



National Institutes  
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**DZHK**

DEUTSCHES ZENTRUM FÜR  
HERZ-KREISLAUF-FORSCHUNG E.V.

The background of the poster is a dark red color with a white grid. A white ECG (heart rate) line is prominently displayed in the center. To the right and bottom, there are faint, stylized DNA double helix structures. The text is overlaid on this background.

# CARDIOVASCULAR BIOENGINEERING (CVBE) Symposium 2022

**JUNE 9<sup>TH</sup> - JUNE 11<sup>TH</sup>**

German Primate Center, Kellnerweg 4, 37077 Göttingen  
Alte Mensa, Wilhelmsplatz 3, 37073 Göttingen  
Aula, Wilhelmsplatz 1, 37073 Göttingen

# WELCOME

on behalf of  
the organizing team

Welcome to the Göttingen Campus:

Cardiovascular bioengineering is developing rapidly, aiming at offering solutions for heart failure repair. A fundamental understanding of disease mechanisms as well as the realization that heart failure is a multifaceted disease entity is key for the translation of innovative, individualized heart failure therapies. Depending on underlying disease mechanisms and disease states, classical pharmacological approaches, biologicals, gene and cell therapy approaches or combined therapies may have to be considered for optimal outcomes. Safe and effective delivery of innovative therapeutics is a key challenge addressed by innovative bioengineering approaches. Early clinical studies are emerging to test preclinical innovations.

We are proud to have attracted the attention of world leaders in fundamental and translational heart failure research and at the same time provide a platform for Young Investigators to present their innovative research. We expect vibrant discussions as to the identification of novel therapeutic targets and strategies to advance the state-of-the-art experimental knowledge into clinical applications.

At the Göttingen partner site of the DZHK (German Center for Cardiovascular Research), we are fully dedicated to translating innovative heart failure therapeutics into first-in-patient studies and beyond. Many of the innovations at the Göttingen Campus originate from fundamental research conducted within the framework of the Göttingen Cluster of Excellence „Multiscale Bioimaging: from Molecular Machines to Networks of Excitable Cells“ and the Collaborative Research Center 1002 „Modulatory Units in Heart Failure“. The NIH Progenitor Cell Translational Consortium/Cardiovascular Bioengineering Consortium (PCTC/CVBE) has a similarly rich breeding ground and translational mission. By joining forces to organize the 2022 DZHK/NIH symposium in Göttingen we aim to foster collaborations between leading labs to realize the promise of individualized heart failure repair.

We look forward to discuss science and network in Göttingen, „die Stadt, die Wissen schafft“ (the city of science).



  
Jay Zhang



  
Wolfram Zimmermann

Progenitor Cell Translational Consortium (PCTC)

German Center for Cardiovascular Research (DZHK)

# THURSDAY, June 9<sup>th</sup>, 2022

Foto: Manfred Eberle, DPZ



**GERMAN PRIMATE CENTER**  
Kellnerweg 4 - 37077 Göttingen

- 09:00 am Registration & Coffee
- 11:15 am Welcome Address  
Stefan Treue, PhD | Jay Zhang, MD, PhD  
Stefanie Dimmeler, PhD | Gerd Hasenfuß, MD
- Moderators: Rabea Hinkel, DVM | Wolfram Zimmermann, MD
- 11:30 am **KEYNOTE LECTURE**  
Cardiac Xenotransplantation on its Way to the Clinic  
Bruno Reichart, MD
- 12:00 am Lunch & Guided Tour - German Primate Center

Chairs: Rabea Hinkel, DVM | Wolfram Zimmermann, MD

**Session I: Lessons from Large Animal Models**

- 02:00 pm iPS-CM: Generation, Selection, and Delivery  
Keiichi Fukuda, MD, PhD
- 02:20 pm Controlling Cardiomyocyte Implant  
Induced Arrhythmia  
Michael Laflamme, MD, PhD

# THURSDAY, June 9<sup>th</sup>, 2022

- 02:40 pm Experience in Monkey Allo- and Autograft Models  
Yuji Shiba, MD, PhD
- 03:00 pm Clinical Experience with Tissue Engineered Heart Repair  
Wolfram-Hubertus Zimmermann, MD
- 03:20 pm Translational Studies in Porcine Models of Diabetes  
Rabea Hinkel, DVM, PhD
- 03:40 pm Induced Cardiac Regeneration by Cell Cycle Activation  
Mauro Giacca, MD, PhD
- 04:00 pm Coffee Break

Chairs: Joseph Wu | Christian Kupatt

## **Session II: Late Translational Studies**

- 04:20 pm miR Therapeutics for Heart Repair  
Stefanie Dimmeler, PhD
- 04:40 pm Experience with Cell Sheet Therapy  
Yoshiki Sawa, MD
- 05:00 pm Novel Strategies for Cardiac Regeneration and Repair  
Eldad Tzahor, PhD
- 05:20 pm Finding an Appropriate Dose for Engineered Heart Tissue  
Florian Weinberger, MD
- 05:40 pm Regulation of Heart Rate and Rhythm by CamKII  
Mark Edward Anderson, MD, PhD
- 06:00 pm From ESCORT to EXOSOMES  
Philippe Menasché, MD, PhD
- 08:00 pm Faculty Dinner - Gaudí

