

FRONTIERS IN CARDIOVASCULAR BIOLOGY

FIFTH CONGRESS OF THE ESC COUNCIL
ON BASIC CARDIOVASCULAR SCIENCE

**FCVB
2018**

20-22 APRIL
VIENNA
AUSTRIA



www.escardio.org/FCVB

PROGRAMME AT A GLANCE

As of 23 of March 2018



Building Overview

LEVEL
-2



About Frontiers in CardioVascular Biology (FCVB)

This meeting of the **Council on Basic Cardiovascular Science (CBCS) of the European Society of Cardiology** is created in conjunction with 12 European cardiovascular science societies.

Our aim in bringing together all these groups on a biennial basis is to create a showcase for the most exciting and innovative developments in cardiovascular research that is second to none and to act as a springboard for the careers of young scientists.

The 12 Basic science organisations and ESC Working Groups involved in FCVB 2018

- European Council for Cardiovascular Research (ECCR)
- European Society for Microcirculation (ESM)
- European Vascular Biology Organisation (EVBO)
- International Society for Heart Research (ISHR), European Section
- ESC Working Groups
 - Atherosclerosis and Vascular Biology
 - Cardiac Cellular Electrophysiology
 - Cellular Biology of the Heart
 - Coronary Pathophysiology and Microcirculation
 - Development, Anatomy and Pathology
 - Myocardial and Pericardial Diseases
 - Myocardial Function
 - Thrombosis



Congress Timetable

	Thursday 19 th April	Friday 20 th April	Saturday 21 st April	Sunday 22 nd April
8:00				
8:30				
9:00				
9:30		Inaugural Session	Sessions	Sessions
10:00		Keynote Lecture		
10:30			Coffee Break	Coffee Break
11:00		Coffee Break	Keynote Lecture	Hot Topic
11:30		Sessions		
12:00				
12:30			Sessions	Sessions
13:00		Lunch	Lunch	Lunch
13:30		Lunch Symposium		
14:00				
14:30				
15:00		Sessions	Sessions	Sessions
15:30				
16:00	Registration & Speaker Service Centre (SSC)	Poster Discussions	Poster Discussions	Poster Discussions
16:30		Coffee Break	Coffee Break	Coffee Break
17:00			Keynote Lecture	Hot Topic
17:30		Sessions		Awards & Closing
18:00				
18:30				
19:00				
19:30				
20:00		Get Together Networking Event		
20:30				
21:00				



Scientific Programme

For more information, check the most up-to-date programme online at www.escardio.org/fcvb and through the **Mobile App**

08:30 - 18:00

Poster Session

Poster Area

Posters to be on display between 08:30 and 18:00.

Poster viewing tours (discussant visit) during afternoon coffee break from 15:45 -17:00. We invite the audience to meet the presenters and discussants at this time.

09:00 - 09:30

Special Event

Hall G

Inaugural session

09:30 - 10:15

Main Session

Hall G

Keynote lecture - CRISPR-Cas: biology, mechanisms and relevance

- The hope and hype of CRISPR-Cas 9 genome editing
K. Musunuru (Philadelphia, US)

10:45 - 12:15

Featured Symposium

Hall G

Understand the genome to cure cardiac diseases

- RNA editing.
- Genome editing of familial cardiomyopathy.
- Extra- and intracellular factors regulating cardiomyocyte proliferation in postnatal life.
- Crispr/Cas9 gene editing reveals novel tertiary constraints in clustered miRNA processing.
- Identification of cardiomyocyte-specific lncRNAs as potential regulators of cardiac regeneration.
- AMPKa1 participates in the regulation of miR199a to sustain cardiac hypertrophy.

10:45 - 12:15

Featured Symposium

Hall K1

Smooth muscle cell plasticity in atherosclerosis: an update

- Multiple embryonic origins of vascular smooth muscle cells: implications for atherogenesis.
- Transdifferentiation of smooth muscle cells to macrophage-like cells during atherogenesis.
- Proliferative capacity of smooth muscle cell clones in atherosclerosis.
- Vasin controls smooth muscle cell proliferation by regulating EGFR activation.
- Hematopoietic complement factor H deficiency elevates plasma IgM levels and reduces atherosclerotic lesion formation in Ldlr deficient mice.
- HYAL2 and CD44v6: towards new molecular signatures of plaque instability.

