

# THE MEDICAL SCIENTIST

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### Dinner Seminar

Thursday, Aug 29, 2019  
Salman Khetani, PhD  
Assoc. Professor  
Dept. of Bioengineering

Monday, Sept 16, 2019  
Olusola Ajilore, MD, PhD  
Assoc. Professor  
Department of Psychiatry

Thursday, Nov 20, 2019  
Thesis Presentations

Friday, Nov 21, 2019  
COM Research Day

### MSTP 2019–2020 Interviews Calendar:

Monday, October 28, 9-5  
1st Interview Group

Monday, November 25, 9-5  
2nd Interview Group

Monday, January 13, 9-5  
3rd Interview Group

Monday, January 27, 9-5  
4th Interview Group

Monday, February 27, 9-5  
5th Interview Group

## WELCOME TO THE NEW M1 CLASS

The UIC MSTP welcomed a lucky thirteen M1 students into the program family during summer 2019. After spending part or all of the summer pursuing their first UIC lab rotations, they were officially welcomed into the entering COM M1 class at the White Coat Ceremony on August 10.



Pictured left to right they are (front row): **Kyle Kremiller, Chen Han, Ali Farhat**, (2nd row): **Adam Ruprecht, Theresa Nguyen, Jacob Neethling, Alejandra Cavazos Saldana, Juliana Theorell, Luis Aponte Cofresi**, (back row): **Haley Cropper, Julianne Jorgensen, Samuel Feldstein, Suzanne Alvernaz**

This baker's dozen are all high academic achievers who have had extensive research training—both as undergraduates and in post-graduate work—and extensive clinical exposure. Yet they have also managed to devote countless passionate hours to community service in areas such as food pantries, homeless services,

medical missions, first-aid responder, nursing homes, Hurricane Maria Relief Work, Habitat for Humanity and other housing organizations, Make-A-Wish Foundation, sports events to raise money for health care, campus organizations, and teaching/tutoring children. In sports, they have chosen an eclectic group of activities to engage in: intramural volleyball (Alvernaz), rugby (Han and Neethling), coaching high school wrestling (Kremiller), yoga and cycling (Ruprecht) and a combination of dragon boat racing, kayaking, rock climbing and soccer (Theorell).



### **Suzanne Alvernaz** Home town: Manteca, CA

**Degree:** BS, Microbiology, California Polytechnic State University, 2018

**Research Interests:** Prevention of TB and Eradication of Mycobacterium Tuberculosis

**2019 Rotation:** Lab of Justin Richner, PhD, Asst. Prof, Dept. of Microbiology/Immunology

**Why MD/PhD?** As a physician, I could contribute to the community fighting [TB].

To effectively do this, it is imperative to understand the patients, their backgrounds, and what it means to live with TB. This is why I want to become a physician scientist. Both in the lab identifying the biology of the disease and in the clinic seeing and understanding the patient's story, physician scientists can be a vital part of helping to end TB.

(Continued on pages 2 and 3)

## Meet the 2019 Entering Class, continued from p. 1



**Luis Aponte Cofresi** Home town: San Juan, Puerto Rico

**Degree:** BS, Biology, University of Puerto Rico Rio Piedras, 2018

**Research Interests:** Neurodegenerative Diseases such as Alzheimer's and Parkinson's  
**2019 Rotation:** Lab of Mark Brodie, PhD, Professor, Dept. of Physiology & Biophysics

**Why MD/PhD?** With the unique training I will receive from an MD/PHD program I hope to become an academic neurologist able to bridge the gap between [lab and clinical work]. I not only look forward to applying what I learn in the lab into the clinic, but I also hope to help teach a new generation of students. I am a strong believer that the complementarity between these fields can be used to both help impact the lives of patients towards a better life and to bring forth novel knowledge that will make an impact on a global scale

**Alejandra Cavazos Saldana** Home town: Madison, WI

**Degree:** BS, Biology, University of Texas San Antonio, 2016

**Research Interests:** Cancer Biology, Oxidative Stress, Metabolism Therapeutics

**2019 Rotation:** Lab of Nissim Hay, PhD, Prof., Dept. of Biochemistry/Molecular Biology

**Why MD/PhD?** As collaborative as science can be, attending clinic gave me the opportunity to develop my own perspective. Once I began shadowing physicians-scientists at the NIH Clinical Center, I saw firsthand the synergy created by fluency in both the physician and scientist languages. Observing deficits after reviewing MRIs intimately linked anatomy to function far beyond the scope of memorization. This was the kind of conceptual understanding I was looking to incorporate into my research directions.



