

3rd NGP-Net SYMPOSIUM ON NON-GLOBULAR PROTEINS

August 28 – September 1, 2017

Košice, Slovakia

Program Booklet



3	Welcome Note of the Organizers
4	Symposium Organization
6	Venue
7	Presentation Guidelines
8	Invited Speakers

Scientific Program

10	Monday, August 28
11	Tuesday, August 29
13	Wednesday, August 30
15	Thursday, August 31
16	Friday, September 1

17	Flash and Poster Presentations
22	Social Program
23	General Information
25	Košice

Welcome Note of the Organizers

Dear Colleagues and Friends,

With great pleasure and on behalf of Non-Globular Proteins COST Action BM1405 (NGP-Net) Community, Institute of Experimental Physics and Institute of Neuroimmunology Slovak Academy of Sciences, we cordially welcome you to Košice for the 3rd NGP-Net Symposium 2017. We are delighted that almost 90 scientists from 30 countries will meet in Košice in upcoming days.

The core group members have assembled an outstanding scientific program for NGP-Net 2017, in addition to a social program featuring many unique aspects of Slovakia.

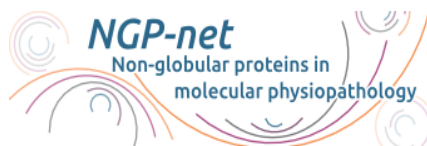
The organization of this Symposium has been a team effort, so we would like to express our thanks to the core group and the scientific committee, who did an exceptional job in selecting the very best. Special thanks to Silvio Tosatto, Nevena Veljkovic and Sandra Macedo Ribeiro for wonderful support and valuable experience from previous congresses. Many thanks to the Organizing committee, without their help and assistance, we would have sunk.

We hope that your attendance at the 3rd NGP-Net Symposium 2017 in Košice will be both scientifically rewarding and provide a unique opportunity for you to experience the wonderful setting and culture of our beautiful city.

We look forward to an exciting week in Košice!

Zuzana Gazova
Local Organizing Committee

Scientific committee



Kristina Djinovic-Carugo

The Max F. Perutz Laboratories, University of Vienna, Austria

Zsuzsanna Dosztanyi

Department of Biochemistry, Eotvos Lorand University, Hungary

Arne Elofsson

Science for Life Laboratory, Karolinska Institutet, Sweden

Andrey Kajava

Centre for Macromolecular Biochemistry Research, CNRS, France

Sonia Longhi

Lab AFMB, Aix-Marseille University, CNRS, France

Sandra Macedo Ribeiro

Institute for Molecular and Cell Biology, University of Porto, Portugal

Vytautas Smirnovas

Institute of Biotechnology, Vilnius University, Lithuania

Peter Tompa

VIB-VUB Center for Structural Biology, Brussel, Belgium

Silvio Tosatto

Department of Biomedical Sciences, University of Padua, Italy

Nevena Veljkovic

Vinca Institute of Nuclear Sciences, Belgrade, Serbia

Salvador Ventura

Autonomous University of Barcelona, Spain

Organizing committee



Slovak Academy of Sciences

Institute of Experimental Physics

Department of Biophysics



Symposium chairs

Zuzana Gazova

Institute of Neuroimmunology



Rostislav Skrabana

Members

Diana Fedunova

Zuzana Bednarikova

Katarina Ulicna

Miroslav Gancar

Ondrej Cehlar

Jana Kubackova

Igor Hrmo

Hotel YASMIN

Hotel Yasmin offers high functionality, modern interior with elegant use of space for hosting international conferences. It is easily accessible from Kosice Airport by public transport and within walking distance to downtown and all famous sights.

Venue address:

Hotel Yasmin****

Tyrsovo nabrezie 1

040 01 Kosice

Lectures and COST meetings will be held in 3 halls located at the 1st floor: Yasmin I (main), Yasmin II and Yasmin III. The Poster presentation will be set up in Yasmin II.

Coffee breaks will be provided in the foyer at 1st floor and Yasmin II.

