SEMMELWEIS SYMPOSIUM 2010

Cellular Signaling in Physiology and Pathology

In honor of the 70th birthday of Professor András Spät

Budapest, November 5-7

Venues

Semmelweis University - Basic Medical Science Center
Tűzoltó utca 37-47
1094 Budapest, Hungary

Barabás Villa Conference Hall (Friday morning only)
Városmajor utca 44
1122 Budapest, Hungary

Opening hours of the registration

November 5, Friday	8:00 - 13:00 (Barabás Villa Conference Hall)
	14:00 - 19:00 (Basic Medical Science Center)
November 6, Saturday	8:30 - 18:00 (Basic Medical Science Center)
November 7, Sunday	8:30 - 17:40 (Basic Medical Science Center)

Scientific Committee

László Hunyady	Conference Chair
Tamás Balla	co-Chair
György Hajnóczky	co-Chair

Organizers

Péter Várnai	Conference Coordinator
Péter Enyedi	
Gábor Pethő	

Information and contact

Alice Sipos, MOTESZ Congress Bureau
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Homepage

www.semmelweissymposium2010.hu

Friday, November 5

Barabás Villa Conference Hall

SUMMARY OF THE SEMMELWEIS BRIDGE PROJECT

INTEGRATIVE PHYSIOLOGY AND CONTROL MECHANISMS
Chairs: **Tivadar Tulassay, Heikki Ruskoaho**

9:00 **Opening Ceremony**

9:10 **Heikki Ruskoaho**, University of Oulu, Oulu, Finland
Regulatory mechanisms and mediators of cardiac remodeling

9:25 **Gábor Földes**, Imperial College London, London, UK
Stem cell threapy in the cardiovascular system

9:40 **Zsombor Lacza**, Semmelweis University, Budapest, Hungary
Cell based therapeutic approaches of cardiovascular diseases

9:55 **István Szokodi**, University of Pécs, Pécs, Hungary
Alternative regulators of myocardial contractility

10:10 **Zoltán Prohászka**, Semmelweis University, Budapest, Hungary
Gábor Széplaki, Semmelweis University, Budapest, Hungary
Role of complement in cardiovascular diseases

10:25 **Discussion**

10:40 **Coffee Break**

FROM CLINICAL SCIENCE TO CLINICAL PRACTICE
Chairs: **Béla Merkely, Miklós Tóth**

11:10 **Stefan Janssens**, Catholic University Leuven, Leuven, Belgium
Nitric oxide for inhalation to target myocardial ischemia-reperfusion injury in myocardial infarction patients

11:25 **Udo Hoffmann**, Harvard University, Boston, USA
Pál Maurovich-Horvát, Semmelweis University, Budapest, Hungary
Multimodality Ex Vivo and In Vivo Imaging of Vulnerable Plaque

11:40 **Gábor Szabó**, University of Heidelberg, Heidelberg, Germany
Current aspects of heart transplantation

11:55 **Attila Szabó**, Semmelweis University, Budapest, Hungary
The clinical challenge of the cardio-renal syndrome

12:10 **Béla Merkely**, Semmelweis University, Budapest, Hungary
Athletes in focus – sudden cardiac death and remodeling of athlete's heart

12:25 **Miklós Tóth**, Semmelweis University, Budapest, Hungary
Sport genomics – candidate genes in olympic athletes

12:40 **Discussion**

Friday, November 5

Basic Medical Science Center

OPENING OF SEMMELWEIS SYMPOSIUM 2010

Chair: **Béla Halász**

15:00 **Opening address: Tivadar Tulassay**, Rector of the Semmelweis University

Opening lecture: Sir Michael J. Berridge, The Babraham Institute, Cambridge, UK
Calcium signaling in health and disease

15:45 **Coffee Break**

SPECIAL EVENT IN HONOR OF THE 70TH BIRTHDAY OF ANDRÁS SPÄT

Chair: **Ferenc A. Antoni**

16:00 **Tamás Balla**, National Institutes of Health, Bethesda, USA
Following phosphoinositide signaling: from Dowex columns to confocal microscopy