# FRIDAY, June 10<sup>th</sup>, 2022

Foto: Frank Stefan Kimmel, Göttingen



**ADAM-V.-TROTT-SAAL | ALTE MENSA**

Wilhelmsplatz 3 - 37073 Göttingen

**08:15 am**      **Welcome Address**  
Wolfram Zimmermann, MD | Victor J. Dzau, MD  
Dennis Buxton, PhD | Michael L. Terrin, MDCM, MPH

**Chairs:**            David Elliot | Laura Zelarayan  
**Session III:**      **Learning from Development**

**08:30 am**      **Transcriptional Dysregulation in Congenital Heart Failure**  
David Elliot, PhD

**08:50 am**      **Derivation and Use of Epicardial Lineages from hPSCs**  
Sanjay Sinha, MBBCh, PhD

**09:10 am**      **Cell Lineage Diversification and Cell Competition during Heart Development and Repair**  
Miguel Torres, PhD

**09:30 am**      **Dissecting the Fate of Cardiac Progenitor Cells**  
Thomas Braun, MD, PhD

**09:50 am**      **Cardiac Lymphatic System**  
Paul Riley, PhD

# FRIDAY, June 10<sup>th</sup>, 2022

10:10am Coffee Break

Chairs: Jay Zhang | Gerd Hasenfuß

## Session IV: Going 3D

10:30 am Making LV Remuscularization Happen:  
using Engineered Cardiac Muscle Patch  
Jay Zhang, MD, PhD

10:50 am Engineering Heart and Skeletal Muscle with Advanced  
Maturation  
Malte Tiburcy, MD

11:10 am Tissue-engineered Therapeutics for Heart Repair  
Nenad Bursac, PhD

11:30 am Cardiac tissue engineering: From 3D printing to  
creating bionic hearts  
Tal Dvir, PhD

11:50 am Poster Viewing with Lunch  
(Posters will be at display on May 8<sup>th</sup> and 9<sup>th</sup>)

Chairs: Gangjian Qin | Susanne Lutz

## Session V: Early Career Researcher Presentations – selected from submitted abstracts

### Rapid Fire Presentation (5 min presentation + 2 min discussion)

03:00 pm TBD

03:07 pm TBD

03:14 pm TBD

# FRIDAY, June 10<sup>th</sup>, 2022

03:21 pm TBD

03:28 pm TBD

03:35 pm TBD

03:42 pm **Panel Discussion**  
Bodenschatz | Chong | Fukuda | Lutz | Qin | Zhang | Zimmermann

04:00 pm **Coffee Break**

**Chairs:** Tim Kamp | Malte Tiburcy

## **Session VI: Biomaterials and Tissue Engineering**

04:20 pm **Mechanobiology of iPSC-derived Cardiovascular Progeny**  
Adam Engler, PhD

04:40 pm **Bioprinting of a Cardiogenic Extracellular Environment**  
Brenda Ogle, PhD

05:00 pm **Stem Cells for Vascular Regeneration and Remodeling**  
Song Li, PhD

05:20 pm **Biofabrication of Human Pancreatic Islets from Pluripotent Stem Cells**  
Keiming Ye, PhD

05:50 pm **Engineered Heart and Brain Interface**  
Patapia Zafeiriou, PhD

07:00 pm **Conference Dinner / YI-Award Presentation - Amavi Pure**

# SATURDAY, June 11<sup>th</sup>, 2022



Foto: Daniel Schwen

## AULA

Wilhelmsplatz 1 – 37073 Göttingen

- 08:15 am**      **KEYNOTE-LECTURE**  
The Future of Heart Failure Therapy /  
Paracrine Mechanism of Stem Cell Therapy  
Victor J. Dzau, MD
- 08:50 am**      Targeting Iron Deficiency  
Hossain Ardehali, MD, PhD
- 09:10 am**      Regulatory Principles of Cardiac Proteins on a Global Scale  
Peipei Ping, PhD
- 09:30 am**      Beta-Adrenergic Receptor Signaling: Evolving Concepts  
and Therapeutics  
Howard A. Rockman, MD
- 09:50 am**      Cardiac Regeneration Strategies: Cells and Matrix  
James Chong, MBBS, PhD
- 10:10 am**      NO in Heart Failure  
Stefan Janssens, MD
- 10:30**          Coffee Break

