# **Microbiology & Infectious Disease**

#### **The MID Newsletter**

#### Issue 7, 2017

#### A Message from Our Program Director:



It is a great honor to be the Microbiology and Infectious Diseases (MID) Program's incoming program director. Overseeing and being responsible for the educational growth and training of our talented graduate students is a privilege as well as an important responsibility. And I have some big shoes to fill! I want to thank Dr. Ambro van Hoof for serving as our program director for the last four years. Serving as his co-director during this past year, I have seen first hand how seriously Ambro takes the job and how responsive he is to the students, the faculty and the graduate school. Ambro has shepherded us through a period of many changes that included a complete restructuring of our curriculum, a shift in the number of graduate school programs from 13 to 9, and now a name change. Thank you again, Ambro. I hope I can emulate the high standards that you have set!

Speaking of change, I want to address the rationale for the program name change from MMG to MID, because many of you may not be familiar with why this occurred. First of all, our old program name, Microbiology and Molecular Genetics (MMG), made sense because we all work on microbial systems and most of our work has a strong genetic element. The problem, from GSBS's point of view, was that we were one of four programs that had the word "gene" or "genetics" in their name. When GSBS decided to restructure their programs, one of the goals was to make sure each had a clear identity and a clear niche. It was initially suggested that we call our program are motivated by infectious diseases interest and have translational aspirations. Infectious disease is an area no other program within GSBS clearly covers. Finally, many of our faculty are engaged in research that directly or indirectly touches on infectious diseases. With all this in mind, a majority of our program faculty decided that a name that also incorporates "infectious diseases" would be of benefit to our program.

I do not anticipate any other large changes to the MID program, as a result of GSBS's reshaping efforts. MID was ahead of the game in redesigning and updating its curriculum to fit with the implementation of GSBS's Core Course and other requirements. Having served on the interim reshaping curriculum committee, I will share that our program served as a model in developing the general recommendations that the committee put forth to guide the curriculum design of the other new and reshaped programs. I will end by stating how much I look forward to serving the MID faculty and students as Program Director. Please do not hesitate to drop by, e-mail or phone me if there is anything I can do to help you navigate the MID graduate program.

Danielle Garsin MID Professor & Program Director

#### UNDER CONSTRUCTION

We are soliciting ideas for a new MID program logo! Send submissions to kara.schoenemann@uth.tmc.edu

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### A Spotlight from our Department Chair "Are We Basic?"

On the front page of this issue, Dr. Danielle Garsin provides the rationale for our recent program name change. Some of you may not give a passing thought to this change, but it is important to remember the power of words. In addition to the explicit or literal meaning of a word, every word carries commonly understood cultural or emotional associations. Successful communication happens when the words chosen by a speaker or writer convey the intended connotation to the listener or reader.

I would like to you consider the use of the word "basic" to describe research – especially <u>our</u> research. Most of us are accustomed to this word as a descriptor for the Department of Microbiology and Molecular Genetics and for some other departments of MID faculty. When we read or hear "basic science", we think of the fundamental / mechanistic / non-translational / non-clinical research that we are all



passionate about. But what about non-scientists, or even scientists in other disciplines? What do you think the word "basic" conveys to them?

At best, "basic" means "standard". According to the Urban Dictionary, a mainstream connotation for "basic" is "*devoid* of defining characteristics that might make [something] <u>interesting</u>, extraordinary, or just simply worth devoting <u>time</u> or attention to." Yikes! Is that how we feel about our research? Is that the message we want to convey to others?

Now imagine yourself describing the type of research done in MID laboratories and replace "basic" with "discovery". What emotions does this provoke? This simple word change can have an enormous effect on the listener. And it is a much more accurate descriptor! Every day we are discovering new things. Describing our research as "discovery science" also affects our own psyche. Our hypotheses direct us to adventurous pursuits, and our new findings become discoveries! So proclaim your passion and the value of your science with the words they deserve.

Get out there and talk about Discovery Science!

