Dear IVAM Members,

Greetings and welcome to our spring newsletter. This past year has continued to be challenging for us all and we on the IVAM Executive Committee sincerely hope that you and your families are doing well.

In spite of the on-going pandemic, IVAM has had another productive year, highlights of which include:

In conjunction with the 2021 SOT Virtual Meeting, IVAM hosted a virtual reception and awards ceremony on March 17, 2021. We sponsored and/or co-sponsored several webinars in 2021. A joint webinar was held in May 2021 with the Computational Toxicology Specialty Section on the State of the Science: QSAR Modeling of Skin Sensitization. In addition, the 2021 IVAM Graduate Student and Postdoctoral awardees presented their research at a webinar in September 2021. IVAM also hosted a webinar on Inhalation Toxicity: In Vitro to Human Risk Assessment in January 2022. These webinars were timely, interesting, and well-attended. If you missed them, slides and recordings are available here. IVAM is looking forward to sponsoring a virtual mentoring and networking event, planned for April this year. Be on the lookout for details to be shared soon with our members. We also have a few additional webinars being planned for 2022, but ideas for engaging topics are always welcome; please feel free to reach out to a member of the IVAM EC if you have an idea for an IVAM webinar.

This newsletter contains information on IVAM membership, SOT activities, an expert column, member spotlight, plus information specific to IVAM postdoctoral and graduate student members.

Please check out the IVAM LinkedIn for additional communications about the specialty section. We hope you will connect with us there!

At the 2022 SOT Annual Meeting, we are very excited to meet in-person once again and look forward to seeing everyone at the IVAM Reception on March 29th from 6:00-7:30PM PT.

Sincerely,

Sean Gehen, PhD, DABT

IVAMSS President, 2021-2022

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<th>2021-2022 IVAM Officers</th>
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IVAMSS Announcements

Membership Update

The IVAMSS was founded in 1994 and grew steadily until 2016 when membership peaked at 524. However, since then IVAM’s headcount has fallen by about 15%. We believe that this drop was due primarily to the creation of the Computational Toxicology Specialty Section in 2018. At the end of last year, IVAM had 442 members. Our members come from industry, academia, government, and consulting. Over half are Full Members and one sixth are International Members. The chart below provides a summary of IVAM’s membership.

2020-2021 Annual Report Highlights

The COVID 19 pandemic continued to be a challenge for us all in 2021; nevertheless, there were a variety of IVAM activities of note:

We reviewed 17 session proposals submitted in April 2021 for SOT’s 2022 Annual Meeting. Of these proposals, IVAM endorsed 15.

Over the last year, we sponsored three webinars:

1. Big Data and Toxicology – The future is Now on January 29, 2021. Speakers included Thomas Hartung, MD, PhD from the Center for Alternatives to Animal Testing at Johns Hopkins University and Thomas Luechtefeld, PhD from Insilica, LLC.

2. State of the Science: QSAR Modeling of Skin Sensitization on May 19, 2021. Speakers included Vinicius Alves, PhD from University of North Carolina, Chapel Hill, Emily Golden, MS from the Center for Alternatives to Animal Testing at Johns Hopkins University, and Glenn Myatt, PhD from Leadscope Inc. This event was co-sponsored with the Computational Toxicology Specialty Section.
3. Inhalation Toxicity: *In vitro* to Human Risk Assessment on January 27, 2022. Speakers included Dr. Shaun McCullough from the US EPA and Drs. Iris Muller & Maria Baltazar from Unilever.

**In March 2021, we had a Virtual Annual Meeting** during which the IVAM graduate student and postdoctoral award winners were announced. The winner of the Graduate Student Award was Dr. Alysha E. Simmons from Universite de Montreal, and the winner of the Postdoctoral Award was Dr. Saroj Kumar Amar from US Army Engineering Research and Development Center. The Best Poster Award winner was Dr. Alysha E. Simmons from the University of North Carolina, Chapel Hill. The Best Poster Award winner was Dr. Saroj Kumar Amar from US Army Engineering Research and Development Center. Award winners presented their research at a webinar in September 2021.