10:45 - 12:15

Featured Symposium

Hall K2

Novel insights in signaling pathways in endothelial dysfunction

- JAK-STAT signaling in endothelial dysfunction.
- Endothelial-mesenchymal transition in arterial disease.
- TGF β signalling and atherosclerosis.
- Notch signaling and proosteogenic genes are activated in co-culture of human aortic valve endothelial and interstitial cells.
- Adventitial interleukin-6 release is critical for neointima formation.
- Phosphorylation of eNOS on Tyrosine 656 contributes to endothelial dysfunction in vivo.

12:30 - 14:00

Workshop

Hall G

CRISPR-Cas9 Genome Editing Bootcamp

- Genome editing: scientific principles.
- How to plan genome-editing experiments.
- How to design CRISPR-Cas9 reagents.
- How to interpret data from genome-editing experiments.

14:15 - 15:45 Young Investigator Awards Abstracts

Hall G

Young Investigator Award session - Vascular

- A-to-I editing of microRNA-487b alters target gene selection and promotes neovascularization after ischemia.
- The RNA editor ADAR2 links inflammation to functional recovery from ischemic diseases.
- Development and characterisation of a human ex-vivo model of aneurysm.
- Inhibition of Nrf2 transcriptional activity favors abdominal aortic aneurysm formation in mice.
- Extracellular vesicles in systemic sclerosis as potential mediator for pulmonary vascular disease.
- Hypercholesterolemia changes HDL-miRNA signature and enhances HDL-miR126-3p and -5p delivery to endothelial cells modulating genes involved in vascular health.

14:15 - 15:45 Featured Symposium

Hall K1

The inflammatory road to heart failure

- T-lymphocytes are central!
- Monocytes do it all!
- Emerging role of immune system in heart failure.
- Cardiac aquaporin-1 mediates transmembrane transport of hydrogen peroxide and modulates myocardial fibrosis and hypertrophic remodeling.
- MPO mediated monocyte - and macrophage activation in mice upon myocardial infarction.
- Progerin expression in endothelial tissue leads to endothelial dysfunction and impaired diastolic cardiac function.

14:15 - 15:45

Featured Symposium

Hall K2

Crosstalk between adipocytes, the heart and coronary vessels

- Secretory products from epicardial adipose tissue: do they play a role?
- Vasocrine actions of perivascular fat.
- Impact of epicardial fat on the heart: from bench to bedside.
- Does human epicardial adipose tissue enhance atrial fibrillation induced by beta adrenergic stimulation in human cardiac muscles?
- Pericardial adipose tissue regulates granulopoiesis, fibrosis and cardiac function after myocardial infarction.
- Molecular characterisation of fibro-fatty infiltrations in the ventricular myocardium of obese sheep.

17:00 - 18:30

Symposium

Hall G

Controversies in cell therapies for myocardial infarction and heart failure

- Induced pluripotent stem cells (iPSCs) and their potential in regenerative medicine - PRO.
- Cell therapy for heart disease: unmet expectations - CON.
- Cell based therapies for myocardial repair and regeneration in ischaemic heart disease and heart failure - PRO.
- What we can learn from meta-analysis of the clinical trials of cell therapy - CON.

17:00 - 18:30

Featured Symposium

Hall K1

Mechanical forces in plaque progression

- Shear stress, connexins and atherosclerosis.
- Shear stress, cell migration and healing.
- Mechanical regulation of plaque vulnerability.
- Shear stress, notch and VE-cadherin: the molecular mechanism of vascular fusion.
- Mechanical strain upon aortic valves causes release of danger associated molecular patterns and activates innate immunity.
- LRG1 is a novel regulator of endothelial activation and is shear dependent: a potential therapeutic target?

17:00 - 18:30

Featured Symposium

Hall K2

New strategies for cardioprotection to prevent heart failure

- The gut hormone ghrelin in the modulation of cardiac metabolism and vascular resistance.
- Targeting inflammation for cardioprotection.
- Multi-omics strategies for unbiased identification of novel therapeutic targets for cardioprotection.
- Proteomics of cardioprotection.
- Cardiac-specific overexpression of the transcription factor JunD promotes increased sensitivity to myocardial infarction.
- The TAB1-p38a complex is a therapeutic target in acute myocardial ischemia: the holy grail of circumstance selective inhibition of p38a.