**Haley Cropper** Home town: Woodside, CA

**Degree:** BS, Biopsychology, Cognition, Neuroscience, University of Michigan, 2017

**Research Interests:** Neuroscience, Immunology, Microbiology

**2019 Rotation:** Lab of Sarah Lutz, PhD, Asst. Prof, Dept. of Anatomy & Cell Biology

**Why MD/PhD?** I am completely enthralled by the endeavor of understanding connections between the microbiome and the immune and nervous systems. Much like the host-microbe interactions, a dual MD/PhD degree will provide a symbiosis in my scientific career. As a physician-scientist, I will connect my patients' symptoms to identify the underlying illnesses while simultaneously investigating the underlying mechanisms in the lab. Pursuing an MD/PhD will help both refine my research and fuel the passion I have for helping others, leading to proactive treatments and cures.



**Ali Farhat** Home town: Monterey Park, CA

**Degree:** BS, Bioengineering, University of California at Los Angeles, 2019

**Research Interests:** BioE, Computational & Systems Molecular Biology, Machine Learning

**2019 Rotation:** Lab of Jie Liang, PhD, Professor, Dept. of Bioengineering

**Why MD/PhD?** The angles and interdisciplinary approaches I want to use to solve medical problems have significantly increased through my research involvement at UCLA. I hope that through this specialized dual degree I continue to enhance my knowledge so that in the future, I too can employ advanced research skills to solve and understand medical obstacles and serve as a community guide between new technology and medicine.



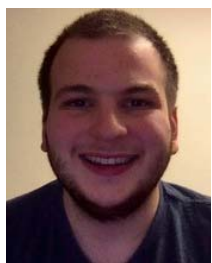
**Samuel Feldstein** Home town: New York, NY

**Degree:** BA, Neurosciences, Northwestern University

**Research Interests:** Immunology, Neuroscience, Genetics/Genomics, Microbiology

**2019 Rotation:** Lab of Teruyuki Sano, PhD, Asst. Prof, Dept. of Microbiology/Immunology

**Why MD/PhD?** The prospect of exploring an ancient and still only partly understood aspect of the visual system while running my own experiments has been a rewarding experience. This is because I have an innate curiosity and am interested in discovering new knowledge simply for its own sake. I also know that basic science lays a foundation for ideas that may one day play a role in understanding disease and treating patients. Thus, I am excited to pursue an MD/PhD because it will allow me to integrate my two areas of fascination: research and treatment.



**Chen Han** Home town: Gaithersburg, MD

**Degree:** BS, Biochemistry, Georgetown University, 2017

**Research Interests:** Biochemistry & Molecular Genetics, Cancer Biology

**2019 Rotation:** Lab of Dawood Darbar, PhD, Prof. and Chief of Cardiology, Dept. of Medicine

**Why MD/PhD?** Biomedical research is inseparable from the clinic. Insights from patient interactions and rigorous knowledge of normal physiological processes is needed to elucidate disease mechanisms and provide a solid base for improved clinical outcomes. As an MD/PhD, I desire to use my scientific findings to benefit my patients and to hopefully begin collaborative clinical trials for patients suffering from rare genetic diseases.





**Julianne Jorgensen** Home town: Los Angeles, CA

**Degree:** BS, Engineering, Olin College of Engineering, 2015

**Research Interests:** Microfluidics/Medical Devices, Immunology, Metabolism, Cardiology

**2019 Rotation:** Lab of Richard Minshall, PhD, Professor, Dept. of Pharmacology

**Why MD/PhD?** The MD education will provide the foundation for understanding the pathology of these diseases [across medical disciplines] and how the organ systems and cell types interact. The clinical practice will give me the opportunity to have a direct impact on another's well-being as well as ground my research in real issues. The PhD will allow me to work in a mentored environment to refine my research techniques and give me the credibility I will need to attract interest and funding for my work. I am certain that I will practice medicine and engage in research for the rest of my life and the combined program is the training I need to pursue this integrated goal.

