

ANNUAL REPORT: 2019-2020

May 1, 2019 to April 30, 2020

I. Officers/Committees:

<u>Officers</u>	<u>2019-2020</u>	<u>2020-2021</u>
President:	Rhiannon N. Hardwick	Brian J. Day
President-Elect:	Daniel D. Petersen	Cheryl E. Rockwell
Vice President:	Brian J. Day	Daniel D. Petersen
Secretary/Treasurer:	Jonathan M. Maher	Jonathan M. Maher
Past President	Donna Zhang	Rhiannon N. Hardwick
Councilors:	James Luyendyk	John Clarke
	John Clarke	Kai Wu
PDA Representative:	Dahea You	Kathryn Miranda
Graduate Student Representative:	Emily Marques	Colin C. Anderson

2019 Membership total: 308

II. Key Outcomes in 2019-2020:

- **The Mechanisms SS made a change to Postdoctoral Student and Sheldon D. Murphy Travel Awards.**
 - Postdoctoral Student Travel Award historically expensed from the operating budget, competing with Annual Meeting Reception costs
 - Reliant upon membership fees, fund availability at risk each year
- **SOT Council approved a new measure: Combine the Postdoctoral Student and Sheldon D. Murphy Travel Awards**
 - Minimum number of graduate student and postdoc travel award recipients does not change.
 - Award target (\$500 each) does not change.
 - Effective for 2020 Abstract Submission Deadline

III. Activities:

A. 2020 SOT Annual Meeting (Virtual: 84 attendees):

Mechanisms Specialty Section Virtual Annual Business Meeting and Award Reception
Date and time: Thursday, April 30, 2020 at 12:00 PM EDT.

B. 2020 Awards Information:

Mechanisms Career Achievement Award – Curtis D. Klaassen

Sheldon D. Murphy Student Travel Award Recipients –

Kelsey Behrens, University of North Carolina at Chapel Hill
Novel Mouse Lines with Humanized Glutathione S-Transferase Pi, Mu, and Theta Families Reveal Species Differences in Enzyme

Expression and Function In Vivo
PI: Beverly H. Koller

Reena Berman, University of Colorado
Single Cell RNA Sequencing Reveals a Unique Monocyte Population in Bronchoalveolar Lavage Cells of Mice Challenged with Afghanistan Particulate Matter and Allergen
PIs: Hong Wei Chu and Brian J. Day

Itishree Kaushik, Texas Tech University
Moxidectin, a Novel Therapeutic Option for Pediatric Medulloblastoma
PI: Sanjay K. Srivastava

Siennah Miller, University of Arizona
Modeling Blood-Testis Barrier Characteristics with Novel CRISPR/Cas9 Functional ENT1 and ENT2 Knockout HeLa Cell Lines
PI: Nathan J. Cherrington

Sharavan Ramachandran, Texas Tech University
Pancreatic Tumor Growth Suppression through Induction of Autophagy by a Novel Anti-Parkinson Drug Pimavanserin
PI: Sanjay K. Srivastava

Archit Rastogi, University of Massachusetts at Amherst
Pancreatic Nrf2 Expression and Organ Morphogenesis Is Altered by Modulating Glutathione in the Developing Zebrafish (Danio rerio) Embryo
PI: Alicia R. Timme-Laragy

Monika Roy, University of Massachusetts at Amherst
The Sulfate Metabolite of 3,3'-Dichlorobiphenyl (PCB-11) Impairs Cyp1a Activity and Increases Hepatic Neutral Lipids in Zebrafish Larvae (Danio rerio)
PI: Alicia R. Timme-Laragy

Cody Jozef Schmidlin, University of Arizona
Chronic Arsenic Exposure Increases Metastatic Potential of Lung Cancer Cells via Transcriptional Regulation of SOX9 by NRF2
PI: Donna D. Zhang

Postdoctoral Student Travel Award Recipients –

Courtney Culpepper, University of South Carolina
Cannabidiol Regulated microRNAs Promote Mast Cell Signaling via Peroxisome Proliferator-Activated Receptor-Gamma to Protect Against Staphylococcal Enterotoxin B-Induced Liver Injury
PI: Mitzi Nagarkatti

Lauren Poole Hardy, Michigan State University
Protease-Activated Receptor-1 Expressed by Hepatic Stellate Cells Drives Coagulation Activation and Fibrosis in Experimental Chronic Liver Injury
PI: James P. Luyendyk

Ronald G. Thurman Student Travel Award Recipients –

Melissa Clemens, University of Arkansas for Medical Sciences
Exogenous Phosphatidic Acid Is a Novel and Widely Available Treatment for Acetaminophen Hepatotoxicity

PI: Mitchell R. McGill

Dan Rizzolo, Rutgers University
Sex Differences in Bile Acid Metabolism
PI: Grace L. Guo

Regina Schnegelberger, University of Pittsburgh
Vinyl Chloride Impacts Mitochondrial Dynamics and ER-Mitochondria Communication in Mice
PI: Juliane I. Beier

Rubin J. Student Travel Award – Alexa Murray, Rutgers University

Farnesoid X Receptor Regulates Macrophage Activation in Nitrogen Mustard-Induced Lung Injury in a Sex- Dependent Manner

PI: Debra Laskin

Renal Toxicology Fellowship Award Recipients –

1st Place: Joseph Jilek, University of Arizona

Altered Cisplatin Pharmacokinetics during Nonalcoholic Steatohepatitis Contributes to Reduced Nephrotoxicity

PI: Nathan J. Cherrington

2nd Place: Jephthe Akakpo, University of Kansas Medical Center

4-Methylpyrazole Protects Against Acetaminophen Induced Nephrotoxicity

PI: Hartmut Jaeschke

3rd Place: Lillie Allred Barnett, University of Georgia

Acute In Vitro Nephrotoxicity of Three Brominated Flame Retardants in Renal Cells

