

Mechanisms 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:	Brian J. Day	Daniel David Petersen
Vice President:	Daniel David Petersen	Cheryl E. Rockwell
Vice President-Elect:	Cheryl E. Rockwell	Rebecca L. McCullough
Secretary:	Jonathan M. Maher	Archit Rastogi
Treasurer:	Jonathan M. Maher	Archit Rastogi
Past President:	Rhiannon N. Harwick	Brian J. Day
Councilors:	Rhiannon N. Harwick	Brian J. Day
	Kai Wu	Juliane Beier
	John Clarke	Kai Wu

PDA Representative: Kathryn Miranda Cassandra Meakin

Grad Student Representative: Colin C. Anderson Kayla Frost

Committees: N/A

II. 2020 Membership total: 294

III. Key Outcomes in 2020-2021:

Increased participation in Specialty Section by coordinating joint webinars.

IV. Activities:

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

Mechanisms Specialty Section Virtual Meeting

Date and Time: Tuesday, March 16, 2021 from 5:00 pm – 6:30 pm ET

Summary: The MechSS conducted an annual business meeting, announced the 2021 award recipients, and members engaged in networking activities.

B. 2021 Awards Information:

2021 Career Achievement Award

Robert Roth PhD

2021 Sheldon Murphy Award (Student Endowment Award: Multiple Winners, in alphabetical order)

Minhong Huang, Iowa State University: Mitochondrial Dysfunction Induces Epigenetic Dysregulation by H3K27 Hyperacetylation to Perturb Active Enhancers in Parkinson's Disease *PI: A. Kanthasamy*

Yining Jin, Michigan State University
The role of Nrf2 in OVA-induced food allergy
PI: Cheryl Rockwell

Danielle Kozlosky, Rutgers University
Sex-Dependent Differences in Placental and Fetal Cadmium Toxicity in Mice
PI: Emily Barrett

Lich Dan Rajasinghe, Michigan State University
Docosahexaenoic Acid (DHA) Suppresses Broad Spectrum of Inflammatory Proteins Elicited in a Murine Model of Silica-Triggered Lupus Flaring
PI: J. Pestka

Lok Ming Tam, University of Rochester. Arsenite Binds and Impedes ZNF598-mediated Ribosome Associated Protein Quality Control in Human Cells: Implication in Proteotoxic Stress *PI: Yinsheng Wang*

Eva C.M. Vitucci, UNC
Identifying the Molecular Mechanisms of Air Pollution-Induced Cardiovascular Disease
PI: Shaun D. McCullough

Shengjie Xu, Rutgers University
Inhibition of Glycolysis Attenuates Excitation Contraction Coupling in Human Airway Smooth Muscle Cells
PI: Joseph A. Jude

2021 Ronald G Thurman Award (Student Travel Awards, multiple winners)

Maxine Abustan, Rutgers University, Environmental and Occupational Health Sciences Institute
Establishing an In Vitro Model for Screening Transporter-Mediated Cisplatin Drug Interactions
PI: Lauren Aleksunes

Durgesh Dwivedi, National Institute of Pharmaceutical Education and Research (NIPER)
Pharmacological Intervention of Glibenclamide and Dimethyl Fumarate Against Thioacetamide-Induced Liver Fibrosis in Mice: Comparative Study with MCC950 and 4 Octyl Itaconate
PI: Gopabandhu Jena

Siennah Miller, University of Arizona, Department of Pharmacology and Toxicology
Testicular Disposition of Clofarabine in Rats is Dependent on Equilibrative Nucleoside Transporters
PI: Nathan Cherrington

Nga Nguyen, University of Kansas Medical Center, Department of Pharmacology, Toxicology and Therapeutics
Kupffer cells regulate liver recovery through induction of chemokine receptor CXCR2 on hepatocytes after acetaminophen overdose in mice
PI: Hartmut Jaeschke

