As the new director of the Program in Microbiology and Infectious Disease, I am delighted to have this opportunity to reflect on the many changes that our community has experienced in the last year. At the start, I want to thank Dr. Nayun Kim, the outgoing program director, for her capable and dedicated service for the last two years. I also want to acknowledge Dr. Anne-Marie Krachler, who will serve as the co-director for the next two years. Both I and the program very much appreciate their commitment to graduate education.

The past year has seen extraordinary changes both at the local and global scale. The Covid pandemic has been a grim reminder of the staggering cost to societies throughout history of infectious diseases, which have been responsible for more human deaths than any other cause. The more than four million lives lost to this pandemic is a testament to our continued vulnerability to infections both newly emerged and ancient, while rising antimicrobial resistance threatens to negate the tools used to treat these diseases.

To meet these challenges, we need more people trained in microbiology, immunology, pharmacology, epidemiology, and other fields, which is what the MID program strives to do. Amidst this tragedy have come some remarkable successes, including the introduction of two vaccines using new technology that promise to revolutionize how we develop vaccines. Covid testing and vaccination programs were implemented at a scale and speed that would have been unimaginable just a few years ago.

It is worth noting that the mRNA vaccines were the product of decades of work that began with no inkling that they would lead to this breakthrough, a tribute to the unexpected benefits of fundamental research combined with uncommon persistence by a few people in the face of deep skepticism. One of them is Dr. Katalin Karikó and if you do not know her humbling story, it is worth reading. It is a positive sign that we see a pandemic-associated bump interest in microbiology amongst undergraduate students. As powerful as it is, we have also seen the limits of science. New treatments and vaccines are useless if we cannot persuade people to take them. Scientists must communicate clearly and simply about the benefits of our work. We also need to advocate for support of research that will better prepare us for the next time, because we all know there will be a next time. I invite suggestions to improve our own public advocacy.

While many people worldwide transitioned to remote work, the research that many of our labs do cannot be done outside the laboratory. This has posed its own challenges of working safely (and getting to work safely). As microbiologists, respect for pathogens comes easily to us, so taking the necessary precautions was second nature (some might joke that we were good at socially distancing before that was cool!). But we were also fortunate to have early access to effective vaccines to protect all of us. Our progression to a more normal existence will certainly have ups and downs, and the current resurgence of the Delta variant challenges our recovery and has us masking up again.

(Continued on next page)
The world needs more microbiologists and, happily, the MID program is growing. We welcome Dr. Jayhun Lee and Dr. Christian Perez, both of whom have recently joined the MMG department. Dr. Lee studies schistosomes, parasitic worms that infect hundreds of millions of people and comes to Houston from the University of Wisconsin. Dr. Perez focuses on the host-pathogen interactions of the fungal pathogen *Candida albicans* and recently relocated his lab from Würzburg, Germany. Dr. Jyotika Sharma from the Department of Critical Care at M.D. Anderson also joined the program, bringing expertise in immune responses, particularly the role of neutrophil extracellular traps. We have an amazing class of entering students with deep interests in Microbiology and Infectious Diseases. We welcome all our new colleagues to the MID family.

*Michael Lorenz, PhD*  
*MID Associate Professor & Program Director*

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**Spotlight from Department Chair**

**Welcome to Our New MMG/MID Faculty!**

We are g-r-o-w-i-n-g! During the past academic year, we have added five new faculty to our ranks. Newly appointed faculty of MMG at McGovern Medical School, Drs. Lee, Perez, and Wu, have expertise in parasitology, fungi, and oral bacterial pathogens, respectively, enhancing existing research foci of the department. Dr. Sharma of MD Anderson, and Dr. Arce of the UTH School of Dentistry are investigating aspects of inflammation and immune response, adding to the diversity of MID and increasing training opportunities. Stop by their labs or send them an email to learn more about what drives their passion for microbiology and infectious diseases.

And here is a fun fact – in the past decade, MMG has doubled in the number of tenured/tenure-track faculty – from 9 to 18! Moreover, the MID program continues to expand, with 30 faculty members representing McGovern Medical School, MD Anderson Cancer Center, Texas A&M Institute of Biosciences and Technology, and the UTH School of Public Health.

