



CVRC

CardioVascular Research Cluster

BERN

Annual Meeting 2023

18 January 2023

Online presentations + On-site posters & Apéro,
Foyer Langhans Auditorium, Pathology

- New Aspects in Cardiovascular Imaging and Technologies
- Acquired Cardiovascular Diseases, Metabolism and Prevention
- Roundtable: Heart Transplantation
- Sex Differences, Aging and Genetic Bases of Cardiovascular Diseases
- Valvular and Structural Heart Diseases
- Vascular Disorders
- Arrhythmias

Meeting Programme

Detailed Scientific Programme

10:00-10:10 Opening / Welcome (online, Zoom) - André Frenk, Maria Arnold

Session 1: New Aspects in Cardiovascular Imaging and Technologies

Chairs:

Jessica Bastiaansen, Department of Diagnostic, Interventional and Pediatric Radiology & Translational Imaging Center, sitem-insel

Christoph Gräni, Department of Cardiology

10:10 Cardiovascular imaging as a tool for anaesthesia research
Kady Fischer, Department of Anaesthesiology and Pain Medicine

10:30-10:50 Flash presentations from abstracts

- Anatomic high-risk features in patients with right anomalous aortic origin of the coronary artery correlate with an impaired CT-derived fractional flow reserve
Adriana Ferroni, Department of Cardiology
- Handgrip exercise test impacts cardiovascular function: a cardiac magnetic resonance imaging study
Anna Zimmermann, Department of Anaesthesiology and Pain Medicine
- Circumferential strain predicts quantitative myocardial blood flow deficits under stress
Bryan Schmid, Department of Anaesthesiology and Pain Medicine

10:50-11:00 Break

Session 2: Acquired Cardiovascular Diseases, Metabolism and Prevention

Chairs:

Arjola Bano, Institute of Social and Preventive Medicine & Department of Cardiology

Emrush Rexhaj, Department of Cardiology & Department for BioMedical Research

- 11:00 **Digital health technologies in the prevention of cardiovascular diseases**
Matthias Wilhelm, Medical Division Rehabilitation & Sports Medicine, Inselspital, Bern University Hospital
- 11:20-11:45 **Flash presentations from abstracts**
- **Unravelling the role of vascular ChemR23 expression in atherosclerosis**
Bryce Evans, Department of Angiology, Cardiovascular Center
 - **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
 - **Left ventricular circumferential strain worsens with hyperoxia in anesthetized CAD patients**
Timo Läderach, Department of Anaesthesiology and Pain Medicine
 - **Association of type 2 diabetes with long term mortality and life expectancy among patients hospitalised for acute heart failure in Switzerland: an ambispective cohort study**
Dante Jr Salvador, Institute of Social and Preventive Medicine and Department of Cardiology

11:45-11:50 **Break**

Session 3: Roundtable on “Heart Transplantation”

Chair:

Matthias Siepe, Department of Cardiac Surgery

11:50-12:30 **Heart transplantation**

Panelists:

- Sarah Longnus, Department of Cardiac Surgery & Department for BioMedical Research
- David Reineke, Department of Cardiac Surgery
- Sven Schmutz, Department of Cardiology, Cardiac Psychology
- Bruno Schnegg, Department of Cardiology

12:30-13:00 Lunch Break

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

Chairs:

Nadia Mercader, Institute of Anatomy

Hildegard Tanner, Department of Cardiology

13:00 **Sex & gender in medicine: The long and rocky road to equality**
Catherine Gebhard, Department of Cardiology, Cardiovascular Gender Medicine

13:20-13:40 **Flash presentations from abstracts**

- Sex differences and effects of sex hormones on electrical features in atrial cardiomyocytes and atrial fibroblasts
Lucilla Giammarino, Translational Cardiology, Institute of Physiology and Department of Cardiology
- Regulatory architecture and functions of the cardiac enhancer landscapes controlling *Hand2* and *Gata4* in mammalian heart development
Virginia Roland, Department for BioMedical Research

- **Multiome profiling of mammalian heart morphogenesis**
Matteo Zoia, Department for BioMedical Research

13:40-13:50 Break

Session 5: Valvular and Structural Heart Diseases

Chairs:

Jonas Lanz, Department of Cardiology

Hannah Widenka, Department of Cardiac Surgery

13:50 **Bioprosthetic valve turbulence: promoting mechanisms and effects on valve performance**
Dominik Obrist, ARTORG Center for Biomedical Engineering Research

