



Molecular and Systems Biology Specialty Section (MSBSS)

Dear Molecular Systems Biology Specialty Section Members,

Welcome to our Fall Newsletter! I am happy to report our MSBSS membership has now surpassed 200 members. Welcome to our new and returning members. We are a diverse group of scientists who are looking towards the future of toxicology and molecular biology. Please take the time to seek each other out – you can find a list of our membership on ToXchange after you log in with your email and password. I ask that you take the time to upload a photo and reach out to the members of the specialty section, get to know them. If you're ready to take it one step further, please get involved in MSBSS leadership. Later this Fall we will be soliciting nominations for the 2020 election.



MSBSS will have a significant presence at the 2020 Annual Meeting in Anaheim, California through the endorsement of 7 scientific sessions and 1 continuing education course (additional details on page 4). We are taking a leadership role in planning the now-annual mentoring reception with active collaboration from Mechanisms, In Vitro and Alternative Methods (IVAM), Computational Toxicology (CTSS), and Regulatory and Safety Evaluation (RSESS) specialty sections. The 2020 event will build upon previous success and participant feedback to provide attendees a broad spectrum of mentors to connect with. We are also continuing our successful awards program with award opportunities for postdoctoral fellows, graduate students, undergraduate students, and a Paper of the Year award (more information on page 2). Supporting our students and postdocs has always been a priority for the MSBSS. Be sure to apply by December 1, and please be sure to spread the word!

In closing, I want to thank our MSBSS leadership and members for their hard work and dedication. Our specialty section continues to lead and tirelessly provide the guidance and support needed to fulfill our mission.

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. Speaking Twitter, please let me know if you are interested in helping promote MSBSS, we are looking for a social media champion!



Dana C. Dolinoy
MSBSS President

Table of Contents

2020 MSBSS Awards Information	2
2020 MSBSS Officer Elections	3
Meet the MSBSS Graduate Student Representative	3
MSBSS Activities at the 2019 & 2020 Annual Meeting	4
2019 Award Recipients	5&6
Upcoming Webinar Information	6
Treasurer's Report	7
Endowment Status	8

Call for 2020 Award Applications

MSBSS is dedicated to recognizing the exceptional research conducted by our membership. Several awards have been made possible by our Endowment Fund. In addition to receiving a monetary award and an accompanying plaque, award recipients will be invited to present their work in a MSBSS-sponsored webinar. We are currently accepting submissions for the 2020 Paper of the Year Award, MSBSS Postdoctoral Fellow Research Award, Graduate Student Research Award, and Undergraduate Research Award. Applicants must be SOT members (accepted or pending). Applicants do not need to be a MSBSS member to apply, but do need to be member at the time the award is presented. The deadline for the awards is December 1, 2019. Application questions should be directed to Professor Kari Sant (ksant@sdsu.edu).

Award	Amount
Paper of the Year Award	\$750 for first and senior authors
Postdoctoral Fellow Research Award	\$750
Graduate Student Research Award	1st place: \$500, 2nd place: \$300, and 3rd place: \$100
Undergraduate Research Award	\$250

For detailed descriptions of the awards, eligibility, and application instructions, please visit: <http://www.toxicology.org/groups/ss/msbss/awards.asp>



Now accepting officer applications!

Do you want to acquire leadership skills or further develop your leadership skillset? Help us advance our specialty section and become part of our great leadership team! The MSBSS leadership positions listed below will be on the ballot for 2020. 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 found it to be a truly fun and rewarding experience!

OFFICERS TO BE ELECTED FOR NEW TERMS BEGINNING MAY 1, 2020

Vice President-Elect (3 year active term: VP-Elect, VP, President + 1 year as Past-President
Junior Councilor (2 year term, becomes the Senior Councilor in Y2)

Postdoctoral Representative (1 year term)

Graduate Student Junior Representative (2 year term, becomes the Senior Rep in Y2)

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 Jessica Plavicki (jessica_plavicki@brown.edu) at any time but **no later than December 1, 2019**. Candidates must submit a biosketch and photo for the ballot, which will be sent to members in early 2020. The election results will be announced in our Spring 2020 newsletter and at the MSBSS 2020 Annual Reception in Anaheim!

Meet the MSBSS Senior Graduate Student Representative



Hello everyone! My name is Cassandra Meakin and I am currently a fourth year PhD student at UNC working with Dr. Rebecca Fry. My 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, I investigate the role of inorganic arsenic (iAs) as an endocrine disruptor *in utero*. Specifically, my research focuses on iAs-induced proteomic and epigenetic perturbations of the Glucocorticoid Receptor signaling pathway as this pathway is integral for proper fetal and placental development. Please reach out to me with any questions regarding the annual SOT Mentoring event and any questions you have regarding membership!

