



8th European Section Meeting of the International Academy of Cardiovascular Sciences

September 28 – October 1, 2022
Szeged, Hungary



PROGRAMME AND ABSTRACT BOOK

**8th European Section Meeting of the International Academy of
Cardiovascular Sciences (IACS)**

Meeting venues:

Art Hotel Szeged,

Somogyi u. 16, 6720 Szeged, Hungary

<https://artszeged.accenthotels.com/en>

AND

Szeged Hungarian Academy of Sciences (SZAB) building,

Somogyi u. 7, 6720 Szeged, Hungary

September 28 – October 1, 2022
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8th European Section Meeting of the International Academy of Cardiovascular
Sciences (IACS)

Szeged, Hungary, September 28 – October 1, 2022

Programme and Abstract Book

Editors: István Baczkó, Norbert Nagy and Péter Bencsik

Szeged, 2022

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**European Section of the International Academy of
Cardiovascular Sciences**

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**8th European Section Meeting of the International Academy of
Cardiovascular Sciences**

September 28 – October 1, 2022

Szeged, Hungary



FINAL PROGRAMME

Contact information

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Dear Colleagues,

It is our pleasure to announce that in 2022, the **8th European Section Meeting of the International Academy of Cardiovascular Sciences (IACS-ES)** will be held in Szeged, Hungary, on September 28 – October 1, 2022. We are pleased to invite you to participate in this fascinating scientific meeting focusing on the following scientific topics:

- **Clinical and theoretical aspects of ventricular arrhythmias and sudden cardiac death**
- **Atrial fibrillation: clinical therapy, novel and future strategies of AF management**
- **Clinical and theoretical aspects of heart failure**
- **Cardioprotection, clinical application of cardioprotection**
- **Genetics of cardiovascular diseases**
- **Cardiac metabolism**
- **Novel therapeutic approaches in cardiovascular diseases**
- **Coronary angiogenesis from bench to bedside**

The meeting will feature both basic scientific and clinical sessions, including lectures of invited speakers and free oral communications selected from submitted abstracts. We would like to provide opportunities for a number of young investigators to discuss their latest results and to compete in both oral and poster sessions.

We believe that your participation will greatly contribute to the success of the meeting and provide an opportunity to discuss the latest advances in experimental and clinical cardiovascular research. In addition to high quality science, the organisers wish to provide a friendly atmosphere in the university town of Szeged. We invite you to join us at this meeting, to renew old friendships, and to make new ones!

Looking forward to meeting you in person in Szeged,
With best regards,

Prof. István Baczkó, MD, PhD
President and Chair of the Meeting

Honorary Chair of the Meeting: Prof. Naranjan S. Dhalla, PhD, MD (Hon), DSc (Hon)

Main organizers: Dr. Péter Bencsik, MD, PhD (Vice Chair) and Dr. Norbert Nagy, PhD (Meeting Secretary)



Organizing secretariat:

Dr. István Baczkó, Dr. Péter Bencsik and Dr. Norbert Nagy

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Meeting venue

Art Hotel Szeged, Somogyi u. 16, 6720 Szeged, Hungary
<https://artszeged.accenthotels.com/en>

and

Szeged Hungarian Academy of Sciences (SZAB) building, Somogyi u. 7, 6720 Szeged, Hungary



The two buildings are located 50 m from each other.

Publication opportunity for presenters

The abstracts of all oral and poster presentations will be printed in an abstract book. Presenters will be encouraged to submit a full manuscript based on the material presented at the conference for consideration to be published in a special issue of the *Canadian Journal of Physiology and Pharmacology*. Manuscript submissions will be subjected to the usual peer-review process.

Registration

Please send your completed registration form to the following e-mails: baczko.istvan@med.u-szeged.hu and bencsik.peter@med.u-szeged.hu.

The registration fee will be **100 EUR/person for participants, 50 EUR/person for juniors and 10 EUR/person for undergraduate students**. To qualify for Junior registration fee, the registrant must be a PhD student OR have a PhD degree obtained in 2019 or later (documentation required) AND must not be older than 35. The registration fee covers attendance of the scientific program, welcome reception, gala dinner (except undergraduate registrants) and coffee breaks. The registration fee of the invited speakers is covered by the organizers.

