



HESI PATB Protein Toxins Workshop:
From Protein Toxins to Applied Toxicological Testing
October 21st -23rd, 2020
(online event)

Event description:

This meeting is organized by the **HESI Proteins, Allergens, Toxins, and Bioinformatics (PATB) committee** and **Food Safety Specialty Section (FSSS) of the Society of Toxicology (SOT)**. It will be hosted via webinar following a 4-hour (9am-1pm EST) / day schedule each day to accommodate for all participating time-zones.

HESI is a non-profit institution whose mission is to collaboratively identify and help to resolve global health and environmental challenges around risk assessment and safety through the engagement of scientists from academia, government, industry, NGOs, and other strategic partners. The **HESI PATB Committee** is dedicated to advancing the scientific understanding of the relevant parameters defining allergenic proteins and protein toxins, to help establish scientifically sound methodologies for evaluating the potential allergenicity and/or the potential toxicity of novel proteins in the context of safety assessments of novel foods and feeds. Within PATB, the **Protein Toxins Task Force** has been established with the objective to address the later component of PATB's mission.

The Food Safety Specialty Section (FSSS) is a specialty group within the Society of Toxicology; it was formed in March, 1993 to provide a forum for the interaction of toxicologists and other professionals involved in food safety. The purpose of this specialty section is to provide a vehicle where state-of-art research involving food safety and regulations can be communicated and to serve as a scientific resource for critical issues involving food safety.

Topics to be covered in this workshop will include the state of the science of protein toxins biology (MOAs, structures, activity). Additionally, we will cover the bioinformatics analysis of protein toxins and how to leverage computational biology for protein toxins identification/characterization, with *in silico* approaches. The Protein Toxins workshop has a dual purpose of learning from the experts in the field about the state of the science as well as assessing the translation of knowledge to practical applications, *e.g.*, into weight-of-evidence approaches for the safety assessment of biotechnology products. We aim to gain insight into the value, applicability, and limitations of existing protein toxin databases and *in silico* tools for risk assessment/product development. This meeting will serve as an informational platform to demonstrate the advances in protein toxins research, presented by international experts¹ and inform the development of novel approaches for the identification and classification of potential toxicity risk in novel proteins.

A workshop program outline is listed in the next pages. The first two days of the event will be open to the global scientific community and will bring together experts from the academic, regulatory and industry sectors. The third day will be by invitation only, also with global representation of academic,

¹ experts were selected based on a literature search of relevant publications in the field as well as authors most frequently cited in the animal toxins project www.uniprot.org/biocuration_project/Toxins and [VenomZone \(https://venomzone.expasy.org/\)](https://venomzone.expasy.org/) databases.



regulatory and industry experts (speakers, PATB members, co-organizers - members of the SOT Food Safety Specialty Section - and representatives from public agencies) to convene on a smaller setting and promote interactive focused discussions.

Links to the event page and registration are available on the HESI PATB webpage:
<https://hesiglobal.org/protein-allergens-toxins-and-bioinformatics-committee-patb/>.

Final Program

DAY 1 (Public Event; registration required)

Session Chairs: Dr. Emir Islamovic (BASF & PATB Committee Co-Chair); Dr. Ray Matulka (Burdock Group Consultants & SOT member)

Opening Session

9:00 am **Welcome & Opening Remarks** (Dr. Lucilia Mouriès, HESI; and Session Chairs)

9:15 am **Context and Background Presentations: *From Protein Toxins to Biotechnology Products***
(PATB members / SOT FSSS speakers)

- “Regulatory Approvals for Biotechnology Products”, *Dr. Laura Privalle (BASF; PATB Protein Toxins Task Force Member)*
- “Allergen and Toxin Databases”, *Dr. Andre Silvanovich (Bayer, PATB Committee member)*
- “Essential components of a regulatory safety assessment for a protein based, novel food ingredient”, *Dr. Ray Matulka (Burdock Group Consultants, SOT member)*

10:45 **Break**

Keynote Presentation: (11:00 am – 12:00 pm EST)

11:00 am **Prof. Karla Fullner Satchell** (Northwestern University, USA): Overview of protein toxins biology & the Vibrio MARTX toxins.

12:00 pm **Session-wide Q&A – discussion.**

1:00 pm **Adjourn Day-1**



DAY 2 (Public Event; registration required)

Day-2 Session: [Bioinformatics & Computational Biology in Protein Toxins Research](#)

Session Chairs: *Dr. Colton Kessenich (Bayer; PATB, Protein Toxins Task Force); Dr. Mansi Krishan (BD; Immediate Past President, SOT Food Safety Specialty Section 2020-2021)*

- 09:00 am** Opening Introductory Remarks from Session Chairs
- 09:10 am** "Protein toxins: overview of databases and other resources". *Dr. Florence Jungo (Swiss Institute of Bioinformatics / SwissProt, Switzerland)*
- 09:50 am** "Discovery of novel bacterial toxins through bioinformatic data mining". *Prof. Andrew Doxey (University of Waterloo, Canada)*
- 10:30 am Break (15 min.)*
- 10:45 am** "Insights into the EFSA protein risk assessment: *in silico* tools. Current regulatory approaches and future developments" *Dr. Anna Lanzoni (European Food Safety Agency, Italy)*
- 11:15 am** "Protein toxicity: an integrated *in silico* pipeline". *Dr. Luca Palazzolo (University of Milano, Italy)*
- 11:45 pm** Session-wide Q&A – discussion.
- 12:30 pm** Summary of Day-1 and Day-2.
- 1:00 pm** Adjourn.

As for all HESI events and scientific programs, this event has been planned to create an [open, peer-to-peer forum environment with a balanced public-private representation](#), where scientists from academia, government, industry, NGOs, and other strategic stakeholders in the field can come together to find solutions that improve health and environmental safety. *Should you know of other strategic partners not listed here and that should take part in these discussions, please contact HESI PATB Scientific Program Manager, Dr. Lucilia Mouriès: lmouries@hesiglobal.org.*



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