 2016, he is permanent professor in Tübingen supported by a Heisenberg-Professur (DFG).

Holger Stark

*Max Planck Institute for Biophysical Chemistry, Göttingen, Germany*

Prof. Stark is the director of the department of Structural Dynamics at the Max-Planck Institute for Biophysical Chemistry. His work focuses on new biochemical strategies for complex isolation and stabilization, improvement in electron microscopic imaging and development of novel software strategies for computational image analysis. He obtained his PhD from the Free University Berlin and did postdoctoral work at the Imperial College in London.
Speakers

**Martin Ungerer**

*advanceCOR - Procorde, Martinsried, Germany*

Martin Ungerer studied medicine in Munich, Germany and Marseille-Nice, France, and did his medical specialty training as a cardiologist at the German Heart Centre, Munich. During his postdoctoral training, he worked at the lab of Martin Lohse, Gene Center, Max-Planck-Institute for Biochemistry, Martinsried. Since 2000, he co-founded the biotech companies Procorde, Corimmun (which was sold to J+J-Janssen in 2012) and advancecor, all in Martinsried.

**Kenneth Walsh**

*University of Virginia School of Medicine, Charlottesville, USA*

Kenneth Walsh is the director of the Hematovascular Biology Center at the University of Virginia. The Walsh Lab broadly examines the molecular events that drive cardiovascular cell growth, differentiation and cell death. At the forefront of this science, his newest studies have investigated how clonal hematopoiesis functions as a new causal risk factor for CVD. He obtained his PhD in Biochemistry from the University of California, Berkeley.

**Jérôme Van Biervliet**

*VIB - Vlaams Instituut voor Biotechnologie, Ghent, Belgium*

Dr. Van Biervliet has 20 years interdisciplinary experience in the medical, business and biotech environments. He trained as a veterinary internal medicine specialist at Cornell University and continued with a PhD at VIB, finishing with a landmark paper in Science. He is the current Head of Business Development of VIB’s Innovation & Business unit and founder and head of VIB Discovery Science, an internal drug discovery unit at VIB.

**Florian Weinberger**

*University Medical Center Hamburg-Eppendorf (UKE), Germany*

Florian Weinberger graduated from Hamburg Medical School in 2008 and received his training at the Charité Berlin, the UKE in Hamburg and the University of Washington. His recent work focuses on pluripotent stem cell derived engineered heart tissue (EHT) technology for cardiac repair applications and has shown that human EHT survive after transplantation, can couple to host myocardium and improve cardiac function after myocardial infarction.

**Veronika von Messling**

*Federal Ministry of Education and Research, Germany*

Prof. Dr. Veronika von Messling is Director General of the Life Science Division at the German Federal Ministry of Education and Research. After graduating from Veterinary School Hannover, she pursued postdoctoral training at Mayo Clinic in Rochester, USA. She was Assistant Professor at INRS-Institut Armand-Frappier in Laval, Canada, and then Associate Professor at Duke-NUS Medical School, Singapore, before becoming Director of the Veterinary Division at Paul-Ehrlich-Institut, Berlin, Germany.

**Wolfram-Hubertus Zimmermann**

*University Medical Center Göttingen (UMG), Germany*

Wolfram-Hubertus Zimmermann is a professor of pharmacology at the University Medical Center Göttingen (UMG). Since 2011, he is the speaker of the DZHK partner site Göttingen. He studied medicine and molecular biology at the University of Hamburg, was appointed as Junior-professor for Cardiac Tissue Engineering in 2003 and completed his training in Pharmacology and Toxicology in 2006. In 2008, he was appointed to his present position as director of the Institute of Pharmacology and Toxicology at the UMG.
Poster presentations

Wednesday, 9 January 2019
15:00–16:00

**Posters 1-7 | Chairs: Thomas Sommer, Marcus Dörr**

1. **Wesley Abplanalp**
   Single cell sequencing reveals profound changes in monocytic cell clusters in patients with mutations associated with clonal hematopoiesis

2. **Alessio Alogna**
   Non-invasive evaluation of blood oxygen saturation in the heart using blood-oxygen-level-dependent T2 magnetic resonance imaging in a porcine model of acute systemic hyper- and hypoxemia.

3. **Morad Asadi**
   Endothelial TSAd and endothelial connections during sepsis

4. **Andrea Bähr**
   LEA29Y expression facilitates acceptance of human engineered heart tissue in transgenic pigs

5. **Bishwas Chamling**
   Sugars make the difference – Glycosylation of cardio-depressant antibodies regulates their activity in dilated cardiomyopathy

6. **Jan Christoph**
   Electromechanical Vortex Filaments during Cardiac Fibrillation

7. **Kashan David**
   Effect of Ionizing Irradiation on Engineered Heart Muscle for Cardiac Repair

**Posters 8-15 | Chairs: Matthias Nauck, Christian Weber**

8. **Daniel Finke**
   Epigenetic memory of metabolic stress - Identification of regulators for cardiac stress susceptibility

9. **Youssef Fouani**
   The endothelial-enriched IncRNA NTRAS regulates vessel permeability by controlling alternative splicing of tight junction gene