Lunches and dinners will be held in the hotel restaurant on ground level.



Presentation Guidelines

Poster guidelines

Posters should have up to 90 cm (width) x 120 cm (height). Poster numbers will be communicated to authors at the Registration Desk.

A subset of poster abstracts will be selected to give a short oral presentation (15 min) or flash poster presentation (5 min).

Flash Poster Presentation

Selected poster abstracts should be presented as 1 slide presentation (5 min). Speakers are required to have their presentation ready on a USB key and contact technical staff during coffee break.

Oral presentation

Speakers are required to have their presentation ready on a USB key. Your slides should be either in .pdf, .ppt or .pptx format.

Speakers using their own laptop are kindly asked to approach technical staff in order to clarify the technical prerequisites and to coordinate the processes involved.

Presentation time:

Invited talks - speaking time 25 min plus 5 min discussion

Short talks - speaking time 15 min plus 5 min discussion

Flash presentation - speaking time 5 min (1 slide)

Invited Speakers

Ylva Ivarsson

Department of Chemistry, Uppsala University, Sweden

Tuesday, August 29, 2017

9:20 - 9:50

"Discovery of short linear motif-mediated interactions through phage display of intrinsically disordered regions of the human proteome"

Chair: Silvio Tosatto

Lucia B. Chemes

Leloir Institute, Buenos Aires, Argentina

Tuesday, August 29, 2017

11:00 - 11:30

"Evolution and function of disordered regions and linear motifs in viral proteomes"

Chair: Louise Serpell

Mart Loog

Institute of Technology, University of Tartu, Estonia

Tuesday, August 29, 2017

15:00 - 15:30

"Disordered CDK substrates act as multi-input signal processors to control the key decision in the cell cycle"

Chair: Sonia Longhi

Ora Schueler-Furman

Hebrew University of Jerusalem, Israel

Tuesday, August 29, 2017

16:40 - 17:10

"Accurate structural modeling of peptide-protein interactions using Rosetta FlexPepDock"

Chair: Mart Loog

Louise Serpell

School of Life Sciences, University of Sussex, UK

Wednesday, August 30, 2017

9:00 - 9:30

"Understanding amyloid: from structure to function"

Chair: Vytautas Smirnovas

Elisar Barbar

College of Science, Oregon State University, USA

Wednesday, August 30, 2017

10:40 - 11:10

"Multivalency in Transcriptional Regulation of the Hub Protein LC8"

Chair: Ylva Ivarsson

Jennifer R. Potts

Department of Biology, University
of York, UK

Wednesday, August 30, 2017

15:00 - 15:30

"Repetitive bacterial surface proteins"

Chair: Andrei N. Lupas

Benjamin Schuler

Department of Biochemistry,
University of Zurich, Switzerland

Thursday, August 31, 2017

9:00 - 9:30

"Binding without folding: Extreme disorder and dynamics
in a high-affinity protein complex"

Chair: Elisar Barbar

Michele Vendruscolo

Department of Chemistry, University
of Cambridge, UK

Thursday, August 31, 2017

10:40 - 11:10

"Principles of protein structural ensemble determination"

Chair: Sandra Macedo Ribeiro

Monday, August 28, 2017

16:00 - 19:00	<i>Registration</i>	<i>Foyer 1st Level</i>
17:00 - 18:00	Core Group Meeting	Yasmin IV
19:00	Welcome Party	Hotel restaurant