Gabriel Tao, University of Houston, Department of Pharmacological and Pharmaceutical Sciences
Irinotecan decreases intestinal UDP-glucuronosyltransferase (UGT)1A1 via TLRs/MyD88 pathway: a novel mechanism of chemotherapy-induced diarrhea
PI: Romi Ghose

2021 Robert J Rubin Award (Student Travel Award: Multiple Winners)

Itishree Kaushik, Texas Tech University Health Sciences Center

A novel antihelminthic drug suppresses the growth of medulloblastoma tumors by inhibiting PKA/Gli1 signaling axis

PI: Sanjay K. Srivastava

Shengjie Xu, Rutgers University

Inhibition of Glycolysis Attenuates Excitation Contraction Coupling in Human Airway Smooth Muscle Cells

PI: Joseph A. Jude

Renal Toxicology Award

1st Place

Jephthe Y. Akakpo, University of Kansas Medical Center

Desorption electrospray ionization mass spectrometry imaging (DESI-MSI) of acetaminophen and its metabolites in the kidney

PI: Hartmut Jaeschke

2nd Place

Maxine Abustan, Rutgers University

Establishing an in vitro model for screening transporter-mediated cisplatin drug interactions

PI: Lauren M. Aleksunes

3rd Place

Lillie Marie A. Barnett, University of Georgia

Characterizing the nephrotoxicity of brominated flame retardants in rat and human renal cells: a transcriptomics approach

PI: Brian S. Cummings

Gabriel Plaa Award

1st Place

L. Cody Smith, Rutgers University

PPAR γ regulates pulmonary surfactant and lipid homeostasis in a mouse model of ozone-induced lung injury

PI: Debra L. Laskin

2nd Place

Milan Prajapati, Brown University

Biliary iron excretion in Slc30a10- and Slc39a14-deficient mouse models

PI: Tom Bartnikas

3rd Place

Elvis Ticiani, University of Illinois at Chicago

Bisphenol S impairs invasion and proliferation of extravillous trophoblasts through epidermal growth factor receptor binding inhibition

PI: Almudena Veiga-Lopez

Carl C. Smith Award

1st Place

Ashwini Sri Hari, University of Colorado

Elevation of cellular glutathione inhibits neuronal hyperexcitability via redox regulation of mTOR

PI: Manisha Patel

2nd Place

Jenna Strickland, Michigan State University

Exaggerated interleukin-10 expression inhibits macrophage-dependent liver repair in acetaminophen-induced acute liver failure

PI: Bryan Copple

3rd Place

Tarana Arman, Washington State University

Diet-induced nonalcoholic fatty liver disease slowed recovery of hepatic fibrosis and carcinogenic reprogramming after microcystin-LR toxicity in rats

PI: John Clarke

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

MechSS co-sponsored Webinar with RASS: Two presentations on advancing New Approach Methodologies (NAMs)

Date: November 11, 2020

Duration: 1.5 hours

Speaker 1: Russell Thomas, PhD, US EPA

Speaker 2: Tim Shafer, PhD, US EPA

Attendees: 55

D. Communication Activities:

1. Newsletter publication frequency: Fall 2020
2. New or Significant Announcements/blogs:
3. Highlight of Website enhancements: The MechSS website has been maintained and updated as needed.
4. We had a joint webinar with the Risk Assessment Specialty Section (RASS). It was jointly advertised to both Specialty Sections.

E. Mentoring Activities: Our mentoring activities typically involve meetings initiated at the Annual Meeting. As we've missed the last two, an organized process is expected to be reinvigorated at the 2022 meeting.

V. Feedback and Ideas:

- A. In what ways is your group fostering and maintaining an inclusive environment?**
Mechanisms Specialty Section has been an inclusive environment. A quick look at the names and affiliations of our award winners will show a wide representation of schools and ethnicities.

- 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.

Additional interaction with the SS-CCG is planned, in particular, joint webinars are an easy way to provide value to "Mechanisms" membership at little cost to the Society.

- 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.)?**

Nothing to report.

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

No operational changes, but hopefully increased communication with respect to webinars and other mechanisms related content.