



## 11<sup>th</sup> International Conference Drug Delivery Systems

# Nanotechnology for Healthcare: Progress in Recombinant Vaccines, Molecular Adjuvants, Modern Drug Delivery Systems and Cell Therapy

5<sup>th</sup> to 7<sup>th</sup> June 2018, [Masaryk University Conference Centre, Jesuit College, Telč, Czech Republic](#)  
register here [www.vri.cz/cz/dds](http://www.vri.cz/cz/dds)

### Organising Committee:

- **Chairman: Jaroslav Turánek** (Veterinary Research Institute, Brno, Czech Republic)  
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Meeting is organised within the OP VVV project FIT CZ.02.1.01/0.0/0.0/15\_003/0000495



## Programme:

Updated programme can be found here [www.vri.cz/cz/dds](http://www.vri.cz/cz/dds)

### Monday 4th June 2018

SAB meeting – only for SAB members

### Tuesday 5th June 2018

Tuesday's session is dedicated to **Prof. MUDr. Milan Hašek, DrSc.** (October 4, 1925 – November 14, 1984) Czech biologist, physician and immunologist based in the Institute of Experimental Biology and Genetics of the Czechoslovak Academy of Sciences where he was a director 1961 – 1970.

In 1953, he discovered the mechanism of acquired immunological tolerance – fetal parabiosis against foreign tissues, independently of Sir P. Medawar, who was awarded the Nobel Prize in 1960 with his colleagues. Later, Hašek dealt with transplantation and tumor immunity and mechanisms of viral oncogenesis.



#### Recombinant vaccines and therapeutics based on RNA part 1

■ **Chairmen:** Daniel Scherman and Milan Raška

8:00 Breakfast

8:15 – 9:00 Registration

#### Morning session

9:00 – 9:20 **Katalin Kariko** (U Penn, USA & BioNTech, Mainz, Germany)  
*Making mRNA a therapeutic reality*

9:20 – 9:40 **Patrick Arbuthnot** (Witts University, Johannesburg, RSA)  
*Gene editing to disable replication of hepatitis B virus: TALENs or CRISPR/Cas*

9:40 – 10:00 **Marc Windisch** (Institut Pasteur Korea, Seoul, Korea)  
*Efficient spread of hepatitis B virus in cell culture*

10:00 – 10:30 Coffee Break

10:30 – 10:50 **Heinrich Haas** (BioNTech, Mainz, Germany)  
*Talk about personalised mRNA vaccination*

10:50 – 11:10 **Nigel Temperton** (University of Kent, Medway, UK)  
*New methods to dissect antibody responses against influenza*

11:10 – 11:30 **Jeffrey Ulmer** (GSK, Washington D. C., USA)  
*Self-amplifying mRNA vaccines*

## Delivery systems and bioanalytical technologies part 1

12:00 – 13:00 Lunch

### Afternoon session

13:00 – 13:20 **Daniel Scherman** (Université Paris Descartes, Paris, France)  
*New nanoparticles for in vivo imaging*

13:20 – 13:40 **Yuhong Xu** (Zhejiang University, Hangzhou, PRC)  
*Dasatinib Loaded liposomes for improving T cell immunotherapy against B-cell lymphoma*

13:40 – 14:00 **Sihyun Ham** (SookMyung Women's University, Seoul, Korea)  
*Molecular modelling of biological interactions*

14:00 – 14:30 Coffee break

14:30 – 14:50 **Régis Tourné** (Institut Pasteur Paris, France)  
*Tracking cells: Development of novel imaging photoconvertible probes*

15:10 – 17:00 Poster session, Round table discussion

### Social events

19:00 – 20:00 Concert of classical music in the church of St. James

(Members of Stamitz Quartet with guests Prof. Karel Plocek – viola and Prof. Václav Kunt – flute)

- Josef Kekula – violin
- Karel Plocek – viola
- Petr Hejny – violoncello
- Václav Kunt – flute

### Repertoire

Pavel Vranický – Flute and String Quartets No. 5 & 6

W.A. Mozart – Flute and String Quartet (Selection)

J.M. Sperger – Trio for violin, viola and violoncello

The musical works of Vranický and Sperger will be performed in modern premieres.