14:10-14:20 **Flash presentations from abstracts**

- **A computational study on the relation between larger aortic roots and transcatheter aortic heart valve thrombosis**
Karoline-Marie Bornemann, ARTORG Center for Biomedical Engineering Research

14:20-14:25 Break

Session 6: Vascular Disorders

Chairs:

Yvonne Döring, Department of Angiology, Cardiovascular Centre

Stefan Freigang, Department of Pathology

14:25 **Deciphering TGFbeta variants in connective tissue disorders and their impact on aneurysm**
Michael Bachmann, Department of Cell Physiology and Metabolism, Faculty for Medicine, University of Geneva

14:45-15:20 Flash presentations from abstracts

- Effect of alirocumab added to high-Intensity statin therapy on endothelial function in patients with acute myocardial infarction: A prespecified sub-study of the randomized placebo-controlled PACMAN-AMI trial
Theo Meister, Department of Cardiology and Department for BioMedical Research
- Arterial and venous endothelial cells show differential glycocalyx dynamics under inflammatory conditions
Anastasia Milusev, Department for BioMedical Research
- Clinical phenotype of adolescent and adult patients with extracranial vascular malformation
Aleksandra Tuleja, Department of Angiology, Cardiovascular Center
- Examine the role of ACKR3 expression on B cells in atherosclerosis
Anaïs Yerly, Department of Angiology, Cardiovascular Center and Department for BioMedical Research
- Elevated citrullinated fibrinogen delays fibrinolysis in a porcine model of acute limb ischemia reperfusion injury, possibly contributing to the development of thrombo-inflammatory events
Valentina Zollet, Department for BioMedical Research

15:20-15:30 Break

Session 7: Arrhythmias

Chairs:

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

Jean-Sébastien Rougier, Institute of Biochemistry and Molecular Medicine

15:30 Ryanodine receptor distribution and arrhythmogenic Ca²⁺ release in ventricular myocytes
Christian Soeller, Department of Physiology

15:50-16:10 Flash presentations from abstracts

- SGK1 inhibition as a novel therapeutic approach in long QT syndrome
Miriam Barbieri, Translational Cardiology, Department of Physiology and Department of Cardiology
- Active force generation, rather than stretch-activated channels, is involved in the response to stretch and in the complexity of spatiotemporal beating variability patterns in spontaneously active murine cardiomyocyte cultures
Seyma Nayir, Department of Physiology
- *In vivo* KCNQ1-suppression-replacement gene therapy in transgenic LQT1 rabbits
Saranda Nimani, Translational Cardiology, Department of Physiology and Department of Cardiology

16:10-16:40 Break + Poster hanging (Foyer Langhans Auditorium)

16:40-18:00 Poster presentations (Foyer Langhans Auditorium, Pathology) + Apéro

18:00-18:10 Prize announcements (Marco Osterwalder, Department for BioMedical Research)
Closing - André Frenk

List of Abstracts / Posters (in alphabetical order)

Poster nb.	Name	Affiliation	Title
1	Adak Asli	Institute of Anatomy and Department for BioMedical Research, University of Bern	Establishment and characterization of human induced pluripotent stem cell-derived cardiomyocytes (hiPSC-CMs) and cardiac fibroblast (hiPSC-CFs) to develop a human heart cell culture model
2	Alerni Nicolò	Translational Cardiology, Department of Physiology and Department of Cardiology, Bern University Hospital, University of Bern	Electrical and mechanical properties and their interactions in transgenic long-QT and short-QT rabbits
3	Barbieri Miriam	Translational Cardiology, Department of Physiology and Department of Cardiology, Bern University Hospital, University of Bern	SGK1 inhibition as a novel therapeutic approach in long QT syndrome
4	Bornemann Karoline-Marie	ARTORG Center for Biomedical Engineering Research, University of Bern	A computational study on the relation between larger aortic roots and transcatheter aortic heart valve thrombosis
5	Brändle Delia	Department of Cardiology, Bern University Hospital	Atrial function quantified by rapid-CMR analysis techniques predict arrhythmia and death in patients with suspected myocarditis
6	Bucciarelli Aurelia	ARTORG Center for Biomedical Engineering Research, University of Bern	In vitro capillary network model to analyze RBC distribution during pericyte activation
7	Clavier Alexia	Department of Cardiac Surgery, Bern University Hospital and Department for BioMedical Research, University of Bern	Proteins released during ex-vivo heart perfusion are promising biomarkers for cardiac graft quality: Studies in an isolated rat heart model of DCD
8	Coppe Benedetta	Institute of Anatomy, University of Bern	The intergenerational investigation of paternal cardiac injury
9	Egle Manuel	Department of Cardiac Surgery, Bern University Hospital and Department for BioMedical Research, University of Bern	Functional measurements during unloaded, ex-vivo perfusion could help predict recovery in cardiac DCD grafts: Studies in a porcine model
10	Evans Bryce	Division of Angiology, Swiss Cardiovascular Center, Bern University Hospital	Unravelling the role of vascular ChemR23 expression in atherosclerosis
11	Ferrari Lorenzo	ARTORG Center for Biomedical Engineering Research, University of Bern	Effect of reduced cardiac output on the flow in bi-leaflet and tri-leaflet mechanical heart valves