**Kyle Kremiller** Home town: Mentor, OH

**Degree:** BS, Genetics, Rutgers University

**Research Interests:** Drug Discovery for and Immunology of Infectious Disease

**2019 Rotation:** Lab of Terry Moore, PhD, Asst. Prof., Medicinal Chemistry & Pharmacognosy

**Why MD/PhD?** With the training provided by the MD/PhD program I will have the necessary skills to expand the boundaries of medicine. I see how the work on TB I am conducting can change countless lives suffering from the most prevalent infectious disease in the world and how a dedicated background in research could lead me to better treat individual patients. I envision my dreams will be fulfilled with greater contributions to the medical field as a physician scientist.



**Jacob Neethling** Home town: Springfield, IL

**Degree:** BS, Biochemistry, University of Illinois at Urbana-Champaign, 2019

**Research Interests:** Cancer Cell Biology: metastasis & invasion; cancer stem cells; signal transduction pathways

**2019 Rotation:** Lab of Jan Kitajewski, PhD, Prof. and Head, Dept. of Physiology & Biophysics

**Why MD/PhD?** My goal is to become the best physician I can be for my patients both in knowledge and experience. To me, that entails obtaining a doctorate that allows me to appropriately question and analyze the data presented to me while working with patients. The extensive textbook knowledge learned and the practical, applicable experience that I will gain in medical school is unequivocal; however, I think that a PhD instills critical thinking skills to a further extent than medical school does. The extent of rigorous coursework and demanding hours the dual degree program requires is something that few have encountered.



**Theresa Nguyen** Home town: Palo Alto, CA

**Degree:** BA Molecular Biology, University of California, Berkeley, 2015

**Research Interests:** Neuroscience: Mood Disorders and Neural Circuitry

**2019 Rotation:** Lab of Olusola Ajilore, PhD, Associate Prof, Dept. of Psychiatry

**Why MD/PhD?** In order to discover new treatments, make current treatments more effective, and improve patient care, we must first deepen our understanding of how disorders arise. By pursuing an MD/PhD, I aspire to use my clinical expertise to direct my research and to use that research, in turn, to enhance and improve my quality of care as a physician and to further our collective knowledge of mental illness and its causes.



**Adam Ruprecht** Home town: Boston, MA

**Degree:** BA, Cognitive Science—Neuroscience Concentration, University of Pennsylvania, 2014

**Research Interests:** Public Health, Epidemiology, Translational Research

**2019 Rotation:** Lab of Jerry Krishan, MD, PhD, Professor of Medicine and Public Health

**Why MD/PhD?** Having experienced this [bench to bedside] connection, I now know that I will not be satisfied without being able to both man the frontline in the clinic, and contribute new knowledge from the lab. I seek the training of a graduate program to learn to harness creativity with rigorous methodology, as well as medical training to be able to impact patients' lives directly. I deeply value these face-to-face interactions and trust that treating patients will further fuel my future research.



**Juliana Theorell** Home town: Burr Ridge, IL

**Degree:** BS Summa Cum Laude, Neuroscience, University of Illinois at Chicago

**Research Interests:** Neuroscience, Immunology, Virology, Vaccines, the Microbiome

**2019 Rotation:** Lab of Justin Richner, PhD, Asst. Prof., Dept. of Microbiology/Immunology

**Why MD/PhD?** My long-term goal is to care for patients one-on-one while engaging in scientific discovery as a means to make a broader difference. I want to further hone my analytical skills as a researcher and apply these skills to the treatment of patients with complex medical conditions. Conversely, direct patient care can reveal questions that can be answered through research. During my medical school education and beyond, I would like to continue being a vital part of that potential by obtaining the MD/PhD degree because it lies at the intersection of science and medicine.