#### Theresa M. Koehler, Ph.D. MID Professor & MMG Department Chair

#### **ASM-TMC PODCAST**

The American Society for Microbiology Texas Medical Center branch has provided students and postdoctoral fellows from Baylor College of Medicine, Texas A&M University Institute for Biosciences and Technology, and the University of Texas MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences, with opportunities to network and volunteer in the community since 2008. This year, MID students **Naomi Bier** and **Ayesha Khan**, along with John Pribis from Baylor College of Medicine, are producing a podcast called @MicroCast, available on iTunes and Soundcloud. This podcast aims to educate a wide audience of non-scientists and scientists alike on challenges facing, and new discoveries in, the microbiology and infectious disease field. Topics have included antimicrobial resistance and the growing vaccine controversy, with guest experts Dr. Cesar Arias and Dr. Peter Hotez weighing in. Future topics will explore the human microbiome, genetically modified organisms, and bioterrorism. Suggestions for topics and experts to be featured are welcome. You can send your recommendations to Naomi Bier, Naomi.Bier@uth.tmc.edu, or Ayesha Kahn, Ayesha.Khan@uth.tmc.edu.

### **Award Winning MID Students & Postdocs**

The achievements of MID students are frequently recognized by the Graduate School (https://gsbs.uth.edu/current-students/awards-and-funding-opportunities/) and external funding sources.

Naomi Bier:	Eugene and Millicent Goldschmidt Graduate Student Award, TX Branch – ASM Molecular Basis of Infectious Disease Fellowship Trainee
Chris Evans:	Finalist in Oral Speech Competition – GSBS Research Day
Veronica Garcia:	2016 Dean's Research Award
Jaeil Han:	Andrew Sowell-Wade Huggins Scholarship in Cancer Research, GSBS 2 <sup>nd</sup> place, GenDEPOT student poster
Ayesha Khan:	Finalist in Elevator Speech Competition – GSBS Research Day
Yi Liu:	Finalist in Elevator Speech Competition – GSBS Research Day
Jill Losh:	R. W. Butcher Student Achievement Award, GSBS
Norah Owiti:	Fadine Jackson Roquemore Scholarship in Cancer Research, GSBS
Sara Siegel:	Ruth L. Kirschstein National Fellowship Award (NIH, F31)
Robert Williams:	Molecular Basis of Infectious Disease Fellowship Trainee 3 <sup>rd</sup> place, Molecular Basis of Infectious Disease Research Retreat, Student

#### **Dean's Research Award**

Poster

This is the highest award given by the Medical School to graduate students. Veronica Garcia received this prestigious award in June 2016. This is a fantastic achievement for her and a remarkable testament to the quality of her work during her Ph.D.!

> Veronica M. Garcia, Ph.D. pictured with Dean Barbara J. Stoll, M.D. (left)



### MIDers Attend Prestigious Conferences and Workshops

Each year, MID students and postdoctoral fellows have many opportunities to travel to both national and international events. **Robert Williams, Carrie Graham, Elisa Vesely**, and **Pedro Miramon** traveled to Memphis, TN in November for the South Central Medical Mycology conference (SCMM). **Elisa Vesely** also presented a poster in La Coll sur Loup, France for the FEBS Advanced Lecture Course on Human Fungal Pathogens. **Belkys Sanchez** presented her research at both the American Society for Microbiology (ASM) Microbe Meeting in New Orleans, LA and at the 6th International Conference on Gram-Positive Pathogens meeting in Omaha, NE. **Naomi Bier** gave oral presentations at the 19th International Conference on Bacilli & Gram-Positive Bacteria in Berlin, Germany and the ASM Texas Branch Meeting in Dallas, TX. **Jill Losh** attended the Future of Bioscience Graduate and Postdoctoral Training Meeting in Denver, CO. The Arias lab, including **Ayesha Khan**, attended the Advanced Course in Antibiotics in Annecy, France. Many of our students also participated in the Molecular Basis of Infectious Disease Retreat in March 2017.



Robert Williams, Elisa Vesely, Carrie Graham, and Pedro Miramon of the Lorenz lab at the SCMM in Memphis, TN. Elisa Vesely found former Lorenz lab member Slavena Vylkova, Ph.D. while in France.



Heidi Kaplan, Ph.D. attended the Texas branch ASM meeting in Dallas, TX while in Deutschland, Malik Raynor and Terri Koehler, Ph.D. hang out with Robert Koch!