*Theresa M. Koehler, PhD*  
*MID Professor & MMG Department Chair*

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**Hellos & Goodbyes**

**MMG/MID would like to welcome our newest faculty!**

**J. Christian Perez**, associate professor on the tenure track, moved his research program from the University Hospital Wuerzburg Germany to MMG last fall. Christian’s laboratory combines two main interests: transcriptional circuits and the microbe-host interplay. The main experimental organism studied in the lab is *Candida albicans*, the most prominent yeast species residing in healthy humans and also a major cause of serious fungal infections. His research program seeks to gain insights into the biology of this unicellular eukaryotic organism through the study of its transcriptional regulatory circuitry.
Chenggang Wu was a postdoc with former MMG faculty Hung Ton-That before joining Danielle Garsin’s lab in 2019. Chenggang is now establishing his own group as a newly-appointed tenure-track assistant professor. He is investigating oral pathogens associated with periodontal disease. Chenggang is a pioneer in genetics and pathogenesis of Actinomyces oris and Fusobacterium nucleatum. He is primarily focused on regulatory mechanisms that control physical interactions between F. nucleatum and other microorganisms. Chenggang hopes to uncover clues regarding the mechanisms of dental biofilm formation, potentially leading to the development of novel agents that treat oral disease.

Jyotika Sharma is an associate professor (term tenure) in the Department of Critical Care at MD Anderson Cancer Center. Her research is aimed at understanding inflammatory mechanisms with the intention of identifying novel targets for therapeutic interventions of infectious and sterile immune disorders such as bacterial pneumonia, sepsis, Chronic Obstructive Pulmonary Disease (COPD), Chronic Granulomatous Disease (CGD) and more recently, breast cancer. Dr. Sharma’s group uses state-of-the-art immunological, proteomic, and high-throughput transcriptomic techniques to address neutrophil and macrophage functions in regulation of inflammation in these diseases, and employs murine models as well as human neonates and patient samples.

Roger Arce is a dual-trained dentist/periodontist/scientist who studies in vivo molecular host/pathogen interactions during periodontal disease pathogenesis. As an associate professor of Periodontics at the School of Dentistry, he is currently developing a murine model of biofilm/mediated oral infection to evaluate both mucosal immune responses leading to alveolar bone loss as well as to evaluate the effects on the progression of systemic conditions including Alzheimer’s.
MID Graduation Corner

This year, 1 PhD student and 3 Masters students graduated from the MID program!

**Minseon Kim** is doing a postdoc at The University of Texas-Southwestern in the lab of Nicholas Conrad, PhD.

**Wahaj Zuberi** is working as an associate scientist at GlaxoSmithKline in Maryland.

**Aisha Mahmoud** is doing her PhD in microbiology at The University of Texas at Austin.

**Shane Christy** is starting his PhD here at the GSBS in the MID department!

MID would like to welcome the new class of graduate students!

**Sabona Simbassa** joined the Krachler Lab

**Sayef Ahammed** joined the van Hoof Lab

**Minseon Kim, PhD**
van Hoof Lab

**Wahaj Zuberi, MS**
Kim Lab

**Aisha Mahmoud, MS**
Darkoh Lab

**Shane Christy, MS**
Lorenz Lab
The Many Award Winning MID Students & MMG 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.

April Nguyen: ASM Texas Branch Goldschmidt Graduate Student Award

Alexandra Berroyer: 2020 Dean’s Research Scholarship Award

Lee-Ann Notice: NIH Diversity Supplement

Melissa Martinez: NIH Diversity Supplement

Erika Flores: 2019-2021 NIH Diversity Supplement
Schissler Foundation Fellowship

Kim Trinh Nguyen: MBID T32 Fellowship
Investing in Student Futures Scholarship

Unekwu Yakubu: 2021 Dean’s Scholarship Award
2021 GSBS Presidents' Research Scholarships

Alec Santiago: City Federation of Women’s Club Endowed Scholarship
2nd Place Poster at MID/MMG retreat

Ileana Corsi: 1st Place Poster winner at MID/MMG retreat
Best Presentation at BAC meeting
1st Place Poster winner at MBID retreat
The George M. Stancel, PhD Fellowship in Biomedical Sciences
ASM Travel Award

Minseon Kim: GSBS Endowment Scholarship

Jennifer Hurtig: Dr. John Kopchick Fellowship
Schissler Foundation Fellowship
GSBS Virtual Conference Travel Award

Shreya Saha Ph.D: 1st Place Poster at MID/MMG retreat

Shantanu Guha, Ph.D: T32 TPAMR TMC Trainee Grant through the GCC
Best poster by a postdoc at MBID Conference
Best platform talk by a postdoc at MMG/MMG Conference
MMSA /IMMY Postdoc Awardee for ASM World Microbe Forum

Soumita Dutta, Ph.D: 2nd Place Poster at MID/MMG retreat
2nd Place Oral Presentation at MBID retreat
MIDers Attend Prestigious Conferences

Jennifer H. presented and Lee-Ann N. attended the RNA conference this year!