## 2019 MSTP Retreat

Thursday, July 10-11, 2019—Starved Rock Lodge & Conference Center, Utica, IL



After a 1-day stay-in-town retreat in 2018, the 2019 retreat returned to everyone's favorite venue, **Starved Rock** for an overnighter. As always, the beauty of nature that pervades the Starved Rock lodge and grounds provided an ambience of fresh air and comfort to in-

duce relaxation, camaraderie and fun. Upon arriving at the lodge early Wednesday morning, the first order of business was the annual ceremony to welcome the new M1 students. As usual a comic roast was the theme of the power point presentation highlighting interesting facts about each of them. **Dr. Rosenblatt**, then gave the annual State of the Program message followed by a discussion of new initiatives from MSTP Leadership, delivered by Associate MSTP Director **Dr. Dawood Darbar** (right).



The morning session concluded with the keynote address by **Dr. Larisa Nonn** (left), Associate Professor, Department of Pathology & GEMS Concentration Leader-Cancer Biology on "Unraveling the relationship between vitamin D and prostate cancer disparities in African American men leads to a challenge to the Free Hormone Hypothesis"



After lunch, the student gathered outside for the annual group photo with everyone wearing their new MSTP t-shirt.

The afternoon session was devoted to student affairs: (a) Student Research Presentations – by Casey Blaha (G5), Artemis Gogos(G4), and Danny Principe (G3); (b) Student Cohort Meetings; a series of 5-minutes research presentations; and SAC Updates and Wellness Panel.



Dinner at 7:00 was followed by the Starved Rock signature Wine Tasting party, during which academic posters were presented by the following students:

**May Barakat** (G2- PI, Luisa DiPietro, DDS, PhD) "The Effects of NRF2 Activation on Diabetic Wound Healing"

**Mitchell Butler** (M2- Lab Rotation Zhou) "At The Core of Conformation: Investigating the Structural and Mechanical Properties of Transmembrane Proteins"

**Joseph Geraghty** (G4- PI, Jeffrey Loeb, MD, PhD) "Neuroinflammation after Subarachnoid Hemorrhage as a Driver of Epileptic Networks"

**Jane Ivakhnitskaia** (G4- PI, Mark Rosenblatt, MD, PhD, MBA) "Effect of Acute Prolonged Exposure to Benzalkonium Chloride on Structure and Function of Corneal Nerves and Epithelium"

**Allison Kirchner** (G4-PI, Jeffrey Loeb, MD, PhD) "Identifying long non-coding RNAs within the MAPK signaling pathway from human epileptic tissues as potential therapeutics"

**Matthew Kleinjan** (G3- PI, Jan Kitajewski, PhD) "Chloride Intracellular Channel (CLIC) proteins function in S1P receptor and protease-activated receptor PAR1 pathways to regulate endothelial barrier integrity"

**Kyle Kremiller** (M1- Rotation Terry Moore, PhD) "DG77 and DG85 are Novel Antitubercular Multi Target Inhibitors"

**Trevor Leonardo** (G3-PI, Luisa DiPietro, DDS, PhD) "Transcriptional regulation of wound healing in human gingiva and skin"

**Hannah Pennington** (G3-PI, Brad Merrill, PhD) "Reconstructing Cell Lineages Using DNA Annotating Elements "

**Cory Reiter** (G4- PI, Ernesto Bongarzone, PhD) "Region specific changes in gliosis following reduced extracellular vesicle release in the Twitcher mouse model of Krabbe Disease"

**Rachael Smith** (G3- PI, Ernesto Bongarzone, PhD) "Autophagosome-Lysosome Fusion is Altered in the Maternal Brain During Pregnancy"

**Michael Sun** (G4- PI, Mark Rosenblatt, MD, PhD, MBA) "Characterizing Mechanical Properties of Silk Films with Atomic Force Microscopy to Study Corneal Epithelial Cell Mechanotransduction"

**Adam Szmelter** (G3- PI, David Eddington, PhD) "3D-printed 96-well gas control"

**Alex Terry** (G4- PI, Nissim Hay, PhD) "The role of CD36 in tumor redox homeostasis"

**Morgan Zenner** (G3- PI, Larisa Nonn, PhD) "The Potential for Circulating Extracellular Vesicle microRNAs to Predict Prostate Cancer Aggressiveness"



After spending the night in the comfortable Starved Rock accommodations, and a hearty breakfast the next morning, the group convened for their annual SAC meeting and then headed back to campus. With great weather, food, academics, camaraderie and fun, it was an awesome retreat!





