



INSIDE

PG. 2

Schedule

PG. 3

First Year Students

PG. 4

Graduating Students

PG. 5

Thesis Defenses & Student Awards

PG. 6-8

Publications

PG. 9

F30s

PG. 10-11

Teams

PG. 12-13

Student Groups

PG. 14-16

Retreat & Photos

DIRECTORS' WELCOME

DEAR 2022 UNC MSTP APPLICANTS,

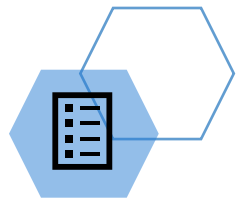
Warmest greetings to all of you! We are excited for you to meet our UNC MD-PhD community virtually. Although we know the virtual visit is not ideal, we have worked very hard as a leadership team in conjunction with our amazing students to prepare an exciting and interactive program despite the virtual circumstances. We are confident that you will learn about our UNC MD-PhD program, and be impressed with our ability to train students in virtually all areas of medicine and public health. We also know that even in a virtual environment, you will get a feel for why we love our community of smart, resilient, compassionate, and diverse people. We would have loved to have you here and “show off” our beautiful campus and see our research labs and hospitals, but that will surely happen in the future! We are truly fortunate to live and work in such a beautiful and nurturing environment.

We know that each of you are highly accomplished. We have read about your research experiences, and your essays, and know that all of you are motivated to change the world. We are optimistic for the future. Indeed, this is an amazing time to become a physician scientist. We can't wait to meet you! -Toni & Mohanish

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SCHEDULE



SUNDAY, JANUARY 23

1:00 PM Welcome & Program Presentation

UNC MSTP interviews begin on Sunday afternoon. We will start with brief introductions followed by a Program Presentation and Student Organizations Panel. There will be time at the end to run through the interview agenda and answer questions.

3:15 – 4:30 PM Small Group Meetings with MSTP Co-Directors (Groups 1&2)

All candidates will be assigned to a group of 5 to meet with program Directors for 35 minutes. Some candidates will be assigned to a Sunday group, and the others to a group which will meet on Monday.

6:00 PM Meet and Greet with Current Students

Current MD/PhD students have organized small group sessions in a format where candidates can feel comfortable getting to know our students and asking questions about the program.

MONDAY, JANUARY 24

9 AM – 3 PM Research Faculty Interviews

The majority of the day will be spent participating in research interviews and learning more about the breadth of research opportunities available here at UNC.

12 – 12:30 PM Lunch Break!

12:30 – 3:30 PM Small Group Meetings with MSTP Co-Directors (Groups 3, 4 & 5)

Candidates will be assigned to a group of 5 to meet with Directors for 35 minutes. Please check your individual schedule for your assigned group.

1:30 – 3:30 PM Coffee Break Room with Current Students

Feel free to stop in and chat with our students! This is an informal way to meet more of our students, learn more about our program and community, and ask further questions.

4 – 5 PM Meet with Current Students by Research Interest

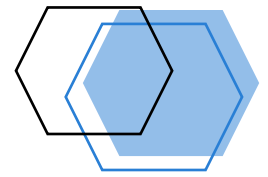
Candidates will meet in small groups with current MD/PhD students in their research areas of interest.

5 – 5:30 PM Wrap Up and Goodbyes

This session will be led by program Co-Directors. There will be time for Q & A.

FIRST YEAR STUDENTS

MEET OUR NEWEST STUDENTS!



Rachelle Ambrose

Hometown: Stratford, CT
Interesting Fact: I grew up playing piano by ear in church with some reading ability, then transitioned to playing percussion in orchestras in high school and college.



Justin Ashby

Hometown: Oak Ridge, NC
Interesting Fact: I am currently building a race car for drag racing.



Ismael Gonzalez

Hometown: Guttenberg, NJ
Interesting Fact: I played the Black Knight in an amateur production of Monty Python and the Holy Grail!



Emily Kounlavong

Hometown: Nashville, TN
Interesting Fact: I want to own my own bakery one day.



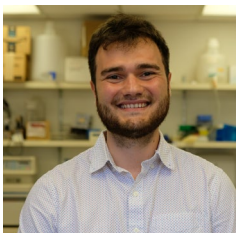
Catherine Li

Hometown: Fremont, CA
Interesting Fact: I eat two hardboiled eggs for good luck on the days I have exams.



Victor Madormo

Hometown: Cleveland, OH
Interesting Fact: I once completed a job interview, for the wrong job, in the wrong building!



Greg Mozes

Hometown: Rochester, MN
Interesting Fact: I have read the Lord of the Rings books in two languages.



