

# XIX Discussions in Structural Molecular Biology and 6th User Meeting of CIISB

23-25 March 2023

## Programme

### Thursday, March 23

12:00 - 14:00 Registration and accommodation, coffee

All talks are 20 minutes long unless indicated otherwise. All times are INCLUDING discussion.

14:30 **Opening of XIX Discussions and 6th User Meeting of CIISB** (*Jan Dohnálek, Vladimír Sklenář*)

14:35 - 16:05 **Session I** *Chair person: Josef Houser*

*Lecture no. – page of abstract*

<b>Jakub Hrubý</b> Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University, Prague	Exchanging Metals in Zn-Dependent S1 Nuclease: Effects on Structure and Activity (Student talk, CIISB user meeting) <span style="float: right;">L1 – 3</span>
<b>Klaudia Mešková</b> Institute of Neuroimmunology, Slovak Academy of Sciences, Bratislava	Co-crystallization strategies to supplement the structure of tau protein filaments by X-ray crystallography (Student talk) <span style="float: right;">L2 – 5</span>
<b>Kristýna Adámková</b> Institute of Biotechnology, Czech Academy of Sciences, Vestec	Structural study of RNA-preferring nuclease SmNuc1 from <i>Stenotrophomonas maltophilia</i> (Student talk, CIISB user meeting) <span style="float: right;">L3 – 6</span>
<b>Filip Melicher</b> Masaryk University, CEITEC, Brno	Structural characterization of lectin from <i>Phototrhabdus laumondii</i> (Student talk, CIISB user meeting) <span style="float: right;">L4 – 7</span>
<b>Jakub Nowak</b> Jagiellonian University, Krakow NanoTemper Technologies, Krakow	Application of Monolith and Panta biophysical platforms in the structural characterization of the RNA modifying enzymes (10 min) <span style="float: right;">L5 – 7</span>

16:05 - 16:30 *Coffee break*

16:30 - 17:55 **Session II** *Chair person: Michaela Wimmerová*

<b>Marika Majerová</b> Loschmidt Laboratories, Masaryk University, Brno	An extant enzyme with dual dehalogenase-luciferase function (Student talk) <span style="float: right;">L6 – 8</span>
<b>Petra Havlíčková</b> Faculty of Science, University of South Bohemia, České Budějovice	Crystal structure of Smolstatin – protease inhibitor from the myxozoan parasite <i>Sphaerospora molnari</i> (Student talk) <span style="float: right;">L7 – 8</span>
<b>Tomás de Garay</b> Refeyn Ltd., Oxford	Mass photometry – revolutionary biophysical characterization of single molecules (10 min) <span style="float: right;">L8 – 9</span>
<b>PhD Thesis Award</b> (chaired by Jan Dohnálek) (5 min)	
<b>Dominik Hrebík</b> Max Planck Institute of Biochemistry, Martinsried	Cryo-EM of enveloped and non-enveloped viruses <i>in situ</i> and <i>in vitro</i> (30 min) <span style="float: right;">L9 – 10</span>