Please indicate your name and city of origin on the payment for easier processing.

Registration deadline

Registration deadline: July 31, 2022.

Payment deadline: July 31, 2022.

On site registration is possible, at 200 EUR/person for participants and 100 EUR/person for Junior registrants, respectively. All participants will receive an official Certificate of Attendance and an official Conference Registration Fee Invoice. Those who registered online before the deadline can also pay the registration fee in cash on site, at the rate of the early registration.

Young Investigator Award Competition

Young investigators (under the age of 35) were encouraged to submit their CV, oral abstract, and a maximum 2-page summary of the research constituting the basis of their talk to baczko.istvan@med.u-szeged.hu and bencsik.peter@med.u-szeged.hu. A Committee has chosen 6 finalists who will present their work at the Young Investigator Award Session at the meeting. **The submission deadline was: July 31, 2022.**

Poster Awards for Young Investigators

Several poster awards will be available for young investigators (under the age of 35). Please indicate on your Poster that you want to participate in the competition. Stickers for this purpose will be provided on site. The poster board format is portrait, size 160 x 150 cm. Please make sure your poster fits this board format.

Travel grants

Due to the increased costs of conference organization (e.g. extremely high inflation, catering), travel grants are not available at this time.

Accommodation information

All invited speakers will be lodged at the Art Hotel Szeged, their accommodation for 3 nights is covered by the organizers.

For registering conference participants, it is also possible to book rooms at the conference venue Art Hotel Szeged (<https://artszeged.accenthotels.com/en>).

When booking the room at the Art Hotel, please refer to the password “**IACS-ES Szeged 2022**”.

In addition, we recommend the following hotels in Szeged in the vicinity of the conference venue (we have no agreement with these hotels, therefore please do not refer to the password):

Dóm Hotel (****): <https://domhotelszeged.info/en/> ; Science Hotel (****): <https://sciencehotel.hu/en/>

Mozart Hotel (****): <https://www.mozarthotel.hu/en> ; Szent János Hotel Szeged (****): <https://szentjanoshotel.hu/?eng> ; Hotel Novotel Szeged (****): <http://novotel.hotelszeged.com/en/>

Special acknowledgment to the organizations below for their contributions and sponsorship of the meeting



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Seeing beyond



Overview of Conference Programme

DAY 1 (September 28, 2022) ART HOTEL SZEGED, Lecture Hall

13:00-	REGISTRATION
15:00-15:30	Opening ceremony
Session chairs:	István Baczkó (Szeged, Hungary; President and Chair of the meeting) András Varró (Szeged, Hungary; President of IACS-ES)
15:00-15:10	István Baczkó (Szeged, Hungary; President and Chair of the meeting)
15:10-15:15	Gábor Németh (Szeged, Hungary; Vice Dean of Albert Szent-Györgyi Medical School, University of Szeged)
15:15-15:20	András Varró (Szeged, Hungary; President of IACS-ES)
15:20-15:25	Naranjan Dhalla (Winnipeg, MB, Canada; Honorary Life President of IACS)
15:25-15:30	Grant Pierce (Winnipeg, MB, Canada; President of IACS)

15:30-19:00 **PLENARY LECTURES**

15:30-16:00	Roberto Bolli (Louisville, KY, USA; Past President of IACS) <i>Cell therapy for heart disease: Quo vadis?</i>
16:00-16:05	Presentation of Scientific Excellence in Cardiovascular Research Award
16:05-16:35	Grant Pierce (Winnipeg, MB, Canada; President of IACS) <i>The value of supplementing a diet with flaxseed</i>
16:35-16:50	<i>Coffee Break</i>
16:50-17:35	Naranjan Dhalla Honorary Lecture Igor Efimov (Chicago, IL, USA) <i>Transient implantable devices to treat arrhythmia: bioresorbable bioelectronics platform</i>
17:35-17:40	Presentation of 2022 Naranjan Dhalla Honorary Lecture Award
17:40-17:45	Presentation of 2021 Naranjan Dhalla Honorary Lecture Award