### **MID Volunteers**

In MID, our students make it a priority to volunteer their time to enrich the community that we call home. This year, **Chris Evans** and **Sara Siegel** attended STEM Day at Lee College for high school students as Microbiology ambassadors where they used the effect of temperature on metabolism in baker's yeast to blow up a balloon. In January, the GSBS Outreach Council hosted Community Science Night for another successful year. **Chris Evans, Ayesha Khan, Alex Marshall, Belkys Sanchez, Kara Schoenemann, Sara Siegel**, and **Robert Williams** introduced families to the exciting world of microbiology. In addition to microbe coloring and handwashing stations, we also used microscopes to view live pond water microbes and fixed slides of select pathogens. Thanks to all of these MIDers for their devotion to volunteer work!

### **Student & Postdoc Leaders**

MID students and postdocs obtain leadership roles in a number of committees and organizations throughout GSBS, the UTHealth System, and the Texas Medical Center.

Naomi Bier:	ASM TMC Student Chapter – Treasurer MMG Graduate Student Seminar (GraSS) Organizer UTHealth Institutional Biosafety Committee
Jill Losh:	GSBS Graduate Student Association – Vice President GSBS Curriculum & Training Working Group – Student Representative ComSciCon Houston - Application Manager
Ayesha Khan:	ASM TMC Student Chapter – Media Relations Coordinator ASM TMC Student Chapter – MicroCast Podcast Co-Chair
Pedro Miramón:	UTHealth Postdoctoral Association – President
Belkys Sanchez:	ASM TMC Student Chapter – Social Media and Podcast Committee
Sara Siegel:	ASM TMC Student Chapter – Outreach Committee Chair
Kara Schoenemann:	GSBS Graduate Student Association – Treasurer
Elisa Vesely:	Fungi-Fungal Yeast Seminar Organizer
Robert Williams:	UTHealth Student InterCouncil (SIC) – GSBS Student Representative

### **MID Graduation Corner**

Congratulations to Veronica Garcia, Jay Gordon, and Emily Stinemitz, who all recently graduated from the MMG program! After several semesters of teaching prior to graduation, Emily Stinemitz has now moved on to be an educator at both Alvin Community College and Lone Star North Harris Community College. She will be teaching courses in Microbiology as well as General Biology. Jay Gordon is pursuing options within the Texas Medical Center to further his experience in working with human pathogens, commensals, and laboratory research. His overall goal is to work in human health oriented research and improve the development of accurate, rapid diagnostic testing. Veronica Garcia is aiming to establish her career within industry or government as a molecular biologist. She plans to continue expanding the skills and techniques she has acquired in graduate school to apply to new areas of research. We wish all of our recently graduated alumni the best!

The MID Program graduated 2 students at the GSBS Commencement ceremony this May.

From left to right: Kevin Morano, Ph.D., Department Chair Theresa Koehler, Ph.D., Veronica Garcia, Ph.D. (Morano lab), Ambro van Hoof, Ph.D., Emily Stinemitz, Ph.D. (Harvey lab), and Barrett Harvey, Ph.D.



### **Faculty Awards & Distinctions**

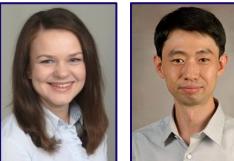
In addition to many grants awarded and renewed for several faculty members this year as well as many promotions within the department, listed below are those who have received additional distinctions. Congratulations to all recipients!

Danielle Garsin, Ph.D.:	Microbiology and Infectious Diseases Program Director Co-Chair of McGovern Medical School Women's Faculty Forum
Heidi Kaplan, Ph.D.:	Dean's Teaching Excellence Award Faculty Mentoring Award, Texas Branch American Society of Microbiology
Chris Mackenzie, Ph.D.:	John H. Freeman Award for Faculty Teaching Dean's Teaching Excellence Award
William Margolin, Ph.D.:	Highest Commendation for Service to Graduate Education, UT GSBS
Ambro van Hoof, Ph.D.:	President of the GSBS Faculty Dean's Teaching Excellence Award

### **Goodbyes and Hellos in MID**



This fall we will be saying goodbye to associate professor **Jun Liu**, **Ph.D.** after 10 years of cutting edge work and collaboration at UTHealth. Jun is an internationally known leader in the field of cryo-electron tomography, having published more than 48 papers in high-impact journals such as Nature and Science. He has accepted a position at the Department of Microbial Pathogenesis at Yale School of Medicine, where he will continue his pioneering work in high-throughput cryo-electron tomography.