Search for "ESC Congresses" in the App Store® or in Google Play Store for the most up-to-date programme and the fastest way to search sessions, speakers or topics.

FCVB 2018 is now a part of ESC Congresses App!



FCVB 2018 module is supported by Daiichi Sankyo Europe GmbH in the form of an educational grant

08:30 - 18:00

Poster Session

Poster Area

Posters to be on display between 08:30 and 18:00.

Poster viewing tours (discussant visit) during afternoon coffee break from 15:30 - 16:45. We invite the audience to meet the presenters and discussants at this time.

08:30 - 10:00

Featured Symposium

Hall G

Extracellular vesicles for cardiovascular repair

- Pro-angiogenic action of serum derived extracellular vesicles.
- Exosomes and exosomal miRNAs in cardiovascular protection and repair.
- Microvesicles and atherothrombotic disease.
- MAP1S ablation impairs survival after MI and the hypertrophic response to pressure overload through mediating cardiac autophagy and apoptosis.
- Slow release of cardiac progenitor cell-derived extracellular vesicles from a pH-switchable hydrogel.
- The expression of pro-coagulatory endothelial- and monocyte derived extracellular vesicles in patients with coronary artery disease differs depending on the presence of certain cardiovascular risk fac.

08:30 - 10:00

Workshop

Hall K1

Novel fluorescent sensors to detect intracellular signalling

- Fluorescence indicators for cAMP in specific microdomains.
- Detection of cytosolic, mitochondrial and nuclear calcium in cardiomyocytes.
- FRET-based sensor to measure CaMKII.

08:30 - 10:00

Featured Symposium

Hall K2

The dynamic epigenome - Programming the cardiac myocyte in development, health and disease

- Targeting histone deacetylases to treat cardiac disease.
- DNA methylation metabolism in pathological cardiac remodelling.
- Histone methylation in cardiac development and disease.
- Genome-wide analysis reveals unique H3K27ac profile in acquired and inherited human myocardial remodelling.
- High glucose exposure promotes epigenetic activation of pro-inflammatory RELA/p65 gene in cord blood-derived CD34+ stem cells.
- Methylation, mis-splicing and expression of pathological isoforms in a disease causing Csrp3/Mip mutation.

10:30 - 11:15

Main Session

Hall G

Keynote lecture - Cardiac reprogramming and regeneration

- Cardiac reprogramming and regeneration.
W-H. Zimmermann (Goettingen, DE)

11:30 - 13:00

Special Session

Hall G

Scientists of Tomorrow early career session

- How to establish your own lab.
- When and how to apply for extramural funding and/or an ERC grant.
- Women in science: challenges and opportunities.
- Why to get involved in young scientific communities?

11:30 - 13:00

Featured Symposium

Hall K1

The challenge of genomics: how to filter your data

- The genetics of human coronary heart disease.
- Familial co-occurrence of congenital heart defects follows distinct patterns.
- Making sense of your epigenome.
- AAV-based screening of the murine secretome to identify factors involved in cell engraftment in vivo.
- Inhibition of microRNA-494 halts atherosclerotic plaque progression and stabilizes advanced atherosclerotic lesions.
- CRISPR-mediated fluorescent tagging of endogenous PCMI enables live cell imaging of non-centrosomal MTOC formation in muscle cells.

11:30-13:00

Symposium

Hall K2

Translational aspects in metabolic disorders and micro - and macrovascular pathology

- Angina in diabetes mellitus - The microvascular component.
- Role of microvessels in plaque formation in diabetes mellitus.
- Dyslipidemia impairs high-density lipoprotein cardioprotective effects leading to larger infarcts.
- Lipoprotein (a). Options: targets and limitations.
- Panel discussion.

