

Program

Saturday 22nd

- 13:00 – 16:00 Registration
- 16:00 – 17:00 Opening Ceremony
- 17:00 – 17:45 Opening Lecture
David A. Warrell. University of Oxford, Oxford, United Kingdom.
Snake-bite clinical aspects: challenges and opportunities.
- 18:00 – 21:00 Welcome Reception

Sunday 23rd

- 8:30 – 9:00 Registration
- Session 1:** Omics (Venomics & Proteomics)
Chairs: David Warrell & Juan J. Calvete
- 9:00 – 9:45 **Plenary 1**
Juan J. Calvete. Instituto de Biomedicina de Valencia, CSIC, Valencia, Spain.
Toxin-resolved venom proteomes: a challenge in evolutionary and translational venomics
- 9:55 – 10:20 **Eivind A. Undheim.** University of Queensland, Brisbane, Australia.
Mass spectrometry imaging as a tool for providing a better understanding of venom biology.
- 10:25 – 10:50 **Yuri Utkin.** Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry of the Russian Academy of Sciences, Moscow, Russian Federation.
Three Finger Toxins: Recent Findings
- 11:00 – 11:30 Coffee break
- Session 2:** Natural History and Evolution of venom/toxins
Chairs: Zara Karabekyan & Dietrich Mebs
- 11:30 – 11:55 **Dietrich Mebs.** Institute of Legal Medicine, University of Frankfurt, Germany.
Tetrodotoxin in newts - Endogenous or exogenous origin?
- 12:00 – 12:25 **Dušan Kordiš.** University of Ljubljana, Ljubljana, Slovenia.
The impact of site-specific positive selection on the structurally and functionally important parts of the snake venom Kunitz/BPTI protein family

- 12:30 – 12:45 Elena Leychenko. Elyakov Pacific Institute of Bioorganic Chemistry, Vladivostok, Russian Federation.
Pore-Forming Toxins from Sea Anemone Heteractis crispa: Diversity and Pharmacological Potential
- 12:45 – 13:00 Hiroki Shibata. Kyushu University, Fukuoka, Japan.
Whole genome sequencing of a Japanese endemic pit viper, habu, Protobothrops flavoviridis reveals accelerated evolution of venom protein genes enriched in microchromosomal regions
- 13:00 – 15:00 Lunch break
- 15:00 – 16:00 Poster view

Session 3: Clinical aspects of snakebites
Chairs: Jeorg Blessman & Julian White

- 16:00 – 16:45 **Plenary 2**
Julian White. Women's & Children's Hospital, Adelaide, Australia.
The Myanmar Snakebite Project; an initial analysis of 3880 cases of snakebite.
- 16:55 – 17: 20 **Jeorg Blessmann.** Bernhard Nocht Institute for Tropical Medicine, Hamburg, Germany.
Incidence of snakebites and medically relevant snakes indifferent regions in Laos and Vietnam
- 17:25 – 17:40 Chabilal Thapa Magar. Kaligandaki Hospital, Kawasoti, Nepal.
Snakebite and antivenom management in Nepal
- 17:40 – 17:55 Wen-guey WU. National Tsing Hua University, Hsinchu, Taiwan.
Understanding the local tissue necrosis of the bitten victim from cobra snakebite
- 18:00 – 18:30 Coffee break
- 18:30 – 18:45 Narumi Shioi Aoki. Fukuoka University, Fukuoka, Japan.
Rational design and development of anti-venom drugs for snakebites based on the endogenous inhibitors from Japanese Viper
- 18:45 – 19:00 Hossein Vatanpour. Shahid Beheshti University of Med. Sciences, Tehran, Iran.
Involvement of Necroptosis and Ferroptosis pathway signaling in Hemiscorpius lepturus venom -induced acute kidney injury

Monday 24th

8:30 – 9:00 Registration

Session 4: Toxins and Drug Desing
Chairs: Igor Krizaj & Alan Harvey

- 9:00 – 9:45 **Plenary 3**
Alan Harvey. University of Strathclyde, Glasgow, United Kingdom.
Improving the transition from toxins to medicines
- 9:55 – 10:20 **Maria P. Ikonomopoulou.** Berghofer Medical Research Institute, Herston, Australia.
Gomesin inhibits melanoma growth by manipulating key signaling cascades that control cell death and proliferation
- 10:25 – 10:50 **Igor Križaj.** Jožef Stefan Institute, Ljubljana, Slovenia.
The first intrinsic tenase complex inhibitor with serine protease structure offers a new perspective in anticoagulant therapy
- 11:00 – 11:30 Coffee break
- Session 4:** Toxins and Drug Design
Chairs: *Oliver Dolly & Yuri Utkin*
- 11:30 – 11:55 **Manjunatha Kini.** National University of Singapore, Singapore
Subtle substitutions in toxins: Design of natriuretic peptide analogues for personalized care of heart failure patients
- 12:00 – 12:25 **Oliver Dolly.** Dublin City University, Dublin, Ireland.
Molecular actions underlying the biomedical applications of recombinant variants of botulinum neurotoxins
- 12:30 – 12:45 Dibakar Chakrabarty. BITS Pilani, Goa, India.
*Purification and Partial Characterization of AIP1: a novel protein from Sea-Star (*Astropecten indicus*) Coelomic Fluid*
- 12:45 – 13:00 Narine Ghazaryan. Orbeli Institute of Physiology of NAS, Yerevan, Armenia.
*Expression of vascular endothelial growth factor in S-180 sarcoma-bearing mice after treatment with obtustatin and *Macrovipera lebetina obtusa* snake venom*
- 13:00 – 15:00 Lunch break
15:00 – 16:00 Poster view
- Session 5:** Antivenom: Innovations and Market **Sponsored by BIOCLON**
Chairs: *Beata Halassy & Andreas Laustsen*
- 16:00 – 16:45 **Plenary 4**
John McCafferty. IONTAS Ltd., University of Cambridge, Cambridge, UK.
The potential of recombinant antibody technology in venom therapeutics
- 16:55 – 17: 20 **Andreas H. Laustsen.** Technical University of Denmark, Kongens Lyngby,

