

Biological Modeling

ANNUAL REPORT: 2021–2022

May 1, 2021 to April 30, 2022

I. Officers/Committees

<u>Officer</u>	<u>2021–2022</u>	<u>2022–2023</u>
President:	Qiang Zhang	Patricia Ruiz
Vice President:	Patricia Ruiz	Zhoumeng Lin
Vice President-Elect	Zhoumeng Lin	John Wambaugh
Secretary/ Treasurer:	Miao Li	Dustin Kapraun
Past President:	Andy Nong	Qiang Zhang
Councilors:	Suresh Nagumalli	Suresh Nagumalli
	Lisa Sweeney	Sudin Bhattacharya
Postdoctoral Representative:	Wei-Chun Chou	Wei-Chun Chou
Graduate Student Representative:	David Filipovic	David Filipovic

Committees, if applicable:

II. 2021 Membership total: 151

III. Key Outcomes in 2021–2022:

A. BMSS reviewed 5 session proposals submitted for sponsoring and 5 were approved by SOT

As primary endorser

Workshop session: Applications of Physiologically Based Pharmacokinetic (PBPK) Modeling for Refining Safety Assessment of Food, Drugs, and Chemicals. Chair: Cecilia Tan

As secondary endorser

Symposium session: Utilizing Multiple Lines of Evidence to Optimize the Design and Interpretation of Long-Term, Repeated-Dose Animal Studies to Inform Human Health Risk Assessment. Chair: Qiang Zhang

Workshop session: Educating 21st Century Toxicologists: Making in vitro and in silico approaches part of the curriculum. Chair: Nigel Greene

Workshop session: The Use of Alternative Methods to Assess Chemical Toxicity and Risk in Military and Aerospace Exposure Scenarios. Chair: Emily Reinke

Workshop session: Up to the Task? Quantitative Evaluation Criteria for Physiologically Based Pharmacokinetic (PBPK) Models. Chair: Dustin Kapraun

B. Continued membership and support of Specialty Section Collaboration and Communication Group. The BMSS membership has increased from 146 in 2020 to 151 in 2021.

C. Annual budget is still healthy: balance \$7,138 (After SOT Annual Meeting in 2022) versus \$10,120 in 2020.

IV. Activities

A. SOT Annual Meeting Activities (e.g., courses, scientific sessions, receptions):

BMSS Reception

Date: March 29, 2022

Time: 6:00 PM – 7:30 PM

Location: Marriott Marquis San Diego Marina Grand Ballroom 4, San Diego, CA

Summary: BMSS held a brief summary of business which included summary of BMSS-hosted activities, acknowledging past Executive Committee members, summary of treasury report, and announcing all the award winners. The meeting was followed with a Trivia Quizzes event for entertainment and learning about SOT and BMSS.

Lunch-and-Learn

Location: Union Kitchen & Tap-Gaslamp, San Diego, CA

Time: Noon, March 28, 2022

Attendees: 10 mentees and 10 mentors from various sectors including BMSS officers

B. 2022 Awards Information:

- **Gehring Award (two winners)**

- **Qiran Chen** (postdoc)

- Integration of Toxicogenomics and Physiologically Based Pharmacokinetic (PBPK) Modeling in Human Health Risk Assessment of Perfluorooctane Sulfonate (PFOS)

- **Yun Zhou** (PhD student)

- Quantitative Integration of Mode of Action Information in Dose-Response Modeling and POD Estimation: A Case Study of PCB 126

- **Andersen-Clewell Joint Award with RASS**

- **Winner: Long Yuan** (postdoc)

- Development and application of a web-based interactive physiologically based pharmacokinetic (iPBPK) model for meloxicam in broiler chickens and laying hens

- **Honorable mention: Anna Kreutz** (postdoc)

- In vitro to in vivo extrapolation (IVIVE) for neurodevelopment: toxicokinetics and in vitro point of departure evaluation of putative developmental neurotoxicants

- **Honorable mention: Qiran Chen** (postdoc)

- Integration of toxicogenomics and physiologically based pharmacokinetic (PBPK) modeling in human health risk assessment of perfluorooctane sulfonate (PFOS)