Previous Naranjan Dhalla Honorary Lecture Awardees:

2016	Ursula Ravens , Freiburg, Germany
2017	David A Eisner , Manchester, UK
2018	Gerardus JM Stienen , Amsterdam, Netherlands
2019	Grant N Pierce , Winnipeg, Canada
2021	Lorrie A Kirshenbaum , Winnipeg, Canada

19:00- *Welcome Reception (SZAB building)*

DAY 2 (September 29, 2022) SZEGED HUNGARIAN ACADEMY OF SCIENCES BUILDING

Parallel sessions in Halls A-B-C

9:00-10:30 **SESSION 1: Novel targets for HFrEF therapy (Hall A)**

Session chairs:	Michael Czubryt (Winnipeg, MB, Canada) Noémi Nyolczas (Budapest, Hungary)
9:00-9:25	Michael Czubryt (Winnipeg, MB, Canada) <i>Fibroblast activation as a target for cardiac fibrosis therapy</i>
9:25-9:50	Naranjan Dhalla (Winnipeg, MB, Canada) <i>Diverse mechanisms of heart failure due to myocardial infarction</i>

- 9:50-10:15 **Noémi Nyolczas** (Budapest, Hungary)
Novelties in the treatment of heart failure with reduced ejection fraction
- 10:15-10:30 **Zorislava Bajić** (Banja Luka, The Republic of Srpska, Bosnia and Herzegovina)
The role of treatment with glp-1 receptor agonist liraglutide on isoprenaline-induced myocardial injury in rats

9:00-10:40 SESSION 2: Cardiac remodelling (Hall B)

- Session chairs:** **Mark Boyett** (Bradford, UK)
Martin Morad (Charleston, SC, USA)
- 9:00-9:25 **Mark Boyett** (Bradford, UK)
Sinus node and atrioventricular node dysfunction in heart failure – involvement of the immune system and transcriptomic remodelling
- 9:25-9:50 **Alicia D'Souza** (Manchester, UK)
Why do athletes have cardiac arrhythmias? A view from the lab bench
- 9:50-10:15 **Martin Morad** (Charleston, SC, USA)
Mutations in CPVT1-associated and CPVT1-unassociated RyR2 Calcium binding residue reveal remodeling of EC-coupling in hiPSC-CMs
- 10:15-10:40 **Raffaele Coppini** (Florence, Italy)
Human hypertrophic cardiomyopathy: from electrophysiological insights to pharmacological strategies

9:00-10:30 SESSION 3: Natural compounds in cardioprotection (Hall C)

- Session chairs:** **Ranko Škrbić** (Banja Luka, The Republic of Srpska, Bosnia and Herzegovina)
Dragan Djuric (Belgrade, Serbia)
- 9:00-9:25 **Dragan Djuric** (Belgrade, Serbia)
Possible cardioprotective effects of vitamins B6 and B9: lessons from cardiometabolic models
- 9:25-9:50 **Monika Barteková** (Bratislava, Slovakia)
Potential implications of quercetin in cardioprotection
- 9:50-10:15 **Ranko Škrbić** (Banja Luka, The Republic of Srpska, Bosnia and Herzegovina)
Beneficial cardio-metabolic properties of Pomegranate peel extract: results of clinical and experimental studies
- 10:15-10:30 **Zsófia Onódi** (Budapest, Hungary)
Distinct patterns of inflammasome signalling in the cardiac and skeletal muscle from murine models of Duchenne muscular dystrophy
- 10:30-11:00 *Coffee Break*

11:00-12:30 SESSION 4: Metabolic diseases (Hall A)

- Session chairs:** **Gary Lopaschuk** (Edmonton, AB, Canada)
Danina Muntean (Timisoara, Romania)
- 11:00-11:25 **Gary Lopaschuk** (Edmonton, AB, Canada)
Preventing cardiac insulin resistance in the failing heart
- 11:25-11:50 **Danina Muntean** (Timisoara, Romania)
Alleviation of MAO-related oxidative stress by antidiabetic drugs: of mice and men
- 11:50-12:15 **Tamás Csont** (Szeged, Hungary)
Cardiac effects of diet-induced hypercholesterolemia