Tuesday, August 29, 2017

8:00 - 9:00	<i>Registration</i>	<i>Foyer 1st Level</i>
9:00 - 9:05	Welcome Address	Yasmin I
9:05 - 9:20	Welcome Address NGP-Net Chair Silvio Tosatto	Yasmin I
9:20 - 9:50	Ylva Ivarsson Discovery of short linear motif-mediated interactions through phage display of intrinsically disordered regions of the human proteome	Yasmin I
9:50 - 10:10	Matteo Lambrughì At the cross-road between structured and disordered binding motifs: the Ubiquitin interacting motives	Yasmin I
10:10 - 10:30	Barbara Zambelli The relationship between folding and activity in UreG, an intrinsically disordered enzyme	Yasmin I
10:30 - 11:00	<i>Coffee Break</i>	
11:00 - 11:30	Lucia B. Chemes Evolution and function of disordered regions and linear motifs in viral proteomes	Yasmin I
11:30 - 11:50	Dana Reichmann Cross-talk between redox regulation and protein homeostasis	Yasmin I
11:50 - 12:20	Flash Presentations	Yasmin I
12:20 - 14:00	<i>Lunch</i>	
14:00 - 15:00	Poster Presentations (<i>odd numbers</i>)	Yasmin II

15:00 - 15:30	Mart Loog	Yasmin I
	Disordered CDK substrates act as multi-input signal processors to control the key decision points in the cell cycle	
15:30 - 15:50	Aleksandra Gruca	Yasmin I
	Comparison of methods for searching for similar protein sequences in the case of low complexity regions	
15:50 - 16:10	Jurij Lah	Yasmin I
	The thermodynamic origin of fuzzy interaction between intrinsically disordered antitoxin and ordered toxin	
16:10 - 16:40	<i>Coffee Break</i>	
16:40 - 17:10	Ora Schueler-Furman	Yasmin I
	Accurate structural modeling of peptide-protein interactions using Rosetta FlexPepDock	
17:10 - 17:30	Andrei N. Lupas	Yasmin I
	Amplification of subdomain-sized fragments in the genesis of new, non-globular folded proteins	
17:30 - 17:50	Urartu Seker	Yasmin I
	Engineered Bacterial Functional Amyloids	
18:45	Social Program (See page 22 for details)	

Wednesday, August 30, 2017

9:00 - 9:30	Louise Serpell Understanding amyloid: from structure to function	Yasmin I
9:30 - 9:50	Rafayel A. Azizyan Establishment of constraints on amyloid formation imposed by steric exclusion of globular domains	Yasmin I
9:50 - 10:10	Annika Urbanek A novel approach to enable the structural and dynamics characterisation of homorepeat proteins	Yasmin I
10:10 - 10:40	<i>Coffee Break</i>	
10:40 - 11:10	Elisar Barbar Multivalency in Transcriptional Regulation of the Hub Protein LC8	Yasmin I
11:10 - 11:30	Nevena Veljkovic Intrinsically disordered proteins protein-protein interaction prediction method based on various sequence representations	Yasmin I
11:30 - 11:50	Norman Davey Generation of a framework for community-sourced curation of experimentally validated functional modules in intrinsically disordered regions	Yasmin I
11:50 - 12:20	Flash Presentations	Yasmin I
12:20 - 14:00	<i>Lunch</i>	
14:00 - 15:00	Poster Presentations (<i>even numbers</i>)	Yasmin II

15:00 - 15:30	Jennifer R. Potts Repetitive bacterial surface proteins	Yasmin I
15:30 - 15:50	Andreas Plueckthun Armadillo Repeat Protein: From their evolution to their engineering	Yasmin I
15:50 - 16:10	Lisanna Paladin Evolution of repeat proteins by exon duplication	Yasmin I
16:10 - 16:40	<i>Coffee Break</i>	
16:40 - 17:00	Miguel Andrade Study of amino acid biased regions in proteins	Yasmin I
17:00 - 17:20	Aitziber L. Cortajarena Repeat proteins: scaffolds for artificial bioelectronics materials	Yasmin I
17:20 - 17:40	Vasilis J. Promponas A heuristic implementation of the CAST algorithm for detecting compositional bias in protein sequences	Yasmin I
18:15	Social Program (See page 22 for details)	