**Treasurer’s Report**

In March 2021, IVAMSS had a **net asset of $20,190**. As of December 2021, we have received **$11,295** in membership dues, interest, and contributions. After expenses for plaques, and graduate student and postdoctoral awards ($4,555), IVAMSS has a **net asset of $26,930**. Part of this financial success was due to lack of SOT annual meeting expense in 2020 and 2021.

**Welcome New IVAMSS Officers!**

The election results for 2022-2023 IVAMSS Officers have been finalized and we are proud to welcome five new people to the Executive Committee. Samantha Faber from Takeda Pharmaceuticals will join us as Vice President-Elect, Sebastian Hoffman from SEH consulting as Secretary/Treasurer, Lauren Lewis from Bristol Myers Squibb as Councillor, Melissa Martin from the US EPA as Postdoctoral Representative, and Lucie Ford from Texas A&M University as Graduate Student Representative. Congratulations to all the new officers!

**SOT 2022 Annual Meeting**

The SOT Annual Meeting will be held in San Diego, CA March 27-30th. If you still need to register: [online registration](#). Below please find a curated list of talks, posters, workshops, and activities that may be of interest to IVAMSS members. For the full meeting program, look [here](#).

**IVAMSS Reception**

The IVAMSS Reception will be held on March 29th, 2022, from 6:00-7:30PM PT at the Marriott Marquis San Diego Marina in Ballroom C. Hope to see everyone there!

**IVAMSS Relevant Activities**

Program legend: Continuing Education, Symposium/Platform Session, Workshop/Roundtable Session, Poster Session
**Student/Postdoc Interest**

**Sunday, March 27th**

- 8:15am – 12:00pm PT
  - AM01: Animal-Free Safety Assessment of Consumer Products and Ingredients: A Primer
  - AM06: Safety Evaluation Strategies in Drug Discovery: From Target Assessment to Identification of Drug Candidates

**Monday, March 28th**

- 9:15 am – 12:00pm PT
  - New Approach Methods for Functional Developmental Neurotoxicity
  - Leveraging Physiologically Based Pharmacokinetic (PBPK) Modeling for Refining Safety Assessment of Food, Drugs, and Chemicals under Data-Rich and Data-Poor Conditions
- 12:00 – 1:30pm PT
  - In Vitro Toxicology Lecture and Luncheon for Students: Studying Drug-Induced Cardiotoxicity is Complicated: How Human-Induced Pluripotent Stem Cells and In Vitro Biomarkers Helped Solve This Challenge
- 1:45 – 4:30pm PT
  - It Takes Guts: Exploring New Models and Modalities for Gastrointestinal Toxicity

**Tuesday, March 29th**

- 8:00 – 10:45am PT
  - Building the Toolbox: Three-Dimensional Tissue Constructs as Problem Solvers
- 11:00am – 12:20 PT
  - Cross-Species Extrapolation: Opportunities in a 21st-Century Regulatory Nonanimal Testing World
- 2:30 – 4:15pm PT
  - Nanotoxicology: In Vitro

**Wednesday, March 30th**

- 8:00 – 10:45am PT
  - Computational Toxicology Workflows for Prioritization and Safety Assessment of Environmentally Relevant Chemicals
  - Assay Gaps in the Developmental Neurotoxicity (DNT) New Approach Methodologies (NAMs) Battery for Human Health Risk Assessment
- 10:45am – 12:30pm PT
  - Liver II: In Vitro
- 11:00am – 12:20pm PT
  - Are Animal Studies Still the “Gold Standard” for Validating New Approach Methods?
- 1:30 – 4:15pm PT
  - Educating 21st-Century Toxicologists: Making In Vitro and In Silico Approaches Part of the Curriculum

