

Molecular and Systems Biology

Specialty Section

Fall 2018 Newsletter

2018-2019 Officers

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Hello MSBSS Members

I want to first welcome our new MSBSS members. You have joined a growing, robust group of peers who are looking towards the future of toxicology. I would ask that you take the time to reach out to the members of the specialty section, get to know them, then take it one step further, and get involved in leading the MSBSS. Together we represent a diverse range of fields, interest, backgrounds, and geographies.

MSBSS will have an increased presence at the 2019 Annual Meeting through the endorsement of 13 Scientific Sessions and one Continuing Education course (additional details on page 4). We have also expanded on the success of last year's MSBSS mentoring reception through the development of a collaborative mentoring reception with the Mechanisms, *In Vitro* and Alternative Methods (IVAM), Computational Toxicology (CTSS), and Regulatory and Safety Evaluation (RSESS) Specialty Sections to give attendees a broad spectrum of mentors to connect with. We are also continuing our successful awards program with opportunities for postdoctoral fellow, graduate student, undergraduate student, and paper of the year awards (more information on page 2). Supporting our students and postdocs has always been a priority for the MSBSS.

Finally, I want to thank the dedication and hard work of the MSBSS leadership. They are providing the guidance and support needed to fulfill the mission of our specialty section including:

- Support of our researchers, students, and postdocs,
- Bringing the highest quality and most engaging science to our community and to SOT at-large,
- Serving as a steward of our endowment and general funds, and making sure that those funds get invested back into our section, and
- Increasing our membership and the opportunities for MSBSS members.

Thank you for being a member and for supporting the MSBSS. Please let me know how we are doing, and reach out to the MSBSS group via twitter: @SOTMSBSS

Shaun D. McCullough

President, Molecular and Systems Biology Specialty Section

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2019 MSBSS Awards Information

MSBSS is dedicated to recognizing the exceptional research conducted by our membership with several awards, which are made possible by our Endowment Fund. The MSBSS Executive Committee is excited to announce its annual awards competition for 2019! In addition to receiving a monetary award and accompanying plaque, recipients of the Paper of the Year, Postdoctoral Fellow, and Graduate Student Awards will be invited to present their work in an MSBSS-sponsored webinar during the year.

There is a brief summary of our awards below. Complete descriptions of the awards, the application requirements, and submission information can be found in the Awards section of the MSBSS website: <https://www.toxicology.org/groups/ss/MSBSS/awards.asp>.

Paper of the Year Award

- Paper must be a primary manuscript must be published (electronic or print) in a peer-reviewed journal during the 12-month period prior to the award application deadline (December 1, 2017 to November 30, 2018).
- Requires submission of a single PDF document including the published form of the manuscript and a one-page narrative describing the impact of the paper and the first author's role in the work.
- The first author of the selected paper will receive **\$750 and both the first and senior authors will receive an engraved plaque** at the MSBSS reception at the Annual Meeting.

Postdoctoral Fellow Research Award

- Applicants must have completed a PhD or equivalent degree, submitted an abstract for presentation at the upcoming SOT Annual Meeting, and be a Postdoctoral member of SOT (accepted or pending).
- Requires submission of a PDF document that includes a copy of the abstract submitted for the upcoming SOT Annual Meeting and a two-page narrative describing the hypothesis, background, and significance of the research, as well as the role that the applicant played in conducting the research.
- The applicant's postdoctoral research advisor must also submit a letter of reference.
- The winner will receive **\$750 and an engraved plaque** at the MSBSS reception at the Annual Meeting.

Graduate Student Research Award

- Applicants must full-time graduate students at the time of application submission, have submitted an abstract for presentation at the upcoming SOT Annual Meeting, and be a Graduate Student member of SOT (accepted or pending).
- Requires submission of a PDF document that includes a copy of the abstract submitted for the upcoming SOT Annual Meeting and a two-page narrative describing the hypothesis, background, and significance of the research, as well as the role that the applicant played in conducting the research.
- The applicant's graduate research advisor must also submit a letter of reference.
- First, second, and third place winners will receive **\$500, \$250, and \$100, respectively, and an engraved plaque** at the MSBSS reception at the Annual Meeting.

Undergraduate Research Award

- Applicants must full-time undergraduate students at the time of application submission, have submitted an abstract for presentation at the upcoming SOT Annual Meeting, and hold undergraduate affiliate status in SOT.
- Requires submission of a PDF document that includes a copy of the abstract submitted for the upcoming SOT Annual Meeting and a two-page narrative describing the hypothesis, background, and significance of the research, as well as the role that the applicant played in conducting the research.
- The applicant's postdoctoral research advisor must also submit a letter of reference.
- At least one award will be given and the winner will receive **\$250 and an engraved plaque** at the MSBSS reception at the Annual Meeting.

MSBSS Elections Are Coming Up!