12:15-12:30 **Nevena Jeremic** (Kragujevac, Serbia)
The cardioprotective effects of Trametes versicolor polysaccharides on rats with metabolic syndrome

11:00-12:30 **SESSION 5: Pathophysiology of atrial fibrillation (Hall B)**

Session chairs: **Ursula Ravens** (Freiburg, Germany)
José Jalife (Madrid, Spain)

11:00-11:25 **Ursula Ravens** (Freiburg, Germany)
Mechanosensitive channels, stretch and fibrosis - a pathophysiological role in atrial fibrillation

11:25-11:50 **José Jalife** (Madrid, Spain)
Molecular mechanisms underlying the progression of paroxysmal to persistent atrial fibrillation

11:50-12:15 **Katharine Dibb** (Manchester, UK)
Atrial remodelling in heart failure: consequences and recovery

12:15-12:30 **Tímea Bálint** (Budapest, Hungary)
Atrial fibrillation is not associated with altered left atrial microRNA expression profile in ischemic end-stage human heart failure

11:00-12:15 **SESSION 6: Molecular hydrogen and gasotransmitters (Hall C)**

Session chairs: **Ján Slezák** (Bratislava, Slovakia)
Jerzy Beltowski (Lublin, Poland)

11:00-11:25 **Ján Slezák** (Bratislava, Slovakia)
Saturation of donor and recipient with molecular hydrogen alleviates graft dysfunction and overall condition after transplantation of the heart

11:25-11:50 **Barbora Kaločayová** (Bratislava, Slovakia)
Molecular hydrogen: new protective tool against acute kidney injury associated with cardiac surgery

11:50-12:15 **Jerzy Beltowski** (Lublin, Poland)
Role of hydrogen sulfide in statin-induced inhibition of insulin secretion

12:35 **GROUP PHOTO (Dóm square, in front of the Votive Church, on the front stairs)**

12:50-14:00 *Lunch break (lunch not provided) – Work lunch for IACS officials in SZAB*

14:00-16:00 **SESSION 7: Young Investigator Award Competition (Hall A)**

Session chairs: **Antonio Zaza** (Milan, Italy)
Paul Volders (Maastricht, The Netherlands)
Gary Lopaschuk (Edmonton, AB, Canada)

14:00-14:20 **Katie Skeffington** (Bristol, UK)
Changes in oxidative stress and calcium signalling pathways in the chronically hypoxic fetal heart

14:20-14:40 **Linda Bartosova** (Bratislava, Slovakia)
Quercetin reduces pro-hypertrophic signaling and mitigates diastolic dysfunction in obese diabetic rats

14:40-15:00 **Dimitra Palioura** (Thessaloniki, Greece)
Ppar β / δ activation protects from mitochondrial degeneration, inflammation and fibrosis in a genetic animal model of heart failure

15:00-15:20 **Branislav Kura** (Bratislava, Slovakia)
Therapeutic effect of molecular hydrogen on radiation-induced overproduction of free radicals in myocardium

- 15:20-15:40 **Alexandra Polyák**, (Szeged, Hungary)
Cardiac remodeling accompanied by increased arrhythmia susceptibility in a dog model of chronic high-intensity endurance training
- 15:40-16:00 **Dóra Halmi** (Szeged, Hungary)
Kynurenic acid against simulated ischemia/reoxygenation-induced cardiac cell damage: the possible role of mitoprotection

14:00-16:00 SESSION 8: Ischemia/reperfusion injury: novel directions (Hall B)

- Session chairs:** **Lorrie Kirshenbaum** (Winnipeg, MB, Canada)
Péter Ferdinandy (Budapest, Hungary)
- 14:00-14:25 **Péter Ferdinandy** (Budapest, Hungary)
Development of miRNA therapeutics for cardioprotection
- 14:25-14:50 **Lorrie Kirshenbaum** (Winnipeg, MB, Canada)
Regulation of autophagy and cardiac cell death pathways in the heart
- 14:50-15:15 **Saadeh Suleiman** (Bristol, UK)
Cardiac pathology and vulnerability to reperfusion injury during open heart surgery
- 15:15-15:40 **Inna Rabinovich-Nikitin** (Winnipeg, MB, Canada)
Shift work adversely affects myocardial autophagy and cardiac function following myocardial infarction
- 15:40-16:00 **Norbert Szentandrassy** (Debrecen, Hungary)
TRPM4 in ventricular myocardium, can it be a novel target in cardiovascular disease?

