



MTF | Medical Toxicology
Foundation

Med Tox Shark Tank Research Forum



Hosted by
David Jang, MD, FACMT

Information Session
Monday, November 13
12 PM ET



MTF | Medical Toxicology
Foundation



ACMT | American College
of Medical Toxicology

Agenda

- Overview:
 - What is Shark Tank?
 - What changes have been made?
- How to Apply
- How it Works
- Timeline
- Q&A

What is the MedTox Shark Tank Research Forum?

- This is an opportunity for fellows, residents, and medical students
- You will receive expert input regarding your proposed research project
- The opportunity to present your research at ACMT Annual Scientific Meeting
- You could receive seed funding for your project if selected!

What Changes Have Been Made?

Last Year

- Submit an abstract
- Winner(s) present at ASM
- Prize: up to \$1500 in travel reimbursement to present results of research as a poster at a future ASM (and glory and a Shark Plush)

This Year

- Submit an aims page
- Top 5 submitters are invited to present a full proposal at ASM
- Prize: up to \$20K in seed funding + Shark Plush

How to Apply

To be eligible, you must:

- Be a Fellow-in-Training, Resident, or Medical Student
- Submit an Aims Page (1 page)

An Aims Page should include the following:

- Title of Presentation
- Identify the problem at hand and important gaps that your research will clarify
- Hypothesis-driven aims
- Brief overview of the methods that will be employed
- One page in length!

Submit: acmt.net/annualmeeting/shark-tank



Give Now



About

Opportunities

Our Impact

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2024 ACMT Annual Scientific MedTox Shark Tank Research Forum

April 12 - 14, 2024
Omni Shoreham Hotel
Washington, DC

Visit Conference Website

Participate in the 2024 MTF Shark Tank Research Forum **\$20,000 Research Award**

Submit

Info Session

2024 Annual Scientific Meeting Important Dates

Accepting Abstracts

The MTF Shark Tank Research Forum is an opportunity for Fellows-in-Training, Residents, and Medical Students to obtain expert input during the formative stage of a research project. The session objective is to offer valuable insight that could strengthen their proposed research project.

2024 ACMT MedTox Shark Tank

To submit a proposal, please complete this form.

First Name *

Last Name *

Email *

Mobile Phone *

Degree(s) *

Select or enter value

University / Fellowship Program *

Training Level *

Select or enter value

Title of Presentation *

List All Investigators

File Attachments *

Please upload your application as a word document. A complete application will include: 1. Title of Presentation 2. Aims 3. Significance and Innovation 4. Research Approach (Methods) and Timeline 5. Major Limitations/Questions

Drag and drop files here or [browse files](#)

Send me a copy of my responses

Submit

Where can I find a sample aims page?

SPECIFIC AIMS: *The overarching goal of this proposal is to investigate the use of blood cells as a biomarker of early mitochondrial dysfunction and to investigate a novel therapeutic for the treatment of impaired cellular energy metabolism due to carbon monoxide (CO) poisoning. CO is a colorless and odorless gas that is an important cause of poisoning annually with an estimated 50,000 emergency department visits occurring in the US. Sources include faulty heat generators, suicidal attempts, and fires. It is a leading cause of poisoning deaths globally. CO poisoning has high mortality and morbidity; and, although hyperbaric oxygen (HBO) is an established treatment of CO poisoning, it is technically challenging to provide and in those that survive over 50% develop long-term cardiac and neurological injuries. Carbon monoxide causes adverse effects by combining with hemoglobin to form carboxyhemoglobin (COHb); however, we have demonstrated additional lethal mechanisms of CO poisoning: mitochondrial dysfunction due to Complex IV (CIV) inhibition.*

Significant knowledge gaps remain, including: (1) lack of biomarkers to gauge severity of disease; (2) limited mechanistic understanding of mitochondrial injury; (3) lack of complementary treatment strategies to HBO that target mitochondrial dysfunction in an attempt to mitigate cardiac and neurologic disability. This project will characterize the mitochondrial pathways involved in CO poisoning using peripheral blood mononuclear cells (PBMCs) and platelets (PLTs) against select tissues in a murine model of CO poisoning, furthering the mechanistic understanding of CO poisoning and developing PBMCs and PLTs as potential biomarkers to target organ mitochondrial function. We also propose to investigate an engineered succinate prodrug *in vivo* to improve mitochondrial respiration, sustain cellular function, and limit organ injury. Thus, we propose to address the following critical issues relevant to CO and mitochondrial injury:

- *Investigate and correlate tissue-specific changes in mitochondrial function in a murine model of CO poisoning and determine if blood cells can serve as a proxy for tissue-specific mitochondrial function.*
- *Determine if an engineered cell-permeable succinate prodrug can serve as an alternative source of mitochondrial substrates to attenuate cellular energy crisis and organ injury secondary to CO.*

The long-term goals of our proposed research are to define specific mitochondrial defects in CO poisoning and evaluate a novel mitochondria-directed therapeutic. We have assembled an accomplished team of complimentary researchers who specialize in medical toxicology, critical care, biomarkers in critical illness, drug development, and mitochondrial medicine.

Specific Aim 1: Assess tissue-specific and blood cell mitochondrial response in a murine model of carbon monoxide poisoning

We have demonstrated the potential of PBMCs as a clinical biomarker for CO poisoning in prior publications. In this aim, we will further elucidate the mechanisms of mitochondrial toxicity in CO poisoning, develop mitochondrial endpoints, and map the tissue specificity of the mitochondrial response. We hypothesize that blood cell mitochondrial metrics will exhibit a decrease in CIV respiration, increased reactive oxygen species (ROS), and

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Join ACMT for an Information Session on Monday, November 13 at 12 PM EDT

Register for Info Session

How to Apply

We invite applicants to submit an abstract of a research proposal to this forum. The proposal could represent a planned research project (prior to IRB submission), a proposal awaiting IRB approval, or something that is further along, perhaps into a pilot data collection phase.