## Awards and Honors

MSTP Alumni Association, Edward P. Cohen Award 2019 was presented to **Alexandria Young (M3)**. (left) This award is presented annually to a MSTP student who has completed their PhD Training and successfully defended their thesis and is returning to medical school. Students submit an application and the awardee is voted on by the entire MSTP Alumni Association. This award is coordinated by alumnus, David Ramsey, MD, PhD, MPH (2008)

### Other Awards:

**University of Illinois Image of Research recognizes two MSTP students for their submissions to this annual contest:**

Danny Principe (G3) —1st Place

Artemis Gogos (G4)– Finalist

Artemis and Danny will be recognized at the Exhibition's opening reception on October 28th.

## Wedding Bells

### Congratulations to:

**Rachael Smith (G3) (right) on her marriage to David Brewer on June 15, 2019 .**

**The wedding took place at the Peggy Notebaert Nature Museum in Lincoln Park.**



## Lunch Seminars—Noon—303 CSN

Thursday, August 22—**Dr. Tom Gao**, Asst. Prof. of Pharmaceutical Sciences, College of Pharmacy

Wednesday, August 28,—**Dr. Swetha Gowrishankar**, Asst. Prof., Dept. of Anatomy & Cell Biology

Friday, September 6—**Dr. Jalees Rehman**, Professor, Dept. of Medicine: Cardiology

Tuesday, September 10—**Dr. Larisa Nonn**, Assoc. Prof, Dept. of Pathology

Monday, September 16—**Dr. David Ucker**, Professor, Dept. of Microbiology & Immunology

Wednesday, September 18—**Dr. Charles Abrams**, Professor, Dept. of Neurology & Rehabilitative Medicine

Monday, September 30—**Dr. Ana Ricardo**, Assoc. Prof. (CT) of Medicine, Dept. of Nephrology

Thursday, October 3—**Dr. Justin Richner**, Asst. Prof. Dept. of Microbiology & Immunology

Thursday, October 10—**Dr. Sarah Lutz**, Asst. Prof., Dept. of Anatomy & Cell Biology

Monday, October 14—**Dr. Judith Behnsen**, Asst. Prof., Dept. of Microbiology & Immunology

Wednesday, October 16—**Dr. Maria Argos**, Assoc. Prof. of Epidemiology, School of Public Health

Friday, October 18—**Dr. Kuei Tseng**, Visiting Assoc. Prof., Dept. of Anatomy & Cell Biology

Monday, November 18—**Dr. Michael Caffrey**, Assoc. Prof., Dept. of Biochemistry & Molecular Genetics

### Alumni News

**David Ramsey**, (MD, PhD, MPH 2008) was the keynote speaker at May 9, 2019 Graduation Banquet, held at the Crowne Plaza Hotel on Halsted Street. His talk, geared to the graduates, now his fellow alumni **Michael Marshall, Uzoagu Okoknwo, Erin Beisner Shanker, Andrew Widmer, Reid Wilkening** and **Yu (Jenny) Zhang**, covered his experiences since graduation to his position today as holder of The Harry N. Lee, PhD, Chair in Innovation & Director of Ophthalmic Research, Department of Ophthalmology, Lahey Hospital & Center and Beth Israel Lahey Health, Boston, MA. He enjoyed meeting this accomplished group of MSTP graduates and seeing the former and current directors of the program. (Behind him are l to r, Dr. Larry Tobacman, Dr. Patricia Finn, MSTP Graduates, Reid, Andrew, Uzoagu, Erin, Roberta Bernstein, Dr. Nancy Freitag, and Julie Mann).



In July, Dr. David received the Charlton Award from the Tufts University SOM Academic Research Awards Committee, to study Dark Adaptation problems in Primary Open-Angle Glaucoma.