16:30 **László Hunyady**, Semmelweis University, Budapest, Hungary
Phosphoinositides in angiotensin signaling

17:00 **György Hajnóczky**, Thomas Jefferson University, Philadelphia, USA
Local calcium signaling between endoplasmic reticulum and mitochondria

17:30 **Laudations: László Romics, Balázs Sarkadi** and **Gábor Czirják**

Personal remarks: András Spät

18:00 **RECEPTION (for registered participants)**

Saturday, November 6

Basic Medical Science Center

INOSITOL AND CALCIUM SIGNALING

Chair: **László Kovács**

9:00 **James W. Putney, Jr.**, National Institutes of Health, Research Triangle Park, USA
Regulation and function of store-operated calcium channels

9:30 **Donald L. Gill**, Temple University School of Medicine, Philadelphia, USA
STIM targets: a tale of two channels

10:00 **Javier Garcia-Sancho**, Universidad de Valladolid - CSIC, Valladolid, Spain
SERCA is the third element of capacitative calcium entry

10:30 **Coffee Break**

Chair: **Gábor B. Makara**

11:00 **Ole H. Petersen**, Cardiff University, Cardiff, UK
The central role of $InsP_3$ receptors in the physiology and pathophysiology of epithelial cells

11:30 **Tibor Rohács**, UMDNJ-New Jersey Medical School, Newark, USA
Phosphoinositide regulation of TRP ion channels

11:50 **Péter Várnai**, Semmelweis University, Budapest, Hungary
Phosphoinositide dependence of the endocytosis of G protein coupled receptors

12:10 **Break**

Saturday, November 6

Basic Medical Science Center

PRESENTATION OF THE TITLE OF DOCTOR HONORIS CAUSA

14:00 The award is presented by **Tivadar Tulassay**, Rector of the Semmelweis University

FEATURED PRESENTATION

Chair: **Tamás Balla**

14:15 **Roger Y. Tsien**, University of California, San Diego, USA
Breeding and building molecules to spy on cells and tumors

RECEPTORS AND ION CHANNELS

Chair: **János Szolcsányi**

15:00 **Kevin J. Catt**, National Institutes of Health, Bethesda, USA
Regulatory mechanisms of the hypothalamic GnRH pulse generator

15:30 **Michel Lazdunski**, Université de Nice Sophia Antipolis - CNRS, Valbonne, France
Sensing with ionic channels

16:00 **Bernd Nilius**, Catholic University Leuven, Leuven, Belgium
TRP cation channels: from unique cell sensors to human diseases

16:30 **Coffee Break**

Chair: **Alexej Verkhratsky**

17:00 **Nicolas Demaurex**, University of Geneva, Geneva, Switzerland
Why neutrophils need proton channels to kill microbes?

17:30 **Gergely L. Lukács**, McGill University, Montreal, Canada
Cystic fibrosis; a paradigm of folding diseases

18:00 **Péter Enyedi**, Semmelweis University, Budapest, Hungary
Regulation of TASK and TRESK potassium channels

Sunday, November 7

Basic Medical Science Center

MOLECULAR PATHOLOGY OF SIGNALING

Chair: **Péter Arányi**

9:00 **Marc Prentki**, University of Montreal, Montreal, Canada
Pancreatic beta cell metabolic signaling in health and diabetes

9:30 **George Kunos**, National Institutes of Health, Bethesda, USA
Targeting the peripheral endocannabinoid system for the treatment of the metabolic syndrome

10:00 **Erzsébet Ligeti**, Semmelweis University, Budapest, Hungary
Role of small GTPase activating proteins (GAPs) in physiology and pathology

10:30 **Balázs Sarkadi**, Semmelweis University - HAS, Budapest, Hungary
Calcium signaling in human stem cells and stem cell-derived cardiomyocytes

11:00 **Coffee Break**

11:15 **POSTER SESSION**

12:30 **Break**

Sunday, November 7

Basic Medical Science Center

CALCIUM AND MITOCHONDRIAL FUNCTIONS

Chair: **József Mandl**

14:00 **Tullio Pozzan**, Venetian Institute of Molecular Medicine, Padua, Italy
Mitochondrial calcium: old lessons, breaking news