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**Chairs**

**Johannes Backs** Heidelberg University Hospital, Heidelberg, Germany
**Shirin Doroudgar** Heidelberg University Hospital, Heidelberg, Germany
**Marcus Dörr** University of Greifswald Medical School, Greifswald, Germany
**Heimo Ehmke** University Hospital Hamburg-Eppendorf, Germany
**Stefan Engelhardt** Technical University of Munich, Germany
**Stephan Felix** University of Greifswald Medical School, Greifswald, Germany
**Garret A. FitzGerald** Institute for Translational Medicine and Therapeutics, Philadelphia, USA
**Ingrid Fleming** Goethe-Universität Frankfurt am Main, Germany
**Holger Gerhardt** Max Delbrück Center for Molecular Medicine in the Helmholtz Association (MDC), Berlin, Germany
**Norbert Hübner** Max Delbrück Center for Molecular Medicine in the Helmholtz Association (MDC), Berlin, Germany
**Stefan Kääb** Hospital of the Ludwig-Maximilians-University (LMU) Munich, Germany
**Thorsten Kessler** German Heart Center Munich of the Technical University Munich, Germany
**Ulf Landmesser** Charité – Universitätsmedizin Berlin, Germany
**Alexandra Lansky** Yale School of Medicine, New Haven, USA
**Matthias Nauck** University of Greifswald Medical School, Greifswald, Germany
**Thomas Sommer** Max Delbrück Center for Molecular Medicine in the Helmholtz Association (MDC), Berlin, Germany
**Thomas Voit** NIHR Biomedical Research Centre, UCL Institute of Child Health/Great Ormond Street Hospital NHS Trust, London, UK
**Christian Weber** Hospital of the Ludwig-Maximilians-University (LMU) Munich, Germany
**Elisabeth Zeisberg** University Medical Center Göttingen, Germany
**Tanja Zeller** University Hospital Hamburg-Eppendorf, Germany
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<td>Exploring the role of LZTR1 for the development of cardiac hypertrophy in genome-edited iPSC-derived cardiomyocytes</td>
<td>Robin Hindmarsh</td>
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<td>Aortic stiffness in diabetes is contributed by endothelial-to-mesenchymal transition</td>
<td>Melanie Hulshoff</td>
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<td>Pravastatin as a potential treatment to reduce long-term cardiovascular risk after preeclamptic pregnancy</td>
<td>Kristin Kraeker</td>
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<td>Cardiac MRI for in vivo quantification of myocardial perfusion deficits in a hypertrophic cardiomyopathy mouse model</td>
<td>Min-Chi Ku</td>
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<td>Vascular remodeling in Pulmonary Hypertension due to Left Heart Disease</td>
<td>Mariya M. Kucherenko</td>
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<td>Increased Salt Intake Decreases Postprandial Energy Expenditure in Healthy Volunteers - a Randomized Clinical Study</td>
<td>Anja Mähler</td>
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<td>Identification of a therapeutic approach targeting the PRDM16 associated cardiomyopathy</td>
<td>Jirko Kühnisch</td>
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<td>Extracellular vesicles mediated small non-coding RNAs in the progression of chronic thromboembolic hypertension</td>
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<td>Riboflavin treatment improves mitochondrial cardiomyopathy due to ACAD9 deficiency</td>
<td>Elisa Mastantuono</td>
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<td>The role of FAM129B in monocyte/macrophage function during myocardial infarction</td>
<td>Sören Meyer</td>
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<td>Serum levels of the damage-associated molecular pattern S100A8/S100A9 as a diagnostic and monitoring biomarker in patients with a recent onset of myocarditis</td>
<td>Irene Müller</td>
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<td>High resolution mapping of focal VT from the papillary muscle identifies rate dependency of activation recovery interval</td>
<td>Paula Münkler</td>
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<td>Gene therapy with phosphodiesterase 4B in a murine model of pressure overload-induced cardiac hypertrophy</td>
<td>Nikoleta Pavlaki</td>
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<td>Rivaroxaban exerts a direct antiplatelet effect on platelet activation and arterial thrombosis</td>
<td>Tobias Petzold</td>
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<td>Prevention of myocardial hypertrophy following AAV9-mediated NFAT hairpin decoy ODNs delivery into the myocardium</td>
<td>Anca Remes</td>
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**Day 2**

**Thursday, 10 January 2019**

13:00–14:00

**Posters 16-25 | Chairs: Heimo Ehmke, Elisabeth Zeisberg**

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**Posters 26-35 | Chairs: Johannes Backs, Norbert Hübner**

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<td>Exploring LZTR1-associated Noonan Syndrome in patient-specific and CRISPR-corrected iPSC-derived cardiomyocytes</td>
<td>Lennart Roos</td>
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<td>Hyperglycemia-induced α-dicarbonyls in diabetes-related vascular dementia</td>
<td>Sina Schultz</td>
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<td>The role of serotonin in atherosclerosis, angiogenesis and remodelling of the vessel wall</td>
<td>Yasmine Seibel</td>
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29 **Nicoline Smit**
   Promoting transparency in preclinical research: preregistration of animal studies on www.preclinicaltrials.eu

30 **Elisabeth Strässler**
   Functional analysis of iPSC-derived endothelial cells from risk-stratified CAD patients and comparison with primary endothelial cells

31 **Stephanie Tennstedt**
   Soluble Guanylyl Cyclase: SNP Analysis - a Step Toward Drug Discovery

32 **Viviana Vedder**
   High-content screening using zebrafish as a model for angiogenesis

33 **Tim Wilhelmi**
   Serelaxin alleviates cardiac fibrosis through inhibiting endothelial-to-mesenchymal transition via RXFP1

34 **Julia Winter**
   PCSK9 deficiency is not associated with impaired cardiac repair capacity early after myocardial infarction

35 **Jasmin Zernikow**
   17β-Estradiol regulates periostin in a sex-specific manner in human cardiac fibroblasts
Conference Venue
Langenbeck-Virchow-Haus
Luisenstraße 58/59
10117 Berlin

Conference Dinner Venue
Villa Elisabeth
Invalidenstraße 3
10115 Berlin

Inquiries
conference@dzhk.de

Conference organiser
Deutsches Zentrum für Herz-Kreislauf-Forschung e. V. (DZHK)

For more information
https://conference2019.dzhk.de
twitter: #DZHKConference2019

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