Thursday, August 31, 2017

9:00 - 9:30	Benjamin Schuler Binding without folding: Extreme disorder and dynamics in a high-affinity protein complex	Yasmin I
9:30 - 9:50	Vytautas Smirnovas Seeding barrier between hamster and human prion protein amyloid-like fibrils	Yasmin I
9:50 - 10:10	Alexandra Silva Molecular tools to tackle protein aggregation in Machado-Joseph disease	Yasmin I
10:10 - 10:40	<i>Coffee Break</i>	
10:40 - 11:10	Michele Vendruscolo Principles of protein structural ensemble determination	Yasmin I
11:10 - 11:30	Zuzana Gazova Interference of small molecules with amyloid aggregation of Abeta peptide: structure - activity relationship	Yasmin I
11:30 - 11:50	Rostislav Skrabana DC8E8 inhibits disordered tau protein oligomerization by a combination of pi-electron interaction, flexible recognition and steric hindrance	Yasmin I
11:50 - 12:20	Flash Presentations	Yasmin I
12:20 - 14:30	<i>Lunch</i>	

14:30 - 16:30	WG Meetings	Yasmin I - IV
16:30 - 17:00	<i>Coffee Break</i>	
17:00 - 17:30	WG Leaders Meeting	Yasmin III
18:30	Dinner in hotel restaurant	

Friday, September 1, 2017

9:00 - 10:40	MC Meeting	Yasmin I
10:10 - 10:40	<i>Coffee Break</i>	
10:40 - 13:00	MC Meeting	Yasmin I

Flash Presentations

Tuesday - August 29, 2017

Milana GRBIĆ - *Partitioning biological networks in k-plex subnetworks with maximum edge weights* (P01)

Walter BASILE - *High GC Content Causes Orphan Proteins to be Intrinsically Disordered* (P05)

Ondrej CEHLAR - *The conformation of proline rich segment of neuronal protein tau studied by the X-ray crystallography, molecular dynamics simulations and biophysical methods* (P06)

Alessandra GASPARINI - *Unraveling TANC2-CDKL5-PP1 interactions: intrinsically disordered regions mediating novel pathways in neurodevelopment* (P07)

San HADŽI - *Intrinsically disordered protein induces unusual β -strand dynamics in the ribosomal mRNAse* (P08)

Petri KURSULA - *Molecular flexibility of myelin proteins enables tight packing of lipid multilayers* (P09)

Wednesday - August 30, 2017

Katerina MELKOVA - *Study of domain interactions of intrinsically disordered Microtubule-Associated Protein 2c (MAP2c) with its binding partners via computational methods and nuclear magnetic resonance* (P11)

Alexander Miguel MONZON - *Homology modeling in a dynamical world*

Dariusz PLEWCZYNSKI - *The role of CTCF and cohesin complex in chromatin looping and higher-order organization of Human genome* (P20)

Spencer BLIVEN - *Phylogenetics of Tandem Repeats with Circular HMMs: A Case Study on Armadillo Repeat Proteins* (P26)

Dirk LINKE - *The repeat structure of two paralogous invasin genes from *Yersinia ruckeri* sheds light on the evolution of adhesive capacities of a fish pathogen* (P28)

Matthew MERSKI - *Analysis of the Relationships in the Repeat Regions of RAP Domain-Containing Proteins* (P29)

Thursday - August 31, 2017

Anna MORATÓ - *An efficient cell-free strategy to produce stable huntingtin for structural studies* (P30)

Michal NEMERGUT - *Calorimetric study of interaction between DARPIn and maltose binding protein* (P31)

Michal BURDUKIEWICZ - *Challenges in the computational prediction of peptide amyloidogenicity* (P34)

Fátima HERRANZ-TRILLO - *Objective Structural Analysis of Multicomponent Amyloid Systems by Chemometric SAXS Data Decomposition* (P38)

Malgorzata KOTULSKA - *Modeling motifs and transmembrane properties of amyloid proteins* (P39)