**Thursday, March 31st**

- 8:30 – 11:15am PT
  - The Use of Alternative Methods to Assess Chemical Toxicity and Risk in Military and Aerospace Exposure Scenarios
IVAM Research


Burnett SD, Blanchette AD, Chiu WA, Rusyn I. **Cardiotoxicity hazard and risk characterization of ToxCast chemicals using human induced pluripotent stem cell-derived cardiomyocytes from multiple donors.** Chemical Research in Toxicology. DOI: [10.1021/acs.chemrestox.1c00203](https://doi.org/10.1021/acs.chemrestox.1c00203)


Green AJ, Mohlenkamp MJ, Das J, Chaudhari M, Truong L, Tanguay RL, Reif DM. **Leveraging high-throughput screening data, deep neural networks, and conditional generative adversarial networks to advance predictive toxicology.** PLOS Computational Biology. DOI: [10.1371/journal.pcbi.1009135](https://doi.org/10.1371/journal.pcbi.1009135)


Upcoming Webinars

“Meet The Experts” Mark your calendars for an IVAM-hosted virtual mentoring event for students, post-docs, and early-career scientists interested in a career related to in vitro and other alternative methods. After the hustle and bustle of the SOT meeting has died down, the IVAM Specialty Section invites you to a virtual small group networking opportunity with mid-career leaders in the in vitro and alternative methods fields. Mentors will be selected from a variety of affiliation types, backgrounds, and experiences in order to provide advice and answer questions about the diversity of opportunities available to students and early-career scientists with an interest in in vitro and alternative methods for toxicology.

Attendees will be invited to rotate between virtual breakout mentor rooms to encourage interaction with several mentors. Mentors will provide advice specifically related to skill development relevant to their particular position and sector. How should trainees prepare for careers in toxicology? What essential skills should trainees build? How can trainees gain computational experience? What lies beyond the bench? Come find out!

When: April 22, 2022; 12:00-2:00 ET (Pending)
Where: A registration link will be shared with the IVAM membership soon. The event will be held on Zoom Meeting to facilitate discussion.
Who: The webinar is open to any undergraduate or graduate students, postdocs, or other early career (7 years post-degree) attendees; it is not restricted to IVAM or SOT members.

Additional webinars are planned for later in 2022.

New initiative alert: The International Consortium to Advance Cross Species Extrapolation in Regulation (ICACSER)

Led by Carlie LaLone, US EPA, and Geoff Hodges, Unilever, the ICACSER is a broad international effort to engage interested stakeholders around the use of tools and databases for cross-species extrapolation, and to increase the uptake of these tools and the data from them into regulatory decision-making. This consortium brings together tool and database developers, researchers, forward-thinking decision-makers, and other stakeholders to advance and enhance mechanism-based and computational methods for use in chemical safety evaluations. Ideally, the application of species extrapolation tools will allow for application of chemical assessment data across a range of species where relevant, reduce the use of live animals in chemical evaluations, and help to improve the evaluation of chemicals and the protection of humans and wildlife.

As efforts to utilize data from all types of New Approach Methodologies (NAMs), including in vitro, in chemico, in silico, high-throughput, systems biology, ‘omics,’ etc., increase, frameworks to help interpret these data are needed to place...
information into context. The Adverse Outcome Pathway framework is one such tool, and a natural fit to incorporate considerations of the applicability of data or evidence across species of interest.

Other considerations beyond data interpretation frameworks include the need for better understanding of toxicokinetic and toxicodynamic comparisons across species, standardization and validation of data and data sources, and training in the use of new tools and concepts.

The ICACSER seeks to gather input into its activities, including from SOT members. In 2022, IVAM and other specialty sections will plan to present webinars and other activities together with ICACSER. The Society of Toxicology meeting will also feature a roundtable session on this topic titled “Cross-Species Extrapolation: Opportunities in a 21st-Century Regulatory Nonanimal Testing World,” to be held Tuesday March 29th from 11:00-12:20 PDT in CC Ballroom 6B and online. The session features very short presentations by panelists and an opportunity for discussion by attendees.