18:00 Dinner

20:00 **CIISB Executive committee**

## Friday, March 24

7:30 - 9:00 *Breakfast*

9:00 - 10:50 **Session III** *Chair person: Cyril Bařinka*

<b>Jiřĩ Wald</b> University Medical Center Hamburg-Eppendorf, Hamburg	Mechanism of RuvAB Holliday junction branch migration <span style="float: right;"><i>L10 – 11</i></span>
<b>Lucie Valentov</b> Masaryk University, CEITEC, Brno	Carpe pili! Hunting strategy of phage JBD30 revealed by combination of cryo-electron and fluorescent microscopy (Student talk, CIISB user meeting) <span style="float: right;"><i>L11 – 12</i></span>
<b>Karolína Honzejkov</b> Faculty of Science, Charles University, Prague	Cryo-EM structure of ASK1 suggests a role of inter-domain interactions and TRX1 in its regulation (Student talk, CIISB user meeting) <span style="float: right;"><i>L12 – 12</i></span>
<b>Ondřej Bulvas</b> Institute of Organic Chemistry and Biochemistry, Czech Academy of Sciences, Prague	Complex allosteric regulation of mycobacterial inosine-5'-monophosphate dehydrogenase by purine nucleotides (Student talk, CIISB user meeting) <span style="float: right;"><i>L13 – 13</i></span>
<b>Lucie Nepovmov</b> Masaryk University, CEITEC, Brno	Mechanism of antibody-mediated neutralisation of the tick-borne encephalitis virus revealed by Cryo-EM (Student talk, CIISB user meeting) <span style="float: right;"><i>L14 – 13</i></span>
<b>Dhirendra Singh</b> Thermo Fisher Scientific FEI Europe B.V., Eindhoven	The Glacios 2 is a high-resolution structure determination tool, optimized for generating sub 3 Å single particle reconstructions with unparalleled automation and ease of use (10 min) <span style="float: right;"><i>L15 – 14</i></span>

10:50 - 11:20 *Coffee break and group photo*

11:20 - 12:50 **Session IV** *Chair person: Pavel Plevka*

<b>Bohđan Schneider</b> Institute of Biotechnology, Czech Academy of Sciences, Vestec	Quality of nucleic acid structures in the PDB public archive <span style="float: right;"><i>L16 – 15</i></span>
<b>Jan Dohnlek</b> Institute of Biotechnology, Czech Academy of Sciences, Vestec	What governs protein:protein interactions of C-type lectin-like domains? (CIISB user meeting) <span style="float: right;"><i>L17 – 15</i></span>
<b>Klra Kohoutov</b> Institute of Physiology, Czech Academy of Sciences, Vestec	Structural Characterization of FOXO4-DBD:p53-TAD Interaction (Student talk) <span style="float: right;"><i>L18 – 16</i></span>
<b>Tomš Brom</b> Masaryk University, National Centre for Biomolecular Research, Brno	Insight into inherited anemia CDA-I: disease-associated mutations disrupt Codanin1-CDIN1 complex (Student talk, CIISB user meeting) <span style="float: right;"><i>L19 – 17</i></span>
<b>Jemma Roberts</b> Applied Photophysics Limited, Leatherhead, UK	SUPR-DSF - Differential Scanning Fluorimetry for high-throughput protein stability screening (10 min) <span style="float: right;"><i>L20 – 17</i></span>

12:50 *Lunch*

15:30 - 16:00 *Coffee*

16:00 - 18:00 **Session V** *Chair person: Vojtěch Spiwok*

<b>Michal Kolář</b> University of Chemistry and Technology, Prague	Atomistic computer simulations of the ribosome <i>L21 – 18</i>
<b>Hugo McGrath</b> University of Chemistry and Technology, Prague	Binding of Peptide Deformylase to the Ribosome Surface Modulates Exit Tunnel Interior (Student talk) <i>L22 – 19</i>
<b>Gowtham Nirmal Jonnalagadda</b> Faculty of Science, University of South Bohemia, České Budějovice	Charge Transport Properties of Cytochrome b <sub>562</sub> in Metal Junctions (Student talk) <i>L23 – 20</i>
<b>Alexandra Ptáková</b> Institute of Physiology, Czech Academy of Sciences, Prague	Elucidating the molecular basis of voltage- and lysophospholipid-induced TRPC5 channel gating (Student talk) <i>L24 – 20</i>
<b>Andrea Moretti</b> Creoptix AG, Wädenswil, Switzerland	Pushing the Boundaries in Biomolecular Interaction Analysis with GCI and waveRAPID (10 min) <i>L25 – 21</i>
<b>Poster flash talks, 2 minutes each</b>	
<b>Zuzana Trebichalská</b> (Masaryk University, CEITEC, Brno) <i>In-situ</i> cryo-electron tomography of Enterovirus replication (Student poster, CIISB user meeting)	
<b>Ahmed H. Hassan</b> (Masaryk University, CEITEC, Brno) RimM and RsfS ribosomal factors regulate the translation in bacteria	
<b>Maša Janošev</b> (Institute of Physiology, Czech Academy of Sciences, Vestec) The role of calcium and 14-3-3 in the regulation of human ubiquitin ligase Nedd4-2 (Student poster, CIISB user meeting)	
<b>Amiyaranjan Das</b> (Masaryk University, CEITEC, Brno) Viral transcription-translation coupling in mammalian cells (Student poster, CIISB user meeting)	
<b>Radovan Fiala</b> (Masaryk University, CEITEC, Brno) Josef Dadok National NMR Centre	
<b>Anna Sobotková</b> (Masaryk University, CEITEC, Brno) Structure of the phage LUZ19 infecting multi-antibiotic resistant <i>Pseudomonas aeruginosa</i> (Student poster, CIISB user meeting)	
<b>Lada Biedermannová</b> (Institute of Biotechnology, Czech Academy of Sciences, Vestec) Prediction of DNA hydration based on data mining of crystallographic structures	