14:00 - 15:30 Young Investigator Awards Abstracts

Hall G

Young Investigator Award session - Cardiac

- Stable and transient miR-182 overexpression reproduces morphological and physiological cardiac defects caused by Tbx5 depletion in zebrafish.
- Plakophilin 2 haploinsufficiency linked to arrhythmogenic cardiomyopathy is associated with sodium current abnormalities and glycogen synthase kinase 3 beta activation.
- Myocardin regulates mitochondrial calcium homeostasis and prevents permeability transition in cardiac myocytes.
- Administration of miR-665 modulates cardiomyocyte mechanotransduction and prevents pathological cardiac remodelling after pressure overload.
- High-intensity interval exercise attenuates cardiac remodelling in type-2 diabetes possibly through microRNAs restoration.
- Models for VEGF-B induced physiological and pathological cardiac hypertrophy.

14:00 - 15:30

Featured Symposium

Hall K1

Extracellular matrix and cardiac remodelling

- The impact of ageing and biological sex on cardiac extracellular matrix composition and its clinical consequences.
- Syndecans: key regulators of cardiac fibrosis.
- Role of tenascin-C (TNC) in pressure and volume overload.
- Protective actions of substance p in diabetes induced cardiac fibrosis.
- Single-cell sequencing of the healthy and diseased heart reveals Ckap4 as a new modulator of fibroblasts activation.
- Mesenchymal stem cells transfected with minicircle-HIF-1a decreases LV adverse remodelling via release of cardioprotective miRNAs and pro-angiogenic factors.

14:00 - 15:30

Featured Symposium

Hall K2

Developmental origins of adult cardiovascular disease

- Abnormalities in valve development predispose to aortic valve disease.
- Titin variants and the epidemiology of dilated cardiomyopathy.
- Linking development of the conduction system with cardiac arrhythmias.
- A transcriptomic approach to elucidate new functions of Wt1 in the embryonic epicardium development.
- Neuropilin 1 mediates epicardial activation and revascularisation of the regenerating zebrafish heart.

16:45 - 17:30

Main Session

Hall G

Hot topic - Translating the promise of GWAS to clinical benefit

- Translating the promises of genomics into individual clinical benefit: The UK 100,000 genomes project.
T. Hubbard (London, GB)

08:30 - 18:00

Poster Session

Poster Area

Posters to be on display between 08:30 and 18:00. Poster viewing tours (discussant visit) during afternoon coffee break from 15:30 - 16:45. We invite the audience to meet the presenters and discussants at this time.

08:30 - 10:00

Workshop

Hall G

Extracellular vesicles in cardiovascular disease: hope and pitfalls

- Extracellular vesicles as novel therapeutics in CV diseases.
- Extracellular vesicles: what do we isolate and detect from the blood?
- Extracellular vesicles transfer cardioprotective signals?
- Technical issues in extracellular vesicle research in the CV system.

08:30 - 10:00

Featured Symposium

Hall K1

Extracardiac adipocytes - Their impact on cardiovascular disease

- Ectopic adipose tissue in the heart and coronary arteries: a link with cardiovascular risks.
- Perivascular adipose tissue inflammation in vascular diseases.
- Obesity, epicardial fat and coronary microvascular dysfunction.
- Investigating the origin(s) and heterogeneity of white adipose tissue.
- tRNA fragments are novel obesity-regulated components of the small cardiac RNAome.

08:30 - 10:00

Featured Symposium

Hall K2

Cardiotoxicity of drugs - New concepts

- Cancer drug-induced cardiotoxicity: mechanisms and strategies for protection.
- Cardiovascular effects of endocannabinoids, marijuana and synthetic cannabinoids: the good the bad and the ugly.
- Anabolic steroids and sudden cardiac death.
- Circulating histones are major mediators of cardiac complications in sepsis.
- Induction of interferon-related genes limits the cardiotoxicity of liposomal doxorubicin in pigs.

10:30 - 11:15

Main Session

Hall G

Hot topic - Biomarkers and cardiovascular risk prediction

- Biomarkers and cardiovascular risk prediction.
U. Landmesser (Berlin, DE)

11:30 - 13:00

Special Session

Hall G

How to publish your Cardiovascular Research?

Session of Cardiovascular Research - Journal Session

- Cardiovascular Research - New challenges and new horizons.
- How to design a translational study in cardiovascular medicine?
- How to design an omics experiment in cardiovascular research?
- Reproducibility in cardiovascular science.
- OnLife bringing cardiovascular research live.
- Questions & answers with editors of cardiovascular research.