Denmark
Cocktails of human monoclonal IgG antibodies capable of neutralizing dendrotoxin-mediated neurotoxicity of black mamba venom in vivo

17:25 – 17:50 **Beata Halassy.** University of Zagreb, Zagreb, Croatia.
Challenges in antivenom downstream processing efficiency estimation

18:00 – 18:30 Coffee break

18:30 – 18:45 Alejandro Alagon. Universidad Nacional Autónoma de México, Cuernavaca, México
Development of an Antivenom for Vipera and Macrovipera Bites of Western and Eastern Europe

18:45 – 19:00 Tihana Kurtovic. University of Zagreb, Zagreb, Croatia.
Equine F(ab')₂-based antivenom preparation by simultaneous caprylic acid fractionation and pepsin digestion

19:00 – 21:00 *Cheese & Wine Party*

Tuesday 25th

9:00 – 9:45 **Plenary 5 Chair: Alexander Vassilevski**
Yan Tytgat. University of Leuven (KU Leuven), Leuven, Belgium.
Venom components with insecticidal activity found in major animal phyla.

Session 6: North American Society of Toxinology

Sponsored by NAST

Chairs: Naira Ayvazyan & Carl-Wilhelm Vogel

9:55 – 10:20 **Carl-Wilhelm Vogel.** University of Hawaii at Manoa, Honolulu, Hawaii.
Cobra Venom Factor: A Lead Venom Component for the Development of a Biologic for the Treatment of Complement-mediated Diseases

10:25 – 10:50 **Leslie Boyer.** University of Arizona, Tucson, Arizona, USA.
*Combined animal and human data in support of effectiveness of antivenom against *M. fulvius* neurotoxicity*

11:00 – 11:30 Coffee break

11:30 – 11:55 **Elda Sánchez.** Texas A&M University-Kingsville, Kingsville, Texas, USA.
The Neutralization of Snake Venom Metalloproteases using a novel disintegrin antibody

12:00 – 12:25 **Craig A. Doupnik.** University of South Florida College of Medicine,

Tampa, Florida, USA

Validation of computational models for tertiapin-blocked neuronal Kir3.2 channels

- 12:30 – 12:45 Montamas Suntravat. Texas A&M University-Kingsville, Kingsville, Texas, USA.
The acute effects of snake venom CRiSP toxins on blood and lymphatic endothelial cell permeability: new insights into the pathophysiology of snakebite
- 12:45 – 13:00 Jacob Galan. Texas A&M University-Kingsville, Kingsville, Texas, USA.
Novel Applications for Snake Venom Disintegrins
- 13:00 – 15:00 Lunch break
- 15:00 – 16:00 Poster view
- 16:00 – 18:00 Students Short Talks**

Harry F. Williams. School of Pharmacy, University of Reading, Reading, UK.
Mechanisms underpinning the permanent muscle damage induced by snake venom metalloprotease.

Norival Alves Santos-Filho. Universidade Estadual Paulista, Araraquara, SP, Brazil.
Study on the mechanism of antibacterial action of the peptides p-BthTX-I and its Disulfide-Linked Dimer (p-BthTX-I)₂

Aleksandra Kvetkina. Elyakov Pacific Institute of Bioorganic Chemistry, Vladivostok, Russian Federation.
*New Kunitz-peptide of *Heteractis crispa* with a propeptide in the precursor structure interacts with serine proteases and exhibit neuroprotective activity*

Cecilie Knudsen. Technical University of Denmark, Lyngby, Denmark.
Harnessing human monoclonal antibodies for neutralisation of dendrotoxins in a murine Model

Rahini Ragavan. Faculty of Medicine, Nursing and Health Sciences, Monash University, Australia.
*Cardiovascular collapse induced by *Echis ocellatus* venom: an in vivo and in vitro Examination*

Armine Isoyan. Neuroendocrine Relationships Lab, Orbeli Institute of Physiology, Yerevan, Armenia
*Assessment of toxicity of hydroponics *Stevia rebaudiana* Bertoni: Biochemical approaches*

Jessica Matos Kleiz Ferreira. Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil
*Brazilian *Bothrops diporus*, in fact a lineage of *Bothrops pubescens*: Mitogenomic, Venomic and Ontogenetic studies*

Shelby Szteiter. Texas A&M University-Kingsville, Kingsville, Texas, USA.
C-type lectin, hellerectin, negatively regulates melanoma cell adhesion and increases permeability

Sergey Kozlovskii. Elyakov Pacific Institute of Bioorganic Chemistry, Vladivostok, Russian Federation.
*Venom of Jellyfish *Gonionemus Vertens* Contains Components against Various Types of Cellular Receptors*

Lilia Parsegyan. Orbeli Institute of Physiology of NAS RA, Yerevan, Armenia.