16:15-18:30 Poster Session I (SZAB ACADEMY BUILDING)

Snacks provided

DAY 3 (September 30, 2022) SZEGED HUNGARIAN ACADEMY OF SCIENCES BUILDING

Parallel sessions **in Halls A-B-C**

9:00-10:15 SESSION 9: Myocardial calcium handling (Hall A)

- Session chairs:** **David Eisner** (Manchester, UK)
Antonio Zaza (Milan, Italy)
- 9:00-9:25 **David Eisner** (Manchester, UK)
Calcium buffering in the heart: the 99% you don't see
- 9:25-9:50 **Antonio Zaza** (Milan, Italy)
PLN- R14del, a controversial cardiomyopathy - observations from patient-derived cardiomyocytes and transgenic mice
- 9:50-10:15 **Zoltán Varga** (Budapest, Hungary)
Inflammasome activation in end-stage heart failure
- 10:15-10:30 **Balázs Ördög** (Leiden, Netherlands)
Full control of cardiac action potentials by opto-electronic dynamic patch clamping

9:00-10:30 SESSION 10: Pathologies associated with altered hemodynamics (Hall B)

- Session chairs:** **Bohuslav Ostadal** (Prague, Czech Republic)
Tamás Radovits (Budapest, Hungary)
- 9:00-9:25 **Bohuslav Ostadal** (Prague, Czech Republic)
Developmental aspects of cardiac adaptation to increased work load
- 9:25-9:50 **Tamás Radovits** (Budapest, Hungary)

Investigation of pressure overload-induced myocardial remodeling and pressure unloading induced reverse remodeling in rat models

9:50-10:15 **Petr Ostadal** (Prague, Czech Republic)

Hemodynamic effects of extracorporeal membrane oxygenation (ECMO) in cardiogenic shock

10:15-10:30 **Christopher Dostal** (Vienna, Austria)

Dapagliflozin improves haemodynamic recovery after cardioplegic arrest in isolated working mouse heart

9:00-10:30 **SESSION 11: Diabetic cardiomyopathy (Hall C)**

Session chairs: **Dinender Singla** (Orlando, FL, USA)

Belma Turan (Ankara, Turkey)

9:00-9:25 **Dinender Singla** (Orlando, FL, USA)

BMP-7 attenuates diabetic cardiomyopathy

9:25-9:50 **Belma Turan** (Ankara, Turkey)

Differential effects of the acute or chronic applications of GLP-1 receptor agonists on the remodeling of aging heart

9:50-10:15 **Fatima Mraiche** (Doha, Qatar)

The off-target NHE1 inhibitory effect of SGLT2 inhibitors in cardiac remodeling

10:15-10:30 **Vladimir Zivkovic** (Kragujevac, Serbia)

Hyperbaric oxygen treatment in maintaining of the cardiac function in insulin-treated rats with diabetes type 1

10:30-11:00 *Coffee Break*

11:00-12:15 **SESSION 12: Heart failure with preserved ejection fraction (Hall A)**

Session chairs: **Róbert Halmosi** (Pécs, Hungary)

Suresh Tyagi (Louisville, KY, USA)

11:00-11:25 **Zoltán Papp** (Debrecen, Hungary)

Pharmacological venodilation to treat pulmonary hypertension complicating heart failure with preserved ejection fraction (PH-HFpEF)

11:25-11:50 **Suresh Tyagi** (Louisville, KY, USA)

Remote ischemia mechanism of heart failure with preserved ejection fraction (HFpEF)

11:50-12:15 **Róbert Halmosi** (Pécs, Hungary)