18:00 - 19:00 **General Assembly of the Czech Society for Structural Biology**

The meeting will be held in the Czech and/or Slovak languages

1. Volba zapisovatele
2. Schválení programu
3. Výroční zpráva Rady ČSSB o činnosti a hospodaření
4. Zpráva revizní komise
5. Schválení výroční zprávy Rady ČSSB o činnosti a hospodaření
6. Infrastruktury se vztahem ke strukturní biologii, přístupy, financování, vývoj Instructu a jiných
7. Různé

19:00 - 20:00 *Dinner*

20:00 - 22:00 **Poster session**

(20:00 - 22:00 CSSB Council meeting)

## Saturday, March 25

7:30 - 9:00 *Breakfast*

9:00 - 10:20 **Session VI** *Chair person: Jiří Pavlíček*

<b>Martin Marek</b> Loschmidt Laboratories, Masaryk University, Faculty of Science, Brno	Illuminating the mechanism of NanoLuc luciferase action <i>L26 – 22</i>
<b>Irena Kratochvílová</b> Institute of Physics, Czech Academy of Sciences, Prague	Timing of ICSI with respect to meiotic spindle status <i>L27 – 22</i>
<b>Edward Curtis</b> Institute of Organic Chemistry and Biochemistry, Czech Academy of Sciences, Prague	Exploring sequence space using secondary structure libraries and single-step selections <i>L28 – 23</i>
<b>Josef Houser</b> Masaryk University, CEITEC, Brno	ARBRE – Association of Resources for Biophysical Research in Europe <i>L29 – 24</i>

10:20 - 10:40 *Coffee break*

10:40 - 12:00 **Session VII** *Chair person: Veronika Obšilová*

<b>Vilhelmiina Kontkanen</b> Faculty of Science, University of South Bohemia, České Budějovice	Reorganization Free Energy for Azurin Oxidation at Gold Interfaces Evaluated by Perturbed Matrix Method <i>L30 – 25</i>
<b>Miroslav Kloz</b> ELI Beamlines, Dolní Břežany	Sequential all-trans to 13-cis to 11-cis photoisomerization in besthodopsin, an unusual red-absorbing microbial light-gated anion channel as revealed by femtosecond stimulated Raman spectroscopy <i>L31 – 26</i>
<b>Gustavo Fuentes</b> Institute of Biotechnology, Czech Academy of Sciences, Vestec	The ELIBIO odyssey: a 6-year recap <i>L32 – 27</i>
<b>Jiří Zahradník</b> First Faculty of Medicine, Charles University, Prague	Plasticity of SARS-CoV-2 Spike's RBD domain and ACE2 interaction and its implications <i>L33 – 27</i>

12:00 - 12:20 **Evaluation of student presentations, prizes, concluding remarks**

12:30 *Lunch & departure*