Want to learn a little more or do a little more to advance our specialty section? Consider joining our great group of leadership officers! The MSBSS leadership positions listed below will be on the ballot for 2019. You can find detailed information on Officer Duties at: <https://www.toxicology.org/groups/ss/MSBSS/duties.asp> and in our bylaws at: <https://www.toxicology.org/groups/ss/MSBSS/bylaws.asp>. You can also contact current officers in positions of interest if you have any questions. Those of us who have served on the MSBSS leadership have truly found it to be a fun and rewarding experience!

OFFICERS TO BE ELECTED FOR NEW TERMS BEGINNING MAY 1, 2019

Vice President-Elect (three year active term – VP-Elect, VP, Pres; one year as past-Pres)

Junior Councilor (two year term, becomes the Senior Councilor in year 2)

Postdoctoral Representative (one year term)

Graduate Student Junior Representative (two year term, becomes the Senior Rep in year 2)

If you would like to nominate yourself for one of these positions, or nominate someone you think would be a good candidate (after receiving their approval first!), please send the name and the position of interest to Dana Dolinoy ddolinoy@umich.edu at any time but **no later than December 14, 2018**. Candidates must submit a biosketch and photo for the ballot, which will be sent to members in early 2019. The election results will be announced in our Spring 2019 newsletter, and at the MSBSS 2019 Annual Reception in Baltimore!

Meet the New MSBSS Graduate Student Representative



Cassandra Meakin graduated Magna Cum Laude from Virginia Tech with a major in biology and double minors in chemistry and environmental science prior to starting her graduate school training. Currently, Cassandra is a third-year PhD student at the University of North Carolina at Chapel Hill under the direction of Dr. Rebecca Fry. Cassandra's research interests involve examining the molecular mechanisms by which environmental exposures during pregnancy affect early and later life health outcomes as they pertain to the Developmental Origins of Health and Disease (DOHAD) hypothesis. Using placental trophoblast cell-lines, Cassandra investigates the role of inorganic arsenic (iAs) as an endocrine disruptor *in utero*. Specifically, this research focuses on iAs-induced proteomic and epigenetic perturbations of the Glucocorticoid Receptor (GR) signaling pathway as this pathway is integral for proper fetal and placental development in addition to adult stress response.

MSBSS Activities at the 2019 Annual Meeting

We had a wonderful presence at the 2018 SOT Annual Meeting with a total of nine MSBSS-endorsed scientific sessions, a highly successful collaborative mentoring event, and an exciting reception! The 2019 Annual Meeting will include 13 MSBSS-endorsed Scientific Sessions and one CE course. To help you get ahead of your SOT Annual Meeting schedule planning, please find the titles, dates, and times of MSBSS-endorsed Scientific Sessions and our annual Specialty Section reception below. Also, keep an eye on your email for updates regarding the MSBSS mentoring reception, which Sam Faber and Jess Murray are in the process of planning. We will be updating everyone with details as soon as they become available!

Sunday, March 10

8:15 AM – 12:00 PM (morning CE course)

- *Assay Development Principles and Good Research Practices for Rigor and Reproducibility in In Vitro Toxicology*

Monday, March 11

8:00 AM – 10:45 AM

- *Shifting Currents in Predictive Toxicology and Safety Evaluation with In Vitro and Alternative Approaches*

9:15 AM – 12:00 PM

- *Novel Genetic-Based Tools for Evaluating Toxicity Potential, Mechanism of Action, and Population Dynamics*
- *Assessing Acute Health Risk: Potential Application of Next-Generation Toxicological Tools*

1:45 PM – 4:30 PM

- Applying Systems Biology Approaches to Understand the Joint Action of Chemical and Nonchemical Stressors

Evening (time to be announced)

- *MSBSS/Mechanisms/IVAM/CTSS/RSESS Collaborative Mentoring Reception at Tir no nOg*

Tuesday, March 12

8:00 AM – 10:45 AM

- *Using Zebrafish as a Model to Understand and Ultimately Prevent Neurotoxicity*
- *Emergent Mechanisms of Cytochrome P450 Gene Regulation: Defining an Improved Roadmap toward 21st-Century Pharmacogenomics*

8:30 AM – 11:15 AM

- *Preconception Exposure to Toxicants: Assessing Gamete Quality and Reproductive Outcomes*

1:00 PM – 2:30 PM

- *Explicating the Pathogenic Environmental Factors in Nonalcoholic Fatty Liver Disease*
- *Integrated 'Omics Approaches to Toxicity Assessments*
- *In Vitro Static and Dynamic Skin Metabolism Methods and Strategies to Address the Safety Assessment of Topically Applied Chemicals*

Evening (time to be announced)

- MSBSS Specialty Section Reception

Wednesday March 13

8:00 AM – 10:45 AM

- *The Role of Dynamic RNA Modifications in Environmental Response and Disease*

1:30 PM – 4:15 PM

- *Microphysiological Systems: A New Era in Neurotoxicology?*
- *Role of Oxidative Stress in Health and Disease: Mechanisms, Methods of Detection, and Biomarkers*

MSBSS Awards and Award Webinars

As part of the Molecular and Systems Biology Specialty Section's commitment to trainees, we highlight exceptional research in molecular and systems toxicology and offer our Paper of the Year, Postdoctoral Fellow, and Graduate Student Award winners the opportunity to present their work in two MSBSS award webinars!