14:30 **Michael R. Duchen**, University College London, London, UK
Mitochondria as ATP consumers and the role of the endogenous inhibitor protein, IF1

15:00 **Veronika Adam-Vizi**, Semmelweis University, Budapest, Hungary
Diverse effects of calcium on mitochondrial generation of reactive oxygen species

15:30 **Coffee Break**

Chair: **György Hajnóczky**

16:00 **Claes B. Wollheim**, University of Geneva, Geneva, Switzerland
Importance of beta cell mitochondrial pH and calcium in glucose-stimulated insulin secretion

16:30 **Wolfgang F. Graier**, Medical University of Graz, Graz, Austria
The multiple pathways for Ca^{2+} to enter mitochondria

17:00 **György Szabadkai**, University College London, London, UK
Mitochondrial signalling, metabolism and cell fate

17:20 **Gergő Szanda**, Semmelweis University, Budapest, Hungary
Protein kinases in the control of mitochondrial Ca^{2+} uptake

17:40 **CLOSING REMARKS**

POSTERS

1. Differential distribution and mobility of inositol 1,4,5-trisphosphate receptor subtypes
Evangelia Pantazaka and Colin W. Taylor
Department of Pharmacology, University of Cambridge, Cambridge, UK

2. Functional interchangeability of the suppressor domain of the IP3 receptor and the N-terminal domain of the cardiac ryanodine receptor
Samir A. Khan, Saroj Velamakanni and Colin W. Taylor
Department of Pharmacology, Cambridge University, UK

3. Regulation of apoptosis by a mitochondrial potassium channel, Kv1.3
Luigi Leanza[1], Mario Zoratti[2], Erich Gulbins[3], Ildikò Szabò[1]
[1]Department of Biology, University of Padova, Padova, Italy; [2]CNR Institute of Neurosciences and Department of Biomedical Sciences, University of Padova, Padova, Italy, [3]Institute for Molecular Biology, University of Duisburg-Essen, Essen, Germany

4. Novel molecular tools for the monitoring and manipulation of SR/ER-mitochondrial Ca^{2+} signaling
György Csordás[1], Péter Várnai[2], Tünde Golenár[1], Cecilia García-Pérez[1], Tamás Balla[3] and György Hajnóczky[1]
[1]Department of Pathology, Anatomy and Cell Biology, Jefferson Medical College, Philadelphia, USA; [2]Department of Physiology, Semmelweis University, Budapest, Hungary; [3]Section on Molecular Signal Transduction, Program for Developmental Neuroscience, Eunice Kennedy Shriver National Institutes of Child Health and Human Development, National Institutes of Health, Bethesda, USA

5. Novel FRET-based sensors for organelle-specific H_2O_2 measurement
Balázs Enyedi and Miklós Geiszt
Semmelweis University, Department of Physiology, Budapest, Hungary

6. Gene expression profiles of human myelodysplastic syndrome cell line treated by 5-azacitidine
Karmen Stankov[1], Gordana Bogdanovic[2], Vesna Kojic[2], Suncica Stankov[3]
[1]Medical faculty, University of Novi Sad, Novi Sad, Serbia, [2]Oncology Institute of Vojvodina, Sremska Kamenica, Serbia, [3]Health center Novi Sad, Novi Sad, Serbia

7. ARHGAP25 plays role in the Rac-dependent signaling pathway of FcγR-mediated phagocytosis
Judit Szabó, Éva Wisniewski, Roland Csépányi-Kömi, Erzsébet Ligeti
Semmelweis University, Department of Physiology, Budapest, Hungary

8. Investigation of the potential regulatory mechanisms of the leukocyte specific ARHGAP25 RacGAP
Éva Wisniewski, Judit Szabó, Roland Csépányi-Kömi, Erzsébet Ligeti
Semmelweis University, Department of Physiology, Budapest, Hungary

9. Antibacterial effect of subcellular vesicles derived of neutrophilic granulocytes
Erzsébet Ligeti[1], Csaba I. Timár[1], Ákos Lőrincz[1], Kenneth R. McLeish[2] and David W Powell[2]
[1]Department of Physiology, Semmelweis University, Budapest, Hungary and [2]Department of Medicine, University of Louisville, Louisville, USA