Tooba Rashid

Hometown: Cary, NC
Interesting Fact: I love to garden! Last year, my favorite thing to grow was cucumbers and this year I'd love to grow a pumpkin!



Noah Schlachter

Hometown: Salem, MI
Interesting Fact: I love mountains. Snowboarding, hiking, and climbing are some of my favorite hobbies, and I hope to get into technical mountaineering soon.



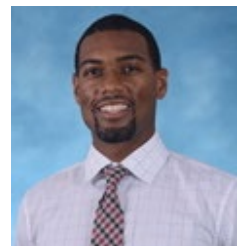
Zachary Schrank

Hometown: Rockford, IL
Interesting Fact: I took a cruise on the Loch Ness.



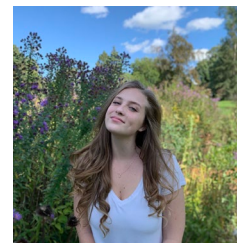
Yousif Shwetar

Hometown: Rochester, NY
Interesting Fact: In my free time I like to work on restoring café style motorcycles.



Nehemiah Stewart

Hometown: Washington, DC
Interesting Fact: I played for the Carolina basketball team all four years.



Samantha Zarnick

Hometown: Cashiers, NC
Interesting Fact: I almost fell off the top of a waterfall in the Blue Ridge Mountains as a teenager... but I didn't! Thank you, Chacos!

GRADUATING STUDENTS



Best part about UNC MSTP



Izzy Brassfield - Philosophy

The most meaningful part of my training has been how supportive everyone in the program has been of my pursuit of a very non-traditional training path. I received so much encouragement from leadership before I even submitted my application, I have felt like they've been in my corner ever since as I have navigated the unique challenges and needs of completing a PhD in the humanities during my medical training.



Courtney Vaughn – Genetics & Molecular Biology

The comradery between trainees, the willingness of faculty to grab coffee and talk with you like a colleague, and the incredible program leadership form a strong community that finds joy in welcoming new people and supporting them as they become physician-scientists and people they want to be.

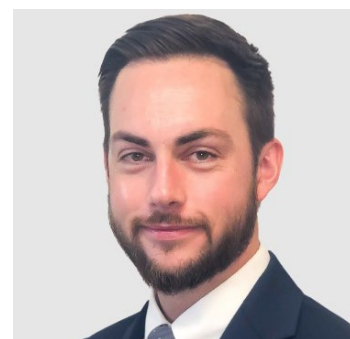
Sarah Brnich – Genetics & Molecular Biology

The people of the UNC MSTP are the best thing about this program. I have felt very welcomed and supported in my individual goals. My peers give great advice, celebrate each others' successes, and have even helped me troubleshoot in lab. Coming from out of state, I was surprised how quickly I felt at home here and I can't imagine a better place to have spent 8 years!



Connor Puett – Biomedical Engineering

I can't imagine a friendlier or more supportive community. This is a group of brilliant yet down-to-earth people who really care about helping each other succeed.



Tim Dinh – Genetics & Molecular Biology

I love the MSTP community. Everyone from my fellow classmates to the administration and faculty are incredibly accomplished yet friendly, supportive, and approachable. I remember after my interview thinking that these were the type of people I wanted to spend the next few years with and I am very happy I made that decision!



Rashmi Kumar- Genetics & Molecular Biology

UNC MSTP is my second home and family. Some of my most formative academic years have been at UNC and they have given me the tools and constant support to both dream big and achieve anything I set my mind to. That's the best part about this program, it's like having a huge family of academic all-stars headed by an outstanding leadership team who help you be your very best and inspire you to do that every day.

Dayne Filer- Bioinformatics & Computational Biology

The supportive environment of the leadership and students in the program. From help identifying mentors and courses, to research collaborations and navigating the life stuff that comes up over a long training program – we all work hard to help each other.



Alex Gertner- Health Policy & Management

The best part of the UNC MSTP for me were my cohort-mates. They're the smartest, funniest, most supportive group of people. It's been a pleasure to go through this journey with them.



Chris Giardina- Biomedical Engineering

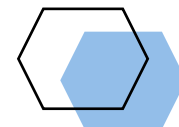
I loved that every single proposal we as students came up with, from taking time off to do an internship to directing plays, was wholly supported by the MD-PhD Team.