11:30 - 13:00

Featured Symposium

Hall K1

The role of the innate and the adaptive immune system in cardiovascular pathologies

- Lymphocytes in atherosclerosis.
- Lipids and monocyte subsets in cardiovascular disease.
- Neutrophil and nets in thrombosis.
- Hypercholesterolemia promotes a mast cell-CD4+ T-cell interaction.
- M2 cardiac macrophages in wound healing following myocardial infarction: translation to clinic.
- Investigating the role of the IL-36/IL1Rrp2 pathway in the inflammatory response of normal and aged cardiac microcirculation.

11:30 - 13:00

Featured Symposium

Hall K2

Uncoordinated signalling within the diseased cardiomyocyte: potential role of beta 3 adrenergic receptors

- Multiple signaling disorders underlies a chaotic pathology: the paradigm of atrial fibrillation.
- The emerging role of beta 3 adrenergic receptor in cardioprotection and heart failure, the end of the beginning.
- Beta3AR and cardiac ischemia-reperfusion.
- Relationship between CHA2DS2 VASc score, serum pentraxine 3 and left atrial appendage tissue doppler velocity in patients with non-valvular atrial fibrillation.
- Role of calcium/calmodulin-dependent protein kinase II activation in beta-adrenergic stimulation of potassium currents in canine ventricular cardiomyocytes under action potential clamp conditions.
- Enrichment of cardiac differentiation of mouse pluripotent stem cells by beta 3 adrenoceptor stimulation.

14:00 - 15:30

Abstract Session

Hall G

Late Breaking Trial session

- I κ B kinase 2 in atherosclerosis.
- Direct effects of ponatinib on vascular endothelial cells: a potential explanation for development of vascular adverse events in CML patients.
- Targeted theranostic microbubbles for the delivery of MicroRNA-126: diagnosis and localised treatment/prevention of abdominal aortic aneurysm.
- Electrically silent and stimutable iPSC-derived cardiomyocytes using RNA-guided epigenome editing.
- A three-step approach to identify shear stress-sensitive endothelial microRNAs for the optimization of vasculoprotective exercise regimes.
- Potentiated beta-adrenergic effect on calcium handling in autophagy-defective mouse cardiomyocytes.

14:00 - 15:30

Featured Symposium

Hall K1

Molecular basis for arrhythmias and beyond

- Diabetes: proarrhythmic effects of sugar.
- Anticoagulation revisited: pleiotropic actions of novel oral anticoagulants.
- Role of mitochondrial dysfunction in contractile deficit and arrhythmias in HF.
- Microdomain-specific sodium channel macromolecular complex composition and function in cardiomyocytes.
- Metabolomics in translational medicine - A link between acylcarnitines and atrial fibrillation.
- Effect of preventive heart failure treatment in mice with arrhythmogenic right ventricular cardiomyopathy type 5 due to mutation in TMEM43.

14:00 - 15:30

Featured Symposium

Hall K2

Exercise and the coronary circulation in health and disease

- Acute coronary adaptations to exercise in health and disease.
- Role of exercise-induced shear stress signaling in increasing coronary blood flow and modulation of cardiac mitochondrial function.
- Coronary adaptations to exercise conditioning in health and disease.
- Cardioprotection of moderate-intensity exercise is prognosis-dependent in type-2 diabetic mouse.
- Exercise training fails to improve cardiac dysfunction in DNA-repair deficient Xpg mice.
- Neuro-cardiac communication in the acute and chronic regulation of heart function and structure occurs through direct intercellular coupling.

16:45 - 17:30

Main Session

Hall G

Keynote lecture - Linking microbiota to human disease

- Gut microbiota in health and disease.
T. Spector (London, GB)

17:30 - 18:10

Special Event

Hall G

Awards and closing session

- Basic research fellowship.
- Closing remarks from the Vice Rector for Research of the Medical University of Vienna.
- Awards.
- Closing remarks from the FCVB 2018 Chairperson.



Search for "ESC Congresses" in the App Store® or in Google Play Store for the most up-to-date programme and the fastest way to search sessions, speakers or topics.

FCVB 2018 is now a part of ESC Congresses App!