MID is proud to welcome our newest faculty members **Anna Konovalova**, **Ph.D.** and **Bo Hu**, **Ph.D.**! Dr. Konovalova's research focuses on surface-exposed lipoproteins in Gram-negative bacteria and envelope stress responses. Dr. Hu analyzes the structure of biomolecular machines with cryo-electron microscopy and tomography. Both of these faculty are currently seeking new students and postdoctoral fellows to join their labs.



MID would like to welcome our five new graduate students! From left:

Ileana Corsi (Koehler lab) Kalyn Huff (Ling lab) Alexandra Berroyer (Kim lab) Laurel Thompson (Krachler lab) April Nguyen (Arias lab)

### **March for Science**

This April, students and faculty participated with the community in the March for Science in Houston to show their support for science's important role in national policy and education. Here are some snapshots from participating MID members and their posters.









### **Advice on Presentation Skills**

This year, MID is proud to have 3 students honored for their presentation skills, and they have some advice:



Ayesha Khan: Pre-Candidacy Elevator Speech Award Winner

How do you prepare for a talk? Are there differences between a 'normal' talk and an elevator talk? For a seminar, I usually develop an outline of the story I am going to tell. Then I fill in the blanks with my data and figures to put it all together into a cohesive presentation. I think being conscience of the audience is key – it determines how much you need to tell them.

Have you always been comfortable with public speaking or is it something you have learned? I have always felt comfortable talking with people so public speaking was a part of that but since joining MID, I have learned to get better at being able to tell anyone why my science is cool.

<u>Chris Evans, M.S.</u>: People's Choice and Oral Presentation Skills Award Winner **How do you prepare for a seminar?** To prepare for a seminar, I mainly focus on the storyline of the talk. I usually start by making a bullet point list of the major points I want to emphasize, then arrange the points in an order that works for me. For a talk like the Student Research Day, the hardest part of preparing was making it short enough, so I had to cut some points that I wanted to use and that can make it difficult.

What are you thinking about during your talk? I think about my transitions between major points or slides, most of the time. I try really hard to help my audience keep up with my story, so that is my main focus while talking.



<u>Yi Liu, M.S.</u>: People's Choice and Elevator Speech Award Winner How did you prepare your elevator speech? Are there differences between a 'normal' talk and an elevator talk? I attended the elevator speech workshop offered by GSBS, took my time to write the script, asked for advice from previous contestants, and practiced in front of a mirror like a maniac. I think an elevator speech differs from a "normal" speech in that it needs to be short, but meaty. Every sentence counts.

Have you always been comfortable with public speaking or is it something you have learned? I am definitely not a natural public speaker, but I do believe anyone can give a good talk with the right guidance, advice, and a lot of practice.

### **Perspectives on the Transition to MID from MMG**

The University of Texas MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences recently overhauled its entire graduate program to consolidate overlapping programs and courses and provide more flexibility to students' graduate education journey. Michael C. Lorenz, Ph.D. and Jill Losh both served on committees tasked with creating the structure of the new graduate program and mediating its implementation.

#### What was your role as a faculty member in your committee?

I was the co-chair of the "Program Metamorphosis Working Group", in partnership with Ralf Krahe (HMG and G&D programs). The purpose of this working group was to propose options to the Deans to simplify the structure of the graduate school, a goal motivated by external reviews that emphasized that incoming students found the program structure and the curriculum to be overly complex.

What are some of the most important changes that came from your committee? The most important change was an overall reduction in the number of Ph.D. programs offered from 13 to 10 by identifying synergies between programs that would benefit from

joining. We also considered how to create a strong brand for each of the new programs by creating unique names that minimized thematic overlap. We recalled, for instance, that three different programs had the word "Genetics" in the name and this clearly posed some confusion in our applicants.

#### How do these changes benefit incoming students?

For GSBS students overall, the structure should be simpler and easier to navigate in the first year. The implementation of our recommendations should create a more consistent experience for students from program to program, in terms of the educational experience, professional development training, and expectations of rigor.