## Wednesday 6th June 2018

Wednesday's session is dedicated to **Prof. Gregory Gregoriadis (\*1934)**, who pioneered the field of liposomes as carriers of antigens and opened the door to the development of lipid-based vaccines



**Chairman:** Jaroslav Turánek (Veterinary Research Institute, Czech Republic)

### Recombinant vaccines and therapeutics based on RNA part 2

**8:00 Breakfast**

#### Morning session

- 9:00 – 9:30** **Petr Malý** (Biocev, Prague, Czech Republic)  
*Recombinant protein binders selected from highly complex combinatorial libraries as novel (glyco)peptide mimetics for induction of neutralizing antibodies against HIV-1 gp120/41 glycoprotein*
- 9:30 – 10:00** **Milan Raška** (University of Palacky, Olomouc)  
*Immune response to sublingually delivered recombinant antigens in experimental mice*

### Delivery systems and bioanalytical technologies part 2

**10:00 – 10:30 Coffee Break**

- 10:30 – 10:50** **Jaroslav Turánek** (Veterinary Research Institute, Brno)  
*Progress in sublingual immunisation*
- 10:50 – 11:10** **Petr Skládal** (Masaryk University, Brno, Czech Republic)  
*SPR-technology*
- 11:10 – 11:30** **Elena Filová** (Institute of Physiology, Czech Academy of Sciences, Prague, Czech Republic)  
*Release of FGF2 and VEGF from Fibrin Assemblies Controls Cell Behavior for Cardiovascular Tissue Engineering Applications*
- 11:30 – 11:40** **Kotouček Jan** (Veterinary Research Institute, Brno)  
*Mechanism of liposome formation by microfluidic mixing technology*
- 11:40 – 11:50** **Hubatka František** (Veterinary Research Institute, Brno)  
*Preparation of PLGA particles by microfluidic technology*
- 11:50 – 12:10** **Jiří Vašák** (KRD, Prague)  
*OpenSPR: new approach to determination of biomolecular interaction with detailed information about kinetic data*

**12:10 – 13:00 Lunch**

## New technologies, instrumentation and methods for recombinant vaccines and therapeutics based on RNA

### Afternoon session

13:00 – 13:20	<b>Jan Vávra</b> (JPK Instruments) <i>Optical laser tweezer and its use</i>
13:20 – 13:40	<b>Piotr Wardega</b> (NanoTemper Technologies) <i>Affinity. Stability. Quality.</i>
13:40 – 14:00	<b>Sebastian Eigner</b> (Bruker BioSpin MRI GmbH, Ettlingen, Germany) <i>Adding color to your shades of grey: How PET/MR will level up your research</i>
14:00 – 14:20	Coffee break
14:20 – 14:40	<b>Martin Kopecký</b> (Pragolab s.r.o.) <i>Flexible, fast and powerful Leica SP8 FALCON is the first truly integrated solution for Fluorescence Lifetime Imaging (FLIM)</i>
14:40 – 15:00	<b>Sebastian Eigner</b> (Bruker BioSpin MRI GmbH, Ettlingen, Germany) <i>Multimodal Optical Imaging in Preclinical Studies</i>
15:00 – 17:00	Round table discussion

### Social events

19:30	<b>Gala Dinner – Barbecue</b> Live music - Dulcimer Band
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## Thursday 7th June 2018

*“The heart heals the heart, the lung heals the lung and the spleen heals the spleen, that is, like cures like” – Paracelsus*

The birth of modern day cell therapy occurred in 1931 in Switzerland. **Prof. Dr Paul Niehans** (1882–1971), a Swiss physician, who got famous for inventing and developing cellular therapy, a method by which he has successfully treated thousands of patients. His renown grew through his treatment of Pope Pius XII.



