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

8th Young DZHK Retreat

14 - 15 September, 2022
Seminaris SeeHotel Potsdam, An der Pirschheide 40, 14471 Potsdam

Preliminary program

Wednesday, 14th September

10:00 am Young DZHK PostDoc Committee Meeting
11:30 am Registration & lite bites

12:30 pm Welcome
Nadya Al-Wakeel-Marquard, Anne Dueck

12:40 pm Clinician Scientists

1:00 pm 1st oral session – Vascular biology
Chairs: Simone Glaser & Matthias Mietsch (presentation á 8 min + 10 min panel discussion)

1. Antibodies and complement are key drivers of thrombosis, Badr Kilani (Munich)
2. Tissue Engineering of a Three-layered Artery, Constanze Lehertshuber (Munich)
3. Regnase-1 overexpression in lung endothelium decreases the severity of pulmonary hypertension in mice, Anca Remes (Hamburg/Kiel/Lübeck)
4. Aortic and carotid artery remodeling after transverse aortic constriction in mice, Sebastian Neuber (Berlin)

1:50 pm Intensive networking event

3:00 pm 1st poster session & coffee
Chairs: Nadya Al-Wakeel-Marquard & Michael Molitor (5 min presentation + 2 min discussion)

A1. Riociguat attenuates left ventricular proteome and microRNA profile changes after experimental aortic stenosis in mice, Alexander Benkner (Greifswald)
A2. Cardioprotective effect of sGC stimulator vericiguat in a rat model for chronic heart failure, Sarah Kedziora (Berlin)
A3. Monitoring oxidation of cGMP-dependent protein kinase Iα by nitroxyl, Julia Pflaumenbaum (Hamburg/Kiel/Lübeck)
A4. Micro-RNA 92a as a therapeutic target for cardiac microvascular dysfunction in diabetes, Mostafa Samak (Göttingen)
A5. High-resolution 3D microvascular fingerprint of multi-organ imaging – development and application to detect vascular undersupply after preeclamptic pregnancy, Kristin Kräker (Berlin)
A6. Role of the microbiota in thrombus growth and platelet function in a murine deep vein thrombosis model, Klytaimnistra Kiouptsi (Rhine-Main)

A7. The epigenetic enzyme DOT1L orchestrates vascular smooth muscle cell–monocyte crosstalk and protects against atherosclerosis via the NF-κB pathway, Floriana Farina (Munich)
A8. Atherosclerosis licenses for an exceeding immune response in COVID-19 disease, Julian Leberzammer (Rhine-Main)
A9. Tubulin-folding cofactor E deficiency impairs flow mediated arterial dilatation and promotes vascular dysfunction, Michael Molitor (Rhine-Main)
A10. Role of the CXCL12/CXCR4 axis in atherosclerotic plaque instability, Laura Parma (Munich)
A11. Discovery and exploration of novel gene targets for lowering cardiometabolic risk, Amos Romer (Munich)
A12. Reduced heart and skeletal muscle function in Muscle RING-finger proteins (MuRF) 1 and 3 double knockout mice is associated with a perturbed mitochondrial energy homeostasis, Elisa Martin (Greifswald)

Chairs: Simone Glaser & Marcus Vollmer (5 min presentation + 2 min discussion)
B1. Analysis of Myocardial Microstructure in an Experimental Model of Obesity-Related Cardiac Dysfunction, Niklas Beyhoff (Berlin)
B2. IL-6-mediated increase in protein tyrosine phosphatases PTP1B and TC-PTP is responsible for inflammation-induced insulin resistance, Björn Brinschwitz (Greifswald)
B3. Tfeb improves homeostasis in neonatal rat ventricular cardiomyocytes, Niklas Dörmann (Greifswald)
B4. The role of insulin-like growth factor binding protein 5 (IGFBP5) in heart failure disease progression, Janek Alfred Fischer (Göttingen)
B5. Muscle RING-finger proteins (MuRF) regulate PKA activity via retrograde vesicular transport of RIα in skeletal muscle, Ning Li (Greifswald)
B6. Microprotein SPAR regulates cardiac remodelling after ischemia-reperfusion injury, Ellen Malovrh (Heidelberg/Mannheim)
B7. An immunological imbalance between osteoporotic bone and enhanced vascular calcification – the adverse role of PDGF-BB, Wera Pustlauk (Berlin)
B8. Left ventricle- and skeletal muscle-derived fibroblasts exhibit a differential inflammatory and metabolic responsiveness to interleukin-6, Isabell Matz (Berlin)
B9. Effect of the macrophage iron content on the functional outcome during heart, Christina Mertens (Heidelberg/Mannheim)
B10. Investigating the molecular disease mechanisms of the human p.G592R PRKD1 mutation in human induced pluripotent stem cell-derived cardiomyocytes, Julia Orth (Hamburg/Kiel/Lübeck)