Poster Presentations - Tuesday, August 29, 2017

- P01** GRBIĆ M. et al., Partitioning biological networks in k -plex subnetworks with maximum edge weights
- P03** PUNTA M. et al., Novel examples of long conserved intrinsically disordered regions
- P05** BASILE W. et al., High GC content causes orphan proteins to be intrinsically disordered
- P07** GASPARINI A. et al., Unraveling TANC2-CDKL5-PP1 interactions: intrinsically disordered regions mediating novel pathways in neurodevelopment
- P09** KURSULA P. et al., Molecular flexibility of myelin proteins enables tight packing of lipid multilayers
- P11** MELKOVÁ K. et al., Study of domain interactions of intrinsically disordered Microtubule-Associated Protein 2c (MAP2c) with its binding partners via computational methods and nuclear magnetic resonance
- P13** MONZON A. M. et al., Conformational diversity and disorder transitions reveals adaptations in different kingdoms
- P15** NECCI M. et al., Coloring protein darkness
- P17** GLAVINA J. et al., Identification of intrinsically disordered regions and linear motif mimicry across Flavivirus proteomes
- P19** MARCHETTI J. et al., Assessing structural constraints in intrinsically disordered proteins using evolutionary methods
- P21** RIMON O. et al., Insights into (Un)structure-Function Relationships from the Conditionally Disordered Chaperone Hsp33
- P23** VRANKEN W. et al., Capturing the ambiguous behaviour of proteins from sequence-based predictions
- P25** ŽÍDEK L. et al., Probing role of electrostatic interactions in formations of transient structures of intrinsically disordered C-terminal domain of delta subunit of RNA polymerase from Gram-positive bacteria
- P27** DEMIRCI T. et al., The relationship between the store-operated calcium entry and the optic nerve damage; an electron microscopic study

- P29** MERSKI M. et al., Analysis of the Relationships in the Repeat Regions of RAP Domain-Containing Proteins
- P31** NEMERGUT M. et al., Calorimetric study of interaction between DARPIn and maltose binding protein
- P33** BEDNARIKOVA Z. et al., Destroying effect of extracts from traditional Chinese herbs on A β 42 amyloid fibrils
- P35** CRISTÓVÃO J. S. et al., Neuronal S100B protein in Alzheimer's disease
- P37** GALZITSKAYA O. V. et al., Oligomers are building blocks for fibril formation of fragments of the Alzheimer's disease A β peptide
- P39** KOTULSKA M. et al., Modeling motifs and transmembrane properties of amyloid proteins
- P41** SKRETAS G. et al., Molecular evolution of macrocyclic rescuers of disease-associated protein misfolding

Poster Presentations - Tuesday, August 29, 2017

- P02** HIRSH L. et al., Conformational ensembles inside alpha-solenoids proteins
- P04** ARAMIN S. et al., Redox-regulation and chaperone function of the Hsp33 homologue in *T. Brucei*
- P06** CEHLÁR O. et al., The conformation of proline rich segment of neuronal protein tau studied by the X-ray crystallography, molecular dynamics simulations and biophysical methods
- P08** HADŽI S. et al., Intrinsically disordered protein induces unusual b-strand dynamics in the ribosomal mRNAse
- P10** LONGHI S. et al., Partner-mediated polymorphism of an intrinsically disordered protein
- P12** MESIKA R. et al., Exploring functional plasticity of protein proteostasis network in bacteria using in-vivo cross linking coupled with mass spectrometry
- P14** MONZON A. M. et al., Homology modeling in a dynamical world