MSBSS Annual Meeting Activities

Our specialty section had a outstanding presence at the 2019 SOT Annual Meeting. MSBSS was the primary endorser for 3 symposia, 1 workshop, and 1 Continuing Education (CE) Course. In addition, MSBSS was the the secondary or tertiary endorser for 6 additional symposia and 3 workshops, and also organized a very well attended and decidedly successful collaborative mentoring event. The 2020 Annual Meeting will include 5 MSBSS-endorsed symposia, 2 workshops, and 1 CE course. Please be on the look out for the dates and times of the sessions, which are scheduled to be released later this fall. Details regarding the 2020 MSBSS mentoring reception will be sent out via email as soon as they become available.

MSBSS endorsed sessions at the 2020 SOT meeting

Session Type	Title
Symposium	<ul style="list-style-type: none">• Genome Editing in Drug Discovery: Using the Cas9 Protein to Explore Target-Mediated Toxicity (1°)• Environmental Exposure and Health Effects of Organophosphate Esters (1°)• TaRGET II Consortium: Elucidating Epigenetic Responses to the Environment across Target and Surrogate Tissues (1°)• Single-Cell Technologies: A Potentially Transformative Tool for Toxicology (1°)• Identifying and Modeling Gene-Environment Interactions in Neurological Diseases Associated with Metal Exposure: Challenges and Recent Advances (3°)
Workshop	<ul style="list-style-type: none">• Improving Our Understanding of Toxicant Metabolism and Cytochrome P450s Using Novel Knockout Models and High-Throughput Methods (2°)• Single Cell Applications in Mechanistic Toxicology (2°)
CE Course	<ul style="list-style-type: none">• Advances in CRISPR-Cas9 Tools and Applications for Toxicologists

MSBSS 2019 Award Winners

Congratulations to the 2019 Award Winners! During the 2018-2019 year, MSBSS revised its award descriptions to improve clarity and increase the monetary value of each award. We also offer graduate student, postdoctoral, and paper of the year award recipients the opportunity to present their work in a MSBSS-sponsored webinar during the fall. We also continued to offer the second annual MSBSS Undergraduate Research Award to facilitate scientific and career development opportunities for undergraduate students presenting research at the Annual Meeting.



Drs. Kari Sant, Tara Catron,
& Tamara Tal



Drs. Milankumar Prajapati
& Kari Sant



Drs. Philip Wages & Kari Sant

Postdoctoral Research Award

First Place

Award Recipient: Dr. Tara Catron, U.S. EPA

Title: *“Estradiol exposure disrupts the microbiota-gut-brain axis during zebrafish development”*

Mentor: Dr. Tamara Tal

Second Place (3-way tie)

Award Recipient: Dr. Jessica Hartman, Duke University

Title: *“Long-term swimming exercise in *Caenorhabditis elegans* improves mitochondrial health and protects animals from age- and toxicant-induced degeneration”*

Mentor: Dr. Joel Meyer

Award Recipient: Dr. Milankumar Prajapati, Brown University

Title: *“Manganese Transport and Toxicity in CRISPR-Cas9-Mediated SLC30A10 Knock-Out Hep3B Cells”*

Mentor: Dr. Tom Bartnikas

Award Recipient: Dr. Philip Wages, Vanderbilt University

Title: *“Inhibiting 7-Dehydrocholesterol Reductase Elevates Protein Adduction and Depletes Intracellular Glutathione”*

Mentor: Dr. Ned Porter

MSBSS 2019 Award Winners & Webinar Information



Drs. Maria Monteiro & Kari Sant

Paper of the Year

Award Recipient: Dr. Maria Monteiro, Harvard Medical School

Title: A High-Throughput Screen Identifies DYRK1A Inhibitor ID-8 That Stimulates Human Kidney Tubular Epithelial Cell Proliferation

Graduate Student Research Awards

First Place

Award Recipient: Kari Neier, University of Michigan

Title: "Reprogramming of Peroxisome Proliferator-Activated Receptor Target Genes in Mice Perinatally Exposed to Phthalates"

Mentor: Dr. Dana Dolinoy

Second Place

Award Recipient: Ryan Mote, University of Georgia

Title: "Toxic Tall Fescue Grazing During Fluctuating Environmental Conditions: Impact on the Metabolome, Microbiome and Their Interaction"

Mentor: Dr. Nick Filipov

Third Place

Award Recipient: Archit Rastogi, University of Massachusetts

Title: Mapping Glutathione Utilization in the Developing Zebrafish (*Danio rerio*) Embryo