10. The non-conjugated chenodeoxycholate induces intracellular ATP depletion and inhibits bicarbonate secretion in pancreatic duct cells

J. Maléth[1], Z. Rakonczay[1], V. Venglovecz[2], Zs. Rázga[3], L. Tiszlavicz[3] and P. Hegyi[1]
[1]First Department of Medicine, [2]Department of Pharmacology and Pharmacotherapy,
[3]Department of Pathology, University of Szeged, Szeged, Hungary

11. Disturbances of carbohydrate regulation may be responsible for the transformation of gastroprotective action of glucocorticoids to proulcerogenic effect

Filaretova L.P., Podvigina T.T., Bagaeva T.R., Morozova O.Yu
Laboratory of Experimental Endocrinology, Pavlov Institute of Physiology, Russian Academy of Sciences, St.-Petersburg, Russia

12. Disrupted glucose homeostasis as a mechanism underlying the transformation of physiological gastroprotective action of glucocorticoids to pathological ulcerogenic effect

Filaretova L.P., Podvigina T.T., Bagaeva T.R., Morozova O.Yu
Laboratory of Experimental Endocrinology, Pavlov Institute of Physiology, St. Petersburgl, Russia

13. Age-related examination of gluco-, and mineralocorticoid effects in vasopressin deficient Brattleboro rats

János Varga[1], Szilamér Ferenczi[2], Krisztina Kovács[2], Danilea Jezova[3], Dóra Zelena[1]
[1]Department of Behavioral Neurobiology, Institute of Experimental Medicine, Budapest, Hungary ,[2]Laboratory of Molecular Neuroendocrinology, Institute of Experimental Medicine, Budapest, Hungary, [3]Institute of Experimental Endocrinology, Slovak Academy of Sciences, Bratislava, Slovakia

14. T-cell activation in type 1 diabetes mellitus: the increased significance of Kvl.3 potassium channels

Gergely Toldi, Gergő Mészáros, Ambrus Kaposi, Barna Vásárhelyi, András Treszl
First Department of Pediatrics, Semmelweis University, Budapest

15. Molecular dynamics of type I angiotensin receptor upon stimulus

András Balla, Eszter Soltész-Katona, Dániel Tóth, László Sándor Erdélyi, Péter Várnai, László Hunyady
Department of Physiology, Semmelweis University, Budapest, Hungary

16. Linear and nonlinear analysis of rat cerebellar signals in unrestrained condition

Milka Culic, Jelena Podgorac, Goran Kekovic
Institute for Biological Research “Sinisa Stankovic”, University of Belgrade, Belgrade, Serbia

17. The role of pineal and retinal nonvisual photoreceptors in the pathological effects of night illumination suppressing melatonin secretion

M. J. Manzano e Silva[1], C. S. David[2], B. Vigh[2], A. Szel[2]
[1]Occupational Health Service, Centro Hospitalar de Lisboa Ocidental, Lisbon, Portugal,
[2]Department of Human Morphology and Developmental Biology, Semmelweis University, Budapest, Hungary

18. The number of hippocampal cholecystokinin-positive basket cell terminals is influenced by nitric oxide signaling

András Szőnyi, Antónia Arszovszki, Eszter Szabadits, Csaba Cserép, Tamás F. Freund, Gábor Nyiri
Institute of Experimental Medicine, Laboratory of Cerebral Cortex Research, Budapest, Hungary

19. Dose-dependent anticonvulsive effect of folic acid on D,L homocysteine thiolactone induced seizures in adult rats

A. Rašić - Marković[1], D. Hrnčić[1], O. Stanojlović[1], V. Šušić[2], D. Djurić[1]
[1]Laboratory for Neurophysiology, Institute of Medical Physiology "Richard Burian", School of Medicine, University of Belgrade, Serbia,[2]Serbian Academy of Sciences and Arts, Belgrade, Serbia