Hannah W., Shane C., and Melissa M. were able to attend two big conferences this year! One of the few benefits of virtual meetings.

Alexandra B. presented at the EMGS meeting!

We also had many students present at MBID!

Ileana C. presented at BACT2021 and won Best Presentation!

Tune into an MID Student Run Podcast!

Need something to listen to while you pipette away in lab or in the car?

Listen to podcasts created by MID students and ASM-TMC. MicroCast is a podcast series that breaks down complex topics in microbiology and features guest experts!

If you want to join the MicroCast team email Melissa.Martinez.1@uth.tmc.edu!

ASM-TMC Young Biologist’s Program

Want to get involved in a volunteering opportunity? ASM-TMC’s student-run Young Biologist Program is working with local high schools in Houston to provide exposure to microbiology and careers in science to students in grades 9-12 that belong predominantly to underrepresented minority groups. ASM-TMC’s Young Biologist Program gives these at-risk students real research experiences in the form of monthly interactive sessions where students learn the basics of microbiology through simple experiments.

If you want to get involved email Taylor.Halsey@uth.tmc.edu or Melissa.Martinez.1@uth.tmc.edu!
Faculty Awards & Distinctions

In addition to many grants 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!

**Nayun Kim, PhD:** “The Dimeric Dutpase of *Trypanosoma brucei* as a Therapeutic Target” (R21)

**Peter Christie, PhD:** “Mitigation of Stress Responses by Protein Transfer Through Conjugation Machines” (R21)

**Danielle Garsin, PhD:** Women Faculty Forum Excellence in Research Award

**Theresa Koehler, PhD:** Elected President of the Association of Medical School Microbiology and Immunology Chairs

**Bo Hu, PhD:** “In situ Architecture of Specialized Bacterial Secretion Systems” (R35)

**Chenggang Wu, PhD:** “Regulation in Fusobacterium-mediated Coaggregation” (R01)

**Ambro van Hoof, PhD:** “RNAse Functions in Post-transcriptional Gene Regulation” (R35)

**Jyotika Sharma, PhD:** “Neutrophil Extracellular Traps and host immunity” (R01)

**Charles Darkoh, PhD:** “Characterizing Vancomycin-Resistant C. difficile Strains at Two Geographically Distinct Locations” (R01)

**Anthony Flores, MD PhD:** “Evolution and Pathogenesis of Serotype V Group B streptococcus in Humans” (R21)

**Anthony Flores and Samuel Shelburne, MD PhDs:** “Defining Novel Mechanisms of Clonal Emergence in Group A streptococcus” (R21)

**Samuel Shelburne, MD PhD:** “Impact of Regulatory Cross-talk on the Pathophysiology of Emergent Acapsular Group A streptococcus” (R21)

“Role of B-lactamase Encoding Gene Amplification in the Development of Non Carbapenemase Producing Carbapenem Resistant Enterobacteriaceae” (R21)

**Dhriti Sinha, PhD:** Was promoted to Research Assistant Professor
Life in the MID Program:

In the summer, we had a calming session of Tai Chi with Master Li Fu. Many of us enjoyed the chance to destress and stretch. Alexandra Berroyer, Hannah Wilson, Lee-Ann Notice, Unekwu Yakuba, Jellisa Ewan, Melissa Martinez, Jasmine Bledsoe (SURP), Giuseppe Buda de Cesare, and Alec Santiago are pictured finding their zen.

Our holiday party was virtual this year but we were still able to share our traditions with one another. Luisa Orlando taught us how to make champurrado, a Mexican cocoa beverage. Heidi Kaplan explained how she celebrates Hanukkah and we heard about the history of Kwanzaa from Taylor Halsey. We also had musical performances from Danielle Garsin on piano, Unekwu Yakubu on cello, Jennifer Hurtig on flute, and a choral ensemble from MID students. We had so much more that we couldn’t fit it all on the page!

MID still had their Halloween spirit this year with our MicroBOOology event! On the left are some of our best costumes. The Lorenz lab including Shane Christy, Melissa Martinez, Hannah Wilson, Pedro Miramon Martinez, and Giuseppe Buda de Cesare went all out this year with a haunted farm theme. Alexandra Berroyer was a fluffy white cat, much to her dog’s dismay.