Organizers: Jaroslav Turánek, Šárka Němečková, Jan Kříž

■ Czech Society for Gene and Cell Therapies (CSGCT) – special symposium

### Cell Therapies

Chairman: Šárka Němečková

8:00	Breakfast
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### Morning session

9:00 – 9:20	<b>Šárka Němečková</b> (Institute of Haematology and Blood Transfusion, Prague) <i>Multivirus-specific T cells for adoptive transfer</i>
9:20 – 9:40	<b>Pavel Otáhal</b> (Institute of Haematology and Blood Transfusion, Prague, Czech Republic) <i>CAR-T cells</i>



<b>9:40 – 10:00</b>	<b>Daniel Scherman</b> (Université Paris Descartes, Paris, France) <i>Improved plasmid platform for cell and gene therapy – applications to CAR-T cells</i>
<b>10:00 – 10:30</b>	<b>Coffee Break</b>
<b>10:30 – 10:50</b>	<b>Eva Syková</b> (Institute of Neuroimmunology, SAV and Scimed Biotechnologies, s.r.o.) <i>Stem cells and biomaterials for treatment of neurodegenerative diseases. Preclinical and clinical studies.</i>
<b>10:50 – 11:10</b>	<b>Jan Kříž</b> – (Institute for Clinical and Experimental Medicine, Prague, Czech Republic) <i>The optimal timing is crucial for creation of an artificial subcutaneous cavity for pancreatic islet transplantation</i>
<b>11:10 – 11:30</b>	<b>Michal Dubský</b> – (Institute for Clinical and Experimental Medicine, Prague, Czech Republic) <i>Characteristics of endothelial precursor cells in diabetes and peripheral arterial disease – their therapeutic potential</i>
<b>11:30 – 11:50</b>	<b>Robert Bém</b> (Institute for Clinical and Experimental Medicine, Prague, Czech Republic) <i>Cell therapy in the treatment of diabetic foot – clinical view</i>
<b>11:50 – 13:00</b>	<b>Lunch</b>
<b>Afternoon session</b>	
<b>13:00 – 13:20</b>	<b>Aleš Hampl</b> (Masaryk University, International Clinical Research Center, St. Anne's University Hospital, Brno, Czech Republic) <i>Early lung epithelial progenitors originating from human pluripotent stem cells</i>
<b>13:20 – 13:40</b>	<b>Irena Krontorád Koutná</b> (International Clinical Research Center (FNUSA-ICRC), Masaryk University, Brno, Czech Republic) <i>Qualification of the clinical grade hiPSC production</i>
<b>13:40 – 14:10</b>	<b>Coffee break</b>
<b>14:10 – 14:30</b>	<b>Irena Vacková</b> (Institute of Experimental Medicine CAS, Prague, Czech Republic) <i>Comparison of umbilical cord derived MSCs to bone marrow and adipose tissue derived MSCs and characterization of their secretoms</i>
<b>14:30 – 14:50</b>	<b>Hana Španielová</b> (Charles University, Prague, Czech Republic) <i>Polyomavirus-based gene and drug delivery systems</i>
<b>14:50 – 15:00</b>	<b>Closing Ceremony</b>



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## OP VVV Project FIT Pharmacology, Immunotherapy, nanoToxicology

*Project FIT started on 1st January 2017 and is an OPVVV Project of the Czech Ministry of Education, Youth & Sports (MEYS, MŠMT in Czech) with financial support from the European Union.*

*The aim of this project is to build a sustainable world-class Nanotechnology for Healthcare Centre by:*

- forging a top team of scientists and support staff
- installing a world-class infrastructure appropriate to our agreed scientific goals
- achieving a thorough internationalization of research efforts and staff

*Our Nanotechnology for Healthcare Centre has a main scientific focus on the design and creation of recombinant vaccines, molecular adjuvants and modern vaccination/drug delivery systems. We are also committed to the clinical and commercial development of research outputs whenever possible.*