20. The effects of L-NAME on spike-and-wave complexes in homocysteine thiolactone – induced seizures in adult rats

D. Hrnčić[1], A. Rašić – Marković[1], V. Šušić[2], D. Djurić[1], O. Stanojlović[1]
[1]Laboratory for Neurophysiology, Institute of Medical Physiology "Richard Burian", School of Medicine, University of Belgrade, Serbia, [2]Serbian Academy of Sciences and Arts, Belgrade, Serbia

21. Neurobiological examination of distress provoked by trauma experience in an animal model: short and longterm effects

Petra Sörös, Bíró László, Áron Tulogdi, Máté Tóth, József Haller
Institute of Experimental Medicine, Budapest, Hungary

22. Matrix metalloproteinase activity in sera of patients with acute infarction of myocardium

Kristina Gopcevic[1], Sandra Radenkovic[2], Vesna Pavelkic[3]
[1]School of Medicine, University of Belgrade, Serbia, [2]National Cancer Research Center, Belgrade, Serbia, [3]Institute Kirilo Savic, Belgrade, Serbia

23. Cell therapy using non-pluripotent H9c2 cardiomyoblasts attenuates cell death and decreases malondialdehyde levels in an *in vitro* ischemia reperfusion model

Kiss L, Cselenyák A, Benkő Z, Szepes M, Pankotai E, Lacza Z
Department of Human Physiology and Clinical Experimental Research, Semmelweis University, Budapest, Hungary

24. Physiologic left ventricular hypertrophy and remodelling in elite athletes

Vivien Klaudia Nagy, Valentina Kutyifa, Astrid Apor, Andrea Szűcs, Andrea Nagy, Eszter Édes, Béla Merkely
Heart Centre, Semmelweis University, Budapest, Hungary

25. Comparative study of the enzyme and isoenzyme activity in normal and malignant human tissues

Bajin-Katić K[1] , Kovačević Z[2], Breberina M[3], Jelena Belic[4]
[1]Medical faculty, University of Novi Sad, Serbia, [2]Serbian Academy of Sciences and Arts, Branch in Novi Sad, Serbia, [3]Institute of Oncology of Vojvodina, Sremska Kamenica, Serbia, [4]Medical faculty, University of Novi Sad, Serbia

26. The effects of nano-selenium in experimental induced fatty liver in rats

Viktor Hegedüs[1,5], József Prokisch[2], Gabriella Bekő[3], Gábor Lotz[4], Zsuzsanna Elekes[1], Kálmán Ditrói[1], Attila Szijártó[5], Anna Blázovics[1]
[1]Department of Pharmacognosy, Semmelweis University, Budapest, [2]Institute of Bio- and Environmental Genetic, University of Debrecen, [3]1st Department of Internal Medicine, Laboratory Center, Semmeweis University, Budapest, [4]2nd Department of Pathology, Semmelweis University, Budapest, [5]1st Department of Surgery, Semmelweis University, Budapest, Hungary

27. Selective upregulation of the expression of plasma membrane Ca2+ATPase isoforms upon differentiation and 1,25-(OH)2-D3-vitamin treatment of colon cancer cells

Polett Ribiczey[1], László Homolya[1], András Bors[2], Attila Tordai[2], Ágnes Enyedi[2], Béla Papp[3] and Tünde Kovács[1]

[1]Semmelweis University, Hungarian Academy of Sciences, Membrane Biology Research Group, Budapest, Hungary, [2]National Blood Center, Department of Molecular Cell Biology, Budapest, Hungary, [3]Inserm UMR-S 940, Institut Universitaire d'Hématologie, Université Paris VII, Paris, France

28. Characterizing the dynamics of different conformers of ABC transporters

Gergely Gyimesi[1,2], Srinivas Ramachandran[3]; Pradeep Kota[3], Nikolay V. Dokholyan[3], Balázs Sarkadi[1], Tamás Hegedűs[1,2]

[1]Membrane Research Group, Hungarian Academy of Science, Budapest, Hungary, [2]Dept. of Biophysics, Semmelweis University, Budapest, Hungary, [3]Department of Biochemistry and Biophysics, UNC, Chapel Hill, USA