4:30 pm **Rapid fire talks**

Chair: Maarten van den Hoogenhof (2 sessions with 4 speakers with 5 min talks)

1. An endo-lysosomal Ca2+ store in cardiomyocytes controlled by OCaR proteins determines fatal tachyarrhythmias, Roger Ottenheijm (Heidelberg/Mannheim)

2. Klotho-related dysregulated FGF23 signaling exacerbates pulmonary arterial hypertension, Paul-Lennard Perret (Berlin)
3. SARS-CoV-2 vaccination-induced immunogenicity in heart transplant recipients, Simon Thomas Küppers (Hamburg/Kiel/Lübeck)
4. Autoantibodies against the CXC-motif-chemokine receptor 3 (CXCR3) are relevant for cardiovascular morbidity and mortality in the general population, Felix Müller (Rhine-Main)

10 min panel discussion

5. Lower S1P levels are associated with higher left ventricular and atrial chamber size, wall thickness and cardiac mass in men. The Study of Health in Pomerania (SHIP), Jan Schielke (Greifswald)
6. Mendelian randomization indicates sex-specific causal effects of estradiol levels on kidney function, M. Kamal Nasr (Greifswald)
7. Impact of diet induced obesity on cardiac function and energy metabolism in aging, Patricia Owesny (Berlin)
8. Longitudinal Analysis of Heart Failure Development in a Novel Rat Model – Additive Value of a Hypertensive Stimulus, Arne Thiele (Berlin)

10 min panel discussion

5:30 pm **Coffee break**

5:45 pm **2nd oral session– Cellular Biology of the Heart**
Chairs: Anne Dueck & Sonia Singh (oral presentations á 8 min + 10 min panel discussion)
1. Leucine zipper EF-hand containing trans-membrane protein 1 deficiency alters SERCA2A levels thereby modulating mitochondrial function in neonatal rat cardiomyocytes, Anushka Deshpande (Hamburg/Kiel/Lübeck)
2. Activation of phosphodiesterase 3A for cardioprotection, Maria Ercu (Berlin)
3. Identification and functional epigenetic modulation of regulatory elements in cardiac myocytes, Patrick Laurette (Heidelberg/Mannheim)
4. PKD regulates myofibrillogenesis and intercalated disc composition, Janice Raabe (Hamburg/Kiel/Lübeck)
5. RGS5 controls pericyte homeostasis in the heart, Anita Tamiato (Rhine-Main)

10 min panel discussion

6:35 pm **Rapid fire session - Immune cells in the cardiovascular system**
Chair: Leo Nicolai (4 speakers with 5 min talks)
1. Neutrophils incite electrical storm after myocardial infarction, Jana Grune (Berlin)

2. JMJD3-deficiency in CD4+ T cells attenuates atherosclerosis by modulating T-cell polarization, Cecilia A. Bonfiglio (Munich)
3. Oral homoarginine supplementation ameliorates atherosclerosis by modulating T cell function, Katrin Nitz (Munich)
4. The long non-coding RNA Schlafenlnc as a regulator of cardiac resident macrophage function, Lara Althaus (Munich)

10 min panel discussion

7:30 pm **Dinner**

8:30 pm **Keynote lecture 1**: Molecular and machine learning-assisted steps to heal a broken heart, Leon de Windt, Maastricht University

Thursday, 15th September

6:30 am **Young DZHK running session** – bring your running gear (Maarten van den Hoogenhof)

8:30 am **Rapid fire talks**

Chairs: Sonia Singh (2 sessions with 4 speakers with 5 min talks)

1. Metformin Treatment Decreases Blood Pressure But Does Not Ameliorate Hypertensive Cardio-Renal Damage In A Double Transgenic Rat Model, Moritz Wimmer (Berlin)
2. Glutaminase inhibitors CB-839 and CB-968 decrease cardiomyocyte hypertrophy, Andrea Matzen (Hamburg/Kiel/Lübeck)
3. Sacubitrilat prevents endothelin 1-induced cellular hypertrophy and increased microtubule detyrosination in human induced pluripotent stem cell-derived cardiomyocytes, Moritz Meyer-Jens (Hamburg/Kiel/Lübeck)
4. CRISPR/dCas9VPR-based gene re-activation rescues the loss of Krüppel-like factor 15 expression and its gene regulatory network blunting cardiomyocyte remodeling, Eric Schoger (Göttingen)

10 min panel discussion

5. Wnt signaling inhibitor SHISA3 is expressed in a common cardiac vascular progenitor pool, Laura Priesmeier (Göttingen)
6. Male sex hormone and reduced plakoglobin jointly impair atrial conduction and cardiac sodium currents, Laura Sommerfeld (Hamburg/Kiel/Lübeck)
7. Single-cell and spatially resolved transcriptome analysis reveals cellular heterogeneities and novel regulators of atherosclerotic plaque destabilization, Jessica Pauli (Munich)