12	Ferroni Adriana	Department of Cardiology, University Hospital Bern	Anatomic high-risk features in patients with right anomalous aortic origin of the coronary artery correlate with an impaired CT-derived fractional flow reserve
13	Gamba Rincon, Magda Rocio	Institute of Social and Preventive Medicine, University of Bern	Association between dietary phytochemical index, cardiometabolic risk factors and metabolic syndrome in Switzerland. The CoLaus Study
14	Giammarino Lucilla	Translational Cardiology, Department of Physiology and Department of Cardiology, Bern University Hospital, University of Bern	Sex differences and effects of sex hormones on electrical features in atrial cardiomyocytes and atrial fibroblasts
15	Graf Selianne	Department of Cardiac Surgery, Bern University Hospital and Department for BioMedical Research, University of Bern	Circulating factors, measured both in the donor and during ex-vivo heart perfusion, correlate with subsequent heart recovery in a pig model of DCD
16	Grob Leonard	Department of Anaesthesiology and Pain Medicine, Bern University Hospital	Right ventricular and pulmonary artery kinetic energy analysis with 4D-flow cardiovascular magnetic resonance
17	Kaiser Dario	Department of Anaesthesiology and Pain Medicine, Bern University Hospital	Analyzing the impact of general anesthesia induction on cardiovascular function through cardiovascular magnetic resonance imaging
18	Läderach Timo	Department of Anaesthesiology and Pain Medicine, Bern University Hospital	Left ventricular circumferential strain worsens with hyperoxia in anesthetized CAD patients
19	Lopez Dicuru Ruben Jose	Translational Cardiology, Department of Physiology and Department of Cardiology, Bern University Hospital, University of Bern	Tracking voltage and calcium signals from panoramic images of Langendorff-perfused rabbit heart
20	Louradour Julien	Translational Cardiology, Department of Physiology and Department of Cardiology, Bern University Hospital, University of Bern	Does SARS-CoV-2-like inflammatory activation impact on cardiac electrophysiology? EP studies in ex-vivo whole heart ischemia-reperfusion experiments on obese mice
21	Louradour Julien	Translational Cardiology, Department of Physiology and Department of Cardiology, Bern University Hospital, University of Bern	Arrhythmia or heart failure? - Beneficial APD-shortening effects of DHA-glycine in LQTS are accompanied by detrimental effects on cardiac mechanical function
22	Martinez Berenice	Division of Angiology, Swiss Cardiovascular Center, Bern University Hospital and Department for BioMedical Research, University of Bern	Unravelling the ill-alliance of COVID-19 and CVD