Role of mitochondrial quality control processes in heart failure

11:00-12:30 **SESSION 13: Cardiac arrhythmias: novel mechanisms (Hall B)**

Session chairs: **Carol Ann Remme** (Amsterdam, The Netherlands)

Godfrey Smith (Glasgow, UK)

11:00-11:25 **Carol Ann Remme** (Amsterdam, The Netherlands)

Pro-arrhythmic consequences of branched chain amino acid dysregulation

11:25-11:50 **Godfrey Smith** (Glasgow, UK)

Electrophysiological heterogeneity in populations of ventricular cardiomyocytes and the consequences for the action potential response to specific ion channel inhibition

11:50-12:15 **Andrew Trafford** (Manchester, UK)

TRPC6 channels as a driver of cardiac arrhythmias

12:15-12:30 **Paul Volders** (Maastricht, The Netherlands)

Importance of the KCNQ1 S6 region in long-QT syndrome type 1

11:00-12:30 **SESSION 14: Novel targets in cardiovascular disease and considerations in cardiotoxicity (Hall C)**

- Session chairs:** **Anikó Görbe** (Szeged and Budapest, Hungary)
 Milos Stojiljkovic (Banja Luka, The Republic of Srpska, Bosnia and Herzegovina)
- 11:00-11:25 **Anikó Görbe** (Szeged and Budapest, Hungary)
 Hidden cardiotoxicity - cardiac safety testing in ischemic and comorbid conditions: development of preclinical test platforms
- 11:25-11:50 **Paramjit Tappia** (Winnipeg, MB, Canada)
 Dual role of phospholipase C isozymes during ischemia-reperfusion injury in the heart
- 11:50-12:15 **Attila Kiss** (Vienna, Austria)
 Investigating the cardiac side effects of cancer and cancer associated cachexia in mice
- 12:15-12:30 **Miloš Stojiljković** (Banja Luka, The Republic of Srpska, Bosnia and Herzegovina)
 Organophosphate-induced cardiovascular changes in mammals
- 12:30-14:00 *Lunch break (lunch not provided) - Work lunch for IACS officials in SZAB*

14:00-16:00 **SESSION 15: Cardiac and vascular remodeling (Hall A)**

- Session chairs:** **Róbert Sepp** (Szeged, Hungary)
 Georgios Kararigas (Reykjavík, Iceland)
- 14:00-14:25 **Georgios Kararigas** (Reykjavík, Iceland)
 Sex-biased responses in cardiac remodelling
- 14:25-14:50 **Róbert Sepp** (Szeged, Hungary)
 The genetic landscape of hypertrophic cardiomyopathy in Hungary
- 14:50-15:15 **Péter Bencsik** (Szeged, Hungary)
 Novel targets for volume overload induced LV hypertrophy
- 15:15-15:40 **Dávid Nagy** (Budapest, Hungary)
 The decompensation of systolic function in pressure overload-induced left ventricular myocardial hypertrophy is associated with unique microRNA expression profile
- 15:40-16:00 **Ghassan Bkaily** (Sherbrooke, QC, Canada)
 Taurine and high salt-induced vascular smooth muscle remodeling

14:00-16:00 **SESSION 16: Myocardial conditioning and cardioprotection (Hall B)**

- Session chairs:** **Ricardo Gelpi** (Buenos Aires, Argentina)
 Ágnes Végh (Szeged, Hungary)
- 14:00-14:25 **Ricardo Gelpi** (Buenos Aires, Argentina)
 Molecular basis of myocardial remote ischemic preconditioning
- 14:25-14:50 **Tanya Ravingerova** (Bratislava, Slovakia)
 Physical exercise as a form of non-ischemic „conditioning“: potential molecular mechanisms of cardioprotection
- 14:50-15:15 **Frantisek Kolar** (Prague, Czech Republic)
 Excess ischemic arrhythmias may protect against myocardial infarction
- 15:15-15:40 **Zoltán Giricz** (Budapest, Hungary)
 Extracellular vesicles in cardioprotection
- 15:40-16:00 **Milan Ivanov** (Belgrade, Serbia)
 Effects of NADPH oxidase blockade and hyperbaric oxygen preconditioning on 4-HNE, NGAL, and HO-1 tissue expression in postischemic acute kidney injury induced in spontaneously hypertensive rats

