

Biological Modeling Specialty Section

ANNUAL REPORT: 2020-2021

May 1, 2020 to April 30, 2021

I. Officers/Committees:

<u>Officers</u>	<u>2020-2021</u>	<u>2021-2022</u>
President:	Andy Nong	Qiang Zhang
Vice President:	Qiang Zhang	Patricia Ruiz
Vice President-Elect:	Patricia Ruiz	Zhoumeng Lin
Secretary:	Miao Li	Miao Li
Treasurer:	Miao Li	Miao Li
Past President	Brad Reisfeld	Andy Nong
Councilors:	Brad Reisfeld Lisa Sweeney Dustin Frederick Kapraun	Andy Nong Lisa Sweeney Suresh Nagumalli
PDA Representative:	Yi-Hsien Cheng	Wei-Chun Chou
Grad Student Representative:	Michel Bteich	David Filipovic

Committees:	N/A
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II. 2020 Membership total: 146

III. Key Outcomes in 2020-2021:

A. 2021 Annual meeting held 3 endorsed sessions by BMSS (1 primary): **Symposium Session: Challenges and Opportunities in Applying Quantitative and Translational Systems Toxicology Models to Drug Safety Testing.** Chair(s): James Stevens, Universiteit Leiden, Netherlands; and Derek Leishman, Lilly Research Laboratories. Primary Endorser: Biological Modeling Specialty Section; Other Endorser(s): Clinical and Translational Toxicology Specialty Section.

Workshop Session: New Approach Methodologies for Exposure: Advancing Chemical Risk Assessment. Chair(s): John Wambaugh, US EPA; and Angelika Zidek, Health Canada. Primary Endorser: Exposure Specialty Section; Other Endorser(s): Biological Modeling Specialty Section; Occupational and Public Health Specialty Section.

Symposium Session: Opportunities and Challenges in Utilization of Toxicokinetic Data in Dose-Level Selection for Repeated-Dose Toxicity Studies. Chair(s): Jeanne Domoradzki, Corteva Agriscience; and Cecilia Tan, US EPA. Primary Endorser: Regulatory and Safety Evaluation Specialty Section; Other Endorser(s): Biological Modeling Specialty Section; Risk Assessment Specialty Section.

B. Continued membership and support of Specialty Section Collaboration and Communication Group.

C. Annual budget is still healthy \$10,120 versus \$7,811 in 2019.

IV. Activities:

A. 2021 SOT Virtual Annual Meeting Activities (e.g., courses, scientific sessions, or virtual receptions):

Biological Modeling Specialty Section Virtual Meeting

Date: Monday, 3/15/2021

Time: 5:15 PM – 6:15 PM

Summary: BMSS held a brief summary of business which included thanking past Executive Committee members and announcing all the award winners. The meeting was followed with a special spotlight event for this year's student award winners.

B. 2021 Awards Information:

Perry J. Gehring Award

David Filipovic, PhD candidate at Michigan State University

“*In Silico* Modeling of Bisphenols: Pregnancy-Specific Physiologically Based Toxicokinetic Models for BPA and BPS”

BMSS Best Trainee Abstract Award (in honor of Charles Erick Hack)

Kiara Fairman

Postdoctoral Research Fellow at US FDA/NCTR

“Pregnancy PBPK Modeling of UGT Substrate Labetalol: An Application of Parameter Contribution Analysis to Guide Predictive Performance of Life Stage Models”

Andersen-Clewell Trainee Award with RASS/Endowment

Mahbubul Huq Riad, MD

Postdoctoral Research Fellow at Kansas State University

“Development and Application of a Physiologically Based Pharmacokinetic Model to Predict Oxytetracycline Tissue Distribution and Withdrawal Intervals in Market-Age Sheep”

Biological Modeling Best Paper

Chimeddulam Dalajamts, Joseph A. Cichocki, Yu-Syuan Luo, Ivan Rusyn, Weihsueh A. Chiu. “PBPK Modeling of Impact of Nonalcoholic Fatty Liver Disease on Toxicokinetics of Perchloroethylene in Mice.” *Toxicology and Applied Pharmacology* 2020; 400: 408–422. doi: 10.1016/j.taap.2020.115069

Biological Modeling Best Paper Honorable Mention

Li X, Kleinstreuer NC, Fourches D. “Hierarchical Quantitative Structure-Activity Relationship Modeling Approach for Integrating Binary, Multiclass, and Regression Models of Acute Oral Systemic Toxicity.” *Chem Res Toxicol.* 2020; 33(2):353–366.

Cheng YH, He C, Riviere JE, Monteiro-Riviere NA, Lin Z. “Meta-Analysis of Nanoparticle Delivery to Tumors Using a Physiologically Based Pharmacokinetic Modeling and Simulation Approach.” *ACS Nano.* 2020; 14(3):3075–3095.

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

BMSS Webinar

Date and Duration: May 27, 2020 (1 hours)

Mathematical models and COVID-19

Speakers(s):

Ben Lopman, PhD

Number of Attendees: 87

BMSS and RASS Co-sponsored Webinar

Date and Duration: December 9, 2020 (1.5 hours)

Assessing the Impact of Multi-route Co-exposures on Human Variability in Toxicokinetics of Drinking Water Contaminants in binary and Quaternary Mixtures

Speakers(s):

Mathieu Valcke, PhD

Sami Haddad, PhD

Number of Attendees: 42

D. Communication Activities: Follow BMSS on Twitter (<https://twitter.com/sotbmss>) LinkedIn (<https://www.linkedin.com/in/sotbmss>)

1. Newsletter publication frequency: Spring 2020
2. New or Significant Announcements/blogs: N/A
3. Highlight of Website enhancements: New website went live 7/29/2020. The BMSS website has been maintained and updated as needed.

E. Mentoring activities: Due to pandemic restriction – all activities were held at BMSS Virtual Meeting

V. Feedback and Ideas:

A. In what ways is your group fostering and maintaining an inclusive environment?

BMSS encourages open and non-bias activities including student awards and virtual presentations. Future activities will highlight the diversity of its membership and achievements.

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.

Nothing new to add, BMSS appreciate the continued support of the student awards, webinar setups, and preparation of all our activities.

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.)?

The interface for ToxExchange to submit announcements at its own members can be improved. The current process to send our message to our representative is not practical and requires time to be sent away.

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

The possibility that the next Annual Meeting will be modified as a virtual conference instead of in person attendance. Such eventuality means planning for additional effort of scheduling session proposals as was done for this year annual meeting. It also means changing past reception format into a virtual presentation.