MSBSS Award Webinar Series: Graduate Student Research Award Recipients

These three presentations highlighted the exceptional research being conducted by graduate students in the molecular and systems biology specialty section.

First Place

Julia Tobacyk – University of Arkansas

Title: *Mouse Population-Based Evaluation of Urinary Protein and miRNA Biomarker Performance Associated with Cisplatin Renal Injury*

Second Place

Abhishek Venkatratnam – University of North Carolina at Chapel Hill

Title: *Collaborative Cross (CC) Mouse Population-Based Dose-Response Analysis of Liver Transcriptomic Responses to Trichloroethylene (TCE) at the Level of Genes and Pathways*

Third Place

Prarthana Shankar – Oregon State University

Title: *The Role of a Novel Long Non-Coding RNA in the Regulation of Sox9b and Its Contribution to TCSS-Induced Toxicity Endpoints*

MSBSS Award Webinar Series: Postdoc and Paper of the Year Award Recipients

The Molecular and Systems Biology Specialty Section will be highlighting the research conducted by our 2018 Postdoctoral Fellow Research Award recipient, **Dr. Samantha Faber** (University of North Carolina) and Paper of the Year Award recipient, **Dr. Priyanka Trivedi** (Harvard Medical School). Dr. Faber discussed the development and characterization of a novel three-dimensional organotypic airway model. Her studies focused on examining key signaling pathways within airway fibroblasts following trans-epithelial air pollutant exposure. Dr. Trivedi presented her paper titled, "Targeting Phospholipase D4 Attenuates Kidney Fibrosis" (DOI: 10.1681/ASN.2016111222), which was published in the Journal of the American Society of Nephrology in December 2017 and focused on phospholipase D4 (PLD4), a single-pass transmembrane glycoprotein, which is among the most highly upregulated genes in kidneys with chronic progressive fibrosis. These two presentations highlighted the exceptional research being conducted by young investigators in the molecular and systems biology specialty section.

MSBSS Award Webinar Series: Undergraduate Student Research Award Recipient

MSBSS offered an undergraduate research award for the first time this year and we received nine applications. Sarah Kazzaz received the 2018 award for her work titled "An Aryl Hydrocarbon Receptor from the Caecilian Amphibian *Gymnopsis multiplicate* Exhibits Low Dioxin Responsiveness."

Treasurer's Report: General Fund

The MSBSS General Fund Financial statement (as of August 2018) is below. Our specialty section is in good financial standing with sufficient funds to support our meeting and award activities in 2019.

MSBSS Financial Statement (as of August 2018*)	
Ordinary Income/Expense:	
Income	
Membership Dues	\$3,115
Registration	\$1,739
Interest	\$1,555
Total Income	\$6,408
Expense:	
Awards - Sections	\$1400
Plaques	\$315
Annual Meeting/Reception	\$4,106
Endowment 3:1 match/Y-2018	\$2,700
Executive Meetings	\$0
Mentoring Activities (matched by SOT-HQ and supplemented \$500 each by IVAM and MechSS)	\$972
Misc	\$0
Total Expense	\$9,492
Balance:	
Net Assets Beginning of year	\$35,729
Excess (Deficiency) of Revenue over Expenses	-\$3,084
Net Assets	\$32,645

*** Entered values are rounded to the nearest
dollar.**

Treasurer's Report: Endowment Fund

Congratualtions to all of our contributors who have helped the MSBSS Endowment Fund grow considerably this year with a net gain of \$6,284! These funds are used to support our undergraduate, graduate and postdoctoral students!

QUADRUPLE YOUR DONATION!!

BE ONE OF THE FIRST TO HELP US REACH \$1,000 OF CONTRIBUTIONS THIS YEAR

YES, your contributions will be quadrupled by the "matching program" from MSBSS' general fund. MSBSS will match at 3:1 for the first \$1,000 contributions made from August 1, 2018 thru July 31, 2019. This results a 4-fold multiplier for contributions up to the first \$1,000, adding a whooping \$4,000 to our fund (\$4,000 = \$1,000 from donors + \$3,000 match from MSBSS)!

If you are interested in making a donation to the MSBSS Endowment Fund, please contact Jim Dailey at jimd@toxicology.org or contribute online via the SOT website.

All of us in MSBSS heartily thank our endowment donors for helping to keep this fund viable and growing!!

MSBSS Endowment Funds (Quarterly Report - June 2018)	
Contributions	
Member Contributions	\$900
MSBSS Matching Funds	\$2,700
SOT Matching Funds	\$900
Total Contribution	\$4,500
Gain (loss) on Investments	
Interests and Dividends	\$1,129
Unrealized Gain or (loss)	\$2,253
Total Return	\$3,383
Total Added	\$7,883
Expenses	
2018 Awards	\$1,600
other	-
Total Expense	\$1,600
Added - Expenses =	\$6,284
Starting Value of the MSBSS Endowment Fund	\$47,641
Ending Value of the MSBSS Endowment Fund	\$53,925