To be eligible, you must be a Fellow-in-Training, Resident or Medical Student. The abstract should include:

1. Title of Presentation
2. Aims
3. Significance and Innovation
4. Research Approach (Methods) and Timeline
5. Major Limitations/Questions

Submission Deadline: Monday, December 4, 2023

Submit Sample Aims Page

How It Works

After initial review of all submissions, a select number of abstracts will be selected for presentation at the 2024 ACMT Annual Scientific Meeting on April 12-14, 2024 in Washington, DC.

This meeting will be fully in-person. Presenters will be expected to register for the meeting and present in-person on the main stage in Washington, DC. **There will be no virtual option.**

During the MTF Shark Tank Session, the selected applicants will be given 10 minutes for an oral presentation that emphasizes the crafting of a study hypothesis, proposed study methodology, data collection, and analytic techniques. Brief and relevant background material is acceptable, but the presentation should focus on the project itself.

The presentations will be made to a panel of senior medical toxicology faculty in an environment geared towards *constructive* comments and feedback. The panel will award up to \$20,000 to the winner(s).



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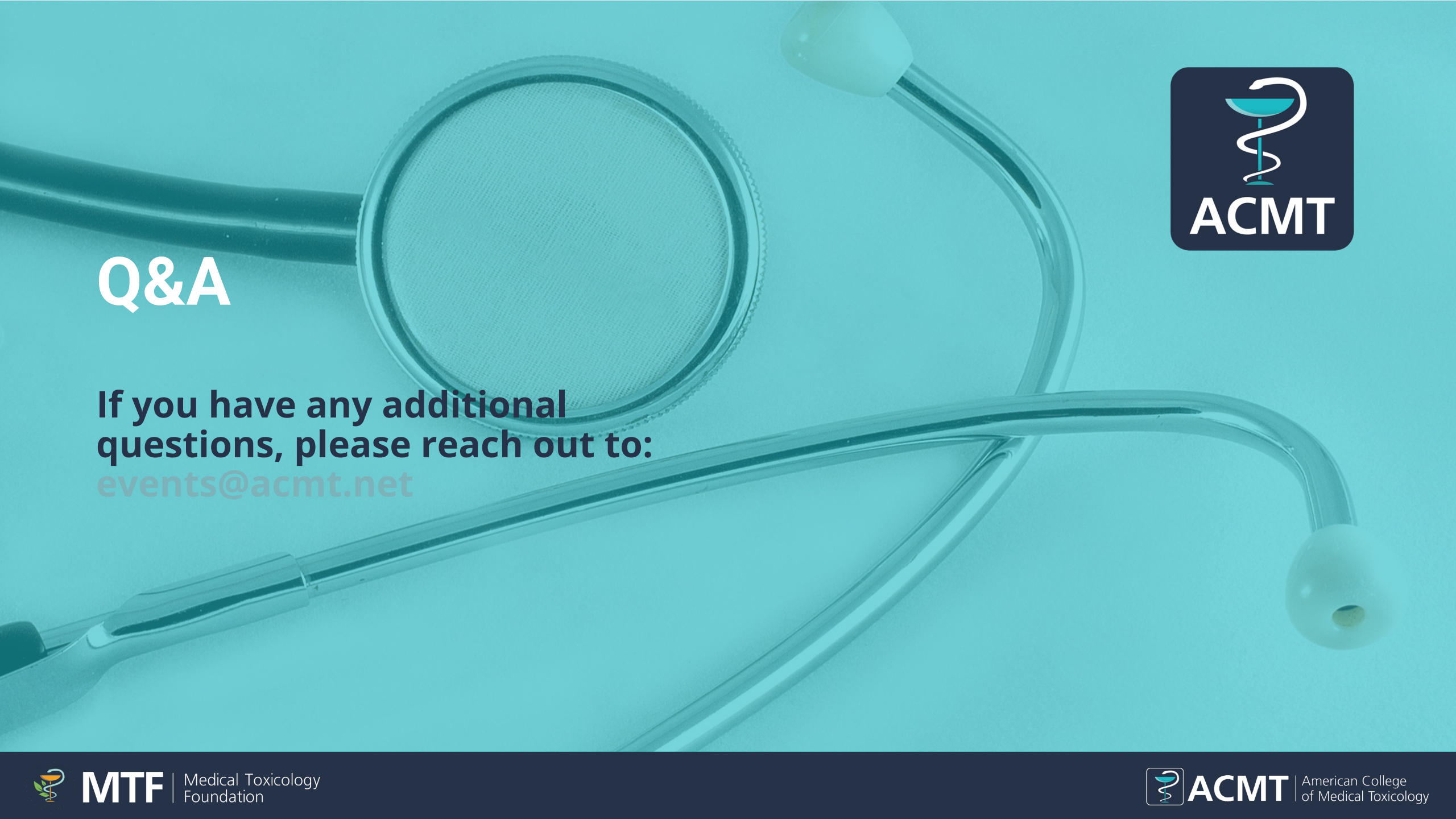
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Timeline:

- Submit Aims Page by **Dec 4th**
- Notifications Sent by **Dec 20th**
- If selected, then will Present at #ACMT2024 (April 12-14th in Washington, DC)
- 10-minute Presentation during Shark Tank Session (Saturday, April 13th 3:30-5:00 PM)
- Committee decides winner at the end of the Shark Tank Session



Q&A

If you have any additional questions, please reach out to:
events@acmt.net