PI: Brian S. Cummings

Gabriel L. Plaa Education Award Recipients -

1st Place: Lauren Poole Hardy, Michigan State University

Protease-Activated Receptor-1 Expressed by Hepatic Stellate Cells Drives Coagulation, Activation and Fibrosis in Experimental Chronic Liver Injury

PI: James P. Luyendyk

2nd Place: Souvarish Sarkar, Harvard Medical School

Multiplex analysis in a Drosophila gene-environment model identifies interactions among LRRK2, rotenone and α -synuclein

PI: Mel Feany

3rd Place: Avinash Kumar, University of Pittsburgh

High-fat diet unmasks tumorigenic potential of transient vinyl chloride exposure at sub-OSHA level concentrations

PI: Juliane I. Beier

Carl C. Smith Student Mechanisms Award Finalists–

Colin Anderson, University of Colorado
Reena Berman, University of Colorado
Melissa Clemens, University of Arkansas for Medical Sciences
Emily Marques, University of Rhode Island
Archit Rastogi, University of Massachusetts at Amherst
Christine Rygiel, University of Michigan
Cody Jozef Schmidlin, University of Arizona
Regina Schnegelberger, University of Pittsburgh

Carl C. Smith Student Mechanisms Award Recipients -

1st Place: Colin Anderson, University of Colorado
Methylation of Dithiocarbamate Fungicide Maneg Reveals Potential Toxic Mechanisms in Neuroblastoma
PI: James R. Roede

2nd Place: Cody Jozef Schmidlin, University of Arizona
Chronic Arsenic Exposure Promotes Invasion and Migration via NRF2 Regulation of SOX9
PI: Donna D. Zhang

3rd Place: Archit Rastogi, University of Massachusetts at Amherst
Modulating Glutathione Thiol Status Alters Pancreatic Beta-Cell Morphogenesis in the Developing Zebrafish (Danio rerio) Embryo
PI: Alicia R. Timme-Laragy

C. Other Educational Activities Conducted:

Postdoctoral Association Sponsored Career Development Webinar Series:

Transitioning to Independence: How to get the most out of your mentoring relationships
February 26, 2020 at 12:00 Noon – 1:00 PM EDT
Speaker(s): Laura Van Winkle, PhD
University of California at Davis
Debra Laskin, PhD
Rutgers University
John Wise, PhD
University of Louisville

Co-sponsors: Postdoctoral Assembly (PDA), Carcinogenesis Specialty Section (CSS), Metals Specialty Section (MSS), Mechanisms Specialty Section

Endorsement: Education and Career Development Committee (ECDC), Graduate Student Leadership Committee (GSLC), Women in Toxicology (WIT)

IV. Mechanisms-Endorsed 16 Sessions in the Annual Meeting Program*:

Day	Time	Session Type	Title (*indicates Mechanisms SS as primary endorser)
SUNDAY	7:00-7:45AM	CE	Advances in CRISPR-Cas9 Tools and Applications for Toxicologists
	8:15AM-12:00PM		Introduction to Open-Access Computational Toxicology Tools
	1:15-3:00PM		Gateway Technologies to Tomorrow's Metal Toxicological Research
MONDAY	8:00-10:45AM	Workshop	Oligodendrocytes/Schwann Cells, Major Targets in Neurotoxicity and Neurological Diseases
		Symposium	Lysosome/Autophagy Dysregulation in Toxicity and Disease*
	3:00-4:00PM	Workshop	Beyond the Bulk: Single-Cell Applications in Mechanistic Toxicology*
	3:00-4:30PM	Symposium	Genome Editing in Drug Discovery: Using the Cas9 Protein to Explore Target-Mediated Toxicity
TUESDAY	8:00-10:45AM	Symposium	Cellular Recovery and Resilience: A New Perspective on Toxicity Testing*
		Symposium	Quantitative and Translational Systems Toxicology: Improving Drug Safety from Pre-Clinical to Clinical Outcomes
	11:00AM-12:30PM	Symposium	Targeted Protein Degradation: Considerations for Non-Clinical Safety Assessment of a New Pharmaceutical Modality
	1:30-4:15PM	Symposium	Environmental Carcinogenesis: Effect of Carcinogen Exposure on the Genome and Health Risks
			Epigenetic Mechanisms of Metal-Induced Cancer Stem Cell-Like Property and Carcinogenesis
			Immune Cell Polarization in Toxicology and Therapeutic Approaches
			TARGET II Consortium: Elucidating Epigenetic Responses to the Environment across Target and Surrogate Tissues

WEDNESDAY	1:30-4:15PM	Workshop	Improving Our Understanding of Toxicant Metabolism and Cytochrome P450s Using Novel Knockout Models and High-Throughput Methods*
THURSDAY	8:30-11:15AM	Symposium	Chemical Probes in Toxicology: From Defining Exposures to Identifying Novel Toxicity and Druggable Targets*

*Although 16 sessions were endorsed, due to the cancellation of the live 2020 SOT annual meeting, not all sessions have been presented to date

V. Endowment Fund Details (updated March 2020):

Qrtly Report Ending Mar. 2020	Sheldon D. Murphy Award	Ronald G. Thurman Award	Robert J. Rubin Award	Renal Toxicology Award	Gabriel L. Plaa Award	Carl C. Smith Award
Gain/(Loss) (\$)	+2385	+1,280	+1,123	+1,908	+2,416	+2,846
Contributions (SOT Match)	-	-	-	-	-	-
Net Assets (\$)	103,871	55,737	48,919	83,116	105,231	123,981