Michigan State University

PHARMTOX QUARTERLY

Pharmacology & Toxicology Quarterly
August 30, 2019- PQ N. 07

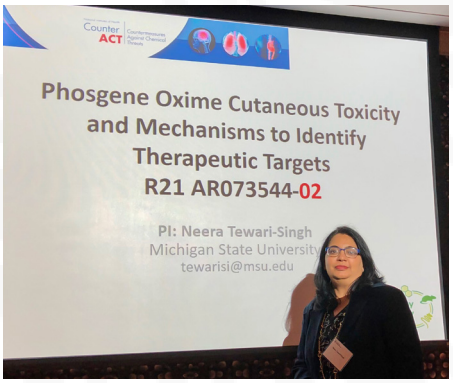
NIH Counter**ACT** - Improving Medical Response Capabilities to Chemical Emergencies

Dr. Neera Tewari-Singh shares her experience on being a part of the CounterACT Research Team.

Dr. Neera Tewari-Singh is a new Pharmacology & Toxicology Assistant Professor appointed in the College of Osteopathic Medicine. She came to MSU in January of 2019 from the faculty of the Pharmacy School at the University of Colorodo where she developed her program on chemical threat mitigation.

What is CounterACT?

Toxic chemical exposures can pose a serious threat to human health and survival and can cause chemical emergencies. Chemical threats contain chemical warfare agents, toxic industrial and agricultural chemicals, and toxins and other chemicals that could be used intentionally or by large-scale accidents during transportation/storage or natural disasters. The National Institutes of Health has developed a comprehensive research program named the Countermeasures Against Chemical Threats (CounterACT) with a goal to integrate cutting-edge research with the latest technological advances in science and medicine for a more rapid and effective response during a chemical emergency. The CounterACT program supports translational research, applying ideas, insights, and discoveries generated through basic scientific study towards treatment or prevention of mortality and morbidity caused by chemical threat agents. This program is funded by a special annual Congressional supplemental appropriation to the NIH budget through the Office of the Director (NIH OD) and functions under the oversight of the Office of Biodefense Research and Surety (OBRS) at the National Institute of Allergy and Infectious Diseases (NSAID). This is a trans-NIH effort, involving partnerships with multiple institutes to implement the overall NIH Medical Research Program Directed Against Chemical Threats.



Dr. Tewari-Singh at the 13th annual NIH CounterACT Network Research Symposium. More on Dr. Tewari-Singh.

What's your role in the CounterACT program?

As an Investigator under the CounterACT program, my goal is to develop effective countermeasures against chemical threat agents; mainly skin and ocular exposures to vesicating agents. I am a principal investigator on a project to study the urticant phosgene oxime toxicity from its cutaneous exposure and related mechanisms to identify therapeutic targets. Our study is highly momentous to aid in the identification of novel targets for therapeutic intervention and effective therapies. Research outcomes are anticipated to mitigate phosgene oxime and probably other vesicating agents' cutaneous exposure-induced morbidity and mortality.

How did you get involved with the CounterACT program?

With a passion to develop effective targeted medical interventions, a critical component of the modern global strategy to overcome the challenges of chemical emergencies in both civilian and military populations, I became a part of the CounterACT program as a postdoctoral fellow in the year 2007.

What impact do you see the CounterACT program having on our society?

The research under the CounterACT program is highly significant because technological advances and increasing industrialization pose an enhanced risk of occupational and/or accidental human exposure to chemical agents in addition to their potential use in warfare and terrorism. The ongoing research under the program is very promising with the goal of enhancing the nation's medical response capabilities for rapid medical intervention during chemical emergencies.

More information on CounterAct

PharmTox Quicknotes

Kenneth E. Moore Award

Our Kenneth E. Moore Distinguished Alumnus Awardee for 2019 is Dr. Lyle Burgoon. Dr. Burgoon graduated from Pharmacology & Toxicology in 2005 and was in the Zacharewski Lab. Dr. Burgoon's seminar is scheduled for Wednesday, October 30th @ 12pm in our Theodore M. Brody Conference Room (B448 Life Science Building). Visit our department website for more information.

