



CVRC

CardioVascular Research Cluster

BERN

Annual Meeting 2024

24 January 2024

Online presentations + On-site posters & Apéro,
Atrium A Ground Floor, Sitem-Insel

- Acquired Cardiovascular Diseases, Metabolism and Prevention
- Roundtable: Artificial vessels and cardiac organoids: will we still need animal experimentation in the future?
- Sex Differences, Development (Aging) and Genetic Bases of Cardiovascular Diseases
- New Aspects in Cardiovascular Imaging
- Vascular Disorders
- Arrhythmias
- Medical Technologies and Structural Heart Diseases

Meeting Programme

Organization Committee

Dr. Maria Arnold, Scientific and Administrative Manager of the Cardiovascular Research Cluster Bern, Inselspital, Bern University Hospital and University of Bern

Dr. med. Sarah Bernhard, Division of Angiology, Swiss Cardiovascular Centre, Inselspital, Bern University Hospital

Daniela Castillo Robles, Administrative Assistant Cardiovascular Research Cluster Bern, Inselspital, Bern University Hospital and University of Bern

Prof. Dr. Yvonne Döring, Division of Angiology, Swiss Cardiovascular Centre, Inselspital, Bern University Hospital and Department for BioMedical Research, University of Bern

Prof. Dr. Sarah Longnus, Department of Cardiac Surgery, Inselspital, Bern University Hospital and Department for BioMedical Research, University of Bern

Prof. Dr. med. Katja Odening, Translational Cardiology, Department of Cardiology, Inselspital, Bern University Hospital and Department of Physiology, University of Bern

Ass. Prof. Dr. Marco Osterwalder, Department for BioMedical Research, University of Bern

PD Dr. med. Emrush Rexhaj, Department of Cardiology, Inselspital, Bern University Hospital

Meeting Programme Overview

10:00-10:05	Opening / Welcome (online, Zoom)
10:05-10:45	Session 1: New Aspects in Cardiovascular Imaging
10:45-10:55	Break
10:55-11:35	Session 2: Acquired Cardiovascular Diseases, Metabolism and Prevention
11:35-11:45	Break
11:45-12:25	Session 3: Roundtable “Artificial Vessels and Cardiac Organoids - Will we still need animal experimentation in the future?”
12:25-12:55	Lunch Break
12:55-13:40	Session 4: Sex Differences, Development (Aging) and Genetic Bases of Cardiovascular Diseases
13:40-13:50	Break
13:50-14:30	Session 5: Medical Technologies and Structural Heart Diseases
14:30-14:40	Break
14:40-15:25	Session 6: Vascular Disorders
15:25-15:35	Break
15:35-16:15	Session 7: Arrhythmias
16:15-16:45	Break + Poster hanging
16:45-19:00	Poster presentations (Sitem Atrium A ground floor), Prize announcements and get-together Apéro

Detailed Scientific Programme

10:00-10:05 Opening / Welcome (online, Zoom)

Session 1: New Aspects in Cardiovascular Imaging

Chairs:

Nicolas Brugger, Department of Cardiology

Kady Fischer, Department of Anaesthesiology and Pain Medicine

10:05 **Emerging imaging technologies for noninvasive cardiac tissue characterization**

10:25-10:45 **Jessica Bastiaansen, Department of Diagnostic, Interventional and Pediatric Radiology & Translational Imaging Center, sitem-insel**

Flash presentations from abstracts

- **Quantifying the return of diastolic function after elective electrical cardioversion in atrial fibrillation patients with 4D-Flow-MRI**
Davide Colatruglio, Department of Anaesthesiology and Pain Medicine

- **Digital model of coronary arteries based on computed tomography and optical coherence tomography using image processing**
Marc Ilic, Department of Cardiology

- **Biventricular systolic function fluctuates during breathing maneuvers simulating the induction of general anaesthesia**
Stephanie Keser, Department of Anaesthesiology and Pain Medicine

10:45-10:55 Break

Session 2: Acquired Cardiovascular Diseases, Metabolism and Prevention

Chairs:

Lukas Hunziker, Department of Cardiology

Sarah Longnus, Department of Cardiac Surgery and Department for BioMedical Research

10:55 **Arterial Hypertension**
Emrush Rexhaj, Department of Cardiology

11:15-11:35 **Flash presentations from abstracts**

- ChemR23 expression protects against smooth muscle cell phenotype switching in atherosclerosis
Bryce Evans, Division of Angiology and Department for BioMedical Research
- Circulating factors, measured both in the donor and during ex-vivo heart perfusion, correlate with subsequent heart recovery in a pig model of DCD
Selianne Graf, Department of Cardiac Surgery and Department for BioMedical Research
- AKAP2 is a novel regulator of collagen secretion in cardiac myofibroblasts
Greta Scherler, Department of Biomedical Sciences, University of Lausanne

11:35-11:45 Break

Session 3: Roundtable “Artificial Vessels and Cardiac Organoids - Will we still need animal experimentation in the future?”

