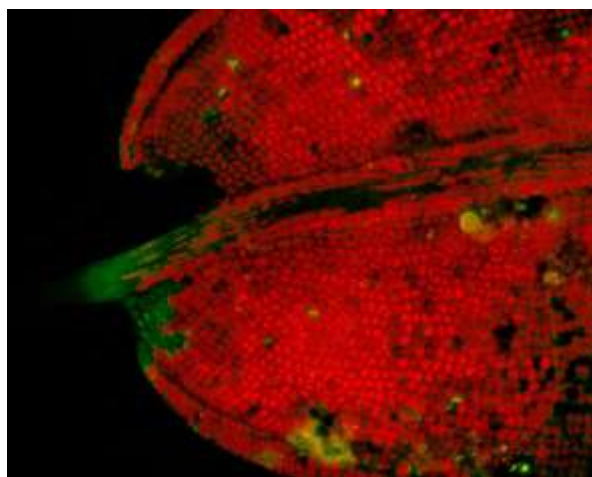


9th Slovak Biophysical Symposium

September 16 – 18, 2020

Holiday Inn, Trnava



Organized by:

Slovenská biofyzikálna
spoločnosť



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9th Slovak Biophysical Symposium, Trnava, September 16 – 18, 2020

PROGRAM

WEDNESDAY, September 16, 2020

12:00 – 13:30 **Registration**

13:30 – 13:40 **Opening ceremony**

13:40 – 15:40 **Session I**

Chair: L. Lacinová

13:40 – 14:30

PL1 J. Kubacková, A. Hovan, A. Strejčková, D. Horváth, Z. Tomori and **G. Bánó**
Viscoelastic photopolymers for micron-scale biomedical applications

14:30 – 14:50

SC1 A. Antošová, M. Gančár, E. Bystrenová, Z. Lučkayová, M. Baťková, Z. Bednáriková, Z. Gažová

α -Lactalbumin amyloid fibrillization in acidic pH - dependence on Hofmeister cations

14:50 – 15:20

SC2 A. Marček Chorvátová and D. Chorvát

Spectrally- and time-resolved microscopy study of the interaction of microplastics with *Chlorella sp.* algae

15:20 – 15:40

SC3 S. Dulanská, I. Cocha, M. Nodillo and Ž. Grahek

Sequential determination of ⁹⁰Sr and ²¹⁰Pb in bone samples using molecular recognition technology product AnaLig® Sr-01

15:40 – 16:00 **Coffee break**

16:00 – 17:15 **Session II**

Chair: A. Zahradníková

16:00 – 16:20

SC4 M. Gaburjaková, J. Gaburjaková and J. Almasy

Luminal Eu³⁺ interferes with luminal Ca²⁺ regulation of the cardiac ryanodine receptor

16:20 – 16:40

SC5 L. Lacinová, R.T. Mallmann, L. Moravčíková, B. Jurkovičová-Tarabová, N. Klugbauer

Regulation of the Ca_v2.2 channel by Grina/TMBIM3 protein resembles that by G-protein-coupled receptors

16:40 – 17:00

SC6 B. Iaparov, I. Zahradník, A. Zahradníková

Modelling calcium spark at different cardiac ryanodine receptor distributions

17:00 – 17:15

CP1 P. Krist:

Presentation of ZEISS company

17:15 – 18:15 **Welcome drink with buffet**

17:15 – 18:15 **Poster session I (PO01-PO15)**

18:15 – 18:45 **Meeting of Slovak BioImaging section**

THURSDAY, September 17, 2020

8:30 – 10:20 Session III

Chair: J. Jakuš

8:30 – 9:20

PL2 J. Míšek, J. Jakuš, M. Veterník, I. Tonhajzerová, M. Kopáni, V. Jakušová, N. Višnovcová, K. Sládičková, D. Parížek, L. Janoušek and J. Vojtek
Our experience in risk assessment related to electromagnetic fields

9:20 – 9:40

SC7 O. Boško, M. Šimera, I. Poliaček

Průručka elektromyografických technik EMG atlas vodivostných štúdií

9:40 – 10:00

SC8 M. Kopáni, J. Pánik, B. Filová, J. Míšek, M. Kohan, J. Jakuš, P. Povinec, Š. Polák
Analysis of iron in rabbit cerebellum after exposure to generated and mobile GSM electromagnetic fields

10:00 – 10:20

SC9 L. Martvoň, I. Poliaček

Simulations of unilateral vagal cooling effect on cough reflex

10:20 – 10:50 Coffee break

10:50 – 12:10 Session IV

Chair: D. Chorvát

10:50 – 11:10

SC10 I. Zahradník, B. Iaparov, A. Zahradníková

Modeling of calcium sparks in cardiac myocytes

11:10 – 11:30

SC11 A. Hovan, M. Petrenčáková, T. Kožár, D. Jancura, P. Miškovský, G. Bánó & E. Sedlák