14:00-15:40 SESSION 17: Mitochondrial function and oxidative stress (Hall C)

- Session chairs:** **Ferenc Gallyas** (Pécs, Hungary)
 Vladimir Jakovljevic (Kragujevac, Serbia)
- 14:00-14:25 **Vladimir Jakovljevic** (Kragujevac, Serbia)
 Association of oxidative stress and periapical lesions in hypertensive rats
- 14:25-14:50 **Ferenc Gallyas** (Pécs, Hungary)
 Repurposing of desethylamiodarone for cancer therapy
- 14:50-15:15 **Márta Sárközy** (Szeged, Hungary)
 The effects of the preimplantation factor on the development of radiation-induced heart disease in a rat model
- 15:15-15:40 **Oana Maria Aburel** (Timisoara, Romania)
 Targeting mitochondria with methylene blue in human epicardial adipose tissue

16:15-18:30 Poster Session II (SZAB ACADEMY BUILDING)

Snacks provided

20:00-24:00 Gala Dinner and Award Ceremonies (bus transfer departing from Art Hotel)

Day 4 (October 1, 2022) SZEGED HUNGARIAN ACADEMY OF SCIENCES BUILDING

9:00-10:15 SESSION 18: Novel targets in cardiovascular disease (Hall A)

- Session chairs:** **Devendra Agrawal** (Pomona, CA, USA)
 Attila Tóth (Debrecen, Hungary)
- 9:00-9:25 **Ildikó Bock-Marquette** (Pécs, Hungary)
 Enhancing cardiac regenerative therapies by reminding the adult heart on its embryonic state
- 9:25-9:50 **Devendra Agrawal** (Pomona, CA, USA)
 Novel therapeutic approach to prevent maturation failure of arteriovenous fistula
- 9:50-10:15 **Attila Tóth** (Debrecen, Hungary)
 Direct cardiac myosin activators: positive inotropy with potential side effects

9:00-10:15 SESSION 19: Basic cardiac electrophysiology (Hall B)

- Session chairs:** **Thomas Jespersen** (Copenhagen, Denmark)
 Norbert Nagy (Szeged, Hungary)
- 9:00-9:25 **Thomas Jespersen** (Copenhagen, Denmark)
 Compromised cardiac electrophysiology caused by simulated obstructive sleep apnea in a porcine model
- 9:25-9:50 **Balázs Horváth** (Debrecen, Hungary)
 Dynamics of the late sodium current under the action potential in canine, guinea pig and human left ventricular cardiomyocytes
- 9:50-10:15 **Norbert Nagy** (Szeged, Hungary)
 The role of the reverse Na⁺/Ca²⁺ exchanger and the Ca²⁺-dependent K⁺-current in sinus-node pacemaking

10:30- 10:45 CLOSING REMARKS (Hall A)

Officers and Executive Council of the International Academy of Cardiovascular Sciences – European Section

President:	András Varró, Szeged, Hungary
Past President:	Karl Werdan, Halle, Germany
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Executive Council