In our program, the changes will be minimal, as we have long had a streamlined yet rigorous curriculum, ample opportunities to develop professional writing and presentation skills, and a high standard of governance. Adopting the MID title clarifies the dual focus of the program on both microbial model systems and on molecular pathogenesis, and should improve our recruiting efforts. It also strengthens our ties to the Infectious Disease department in the McGovern Medical School.



#### What was your role as a student on the committee you served on?

The Curriculum & Training Working Group was comprised of six faculty members and three students. As a student member, my role was to provide information and opinions that our student body has in regards to GSBS coursework, candidacy exams, and additional training opportunities (conferences, program retreats, internships, etc.).

## What are some of the most important changes that came from your committee?

This committee was tasked with determining core competencies, such as scientific writing, presentation, and research skills, that every GSBS student should achieve before they graduate, regardless of program affiliation. We also discussed program-specific competencies that students should attain, as well as how to determine that each student has met these expectations. We surveyed the existing courses and training opportunities offered by each GSBS program and evaluated if students are being given adequate opportunities to develop these skills. In addition, we discussed standardizing the design of the candidacy exam across all programs.

#### How do these changes benefit incoming students?

I believe that our committee helped give the Deans an overview of how much coursework and exams can vary across GSBS programs. The incoming students can expect to see increased uniformity of their academic experiences as a result of our proposed changes. This will help ensure that every GSBS student is proficient in communication, critical thinking, and research skills before graduation.



## **Annual MID Retreat**

Each year, the MID program organizes a 2-day retreat at Camp Allen in Navasota, TX for program members and faculty that includes short research presentations from students and postdoctoral fellows, as well as a talk from an invited keynote speaker. Thanks to faculty member **Nick De Lay** and administrator **Vicci Sanders**, our 2017 retreat was a huge success! Awards are given for exceptional student and postdoctoral fellow presenters, and for the student who asked the best questions over the course of the retreat. This year our invited keynote speaker was **Dr. Gisela Storz** from the NIH in Bethesda, MD. She gave an excellent seminar on uncovering the functions of small noncoding RNAs and small ORFs in E. coli. The retreat also includes plenty of recreational and social time for program members to unwind and have fun together. Our first-year students organized a series of fun, competitive challenges to test the pipetting, chopstick, and balloon-breaking skills of our program members. The second-year students provided refreshments and beverages for the clubhouse gathering. This year's retreat t-shirt was styled after Studio Micro. The winning design was submitted by **Sara Peffer** and **Amy Ford** in the Morano lab. **Thanks for making retreat great!** 



MIDers practicing their archery skills

Fierce pipetting and chopstick competitions between faculty and students were organized by our first-year students.



Award winners! Front row, from left: Sara Peffer (T-shirt design), Truc Luong, Ph.D. (Best Postdoc Talk), Amy Ford (T-shirt Design), Sara Siegel (Best Questions) Back row, from left: Jaeil Han (Best Senior Graduate Student Talk), Roosheel Patel (Best Precandidacy/Technician Talk), Chris Evans (Best Senior Grad Student Talk), Shiwei Zhu, Ph.D. (Best Postdoc Talk) Not pictured: Ayesha Kahn (Best Precandidacy Talk)





Everyone, including the Ton-That lab (above), enjoyed the snacks, games, and fun provided by our second year students Unekwu Yakubu, Robert Williams and Ayesha Kahn (left) at the clubhouse gathering!

## **Life in the MID Department**



Danielle Garsin, Ph.D. enjoying cake for her promotion to full professor!





Malik Raynor practices his CPR, a requirement for working in a BSL-3 lab while his mentor Terri Koehler, Ph.D. enjoys free floating during a NASA visit.



Bethany Tiner, Ph.D. and Naomi Bier fundraise for the TMC-ASM at an antimicrobial resistance symposium.



Barbara Murray, M.D. and the Arias lab take part in celebrating the opening of the Center for Antimicrobial Resistance and Microbial Genomes, CARMiG.



The Infectious Disease Seminar class visited NASA



Want your photos to be included in the next MID newsletter? Email them to one of our newsletter editors!

Chris Evans is testing the gas production of *S. cerevisiae* to prepare for a volunteer event!