Enhanced singlet oxygen production by photo-damaged AsLOV2 domain: experiments and modeling

11:30 – 11:50

SC12 M. Veterník, L. Martvoň, J. Míšek, J. Jakuš, I. Poliaček

Microinjection of neuroactive modulator into the ventral respiratory group – computer simulations

11:50 – 12:10

SC13 A. Zahradníková, B. Iaparov, and I. Zahradník

Accuracy of open probability and open time estimation from single-channel records

12:10 – 14:00 Lunch Break

14:00 – 15:30 **Session V**

Chair: E. Sedlák

14:00 – 14:50

PL3 T. Hianik

DNA aptamers in biosensors and in targeted drug delivery

14:50 – 15:10

SC14 V. Subjaková, M. Beltrán-Gastélum, B. Esteban-Fernández de Ávila, H. Gong, Z. Garaiova, , M. Ionov, P. Lekshmy Venugopalan, T. Hianik and J. Wang

Ultrasound-propelled nanomotors modified with fluorescein-labeled aptamers and dendrimers as potential treatment for breast cancer

15:10 – 15:30

SC15 K. Štroffeková, A. Doroshenko, S. Tomková, and T. Kozar

Hypericin hydrophobic interactions with anti-apoptotic members of Bcl2 family

15:30 – 16:30 **Coffee break**

15:30 – 16:30 **Poster session II (PO16-PO29)**

16:30 – 16:40

SC16 Š. Húšťava and A. Marček Chorvátová

Education of Biophotonics in Slovakia: from past activities to future concepts

16:40 – 17:15 **SKBS prizes (ceremony)**

17:15 – 18:10 **General Assembly of the Slovak Biophysical Society**

18:30 departure for **Conference dinner**

19:00 – 22:00 **Conference dinner**

FRIDAY, September 18, 2020

9:00 – 11:00 **Session VI**

Chair: K. Štroffeková

9:00 – 9:50

PL4 M. Cagalinec, A. Zahradníková Jr, J. Pavelková, S. Kureková, M. Hořka and A. Zahradníková

Calcium signaling and contractility in cardiomyocyte of Wolframin invalidated rats

9:50 – 10:10

SC17 A. Zahradníková jr., M. Novotová, Jasna Marinovic, and I. Zahradník

2D spectral analysis of highly autofluorescent samples.

10:10 – 10:30

SC18 N. Tomášková, G. Yassaghi, T. Kožár, R. Varhač, A. Musatov, P. Man, P. Novák, and E. Sedlák

Pseudo-peroxidase activity of cytochrome *c* and its structural consequences

10:30 – 10:50

SC19 A. Singh, M. Rief, G. Žoldák

Observing Hsp70 mechanics during the hydrolysis of a single ATP molecule

10:50 -11:00 **Concluding remarks**

9th Slovak Biophysical Symposium, Trnava, September 16 – 18, 2020

LIST OF POSTERS

WEDNESDAY, September 16, 2020

17:15 – 18:15 Poster session I

PO01 I. Baglaeva, I. Zahradník, B. Iaparov and A. Zahradníková
A guide on calcium signalling in cardiac myocytes

PO02 Z. Bednaríková, B.N. Ratha, R. K. Kar, S. A. Kotler, S. Raha, S. De, N. C. Maiti, A. Bhunia, Z. Gažová
The role of salt-bridge stability in the initial steps of insulin fibrillation

PO03 F. Belén Fuenzalida, D. Jancura, S. Sanchez-Cortes, P. Miškovský, Z. Jurašková
Glyphosate SERS detection: looking for the detection limits

PO04 O. Cehlár, L. Horňáková, J. Šinský, J. Hanes and R. Škrabana
The reactivity of the C-terminal anti-tau antibody shows differences possibly due to the changes in the global folds of tau isoforms

PO05 D. Džubinská, M. Zvarík, Z. Garaiová, L. Šikurová, I. Waczulíková
Ultrafiltration and size-exclusion chromatography for the isolation of exosomes

PO06 V. Džupponová, G. Žoldák
Recombinant expression, purification and biophysical characterization of the λ -type IgG light chain

PO07 V. Dzurillová, E. Sedlák
Ribosome display as a tool for directed evolution of haloalkane dehalogenases

PO08 A. Espina, S. Sanchez-Cortes, Z. Jurašková
Polyphenols and metal (iron, copper) ion complexation characterized by optical (UV-Vis and Raman) spectroscopy