Mentor: Dr. Alicia Timme-Laragy

Undergraduate Student Research Award

First Place

Award Recipient: Matthew Wyatt Cole, Kenyon College

Title: "Distinct roles for *Xenopus laevis* AHR paralogs in cell cycle regulation"

Mentor: Dr. Wade Powell

Second Place

Award Recipient: Olivia Venezia, University of Massachusetts

Title: "Modulation of Peroxisome Proliferator-Activated Receptors gamma (PPAR γ) signaling perturbs embryonic pancreas development in the zebrafish, *Danio Rerio*"

Mentor: Dr. Alicia Timme-Laragy

Award Recipient: Michael Andres-Mans, Oregon State University

Title: "Functional consequences of microRNA regulation by polycyclic aromatic hydrocarbons in 3D human bronchial epithelial cells"

Mentor: Susan Tilton



Dr. Wade Powell,
Wyatt Cole, & Dr. Tamara Tal

MSBSS will have a webinar highlighting the research of Drs. Maria Monteiro, Tara Catron, and Kari Neier on Monday, November 4, from 12-1pm EST. Please watch your inbox for an email with registration details. <http://www.toxicology.org/groups/ss/msbss/events.asp>

Treasurer's Report: General Fund

The MSBSS General Fund Financial statement (as of March 2019) is below. Our specialty section is in good financial standing with sufficient funds to support our meeting and award activities in 2020.

MSBSS Financial Statement (as of March 2019)	
Ordinary Income/Expense:	
Income	
Contributions	\$0
Other	\$0
Registration	\$1,659
Total Income	\$1,659
Expense:	
Awards - Sections	\$1,200
Plaques	\$421
Executive Meetings	\$0
Global Outreach/Initiatives	\$0
Mentoring Activities	\$0
Miscellaneous	\$0
Printing	\$0
Reception	\$5,841
Webinar	\$32
Total Expense	\$7,494
Balance:	
Net Assets Beginning of year	\$32,645
Excess (Deficiency) of Revenue over Expenses	-\$5,834
Net Assets as of March 2019*	\$26,810
* Entered values are rounded to the nearest dollar.	

Treasurer's Report: Endowment Fund

TRIPLE YOUR DONATION!! YES, your contributions will be tripled by “matching programs” from the MSBSS general fund. MSBSS will match at 3:1 for the first \$1,000 contributions made from August 1, 2019 thru July 31, 2020.

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

MSBSS Endowment Funds (Quarterly Report - December 2018)	
Contributions	
Member Contributions	\$0
MSBSS Matching Funds	\$0
SOT Matching Funds	\$0
Total Contribution	\$0
Gain (loss) on Investments	
Interests and Dividends	\$1,225
Unrealized Gain or (loss)	\$(1,225)
Total Return	\$0
Total Added	\$0
Expenses	
Awards	\$0
other	-
Total Expense	\$0
Added - Expenses =	\$0
Starting Value of the MSBSS Endowment Fund	\$53,924
Ending Value of the MSBSS Endowment Fund	\$53,924
Awards and Funds Available from the MSBSS Endowment	
Amount Expended on Awards in 2018	\$1,621
Amount Provided from Endowment Fund	\$1,600
Excess (Deficiency)	(\$21)
Amount Provided by the MSBSS General Fund	\$21
Est. Endowment Funds Available for 2019 Awards*	\$2,157

* The estimated amount of Endowment Funds that will be available for awards in the next year is based upon 4% of the Fund's ending value as of the June Quarter in the preceding year.

MSBSS Leadership Team 2019-2020



Figure 1. The Molecular and Systems Biology Specialty Section (MSBSS) Leadership Team depicted in Brady Bunch Format. (A) Dana Dolinoy, Ph.D., MSBSS President & Professor at the University of Michigan-Ann Arbor. (B) Jessica Plavicki, Ph.D., MSBSS Vice-President (VP) & Assistant Professor at Brown University. (C) Shaun McCullough, Ph.D., MSBSS Past-President & Principal Investigator at the United States Environmental Protection Agency (US EPA). (D) Brian Chorley, Ph.D., MSBSS VP-elect & Research Biologist at the US EPA. (E) Kari Sant, Ph.D., Senior Councilor & Assistant Professor at San Diego State University. (F) Larissa Williams, Ph.D., Junior Councilor & Associate Professor at Bates College. (G) Lindsay Holden, Ph.D. Treasurer & Biologist at the Army Public Health Center. (H) Katelyn Lavrich, Ph.D., Post-doctoral Representative from the National Toxicology Program at National Institute of Environmental Health Sciences (NIEHS). (I) Cassandra Meakin, M.S., Graduate Student Representative from the University of North Carolina-Chapel Hill.