William Weir – Bioinformatics & Computational Biology

My favorite aspect is the strong sense of community that is engrained within our culture. People show up to support each other, whether it's a recruitment event, a thesis defense, or a team social event. Because of this shared sense of commitment, everyone gets to know each other quite well, with ties that endure well beyond our tenure

2021 THESIS DEFENSES

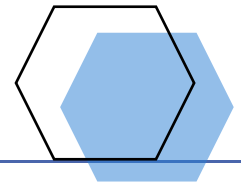


DEPT/CURRICULUM			DISSERTATION TITLE
Cameron	Adams	Microbiology & Immunology	Qualities of the protective antibody response against dengue virus infection
Bellotti	Adriano	Engineering/NIH & Univ. Cambridge	Distribution and regulation of ion channels in neurons
Cunningham	Clark	Genetics & Molecular Biology	Detection and population genetics of the <i>dhps</i> 581G variant associated with high-level sulfadoxine resistance in the Democratic Republic of the Congo
Diehl	Nate	Genetics & Molecular Biology	Investigation of the kinome in pancreatic ductal adenocarcinoma
Falcinelli	Shane	Microbiology & Immunology	Measurement and Disruption of HIV Latency in Cure Strategies
Glier	Sarah	Neurobiology	Examination of Stress Response Profiles and Anxiety Severity in Early Adolescents
Grayeski	Phil	Chemistry	5'-UTR Structure and implications in gene regulation
Hagan	Tilden	Biomedical Engineering	Drug Delivery and Cancer Therapy through Micro and Nano Scale Engineered Devices
Kovacs	Stephen	Microbiology & Immunology	Gasdermins and inflammasomes in immune defense and pathology
Lopez	Cesar	Microbiology & Immunology	Zika Virus pathogenesis at sites of vector-independent transmission, and a foray into SARS-CoV-2 seropravalence
Mercer-Smith	Alison	Pharmaceutical Sciences	Therapeutic Engineered Stem Cells as a New Adjuvant Therapy for Non-small cell lung cancer brain metastases

2021 STUDENT AWARDS

AWARD	DESCRIPTION	STUDENT
AcademyHealth- Outstanding Dissertation Award	Quality and Access of Buprenorphine Treatment for Opioid Use Disorder in Medicaid	Alex Gertner
Alpha Omega Alpha Medical Honor Society	Recognition of high educational achievement, gifted teaching, promise of leadership in academia and the community, supporting the ideals of humanism, and promoting service to others	Sarah Brnich
Burroughs Wellcome Fund - Graduate Diversity Enrichment Program	Support for her dissertation work: Emergency Department-Based Psychiatric Services for Children and Adolescents: An In-depth Investigation of Care in NC	Danielle Brathwaite
Dean's Distinguished Dissertation Award- UNC Graduate School	Quality and Access of Buprenorphine Treatment for Opioid Use Disorder in Medicaid	Alex Gertner
Gertrude Elion Mentored Medical Student Research Award	Support for women medical students who are pursuing health-related research projects	Alison Mercer-Smith
Isaac Hall Manning Award	Recognizes scholarship, character, leadership, initiative, and original investigative work upon graduation	Anna Kahkoska
P.E.O. Scholar Award	Recognizes women in higher education who have the potential to make significant contributions in their field	Rashmi Kumar
Scott Neil Schwirck Fellowship	Research award to honor a student who best represents the qualities of curiosity, intellectual vigor, enthusiasm for science and research, and a strong desire to help others	Alison Mercer-Smith