### The MID Newsletter

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## MID Faculty, Staff, & Students



#### Cesar Arias, M.D., Ph.D.

Molecular mechanisms of antibiotic resistance in Gram-positive pathogens Ayesha Khan

April Nguyen

Peter Christie. Ph.D. Macromolecular transport during pathogenesis

Charles Darkoh, Ph.D. Roles of bacterial metabolites in enteric infectious diseases

Nick DeLay, Ph.D. Regulation of bacterial gene expression by small RNAs

William Dowhan, Ph.D. Cell membrane structure, function, & assembly

#### Danielle Garsin, Ph.D.

Graduate Program Director Understanding the genetics of bacterial infection using C. elegans

Carrie Graham Yi Liu

Barrett Harvey, Ph.D. Design & development of recombinant antibodies & biologics

Magnus Höök, Ph.D. Biology of extracellular matrix. adhesion, & microbial virulence

Heidi Kaplan, Ph.D. Cell-cell interactions required for multicellular development & biofilms

Nayun Kim, Ph.D. Factors involved in instability within eukaryotic genomes

Alexandra Berroyer Norah Owiti

#### Theresa Koehler, Ph.D.

**Department Chair** Molecular basis of B. anthracis pathogenicity resistance in human infections Naomi Bier Ileana Corsi Malik Raynor

Anne-Marie Krachler, Ph.D.

Bacterial adhesion & colonization upon host infection Laurel Thompson

Anna Konovalova, Ph.D. Surface-exposed lipoproteins & envelope stress response in Gram-negative bacteria

Ziyin Li, Ph.D. Cell cycle control & ubiquitin pathways in T. brucei

Jiqiang "Lanny" Ling, Ph.D. Connections between protein synthesis & microbial stress responses Chris Evans

Kalyn Huff

#### Michael Lorenz, Ph.D.

Molecular basis of fungal infections

Carrie Graham Elisa Veselv Robert Williams

#### William Margolin, Ph.D.

Bacterial cell division Kara Schoenemann

#### Kevin Morano, Ph.D.

Protein chaperones & stress response Amy Ford Sara Peffer Unekwu Yakubu

Barbara Murray, M.D. Enterococcal virulence & antibiotic

Steven Norris, Ph.D. Molecular genetics of pathogenic bacteria

Samuel Shelburne, M.D., Ph.D. Streptococcus virulence

John Spudich, Ph.D.

Roles of photoactive membrane proteins in light-triggered signal transduction

#### Hung Ton-That, Ph.D.

Pilus assembly of Gram-positive pathogens Belkys Sánchez Matt Scheible Sara Siegel

Ambro van Hoof, Ph.D.

RNA degradation in eukaryotes Jaeil Han Minseon Kim Jill Losh Alex Marshall

Yi Xu, Ph.D. Bacterial pathogens & host interactions

MMG Research Faculty

Chris Mackenzie, Ph.D. Chenggang Wu, Ph.D.

#### **MMG Staff**

**Diana Campos** Lyz Culpepper Linda Fields Vicci Sanders

#### The MID Newsletter

### Issue 7, Summer 2017

## Life Outside of MID





Kara Schoenemann and Jill Losh are both preparing to say "I Do"!





The MID family welcomed many babies this year! Ryan to Lanny Ling, Ph.D. and family, Isaac to MID alumni Doug Litwin, M.S.(left), and Claire to alumni Jen Herricks, Ph.D. (above)



Congratulations to newlyweds Jay Gordon, Ph.D., and his wife Ilyse Kornblau, M.D.



Ayesha Khan spoke at a peace vigil honoring and supporting the Muslim community in the Texas Medical Center.



Naomi Bier celebrating her Young Jewish Professional Service Award from Chabad of Uptown.

#### Want to learn more about MID? Visit us at:

#### https://gsbs.uth.edu/microbiology-and-infectious-diseases Search Microbiology & Infectious Diseases Graduate Program, UT-Med Sch-Houston "like" us today on Facebook!

Follow @mmgenus on Instagram, also!

### **MID Newsletter Editors**

Do you have questions, comments, or suggestions? Please contact us at the emails provided below.

> Sara Peffer Sara.Peffer@uth.tmc.edu

Kara Schoenemann Kara.Schoenemann@uth.tmc.edu



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