10 min panel discussion

9:30 am **Coffee break**

9:45 am **3rd oral session – E-cardiology**

Chairs: Michael Molitor & Marcus Vollmer (oral presentations á 8 min + 10 min panel discussion)

1. The Digital HeART (DHART) Research portal, Etienne Boileau (Heidelberg/Mannheim)
2. A hitchhiker's guide to gut microbiome analyses, Ulrike Löber (Berlin)
3. Opening the black box: Investigating deep learning models for 12-lead ECG classification, Nicolai Spicher (Göttingen)
4. Efficiency of different heartbeat detection methods by using alternative noise reduction algorithms, Jader A. Giraldo-Guzmán (Greifswald)

10 min panel discussion

10:30 am **Keynote 2:** title tbd, Anja Hennemuth

11:15 pm **2nd poster session & lite bites**

Chairs: Simone Glaser & Leo Nicolai (5 min presentation + 2 min discussion)

C1. Impact of aging and proteolysis on iron metabolism in the heart, Sophia Walter (Berlin)

C2. Identification of key lncRNAs in cardiac resident macrophages using pooled CRISPR screens, Niklas Petzold (Munich)

C3. Sputum microbiome and Chronic Obstructive Pulmonary Disease in a rural Ugan dan cohort of well-controlled HIV infection, Theda Bartolomaeus (Berlin)

C4. Targeting long non-coding RNA NUDT6 enhances smooth muscle cell survival and limits vascular disease progression, Hanna Winter (Munich)

C5. The New Zealand Obese Mouse as a novel model for Spontaneous Degenerative Aortic Valve Disease, Christiane Ott (Berlin)

C6. Molecular and functional changes by CRISPR-mediated activation of Delta-like non-canonical Notch Ligand 1 (DLK1) in engineered human myocardium, Niklas Bader (Göttingen)

C7. iPSC-derived pacemaker cardiomyocytes to elucidate the genetic network in SHOX2-dependent atrial arrhythmias, Kristin Rädecke (Heidelberg/Mannheim)

C8. Blood pressure related gene CRIP1 influences cell migration and pro-inflammatory state of macrophages, Olga Schweigert (Hamburg/Kiel/Lübeck)

C9. Pulmonary vascular rarefaction in systemic hypoxemia linked to HFpEF, Niklas Hegemann (Berlin)

C10. Reactive oxygen species induce cell stiffening through lysosomal disruption and subsequent intracellular acidosis in HL60, Yesaswini Komaragiri (Greifswald)

C11. Tubulin tyrosine ligase gene therapy ameliorates heart function and increases diastolic compliance in a mouse model of hypertrophic cardiomyopathy, Niels Pietsch (Hamburg/Kiel/Lübeck)

C12. Endothelial cysteinolysis in age-related cardiac hypertrophy, Maria Kyriaki Drekolia (Rhine-Main)

Chairs: Anne Dueck & Maarten van den Hoogenhof (5 min presentation + 2 min discussion)

D1. Protective Role of Heat Shock Protein A4 (HSPA4) in the Heart, Daniel Marques Rodrigues (Göttingen)

D2. Association of Plasma Chemerin with All-Cause and Disease-Specific Mortality – Results from a Population-Based Study, Stephanie Zylla (Greifswald)

D3. Vascular aging in the young: carotid stiffness population centiles and their association with blood pressure in the KiGGS cohort, Julia Büschges (Berlin)

D4. The circular RNA Ataxia-telangiectasia mutated (circATM) regulates oxidative stress in smooth muscle cells in expanding abdominal aortic aneurysms, Francesca Fasolo (Munich)

D5. Coronary physiology: the retrograde approach, Helen Ullrich (Rhine-Main)

D6. Predicting NT-proBNP as a marker for chronic heart failure from the ECG using deep learning, Meraj Neyazi (Hamburg/Kiel/Lübeck)

D7. TBX18 promotes extracellular matrix protein expression and represses cytokine signalling in mammalian VSMCs, implications in homeostasis and aneurysms, Debanjan Mukherjee (Rhine-Main)

D8. A mutation-independent, CRISPR/Cas-based gene therapy to rescue catecholaminergic polymorphic ventricular tachycardia, Stefan Thalhammer (München)

D9. Functional Consequences Of Calsequestrin 2 Mutation P.F189L In A Takotsubo Syndrome Stem Cell Model, Gideon Syed Ali (Göttingen)

D10. A novel lineage of adventitial cardiac fibroblasts plays a central role in fibrotic remodeling, Veronica Larcher (Rhine-Main)

D11. Coronary physiology: the antegrade approach, Maximilian Olschewski (Rhine-Main)

D12. Skeletal muscle specific deletion of Tfeb protects against starvation-induced muscle mass loss but not function in mice, Priyanka Voori Giri (Greifswald)

12:45 pm **Wrap-up and announcement of highlight talks**

12:55 pm **Evaluation**

2:00 pm **Start DZHK Retreat**