RECENT PUBLICATIONS



2021

- Adams C**, et al. (2021) Novel Assay to Measure Seroprevalence of Zika Virus in the Philippines. *Emerg Infect Dis*. PMID: PMC8632176
- Daag JV, Ylade M, Jadi R, **Adams C**, et al. (2021) Performance of Dried Blood Spots Compared with Serum Samples for Measuring Dengue Seroprevalence in a Cohort of Children in Cebu, Philippines. *Am J Trop Med Hyg*. PMID: PMC7790110
- Lopez AL, **Adams C**, et al. (2021) Determining dengue virus serostatus by indirect IgG ELISA compared with reduction neutralization test in children in Cebu, Philippines: a prospective population-based study. *Lancet Glob Health*. PMID: 33212030
- Henein S, **Adams C**, et al. (2021) Dengue vaccine breakthrough infections reveal properties of neutralizing antibodies linked to protection. *J Clin Invest*. PMID: PMC8245170
- Rossi MA, **Basiri ML**, et al. (2021) Transcriptional and functional divergence in lateral hypothalamic glutamate neurons projecting to the lateral habenula and ventral tegmental area. *Neuron*. PMID: 34624220
- Truong AS, Zhou M, ..., **Beck W**, et al. (2021) Entinostat induces antitumor immune responses through immune editing of tumor neoantigens. *J Clin Invest*. PMID: PMC8363284
- Bellotti A**, et al. (2021) Paradoxical relationships between active transport and global protein distributions in neurons. *Biophys J*. PMID: 33812847
- Brassfield ER**, Buchbinder M. (2021) Clinical discussion of Medical Aid-in-Dying: minimizing harms and ensuring informed choice. *Patient Educ Couns*. PMID: 32900602
- Buchbinder M, **Brassfield ER**, et al. (2021) "I still feel so lost": experiences of women receiving SANE care during the year after sexual assault. *J Am Coll Emerg Physicians Open*. PMID: PMC8254598
- Brathwaite D**, et al. (2021) A mixed-methods comparison of a national and state opioid overdose surveillance definition. *Public Health Rep*. PMID: 34726981
- Deutsch-Feldman M, Parr JB, Keeler C, **Brazeau NF**, et al. (2021) The Burden of Malaria in the Democratic Republic of Congo. *J Infectious Diseases*. PMID: PMC8176632
- Nouvellet P, ... **Brazeau NF**, et al. (2021) Reduction in mobility and COVID-19 transmission. *Nat Commun*. PMID: 7889876
- Mitchell CL, **Brazeau NF**, et al. (2021) Under the Radar: Epidemiology of Plasmodium ovale in the Democratic Republic of Congo. *J Infect Dis*. PMID: PMC8006425
- Lin JT, ..., **Brazeau NF**, et al. (2021) Selection of cytochrome *b* mutants is rare among plasmodium falciparum patients failing treatment with Atovaquone-Proguanil in Cambodia. *J Expo Sci Environ Epidemiol*. PMID: PMC7483819
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- Brnich SE**, et al. (2021) A validated functional analysis of partner and localizer of BRCA2 missense variants for use in clinical variant interpretation. *J Mol Diagn*. PMID: 33964450
- Fouladi F, Carroll IM, Sharpton TJ, **Bulik-Sullivan E**, et al. (2021) A microbial signature following bariatric surgery is robustly consistent across multiple cohorts. *Gut Microbes*. PMID: PMC8224199
- Glenny EM, Fouladi F, Thomas SA, **Bulik-Sullivan EC**, et al. (2021) Gut microbial communities from patients with anorexia nervosa do not influence body weight in recipient germ-free mic. *Gut Microbes*. PMID: PMC8007138
- McNulty SM, **Cole YC**, et al. (2021) Current Tools, Databases, and Resources for Phenotype and Variant Analysis of Clinical Exome Sequencing. *Advances in Molecular Pathology*. (Book Chapter)
- Spratte BN, Hollis AN, Hollis ES, **Cole YC**, et al. (2021) Neer-peer Learning in Medical Education: An Evaluation of a Student-led, Online COVID-19 course. *Education in Health Professions*.
- Bennett WC, **Cole YC**, et al. (2021) Designing and Delivering an Online Peer-to-Peer Curriculum: a COVID-19 Course. *Carol J Interdiscip Med*. Office of Medical Education; UNC School of Medicine.
- Ippolito MM, Moser KA, Kabuya JB, **Cunningham C**, et al. (2021) Antimalarial drug resistance and implications for the WHO Global Technical Strategy. *Curr Epidemiol Rep*. PMID: PMC7955901

Publications continued...

