2020 Mechanisms Specialty Section

Business Meeting and Reception

Thursday, April 29, 2020
12PM-1PM
Webinar
Thank You to 2019-2020 Mechanisms Leadership

Donna D. Zhang*
Past President
University of Arizona

Rhiannon N. Hardwick
President
Theravance Biopharma

Brian J. Day
Vice President
National Jewish Health

Daniel D. Petersen
Vice President-Elect
US EPA-ORD

Jonathan Maher
Secretary-Treasurer
Genentech

James P. Luyendyk*
Senior Councilor
Michigan State University

John Clarke
Junior Councilor
Washington State University

Dahea You*
Postdoctoral Representative
NTP/NIEHS

Emily Marques*
Graduate Student Representative
University of Rhode Island

*Special thanks to outgoing officers!
Welcome New 2020-2021 Officers!!

Cheryl E. Rockwell
Vice President-Elect
Michigan State University

Kai Wu
Junior Councilor
Genentech

Kathryn Miranda
Postdoctoral Representative
University of South Carolina

Colin Anderson
Graduate Student Representative
University of Colorado
Planning for 2021 Begins Now

2021 Annual Meeting Proposals Must Be Submitted to SOT HQ by:
June 12, 2020
www.toxicology.org/2021

• Requesting proposals with a mechanistic focus
  • Student & postdoc led sessions are welcomed & encouraged to team up with a senior member for guidance

• Consider Mechanisms SS as your primary endorser
  • Official endorsements made AFTER submission deadline during frontline review
  • Leadership provides recommendations to Scientific Programming Committee as part of frontline review

• Take advantage of the pre-submission review period offered by Mechanisms leadership
  • Receive pre-submission feedback
  • Enhance proposal strength and increase chances of acceptance

Email proposal drafts to sotmechanisms@gmail.com by June 5, 2020 to receive pre-submission feedback
Contribute to the Continuing Education Program!

Opportunity to connect with and teach attendees in your specialty

Submission deadline is June 12, 2020

$500 stipend to support each course speaker!

www.toxicology.org/2021
Topics of Interest!

- 3D/Organ-on-a-Chip/MPS
- Biologics
- Endocrine
- Exposure Toxicology
- Gene/Cell-Based Therapies
- Green Chemical Development
- Machine Learning and Other Cutting-Edge Tools in Toxicology
- Microbiome
- Nanotoxicology
- QSAR
- Regulatory Guidelines and Practices
- Safety Pharmacology for Industry
- SEND Guide
- Single Cell Approaches
- Tissue Barrier in Toxicology (e.g., BBB)

Submission Deadline—June 12

www.toxicology.org/2021

$500 stipend to help support each speaker!
# Mechanisms Operating Budget

<table>
<thead>
<tr>
<th>Item</th>
<th>Ledger ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available Funds as of February 2020</td>
<td>11,293.00</td>
</tr>
<tr>
<td>• Includes membership fee revenue and individual donations</td>
<td></td>
</tr>
<tr>
<td>Award Incidentals</td>
<td>-2,623.00</td>
</tr>
<tr>
<td>• Includes Postdoctoral Student Travel Award stipends, poster printing, &amp; all plaques</td>
<td></td>
</tr>
<tr>
<td>Student/Postdoc Mentoring Event Support</td>
<td>-273.00</td>
</tr>
<tr>
<td>• Cancellation fee</td>
<td></td>
</tr>
<tr>
<td>Contributions</td>
<td>1,000.00</td>
</tr>
<tr>
<td>On-Site Business Meeting and Reception</td>
<td>?</td>
</tr>
<tr>
<td>• Cancellation Fees</td>
<td></td>
</tr>
<tr>
<td>• Award Shipping</td>
<td></td>
</tr>
<tr>
<td>Webinar Fees</td>
<td>TBD</td>
</tr>
<tr>
<td>Anticipated Balance AFTER Annual Meeting</td>
<td>9,397.00</td>
</tr>
</tbody>
</table>

- Operating budget expenses committed to Annual Meeting activities and administration of awards (e.g., plaques)
- Positive balance maintained each year
Endowment Fund Financials