Snake's and arthropod's venom-induced pain-like behavior

Ana Cristina Nogueira Freitas. Universidade Federal de Minas Gerais, Belo Horizonte, Brazil
Antinociceptive effect induced by a PnPP-19 derivative: new insights into venom peptides targeting opioid receptors

Latifeh Karimzadeh. Faculty of Biological Sciences, Kharazmi University, Tehran, Iran.
Honey Apis Mellifera Bee Venom Modulate Ovarian Hyperstimulation Syndrome by Altering Expression of Vascular Factors

Karen Simonyan. Neuroendocrine Relationships Lab, Orbeli Institute of Physiology, Yerevan, Armenia
Effect of hydroponic Teucrium polium in ovariectomized rats

Steve Peigneur. University of Leuven (KU Leuven), Leuven, Belgium.
Phoneutrianigriventer spider toxin PnTx2-1 (δ -Ctenitoxin-Pn1a) is a modulator of sodium channel gating

18:00 – 18:30 Coffee break

18:30 – 19:30 IST Council Meeting

Wednesday 26th

Session 7: Toxins as Biochemical Tools

Chairs: Grazyna Faure & Yehu Moran

9:00 – 9:45

Plenary 6

Yehu Moran. Hebrew University of Jerusalem, Jerusalem, Israel.
Applying systems biology and genomic manipulation approaches for characterizing the dynamics and complexity of venom production in a cnidarian

9:55 – 10:20

Alexander Vassilevski. Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry of the Russian Academy of Sciences, Moscow, Russian Federation.
Mechanism of Glutamate Receptor Block by Acylpolyamines

10:25 – 10:50

Sulan Luo. Hainan University, Haikou Hainan, China.
 α -Conotoxin TxID and its Mutants Targeting $\alpha 3\beta 4$ nAChR Subtype

11:00 – 11:30

Coffee break

Session 8: Toxins as Pharmacological Tools

Chairs: Leslie Boyer & Narine Sarvazyan

11:30 – 11:55

Grazyna Faure. Institut Pasteur, Paris, France.
Snake venom PLA₂ as a ligand and modulator of various protein targets (hCFTR, hFXa, nAChR): mechanism of action and therapeutic potential

- 12:00 – 12:25 **Zara Karabekyan.** Orbeli Institute of Physiology of NAS, Yerevan, Armenia.
Effects of MLO crude venom, PLA2 and metalloproteinases enzymes on cardiac cells.
- 12:30 – 12:45 Zakhar Shenkarev. Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry of the Russian Academy of Sciences, Moscow, Russian Federation.
Interaction of gating modifier toxin Hm-3 with voltage-sensing domains of Nav1.4 sodium channel: structural view on the membrane-mediated binding
- 12:45 – 13:00 Igor Kasheverov. Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry of the Russian Academy of Sciences, Moscow, Russian Federation.
Cholinergic ligands from different sources as research tools and potential drugs
- 13:00 – 15:00 Lunch break
15:00 – 16:00 IST Business Meeting

Session 9: Toxins as Biochemical Tools (Continuation)

Chairs: Saak Ovsepiyan & Ray Norton

- 16:00 – 16:25 **Raymond S. Norton.** Monash University, Parkville, Australia.
Sea anemone peptides: therapeutic leads, pharmacological tools and new folds
- 16:30 – 16:55 Saak Ovsepiyan. Technical University Munich, Munich, Germany.
Detoxified Tetanus Toxin (TETIM) – A Superb Nano-Carrier for Retro-axonal Gene Delivery to Motor Neurons in Bypass of Blood Brain Barriers
- 17:00 – 17:15 Irina Gladkikh. Elyakov Pacific Institute of Bioorganic Chemistry, Vladivostok, Russian Federation.
Sea anemone Heteractis crispa produces a pool of peptides active on ASIC channels
- 17:15 – 17:30 Armen Voskanyan, Orbeli Institute of Physiology of NAS, Yerevan, Armenia.
Toxicity and microglia activity in murine induced by Macrovipera lebetina obtusa venom with inhibited enzymatic activity
- 17:30 – 18:00 Coffee break
- 18:00 – 18:25 **Closing lecture**
Julian White. Women's & Children's Hospital, Adelaide, Australia.
Development of an "app" to assist management of mushroom poisoning
- 18:30 – 19:00 Closing Ceremony
- 20:00 Congress Dinner**