PO09 J. Gaburjaková and M. Gaburjaková
The cardiac ryanodine receptor provides an effective pathway for Zn^{2+} transport in cardiomyocytes

PO10 M. Gala, P. Pristáš and G. Žoldák
Sequence-structure analysis of bacterial heat shock proteins 70

PO11 M. Gancar, E. Kurin, Z. Bednaríková, J. Marek, P. Mucaji, M. Nagy, Z. Gažová
Amyloid aggregation of insulin: An interaction study of selected green tea constituents

PO12 Z. Garaiová, V. Šubjaková, J. Magiera, M. Holota, Š. Šutý, M. Ionov, S. Michlewska, I. Waczulikova, N. Sanz-del Olmo, F. Javier de la Mata, M. Bryszewska, T. Hianik
Liposomal locked-in dendrimers for development of cytostatic drugs

PO13 I. Garčárová, K. Šipošová, V. Huntošová, A. Musatov

The polyphenol rottlerin: assessment of disassembly activity of protein aggregates and cytotoxicity

PO14 N. Gašparík, A. Kozeleková, P. Louša, J. Hritz

¹⁹F labelling of 14-3-3ζ recombinant protein for ¹⁹F NMR spectroscopy

PO15 V. Huntošová, R. Seliga and D. Horváth

Time-resolved measurements of oxygenation and oxidative stress level in cancer spheroids.

THURSDAY, September 17, 2020

15:30 – 16:30 Poster session II

PO16 D. Chorvát, A. Biathová and A. Marček Chorvátová

Estimation of activation energy of nonradiative processes in nicotinamide adenine dinucleotide *in vitro*.

PO17 L. Ilavská, M. Morvová Jr., J. Trebatická, Z. Ďuračková and L. Šikurová

Determination of metabolites in the urine of youths with depression.

PO18 J. Jacko, M. Morvová Jr., A. Benčová, L. Šikurová, Y. Gbelská

The effect of PDR16 gene deletion on membrane potential in *Candida albicans*.

PO19 A. Jutková, S. Datta, D. Chorvát, P. Miškovský, D. Jancura and J. Kronek

Polymeric micelles and endogenous lipoprotein nanoparticles as delivery systems of anticancer drug curcumin and photosensitizer hypericin.

PO20 I. Klíbk, I. Maťko, O. Šauša, K. Čechová and M. Melicherčík

Effect of dimethyl sulfoxide on phase behaviour of liposomes as a model for cryopreservation of biological cells studied by calorimetry, positron annihilation and molecular dynamics simulations

PO21 J. Kubačková, G.T. Iványi, V. Kažiková, A. Strejčková, A. Hovan, G. Žoldák, G. Vizsnyiczai², L. Kelemen, G. Bánó

Viscosity measurements using elastic polymer micro-cantilevers

PO22 J. Marek, Z. Gažová

Decomposition of AFM topographic surfaces: Modelling of growth curves.

PO23 M. Morvová Jr., L. Šikurová

Human skin autofluorescence in health and eczema.

PO24 B. Spodniaková, Z. Bednáriková, M. Gančár, A. Antošová, S. Hamul'áková, Z. Gažová

Effects of bis-coumarin homodimers on preformed amyloid fibrils of globular and intrinsically disordered proteins.

PO25 A. Strejčková, J. Kubacková, A. Hovan, Z. Tomori and G. Bánó
Passive rheology using elastic micro-structures.

PO26 K. Šipošová, V. Hovhannisyán, D. Sedláková, A. Musatov, Sh.-J. Chen
Fabrication and examination of magnetic zeolite nano/micro-particles for controlled drug release and modulation of amyloidogenesis.

PO27 Šutý Š., Garaiová Z., Magiera J., Ionov M., Bryszewska M., Shcharbin D., Majoral J.P., Hianik T., Waczulíková I.
Modeling of the effect of amphiphilic phosphorus dendrons on erythrocyte membrane fluidity measured in terms of fluorescence anisotropy.

PO28 V. Talafová, M. Humeník, G. Žoldák, T. Scheibel, and E.Sedlák
The fibril formation study of recombinant spider silk protein eADF4(C16) in different pH environments.

PO29 N. Tomášková, R. Varhač, E. Sedlák
Dynamics of heme region is main effector of cytochrome c peroxidase-like activity.

PO30 V. Vaník, Z. Bednáriková, G. Fabriciová, A. Antošová, Z. Gažová and D. Fedunová
The ionic liquids as modulators of insulin amyloid aggregation.

PO31 M. Berta, V.Dzurillová, E.Sedlák
Increasing of GPCR solubility by directed protein evolution approach.