We also designed our own spooky agar art! The artists of these plates are Long Duy Duong (1-2), Sabona Simbassa (3 & 5), Jennifer Walker (4), and Nidhi Verma (6-9). Thank you to all our participants and we hope to see even more spooky plates next year!
MMG 2021 Virtual Retreat

Our retreat in Spring 2020 was cancelled due to COVID-19 so it was important to the department to have a retreat in some form this year. Due to COVID restrictions we decided to have our 2021 retreat virtually. We had a full day of talks from students and postdocs complete with a virtual poster session. Our Keynote speaker was Eric Cascales, PhD who talked about type VI secretion systems. Carolyn Agurcia-Parker was kind enough to make us a snack bag with goodies to keep us fueled for the day. We also had some fun games where we tried to identify MMGers from their baby pictures and guess who had what pets. In addition to the science and games, we also took time to relax with a guided meditation session and practiced chair yoga. The past year and a half have been marked with stress and uncertainty so these activities were especially thoughtful. We owe a special thanks to Bo Hu, PhD for organizing this year’s retreat as it was the first ever done virtually! Though we had a great time and were able to share our science and socialize, we still hope we will get to be in person next year and have some fun off campus.
The MID Newsletter

Bench Bloopers

I Ponceau stained a Western blot membrane AFTER blocking with milk! - Lee-Ann N

I told my summer student that it was important for her to work close to the flame. We were so focused on her keeping the tip close to the flame, that we didn’t realize the end of the pipette was actually IN the flame and she melted part of the pipette! - April N

I meant to add formaldehyde to an RNA denaturing gel, but added chloroform instead and melted the gel tray! - Luisa O

My summer student made 8L of YPD media using the plate pourer. The plates hadn’t solidified after hours. We figured out that she added peptone instead of agar. We had to painstakingly take each plate out of the racks trying not to spill media everywhere! - Ally B

In undergrad, I didn’t know the crystal violet was stored in ethanol. But I found out after flaming the bottle! - Kimberly K

I put yeast in YPD on my bench in microcentrifuge tubes overnight. When I came in the next day, they had built up so much gas that they actually rocketed to the ceiling and knocked ceiling dust all over my bench and the tubes were opened and scattered all over my bay. - Jenn H

I was so confused when I got to lab one day and my overnight yeast cultures hadn’t grown. I realized I had started the cultures in LB instead of in YEP! To be fair, the LB was stored next to the YEP. - Anonymous

The first time I made an agarose gel, I used water instead of TAE! - Nidhi V

I could not fall asleep because I could not for the life of me remember if I had turned off my Bunsen burner. I went back to lab to check, it was off. - Hannah W

I put yeast in YPD on my bench in microcentrifuge tubes overnight. When I came in the next day, they had built up so much gas that they actually rocketed to the ceiling and knocked ceiling dust all over my bench and the tubes were opened and scattered all over my bay. - Jenn H

The mouse terrorizing our lab by chewing up our packed sterile items made a home in my stack of binders. It crawled out one day and I screamed so loud that members of the Konovalova lab next door rushed in to check if I was okay. - Melissa M

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Life Outside the MID Program:

Illeana Corsi got married! (Sam the corgi sadly couldn’t attend)

April Nguyen got married!

Alexandra Berroyer got married!

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

Pet Corner:

Anh Trinh Nguyen’s (Kim) cat, ← Jupiter, as a general!

Allie Berroyer’s dog, → Kwazii, staring straight to your soul

Sarah Lach’s cats, ↓ Scooter (left) and Marbles (right), getting some fresh air

Erika Flores’ pup, ← Missy, enjoying her treat

Ileana Corsi’s dog Sam ← (corgi) being the best boy for his picture

Luisa Orlando’s bun, ← Marblecake, fresh from the oven

Jennifer Hurtig’s cat, ↑ Moxie, sticking to her diet

Shantnu Guha had a baby!
Cesar Arias, MD, PhD  
Molecular mechanisms of antibiotic resistance in Gram-positive pathogens  
April Nguyen

Roger Arce, DDS, PhD  
Contributions of polymicrobial infections, dendritic cells, and T-cell subtypes in host immune responses  

Peter Christie, PhD  
Macromolecular transport during pathogenesis  

Charles Darkoh, PhD  
Roles of bacterial metabolites in enteric infectious diseases  