- **Best Trainee Abstract Award**

- **Anish Bagga (undergraduate)**

- A Minimal Human Physiologically Based Kinetics Model of Thyroid Hormones and Effects of Endocrine-Disrupting Chemicals

- **Best Paper Award**

- **Winner**

- Chou WC and Lin Z. Development of a Gestational and Lactational Physiologically Based Pharmacokinetic (PBPK) Model for Perfluorooctane Sulfonate (PFOS) in

Rats and Humans and Its Implications in the Derivation of Health-Based Toxicity Values. *Environ Health Perspect.* 2021 Mar;129(3):37004. doi: 10.1289/EHP7671.

- **Honorable mention**

Bernstein AS, et al. A Model Template Approach for Rapid Evaluation and Application of Physiologically Based Pharmacokinetic Models for Use in Human Health Risk Assessments: A Case Study on Per- and Polyfluoroalkyl Substances. *Toxicol Sci.* 2021 Aug 3;182(2):215-228. doi: 10.1093/toxsci/kfab063

- **Honorable mention**

Mansouri K, et al. CATMoS: Collaborative Acute Toxicity Modeling Suite. *Environ Health Perspect.* 2021 Apr;129(4):47013. doi: 10.1289/EHP8495.

C. Other Educational Activities Conducted (e.g., webinars, in-person meetings):

BMSS Webinar #1

Date and Duration: January 14, 2022 (1 hours)

Title: Standardization of PBPK Modeling Practice

Speakers: Cecilia Tan, PhD: Physiologically Based Pharmacokinetic (PBPK) Model Reporting Template for Chemical Risk Assessment Applications

Paul Schlosser, PhD: Not a One-Size-Fits-All Solution: EPA's Flexible PBPK Template Software Exactly Replicates Many Models

Number of Attendees: 150

BMSS Webinar #2

Date and Duration: March 9, 2022 (1 hours)

Title: Improving Best Practices in Mathematical Modeling

Speaker: Herbert Sauro, PhD

Number of Attendees: 55

BMSS and RASS Co-sponsored Webinar

Date and Duration: December 8, 2021 (1.5 hours)

Title: Opportunities and Challenges Related to Saturation of Toxicokinetic (TK) Processes: Implications for Risk Assessment

Speaker: Michelle Embry, PhD

Number of Attendees: 102

D. Communication Activities:

1. Newsletter publication frequency: N/A
2. New or significant announcements/blogs: N/A
3. Highlights of website enhancements: New website went live 7/29/2020. The BMSS website has been maintained and updated as needed.
4. Social media: BMSS can be followed on Twitter (<https://twitter.com/sotbmss>) and LinkedIn (<https://www.linkedin.com/in/sotbmss>)

E. Mentoring Activities: **Lunch-and-Learn**

Location: Union Kitchen & Tap-Gaslamp, San Diego, CA

Time: March 28, 2022

Attendees: 6 mentees, 7 mentors from various sectors, and 4 BMSS officers

V. Feedback and Ideas:

A. In what ways is your group fostering and maintaining an inclusive environment? Please give examples of any current practices used to support inclusion in processes such as 1) leadership selection and promotion, 2) award descriptions and selection, and 3) endorsement of proposals for the annual meetings.

BMSS encourages open and non-bias activities including membership, student awards and virtual presentations. Efforts are planned in future BMSS officer meetings to enhance the diversity of its membership, mentoring and achievements, including modifying languages for award description and membership enrollment.

B. How might SOT better support your group's activities (perhaps something the Society should be doing that we currently do not do, or do not do effectively, that would be of importance/benefit to the members of your component group?):

Note: If funding is listed, please provide detail on the membership need that the funding would support.

BMSS appreciates the continued support of the student awards, webinar setups, and preparation of all our activities. The current process to send our messages to our members is not very efficient and requires approval by SOT and some lead time.

C. What is one thing that the Society is currently doing that impacts your component group that should be changed (e.g., stopped, modified, etc.)?

None.

D. What changes do your component group anticipate making in the way in which it operates in the coming year?

We do not anticipate major changes in the way BMSS operates.