Alumni Steering Committee

Our inaugural Alumni Steering Committee meeting is set to take place November 7th - November 9th here at our Department in East Lansing.

All faculty, students, and alumni are invited to join us Friday, November 8th @ 4pm in the IQ building for student speed data, poster session, and reception. Hors D'oeuvre and drinks provided. We will send out an "Evite" with an RSVP soon.

Theodore M. Brody Award

Our Theodore M. Brody Distinguished Lecturer for 2019 is Dr. Jeffrey L. Benovic from Thomas Jefferson University in Philadelphia, PA. Dr. Benovic will be joining us Monday, November 18th @ 12pm in the Theodore M. Brody Conference Room (B448 Life Science Building) to present his seminar. For more information on our Theodore M. Brody seminar series, visit our departmental website.

ASPET SURF- Summer Undergraduate Research Fellows

Catching up with Dr. Liby and the ASPET SURF program


Dr. Karen Liby

1. What is the ASPET SURF Program?
The Summer Undergraduate Research Fellowship (SURF) program is designed to introduce students to research in the field of Pharmacology, especially students interested in graduate school and a career in research or a related health care discipline. Students work ~ 40 hours per week under the direction of a faculty member in the Department of Pharmacology and Toxicology. In addition to the hands-on research experience, students gain experience presenting their work, by poster at the mid-Michigan Symposium for Undergraduate Research Experiences (mid-SURE) and orally to all of the students and mentors. The students receive a stipend supported by the American Society of Pharmacology and Experimental Therapeutics (ASPET), the Department of Pharmacology and Toxicology, the College of Osteopathic Medicine, the Graduate School, and the individual mentors.

2. What is your roll in the SURF program?
I serve as the Program Director. I am grateful for all who volunteer their time to help with the application process and website, reviewing applications, social events, the weekly seminar series, and most importantly, mentoring the students.

3. What does the SURF program provide to both students and PharmTox Department?
This program is often the first intensive research experience for students and frequently awakens or strengthens a passion for research. A few students who thought they were interested in graduate school discover that research is not an ideal fit for their talents, which is also an important discovery. The program is serving as a recruiting tool for the Department, as students who attend other universities are spreading the word about the program and the quality of the faculty and research in the Department. Additionally, we have many former SURF students now placed in our Faculty's labs.

4. How do interested undergrads get involved?
Information is available on the Department website at https://phmtox.msu.edu/education/ug/surf/ or students can contact me directly at libykare@msu.edu

5. Any additional thoughts/comments on the SURF program you'd like to share?
Students who have completed the program consistently express their gratitude for the opportunity to learn more about research. They appreciate the time dedicated by the mentors and faculty who share their unique experiences and journey to MSU as described in our weekly seminar series.

Blast from the past

Can you identify the Pharmacology & Toxicology Faculty members & Alumni?

Questions or comments? Something you'd like to share? Send us an email! We would love to hear from all of our alumni and friends. The more updates and news we get from our alumni, the more news and updates we will include in our communications!

Department Email: PHM@MSU.EDU

New Grants:

Mechanistic action of statins for skin cancer prevention. PI: Dr. Jamie Bernard. Sponsor: Michigan State University, Gran Fondo. $45,000

TRPV1 Mediates Progressive Stress-Induced Bladder Dysfunction. PI: Dr. Nathan Tykocki. Sponsor: National Institutes of Health R01. $1,731,275

Phosgene Oxime Cutaneous Toxicity and Mechanisms to Identify Therapeutic Targets. PI: Dr. Neera Tewari-Singh. Sponsor: National Institutes of Health R21. $240,236

Mechanisms of small molecule gene transcriptional regulators. PI: Dr. Richard Neubig. Sponsor: National Institutes of Health R01. $ 1,503,575

Repurpose open data to discover therapeutics for understudied diseases. PI: Dr. Bin Chen. Sponsor: National Institutes of Health R01. $ 2,117,273