# SATURDAY, June 11<sup>th</sup>, 2022

Chairs: Victor Dzau | Thomas Braun

## Session VIII: Heart Failure – Novel Strategies to Repair the Heart

- 10:50 am Proliferating Cardiomyocytes: When and How?  
Loren Field, PhD
- 11:10 am RNA therapeutics for heart failure treatment  
John P. Cooke, MD, PhD
- 11:30 am Transforming Scar in Heart Muscle  
Masaki Ieda, MD, PhD
- 11:50 am HDAC Manipulation in Heart Failure  
Johannes Backs, MD
- 12:10 pm Redox Regulation of Cardiomyocyte Renewal  
Hesham A. Sadek, MD, PhD
- 12:30 pm Non-coding RNA in Cardiac Regeneration and Protection  
Da-Zhi Wang
- 12:50 pm Lunch

Chairs: Loren Field | Elisabeth Zeisberg

## Session IX: Genome Editing

- 01:30 pm Stem Cells and Genomics for Precision Medicine  
Joseph C Wu, MD, PhD
- 01:50 pm CRISPR/Cas-based Tuning Gene Expression  
Laura Zelaravan, PhD
- 02:10 pm Transcriptional Regulation of Maturation  
William Pu, M.D.
- 02:30 pm Repairing DMD in Pigs  
Christian Kupatt, MD
- 02:50 pm Epigenetic Modification of Gene Expression  
Elisabeth Zeisberg, MD

# SATURDAY, June 11<sup>th</sup>, 2022

03:10 pm Coffee Break

Chairs: Nenad Bursac | Rabea Hinkel

## Session X: Cell-Cell Cross-Talk

03:30 pm iPSC-derived Fibroblasts

Timothy J. Kamp MD, PhD

03:50 pm Hippo Signaling in Heart Regeneration

James F. Martin MD PhD

04:10 pm Isolation of Chamber-Specific Cardiomyocytes from Differentiating Pluripotent Stem Cells

Reza Ardehali, MD, PhD

04:30 pm Transcriptional Regulation in the Regenerating Heart

Enzo Porrello, PhD

04:50 pm Cellular and Molecular Aspects of Hypertrophic Cardiomyopathy

Sakthivel Sadayappan, PhD, MBA

05:10 pm hPSC-Caridac Lineage Cells and Non-Cell Products for Cardiac Repair

Huang-Tian Yang, MD, PhD

05:30 pm Coffee Break

Chairs: Keiichi Fukuda | Wolfram Zimmermann

## Session XI: Meet the Editor

05:45 pm Science Translational Medicine

Caitlin A. Czajka, PhD

06:00 pm Concluding Remarks

Jay Zhang, MD, PhD

Welcome to Kyoto CVBE2023, Japan

Keiichi Fukuda, MD, PhD

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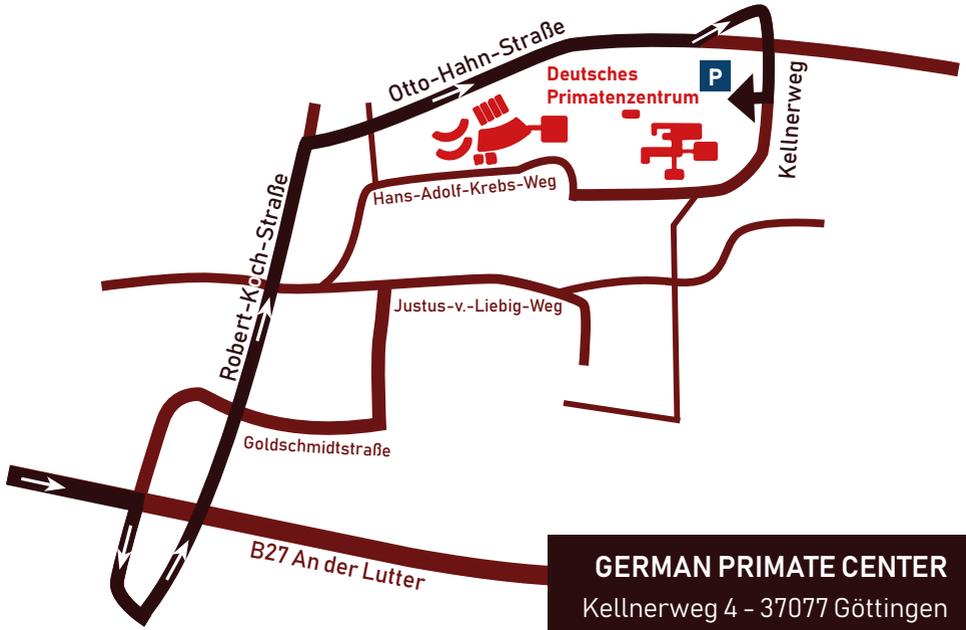
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German Primate Center  
Leibniz Institute for Primate Research



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Symposium mobile number is available upon request.

**REGISTRATION:** [https://dzhk.de/dzhk\\_nih\\_symposium/](https://dzhk.de/dzhk_nih_symposium/)  
Deadline for registration and abstract submission: May 1st, 2022