Nick De Lay, PhD  
Regulation of bacterial gene expression by small RNAs  

Anthony R. Flores, MD, PhD  
Host pathogen interactions in Group A Streptococcus  

Danielle Garsin, PhD  
Understanding the genetics of bacterial infection using C. elegans  

Magnus Höök, PhD  
Biology of extracellular matrix, adhesion, & microbial virulence  

Bo Hu, PhD  
Understanding structure and function of bacterial nanomachines  

Robert Jenq PhD  
Targeting the microbiome to improve outcome of bone marrow transplant patients  
Taylor Halsey

Heidi Kaplan, PhD  
Cell-cell interactions required for multicellular development & biofilms  

Nayun Kim, PhD  
Factors involved in instability within eukaryotic genomes  
Alexandra Berroyer

Theresa Koehler, PhD  
Department Chair  
Molecular basis of B. anthracis pathogenicity  
Ileana Corsi

Anna Konovalova, PhD  
Surface-exposed lipoproteins & envelope stress response in Gram-negative bacteria  
Sarah Lach

Anne-Marie Krachler, PhD  
Graduate Program Co-Director  
Bacterial adhesion & colonization upon host infection  
Erika Flores  
Anh Trinh Nguyen  
Sabona Simbassa  

Jayhun Lee, PhD  
Developmental regulation of parasite survival and immune evasion by Schistosoma  
Ziyin Li, PhD  
Cell cycle control & ubiquitin pathways in T. brucei  

Michael Lorenz, PhD  
Graduate Program Director  
Molecular basis of fungal infections  
Hannah Wilson  
Melissa Martinez  
Shane Christy

William Margolin, PhD  
Bacterial cell division  

Kevin Morano, PhD  
Protein chaperones & stress response  
Alec Santiago  
Unekwu Yakubu

Barbara Murray, MD  
Enterococcal virulence & antibiotic resistance in human infections  

Steven Norris, PhD  
Molecular genetics of pathogenic bacteria  

J. Christian Perez, PhD  
Gene regulatory circuits and host-microbe interactions  

Jyotika Sharma, PhD  
Neutrophil functions in acute and chronic inflammatory diseases  

Samuel Shelburne, MD, PhD  
Molecular basis of bacterial infections in humans  
Chioma Odo  

Ambro van Hoof, PhD  
mRNA degradation in eukaryotes  
Luisa Coronel  
Jennifer Hurting  
Jellisa Ewan  
Lee-Ann Notice  
Sayef Ahammed

Jennifer Walker, PhD  
Host-pathogen interactions influencing medical device-associated infections  

Chenggang Wu, PhD  
Regulatory mechanisms that control the physical interactions among oral pathogens  

Yi Xu, PhD  
Bacterial pathogens & host interactions  

MMG Research Faculty  
Chris Mackenzie, PhD  
Amar Al Mamun, PhD  
Dhriti Sinha, PhD  
Qing Zhou, PhD

MMG Staff  
Diana Campos-Frias  
Mariana Gurtovnik  
AlySha Jones  
Justin Mayberry  
Linda Fields

MID Staff  
Carolyn Agurcia-Parker DrPH
Student Leaders

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

**Alexandra Berroyer:** ASM-TMC Co-President

**Luisa Coronel:** GSBS Community Outreach Program Coordinator

**Taylor Halsey:** ASM-TMC Outreach Coordinator
ASM-TMC Secretary

**Jennifer Hurtig:** ASM-TMC Treasurer
MID Student Advisory Council Representative

**Sarah Lach:** GSBS LGBTQ+ Student Alliance Coordinator
ASM-TMC Social Chair

**Lee-Ann Notice:** GSBS Association of Biomedical Researchers (AMBR) Secretary
MID Student Advisory Council Representative

**Melissa Martinez:** ASM-TMC Outreach Coordinator
ASM-TMC MicroCast Chair
MID Student Advisory Council Representative

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Want to learn more about MID?

Visit us at: [https://gsbs.uth.edu/microbiology-and-infectious-diseases](https://gsbs.uth.edu/microbiology-and-infectious-diseases)

Like [Microbiology & Infectious Diseases Graduate Program, UT-Med Sch-Houston](https://www.facebook.com/GSBSUTHealth), on Facebook & follow [@MIDatGSBS](https://twitter.com/MIDatGSBS) on Twitter

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Melissa  
Jenn  
Lee-Ann

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

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