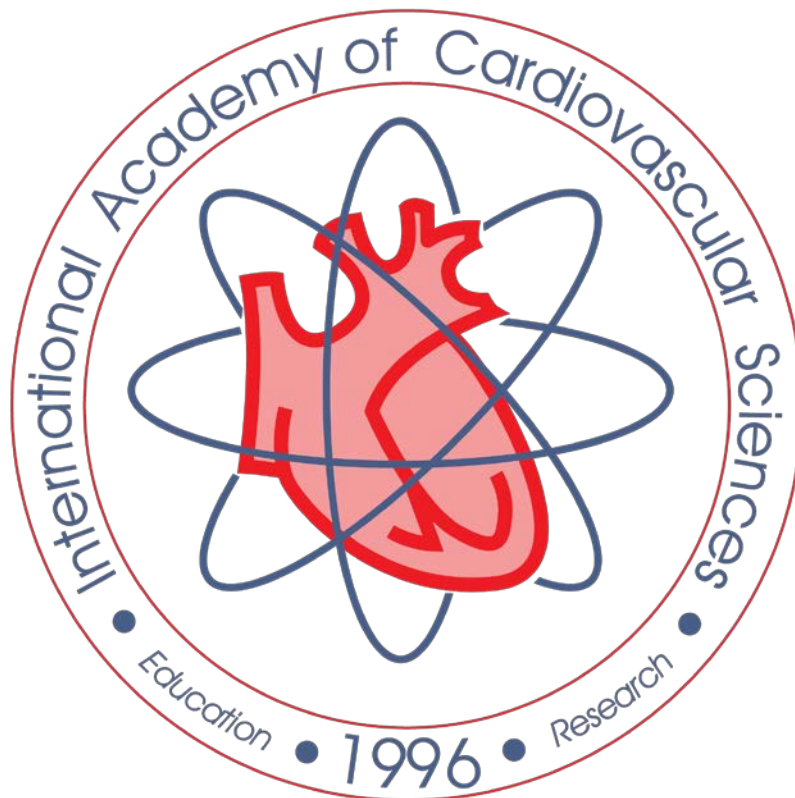
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Belma Turan, Turkey
Dragan M. Djuric, Serbia
Ferenc Gallyas, Hungary
Petr Ostadal, Czech Republic
Ranko Škrbić, The Republic of Srpska, Bosnia and Herzegovina
Miloš Stojiljković, The Republic of Srpska, Bosnia and Herzegovina



8th European Section Meeting of the International Academy of Cardiovascular Sciences

**September 28 – October 1, 2022
Szeged, Hungary**

ABSTRACT BOOK



ORAL PRESENTATIONS

EFFECTS OF NADPH OXIDASE BLOCKADE AND HYPERBARIC OXYGEN PRECONDITIONING ON 4-HNE, NGAL, AND HO-1 TISSUE EXPRESSION IN POSTISCHEMIC ACUTE KIDNEY INJURY INDUCED IN SPONTANEOUSLY HYPERTENSIVE RATS

Milan Ivanov¹, Sanjin Kovacevic², Maja Zivotic³, Predrag Brkic⁴, Zoran Miloradovic¹, Rada Jeremić⁴, Nevena Mihailovic-Stanojevic¹, Una Jovana Vajic¹, Danijela Karanovic¹, Đurđica Jovović¹ and Jelena Nesovic Ostojic²

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Kidney disease represents a serious global health problem. Free radicals and prooxidants produced during ischemic acute kidney injury (AKI) may further aggravate the course of the disease and play a role in the pathogenesis of subsequent complications. The aims of our study were to examine the importance of NADPH oxidase blockade and to determine the effect of hyperbaric oxygen preconditioning on the immunohistochemical analysis of 4-hydroxynonenal (4-HNE), neutrophil gelatinase-associated lipocalin (NGAL), and heme oxygenase-1 (HO-1) tissue expression in postischemic acute kidney injury induced in spontaneously hypertensive rats (SHR). Twenty-four hours before AKI induction, HBO preconditioning was carried out by exposing to pure oxygen (2.026 bar) twice a day, for 60 min in two consecutive days. Acute kidney injury was induced by removal of the right kidney while the left renal artery was occluded for 45 min by atraumatic clamp. NADPH oxidase blockade was performed by Apocynin (40 mg/kg body weight), intravenously, 5 min before reperfusion. We showed increased 4-HNE renal expression in postischemic AKI compared to Sham-operated (SHAM) group. Apocynin treatment, with or without HBO preconditioning, improved creatinine and phosphate clearances, in postischemic AKI. This improvement in renal function was accompanied with decreased 4-HNE, while HO-1 kidney expression restored close to the control group level. NGAL renal expression was also decreased after apocynin treatment, and HBO preconditioning, with or without APO treatment. Considering our results, we can say that 4-HNE tissue expression can be used as a marker of oxidative stress in postischemic AKI. On the other hand, NADPH oxidase blockade and HBO preconditioning reduced oxidative damage, and this protective effect might be expected even in experimental hypertensive condition.

Key words: acute kidney injury, oxidative damage, spontaneously hypertensive rats