- P16** PALOPOLI N. et al., Analysis of cell-cycle regulatory linear motifs bound by the pRb retinoblastoma tumor suppressor
- P18** PARISI G. et al., Conformational properties of Short Linear Motifs
- P20** PLEWCZYNSKI D. et al., The role of CTCF and cohesin complex in chromatin looping and higher-order organization of Human genome
- P22** SORA V. et al., The structural landscape of two new disordered BH3-like proteins and their interaction with the Bcl-2 family members
- P24** ZAPLETAL V. et al., Conformational study on binding domains of the intrinsically disordered protein MAP2c (microtubule-associated protein 2c)
- P26** BLIVEN S. et al., Phylogenetics of Tandem Repeats with Circular HMMs: A Case Study on Armadillo Repeat Proteins
- P28** LINKE D. et al., The repeat structure of two paralogous invasin genes from *Yersinia ruckeri* sheds light on the evolution of adhesive capacities of a fish pathogen
- P30** MORATÓ A. et al., An efficient cell-free strategy to produce stable huntingtin for structural studies
- P32** PEROVIC V. et al., Improving a machine-learning approach for determination of genuine tandem repetitive sequences with enclosure of Fourier-based features
- P34** BURDUKIEWICZ M. et al., Challenges in the computational prediction of peptide amyloidogenicity
- P36** FRIDMANIS J. et al., Solid-state NMR structural studies of peptide induced prion protein aggregates
- P38** HERRANZ-TRILLO F. et al., Objective Structural Analysis of Multicomponent Amyloid Systems by Chemometric SAXS Data Decomposition
- P40** ROMÃO M. A. et al., Impact of S100 protein multimers in zinc homeostasis in Alzheimer's disease mice models
- P42** ULICNA K. et al., Tacrine derivatives vs. amyloid aggregation of A β peptide

Welcome Party - Monday, August 28, 2017 | 19:00

The Welcome Party will be held in the restaurant at Ground Floor of the hotel. Everybody is invited to drinks and snacks.

Slovak Night - Tuesday, August 29, 2017 | 18:45

The dinner in Slovak style will take place at the "Letná záhradka" restaurant. A dinner buffet with traditional Slovak food and drinks will be offered. We would like to point out that Slovak cuisine is very meat-oriented, but also vegetarian meal will be served.

Meeting point: main entrance of the hotel (bus transport to and from the reception)

City Tour and Congress Dinner - Wednesday, August, 30, 2017 | 18:15

Enjoy a walking tour through the inner city and learn about Košice's history. The tour will be given in English. The conference dinner will take place at the "Stará Sýpka" restaurant after guided City Tour. A dinner buffet and drinks will be offered.

Meeting point: main entrance of the hotel

General Information

Venue

Hotel Yasmin****
Tyrsovo nabrezie 1
040 01 Kosice

Registration

Registration is possible at the registration desk, which is located in the foyer of the 1st level.

Opening hours:	Monday, August 28, 2017	16:00 - 19:00
	Tuesday, August 29, 2017	8:00 - 9:00

Badge

Attendants receive a name badge which allows entrance to the congress. All participants are asked to wear their badge at all time.

Certificate of Attendance

A certificate of Attendance will be provided at registration.

Catering

Coffee Break: Coffee and tea with small snacks will be offered.

Lunch Break: A lunch buffet with warm meals will be provided in hotel restaurant starting at 12:20. Vegetarian options will be available.

Water will be available throughout the symposium.

Additional food and beverages can be purchased at the restaurant of the hotel.

Internet Access

Free WiFi access will be provided during the symposium.

Transportation

Taxis can be found at the parking lot close to the hotel.

Parking is possible at the underground garage and parking lot in front of hotel.

Public transport: The closest bus station is "Mlynská Bašta". Tickets can be purchased at the ticket machines at the bus stop or in the bus (price single journey: € 0.60/ 1.00 (in the bus)).

Currency

Currency in Slovakia is EURO.

Eating and drinking

Tap water is drinkable. Hotel Yasmin is located close to several restaurants, coffee shops and food outlets 5 minutes from city center on foot.

Electricity

Slovak electrical standards are 50Hz, 230 volts. Check here, if you need power plug adapter <http://www.power-plugs-sockets.com/slovakia/>

Emergency services

Dial 112 for police, fire and ambulance.

Slovakia's second largest city, Kosice, is also one of the oldest towns in Slovakia. It is situated in the eastern part of the country and lies at the place where the river Hornad emerges from its picturesque wooded valley and flows into an extensive plain. Kosice is characterized by its historic flair and the numerous cultural sights. Yet, Kosice is a modern and vibrant city with short walking distances and cutting edge industrial sector. Find more about our beautiful city at the official webpages:

<http://www.visitkosice.eu/en>

<http://www.kosice.sk/index.php>





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