FCVB 2018 module is supported by Daiichi Sankyo Europe GmbH in the form of an educational grant

Notes



20-22 APRIL
VIENNA
AUSTRIA

FRONTIERS IN CARDIOVASCULAR BIOLOGY
FIFTH CONGRESS OF THE ESC COUNCIL
ON BASIC CARDIOVASCULAR SCIENCE

Notes

[illegible]

Notes

FRONTIERS IN CARDIOVASCULAR BIOLOGY
FIFTH CONGRESS OF THE ESC COUNCIL
ON BASIC CARDIOVASCULAR SCIENCE

20-22 APRIL
VIENNA
AUSTRIA

Notes



FRONTIERS IN CARDIOVASCULAR BIOLOGY
FIFTH CONGRESS OF THE ESC COUNCIL
ON BASIC CARDIOVASCULAR SCIENCE

Congress Resources

Consult the Full Programme

Create your personalised programme: search for sessions by topic or presenter, review abstracts online and access any scientific content.

- **Scientific Programme & Planner:**
available on www.escardio.org/fcvb
- **New Mobile App! FCVB 2018 is now a part of ESC Congresses App!**
Search for "ESC Congresses" in your store, download the app and install FCVB content.
Available on App Store® or Google Play Store



Missed a session during the congress?

All the scientific content is at your fingertips in the Scientific Programme & Planner 24 hours after presentation time.

Practical Information

Internet connection

Free WIFI is available at the congress center however please note that connectivity is subject to the volume of users.

Wi-Fi network: FCVB-congress

Wi-Fi Password: FCVB-congress

Certificates

of attendance - are available from the registration desks as of Saturday 21 April

of presentation - are available for abstract presenters at the poster assistance desk in the poster area

Programme Changes / Date of print

The date of print is 23 March 2018. For the most updated version of the programme, visit the Scientific Programme & Planner or download the Mobile App.

Continuing Medical Education (CME)

Frontiers in CardioVascular Biology 2018 is accredited by the European Accreditation Council for Continuing Medical Education (EACCME) to provide the following CME activity for medical specialists.

Frontiers in CardioVascular Biology 2018 is designated for European external CME credits. Each medical specialist should claim only those hours of credit that he/she actually spent in the educational activity.

The EACCME is an institution of the European Union of Medical Specialists (UEMS), www.uems.net.

Through an agreement between the European Union of Medical Specialists and the American Medical Association, physicians may convert EACCME credits to an equivalent number of AMA PRA Category 1 Credits™. Information on the process to convert EACCME credit to AMA credit can be found at www.ama-assn.org/go/internationalcme.

Live educational activities, occurring outside of Canada, recognised by the UEMS-EACCME for ECMEC credits are deemed to be Accredited Group Learning Activities (Section 1) as defined by the Maintenance of Certification Program of The Royal College of Physicians and Surgeons of Canada.

Security

Please ensure your badge is visible at all times and comply with security controls that you may be subject to within the congress venue.

Information points

For any other information (medical care, lost & found...) please address the organisers at the registration.

Cloakroom

Leave your belongings (free of charge) at the self-service cloakroom.

Catering

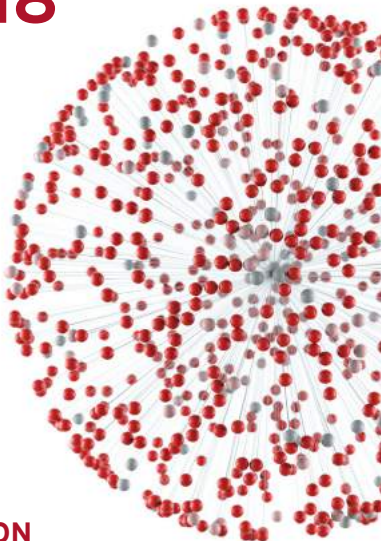
Refreshments are provided during official coffee and lunch breaks.

ESC Congress Munich 2018

25-29 August

Where the world of
cardiology comes together

See the
Basic Science
sessions



● **SAVE ON REGISTRATION**

Early registration deadline - **31 May**

Become an ESC Professional Member & save even more

● **DISCOVER THE SCIENTIFIC PROGRAMME**

Late-Breaking Science submission deadline: **21 May**

www.escardio.org/ESC2018
#ESCCongress



ESC

European Society
of Cardiology