<table>
<thead>
<tr>
<th>Quarterly Report (December 2019)</th>
<th>Sheldon D. Murphy Award</th>
<th>Ronald G. Thurman Award</th>
<th>Robert J. Rubin Award</th>
<th>Renal Toxicology Award</th>
<th>Gabriel L. Plaa Award</th>
<th>Carl C. Smith Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest &amp; Dividends</td>
<td>2,248</td>
<td>1,224</td>
<td>1,051</td>
<td>1,848</td>
<td>2,261</td>
<td>2,697</td>
</tr>
<tr>
<td>Gain/Loss ($)</td>
<td>4,277</td>
<td>2,329</td>
<td>1,999</td>
<td>53,526</td>
<td>4,302</td>
<td>5,135</td>
</tr>
<tr>
<td>Contributions ($)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1,275</td>
<td>0</td>
<td>750</td>
</tr>
<tr>
<td>Expense (Distributed Awards, $)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Net Assets ($)</td>
<td>109,351</td>
<td>59,535</td>
<td>51,103</td>
<td>90,130</td>
<td>109,974</td>
<td>131,517</td>
</tr>
</tbody>
</table>

- 2020 award stipends not yet expensed
- ~4% is made available from funds for award distribution each year
- Visit [https://www.toxicology.org/endowment/](https://www.toxicology.org/endowment/) to learn how YOU can make an impact

All student & postdoc awards are made possible by Endowment Fund contributions!!
2020 Mechanisms Specialty Section Awards Announcements

Award winners, Dahea You will reach out directly after the webinar for submission of photos
Mechanisms Career Achievement Award

• Enacted in 2014 to honor the contributions of an outstanding member to mechanistic toxicology research

• Relies on nominations from Mechanisms members
  • Nomination packets include 2 letters of support and CV of nominee

• Committee weighs the impact of the nominee’s work to the field of mechanistic toxicology, commitment to furthering the field, and mentoring activities

2014: Dean P. Jones, Emory University
2015: Dennis R. Petersen, University of Colorado
2016: Michael A. Gallo, Rutgers University
2017: Steven D. Cohen, University of Connecticut
2018: Debra Laskin, Rutgers University
2019: Lois Lehman-McKeeman, Bristol-Myers Squibb
Curtis D. Klaassen, PhD, DABT, ATS, FAASLD

2020 Mechanisms Career Achievement Award

• Prolific researcher and educator in toxicology
  • Received PhD in 1968 under tutelage of Gabriel L. Plaa
  • >590 research manuscripts, >100 safety assessments, >100 reviews and book chapters, >500 abstracts
  • Most-cited researcher in pharmacology & toxicology 1997-2007
  • Trained 37 PhD students and 66 postgraduate fellows
  • Editor of Casarett and Doull's Toxicology since 1980
  • Organizer of Mid-America Toxicology Course

• Prominent member & contributor to SOT
  • Former SOT president, member of Education, Membership, Awards, Finance, and Nominating Committees
  • Achievement Award (1976), Educational Award (1993), Merit Award (2012)

• Research interests have included:
  • Hepatobiliary disposition of xenobiotics
  • Hepato- and nephrotoxicity of cadmium
  • Endocrine disruptors and thyroid hormone metabolism
  • Regulation and role of uptake/efflux transporters in disposition
  • Intracellular receptor regulation of metabolism and transport
  • Role of Nrf2 in adaptation to toxicant exposure
Sheldon D. Murphy Student Travel Award

• Established in May 2011, honors the memory of Sheldon D. Murphy
  • Charter member of SOT & 14th President
  • Early advocate for mechanistic toxicology research and the role of biotransformation
  • Endowed award
  • Administrator: Jonathan Maher

• Applicants must submit an abstract and be a PhD candidate at time of application
  • Selections based on scientific quality of abstract
  • ~5-8 recipients
  • ~$500* award

*Specific amounts vary annually based on Endowment Award contributions
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

• Funded by the Mechanisms SS operating budget
  • Administrator: James Luyendyk

• Applicants must submit an abstract and personal statement + 2 supporting letters
  • Must be sponsored by a Mechanisms member
  • ~2 recipients
  • ~$500* award

*Specific amounts vary annually based on Mechanisms SS membership dues and contributions to operating budget
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
SPECIAL ANNOUNCEMENT: Change to Postdoctoral Student and Sheldon D. Murphy Travel Awards

- Postdoctoral Student Travel Award
  - Historically expensed from the operating budget
  - Reliant upon low Annual Meeting reception costs and membership fees
  - Fund availability at risk each year

- SOT Council approved a new measure: Combine the Postdoctoral Student and Sheldon D. Murphy Student Travel Awards
  - Minimum number of graduate student and postdoc travel award recipients does not change
  - Award target ($500 each) does not change