23	Meister Theo	Department of Cardiology, Bern University Hospital and Department for BioMedical Research, University of Bern	Effect of alirocumab added to high-Intensity statin therapy on endothelial function in patients with acute myocardial infarction: A prespecified sub-study of the randomized placebo-controlled PACMAN-AMI trial
24	Milusev Anastasia	Department for BioMedical Research, University of Bern	Arterial and venous endothelial cells show differential glycocalyx dynamics under inflammatory conditions
25	Mokhtari Ali	ARTORG Center for Biomedical Engineering Research, University of Bern	Wall parameters in a carotid bifurcation phantom: comparison of 4D flow MRI measurements with computational fluid dynamics
26	Nayir Seyma	Department of Physiology, University of Bern	Active force generation, rather than stretch-activated channels, is involved in the response to stretch and in the complexity of spatiotemporal beating variability patterns in spontaneously active murine cardiomyocyte cultures
27	Nimani Saranda	Translational Cardiology, Department of Physiology and Department of Cardiology, Bern University Hospital, University of Bern	<i>In vivo</i> KCNQ1-suppression-replacement gene therapy in transgenic LQT1 rabbits
28	Nossen Caroline	Department of Anaesthesiology and Pain Medicine, Bern University Hospital	Insulin dynamics in a heart-lung machine
29	Quezada Pinedo Hugo Guillermo	Bern University Hospital, University of Bern	Maternal iron status in early pregnancy and childhood body fat measures and cardio-metabolic risk factors. A population-based prospective cohort
30	Quezada Pinedo Hugo Guillermo	Bern University Hospital, University of Bern	Maternal hemoglobin and iron status in early pregnancy and childhood cardiac outcomes. A population-based prospective cohort
31	Ren Jianfang	Department for BioMedical Research, University of Bern	Investigating changes in the glycocalyx of transgenic porcine endothelial cells in a xenotransplantation setting
32	Roland Virginia	Department for BioMedical Research, University of Bern	Regulatory architecture and functions of the cardiac enhancer landscapes controlling <i>Hand2</i> and <i>Gata4</i> in mammalian heart development
33	Rosenov Alexander	Division of Angiology, Swiss Cardiovascular Center, Bern University Hospital, University of Bern	Prevalence and predictors of erectile dysfunction in patients with peripheral artery disease (ED-PAD)

34	Rougier Jean-Sébastien	Institute of Biochemistry and Molecular Medicine, University of Bern	Co-regulation of cardiac voltage-gated calcium and sodium channels Ca _v 1.2 and Na _v 1.5
35	Salimi Afjani Neda	Department for BioMedical Research, University of Bern	Flow culture: An <i>in vitro</i> model to investigate the role of endothelial cells under <i>in vivo</i> -like flow conditions
36	Salvador Dante Jr	Institute of Social and Preventive Medicine, University of Bern and Department of Cardiology, Bern University Hospital	Association of type 2 diabetes with long term mortality and life expectancy among patients hospitalised for acute heart failure in Switzerland: an ambispective cohort study
37	Schmid Bryan	Department of Anaesthesiology and Pain Medicine, Bern University Hospital	Circumferential strain predicts quantitative myocardial blood flow deficits under stress
38	Schmid Franca	ARTORG Center for Biomedical Engineering Research, University of Bern	Quantifying perfusion changes of microvascular disturbances across scales - examples from the brain
39	Schweizer Thilo	Department of Anaesthesiology and Pain Medicine, Bern University Hospital	A new app to generate pressure- and strain-volume-loops from perioperative images
40	Tuleja Aleksandra	Division of Angiology, Swiss Cardiovascular Center, Bern University Hospital, University of Bern	Clinical phenotype of adolescent and adult patients with extracranial vascular malformation
41	Utz Christoph David	Department of Anaesthesiology and Pain Medicine, Bern University Hospital	Novel real-time cardiovascular magnetic resonance sequence to simultaneously monitor dynamic changes in myocardial oxygenation and function
42	Vashanthakumar Varjany	Institute of Biochemistry and Molecular Medicine, University of Bern and Swiss National Centre of Competence in Research (NCCR) TransCure	Cardiac physiological consequences of a new knock-in mouse model for TRPM4 channel
43	Yerly Anaïs	Division of Angiology, Swiss Cardiovascular Center, Bern University Hospital and Department for BioMedical Research, University of Bern	Examine the role of ACKR3 expression on B cells in atherosclerosis
44	Zimmermann Anna	Department of Anaesthesiology and Pain Medicine, Bern University Hospital	Handgrip exercise test impacts cardiovascular function: a cardiac magnetic resonance imaging study
45	Zoia Matteo	Department for BioMedical Research, University of Bern	Multiome profiling of mammalian heart morphogenesis

46	Zollet Valentina	Department for BioMedical Research, University of Bern	Elevated citrullinated fibrinogen delays fibrinolysis in a porcine model of acute limb ischemia reperfusion injury, possibly contributing to the development of thrombo-inflammatory events
47	Calastra Camilla	Department of Interventional and Paediatric Radiology, Bern University Hospital	Contrast-enhanced MRA with GRASP outperforms the conventional TWIST in aortic dissection patient cohort