Chairs:

Yvonne Döring, Division of Angiology and Department for BioMedical Research

Dominik Obrist, ARTORG Center for Biomedical Engineering Research

11:45-12:25 Artificial Vessels and Cardiac Organoids - Will we still need animal experimentation in the future?

Panelists:

- Olivier Guenat, ARTORG Center for Biomedical Engineering Research
- Drosos Kotelis, Department of Vascular Surgery
- Nadia Mercader, Institute of Anatomy
- Marco Osterwalder, Department for BioMedical Research
- Robert Rieben, Department for BioMedical Research

12:25-12:55 Lunch Break

Session 4: Sex Differences, Development (Aging) and Genetic Bases of Cardiovascular Diseases

Chairs:

Jean-Sébastien Rougier, Institute for Biochemistry and Molecular Medicine

Hildegard Tanner, Department of Cardiology

12:55 Recent advancements in cardiac organoid technologies and their application in our NRP79 „HeartX“ project
Christian Zuppinger, Department of Cardiology and Department for BioMedical Research

13:15-13:40 Flash presentations from abstracts

- Sex differences in cardiac recovery in a rat model of DCD
Alexia Clavier, Department of Cardiac Surgery and Department for BioMedical Research

- Sex differences in atrial electrophysiology: I_{K1} is a major factor that is modulated by sex hormones
Lucilla Giammarino, Translational Cardiology, Department of Physiology and Department of Cardiology
- Epigenomic profiling identifies a non-coding region that calibrates *Tbx5* gene dosage in the developing heart and limb
Vincent Rapp, Department for BioMedical Research
- A novel platform to discover key ligand-receptor interactions regulating zebrafish heart regeneration
João Carvalho, Institute of Anatomy

13:40-13:50 Break

Session 5: Medical Technologies and Structural Heart Diseases

Chairs:

Jonas Lanz, Department of Cardiology

David Reineke, Department of Cardiac Surgery

13:50 **Combining patient data, modeling and emerging technology to enhance clinical outcome**
Silje Ekroll Jahren, ARTORG Center for Biomedical Engineering Research

14:10-14:30 **Flash presentations from abstracts**

- Hemodynamic assessment of anomalous aortic origin of a right coronary artery with the use of fractional flow reserve and intra-vascular ultrasound
Anselm Stark, Department of Cardiology
- Heartbeat detection in photoplethysmography signals for the monitoring of cardiac arrhythmias
Jeanningros Loïc, CSEM, EPFL
- Microfluidic model of microvascular obstruction to investigate thrombolysis under flow
Anastasia Milusev, ARTORG Center for Biomedical Engineering Research

14:30-14:40 Break

Session 6: Vascular Disorders

Chairs:

Britta Engelhardt, Theodor Kocher Institute

Stefan Freigang, Department of Tissue Medicine and Pathology

14:40 New diagnostic and therapeutic options for congenital vascular malformations

Sarah Bernhard, Department of Angiology

15:00-15:25 Flash presentations from abstracts

- A human iPSC-derived isogenic model of the neurovascular unit to explore blood-brain barrier dysfunction in neuroinflammation
Pelin Kasap, Theodor Kocher Institute
- Quantifying flow characteristics in cortical microvascular networks during ischaemic stroke with varying penetrating tree and leptomenigeal collateral densities
Chryso Lambride, ARTORG Center for Biomedical Engineering Research and Department of Neurology, Zurich
- Loss of B cell-ACKR3 reduces atherosclerosis by decreasing plasma cells and pro-inflammatory antibody production
Anaïs Yerly, Division of Angiology and Department for BioMedical Research
- Successful replantation of porcine forelimbs 33 hours after amputation utilizing 24-hour ex vivo perfusion for vessel protection
Lei Zhang, Department for BioMedical Research

15:25-15:35 Break

Session 7: Arrhythmias

Chairs:

Katja Odening, Translational Cardiology, Department of Cardiology and Department of Physiology

Laurent Roten, Department of Cardiology

15:35 **Atrial Fibrillation: Rhyme or Reason**

Ange Maguy, Department of Physiology

15:55-16:15 **Flash presentations from abstracts**

- New pacing paradigms to assess the stability of cardiac conduction
Stephan De Waard, Department of Physiology
- Posterior wall ablation by pulsed-field ablation - procedural safety, efficacy and findings on redo procedures
Küffer Thomas, Department of Cardiology
- KCNH2-suppression-replacement gene therapy attenuates the pathogenic phenotype in transgenic rabbits with short QT syndrome type
Saranda Nimani, Translational Cardiology, Department of Physiology and Department of Cardiology

16:15-16:45 **Break + Poster hanging**

16:45-18:45 **Poster presentations (Sitem Atrium A ground floor) and get-together Apéro**

- 16:45-17:30: Poster Session 1
- 17:30-18:15: Poster Session 2

18:45-19:00 **Prize announcements (Nina Ullrich, Department of Physiology)**
Closing