**EFFECTIVE FOR OCTOBER 2020 ABSTRACT SUBMISSION DEADLINE**

<table>
<thead>
<tr>
<th></th>
<th>Minimum # Graduate Student Recipients</th>
<th>Minimum # Postdoc Recipients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior Sheldon D. Murphy</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>Postdoctoral Student</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Updated Sheldon D. Murphy</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>
Ronald G. Thurman Student Travel Award

• Created in August 2009 by former students of Dr. Thurman
  • Played a significant role in the toxicology graduate program at the University of North Carolina at Chapel Hill
  • Made important contributions in applying mechanistic toxicology to xenobiotic metabolism and hepatophysiology
  • Endowed award
  • Administrator: Rhiannon Hardwick

• Applicants must submit a cover letter and abstract
  • Selections based on abstract quality and construction
  • Recipient must be a graduate student member
  • ~2 recipients
  • ~$500* award

*Specific amounts vary annually based on Endowment Award contributions
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
Robert J. Rubin Student Travel Award

• Created in July 2008 by former student, Mark Montgomery
  • Honors Dr. Rubin’s distinguished career in toxicology and commitment to education
  • Jointly managed by Mechanisms SS and Risk Assessment SS
  • Endowed award
  • Administrator: Brian Day

• Applicants must submit an abstract and cover letter
  • Selections based on abstract quality and application of mechanistic toxicology to risk assessment
  • ~1-2 graduate student recipients
  • ~$500-750* award

*Specific amounts vary annually based on Endowment Award contributions
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

- Established in December 2008 to recognize students and postdocs for excellence in mechanistic renal toxicity research
  - Created by donors active in renal toxicology research
  - Fosters continued advancement of renal toxicology field
  - Endowed award
  - Administrator: Dan Petersen

- Applicants must submit an abstract, 300 word narrative, and advisor letter of support
  - 3 recipients: 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>
  - ~$250-$1000* award

*Specific amounts vary annually based on Endowment Award contributions*
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
Jephte 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

• Established in December 2009 by former student, Dr. Curtis Klaassen to memorialize Dr. Plaa’s contributions in toxicology, leadership, mentorship, and friendship
  • Former SOT President and Editor of TAAP
  • Outstanding contributions to mechanistic toxicology and chemical-induced liver injury
  • Tremendous influence in training toxicologists
  • Endowed award
  • Administrator: Donna Zhang

• Applicants must submit a cover letter, abstract, CV, + 2 letters of recommendation
  • Finalists are selected to interview before a committee Sunday preceding the Annual Meeting
  • 3 recipients: 1st, 2nd, 3rd
  • ~$750-$1500* award

*Specific amounts vary annually based on Endowment Award contributions
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

• Established in March 1983 to honor the life and work of Carl C. Smith
  • Oldest award offered by Mechanisms SS
  • Created through the leadership of Dr. Smith and his wife, Thelma (Tee)
  • Encourages students to conduct research on mechanisms of toxicity
  • Endowed award that predates SOT Endowment Fund framework
  • Administrator: John Clarke

• Applicants must submit cover letter, abstract, personal statement, + 2 letters of support
  • Finalists are selected and must submit a full manuscript of the submitted project for final judging
  • 3 recipients: 1st, 2nd, 3rd
  • ~$750-$2000* award

*Specific amounts vary annually based on Endowment Award contributions
Sincerest Appreciation to Carl C. Smith Award Judges

• First Round—Abstract Judges
  • Julia Cui, University of Washington
  • Sarah Campion, Pfizer
  • Douglas Keller, Sanofi
  • Udayan Apte, University of Kansas Medical Center
  • Kristen Mitchell, Boise State University

• Second Round—Manuscript Judges
  • Jason Fritz, US EPA-OECA
  • Julie Gosse, University of Maine
  • Hannele Huuskonen, European Chemicals Agency
  • Daniel R. Dietrich, University of Konstanz
  • David Williams, Oregon State University
  • Jeffrey Willy, Vertex Pharmaceuticals
  • Iván Csakany, Children’s Mercy Hospital

THANK YOU!!
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
Thank you all for your continued support of the Mechanisms SS!!

Please plan to join us in sunny Orlando next year!

March 14-18, 2021

Orange County Convention Center

Orlando, Florida

SOT 2021 Abstract Submission Deadline: October 16, 2020