### In the Alumni Mailbag

**From:** Tammy Tamayo [tamtamayo@gmail.com] **Sent:** Tuesday, May 07, 2019

**Subject:** Re: Beautiful new daughter Hi Roberta! Her name is Tennyson Luna Tamayo. She's was born on the 20th of February. Here are some pictures!



(Editor's Note: The older children are left sister Tula, born August 11, 2009 as Tammy was starting her G1 year of PhD studies, and right older brother Torin, Dr. Tammy (2015) completed her 4<sup>th</sup> year of residency in psychiatry at UIC in June and is now on the faculty of the Jessie Brown VA Hospital in Chicago.)

**Note to all alumni: Please keep the updates on your news coming. If you're going to be in Chicago, please stop by for an informal**

Advertisement

### UIC MSTP Alumni Association

The purpose of the UIC MSTP Alumni Association is to encourage networking among alumni and to support current medical scientist trainees at UIC. Since 2009, the Alumni Association has also sponsored the "Dr. Edward P. Cohen Medical Scientist Training Award" given each year to an outstanding student who has completed his or her PhD and is returning to the 3rd year of medical school. Please email David Ramsey, MD, PhD (2008) **dram800@gmail.com** in order to join and encourage your fellow UIC MSTP Alumni to sign up for the group! Donations to support this award may be sent to:

UIC MSTP Alumni Association", COM Dean's Office, MC 784

## The Medical Scientist

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We're on the web!

[www.uic.edu/com/mdphd](http://www.uic.edu/com/mdphd)

### *MSTP Administration*

#### **Mark Rosenblatt, MD, PhD, MBA**

Dean, College of Medicine  
MSTP Director

#### **Patricia Finn, MD**

Dept. Head & Professor of Medicine  
MSTP Associate Director

#### **Dawood Darbar, MBChB, MD**

Professor and Chief of Cardiology,  
Dept. of Medicine  
MSTP Associate Director

#### **Jan K. Kitajewski, PhD**

Sweeney Professor of Basic Sciences  
and Head, Dept. of Physiology &  
Biophysics  
MSTP Associate Director

#### **Julie Mann, MA**

Director, Program Administration

#### **Roberta Bernstein, MA**

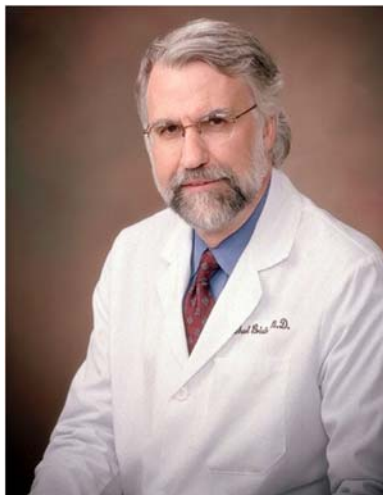
Medical Scientist Editor  
Chair, Alumni Affairs

## Save the Date

**1st Annual MSTP Lecture– Building the Bridge from Bench to Bedside**  
**Featuring MSTP Alumnus, Michael Bristow, MD, PhD (1971)**  
**The UIC MSTP cordially invites you to attend**

**When:** Thursday, October 17, 2019 at 12:00pm

**Where:** G. Stephen and Kathleen Irwin Learning Center Auditorium  
227 College of Medicine West Tower (CMWT)



We are fortunate to have MSTP alumnus, **Michael Bristow, MD, PhD (1971)** as our speaker for our 1st annual MSTP Lecture that is open to the entire College of Medicine. Dr. Bristow is a professor of medicine in Cardiology and the Director of the Section of Pharmacogenomics at the University of Colorado Anschutz Medical Campus.

Dr. Bristow has authored over 500 peer reviewed papers and book chapters on heart failure, cardiac transplants, and pharmacogenomics. He has received a multitude of awards and honors including the Lifetime Achievement Award by the Heart Failure Society of America in 2008 and Distinguished Scientist Award in Translational Sciences by the American College of Cardiology in 2014.



**More Photos  
from Starved  
Rock — Retreat  
2019**