To learn more about ICACSER visit their web site (https://www.setac.org/page/scixspecies) or read the publication below.


Member Spotlight

IVAMSS would like to acknowledge members that have been recognized for outstanding achievements in 2021-2022. Amy Clippinger from PETA Science Consortium International received the SOT Enhancement of Animal Welfare Award. The Colgate-Palmolive Grant for Alternative Research was awarded to Almudena Veiga-Lopez of University of Illinois at Chicago and Anna Maria Cariboni of Universita degli Studi di Milano Statale. Itzy Morales Pantoja from Johns Hopkins University Center for Alternatives to Animal Testing received the Colgate-Palmolive Postdoctoral Fellowship Award in In Vitro Toxicology. The Syngenta Fellowship Award in Human Health Applications of New Technologies was awarded to Elena Kozlova from University of California Riverside. Congratulations to all for these outstanding achievements!

Graduate Student and Postdoctoral Corner

A Message to our fellow IVAMSS Graduate Student and Postdoctoral Members:

First and foremost, welcome to our new and returning IVAMSS graduate student and postdoctoral members!! We hope you have had a happy, healthy, and productive 2021-2022. As the world starts an arduous recovery from the pandemic, we are reminded how much the past few years have changed the scientific landscape for us all. This is particularly true for graduate students and postdocs, as the most formative years in our scientific careers have been disrupted. Fortunately, most were able to resume research activities, but we continued to miss out on opportunities to attend conferences in-person and network with other scientists.
There is hope on the horizon though, as virtual conferences become more accessible, and SOT and other scientific communities recommence in-person meetings. Although not all IVAMSS graduate student and postdoctoral members will be able to attend SOT in-person this year, we sincerely hope to connect even in the virtual space. For those of you that will be at SOT, please find the IVAMSS poster at the Student/Postdoctoral Scholar Mixer on Sunday March 27 from 7:30-9:00PM PT in CC Ballroom 20D of the San Diego Convention Center.

Also, please look out for our upcoming Mentoring webinar in April 2022. It will feature early career mentors from industry, government, non-profit, and academia, and will be an excellent opportunity to talk directly with an individual in your field-of-interest.

All the best for a wonderful 2022-2023!

**In Vitro and Alternative Methods Websites**

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<td>Alternatives Research and Development Foundation</td>
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<td>AltTox.org</td>
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<td>Center for Alternatives to Animal Testing (CAAT)</td>
<td><a href="https://caat.jhsph.edu">https://caat.jhsph.edu</a></td>
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<td>Toxicology In Vitro</td>
<td><a href="https://www.sciencedirect.com/journal/toxicology-in-vitro">https://www.sciencedirect.com/journal/toxicology-in-vitro</a></td>
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**JOIN & GET INVOLVED!** Trainees are essential to growth and maintenance of IVAM! The specialty section is committed to creating opportunities for success in all our research careers. As a member, trainees will have access to all these opportunities. Also, most trainees do not realize SOT waives the membership fee for the first Specialty Section and Special Interest Group you join. If you have questions or are interested in getting involved, please reach out to your graduate student or postdoctoral representatives!

Amanda Dhaneshwar (Graduate Student) amanda.dhaneshwar10@my.stjohns.edu
Megan Culbreth (Postdoctoral) culbreth.megan@epa.gov
Sincere thanks to our 2021-2022 IVAMSS Officers

Clockwise from top: Kristie Sullivan (Vice President-Elect), Helena Hogberg (Secretary/Treasurer), Samantha Faber (Councilor), Mercedes Salvador-Silva (Councilor), Megan Culbreth (Postdoctoral Representative), Amanda Dhaneshwar (Graduate Student Representative), Sean Gehen (President), and Kathryn Page (Vice President)


IVAMSS website  IVAMSS LinkedIn