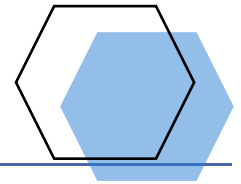
- Stokes BH, ... , **Cunningham CH**, et al. (2021) Plasmodium Falciparum K13 mutations in Africa and Asia impact artemisinin resistance and parasite fitness. *Elife*. PMID: PMC8321553
- Cunningham CH**, et al. (2021) A novel CRISPR-based malaria diagnostic capable of plasmodium detection, species differentiation, and drug-resistance genotyping. *EBioMedicine*. PMID: PMC8213918
- Diehl JN**, et al. (2021) The KRAS-regulated kinome identifies WEE1 and ERK coinhibition as a potential therapeutic strategy in KRAS-mutant pancreatic cancer. *J Biol Chem*. PMID: PMC8591367
- Gaebler C, **Falcinelli SD**, et al. (2021) Sequence Evaluation and Comparative Analysis of Novel Assays for Intact Proviral HIV-1 DNA. *J Virol*. PMID: PMC8094944
- Falcinelli SD**, et al. (2021) Longitudinal Dynamics of Intact HIV Proviral DNA and Outgrowth Virus Frequencies in a Cohort of Individuals Receiving Antiretroviral Therapy. *J Infect Dis*. PMID: PMC8253129
- Filer DL**, et al. (2021) Noninvasive prenatal exome sequencing diagnostic utility limited by sequencing depth and fetal fraction. *Prenat Diagn*. PMID: 34265090
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- Canoutas DA, Gregor A, **Gertner AK**. (2021) An interdisciplinary, service-learning effort to address personal protective equipment shortages. *Acad Med*. PMID: 33656005.
- Shea CM, **Gertner AK**, Green SL. (2021) Barriers and perceived usefulness of an ECHO intervention for office-based buprenorphine treatment for opioid use disorder in North Carolina: A qualitative study. *Subst Abus*. PMID: 7274853
- Gertner AK**, et al. (2021) A Scoping Review of the use of ethnographic approaches in implementation research and recommendations for reporting. *Implement Res Pract*. PMID: PMC8153409
- Grove LR, **Gertner AK**, et al. (2021) Effect of enhanced primary care for people with serious mental illness on service use and screening. *J Gen Intern Med*. PMID: 33506397
- Gertner AK**, et al. (2021) Universal screening for substance use by Peer Support Specialists in the Emergency Department is a pathway to buprenorphine treatment. *Addict Behav Rep*. PMID: PMC8664965
- Gertner AK**, et al. (2021) The role of primary care in the initiation of opioid use disorder treatment in statewide public and private insurance. *J Addict Med*. PMID: 33973922
- Canfarotta MW, O'Connell BP, **Giardina CK**, et al. (2021) Relationship between electrocochleography, angular insertion depth, and cochlear implant speech perception outcomes. *Ear Hear*. PMID: PMC8217403
- Corr R, Pelletier A, **Glier S**, et al. (2021) Neural mechanisms of acute stress and trait anxiety in adolescents. *Neuroimage Clin*. PMID: PMC7779323
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- Lackey L, ... **Grayeski P**, et al. (2021) Alternative poly-adenylation modulates a1-antitrypsin expression in chronic obstructive pulmonary disease. *PLoS Genetics*. PMID: PMC8631626
- Zhang M, **Hagan CT 4th**, et al. (2021) Co-delivery of etoposide and cisplatin in dual-drug loaded nanoparticles synergistically improves chemoradiotherapy in non-small cell lung cancer models. *Acta Biomater*. PMID: 33556606
- Berman J, **Hinson R**, Huang H. (2021) Comparing Reinforcement Learning Agents and Supervised Learning Neural Networks for EMG-based Decoding of Continuous Movements. *Annu Int Conf IEEE Eng Med Biol Soc*. PMID: 34892553
- Ciccione EJ, **Zhu DR**, Ajeen R, **Lodge EK**, et al. (2021) SARS-CoV-2 seropositivity after infection and antibody response to mRNA-based vaccination. *medRxiv*. PMID: PMC7899463
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- Lodge EK**, et al. (2021) Protective population behavior change in outbreaks of emerging infectious disease. *BMC Infect Dis*. PMID: PMC8205197
- Lodge EK**, et al. (2021) Estimating exposure to neighborhood crime by race and ethnicity for public health research. *BMC Public Health*. PMID: PMC8183080

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- Dennis AC, Chung E, **Lodge EK**, et al. (2021) Looking Back to Leap Forward: A Framework for Operationalizing the Structural Racism Construct in Minority Health Research. *Ethn Dis*. PMID: PMC8143855
- Lopez CA, Cunningham CH**, et al. (2021). Disparities in SARS-CoV-2 seroprevalence among individuals presenting for care in central North Carolina over a six month period. *medRxiv*. PMID: PMC7455120
- Mercer-Smith AR**, et al. (2021) Cytotoxic Engineered Induced Neural Stem Cells as an Intravenous Therapy for Primary Non-small cell lung cancer and triple-negative Breast Cancer. *Mol Cancer Ther*. PMID: 34433662
- Jiang W, Yang Y, **Mercer-Smith AR**, et al. (2021) Development of next-generation tumor-homing induced stem cells to enhance treatment of metastatic cancers. *Sci Adv*. PMID: PMC8189583
- Morgan CE**, et al. (2021) Rapid analysis of local data to inform off-label tocilizumab use early in the COVID-19 pandemic. *Healthc (Amst)*. PMID: PMC8493269
- Parr JB, ..., **Morgan CE**, et al. (2021) Analysis of false-negative rapid diagnostic tests for symptomatic malaria in the DRC. *Sci Rep*. PMID: PMC7985209
- Baharom F, ... **Mule MP**, et al. (2021) Intravenous nanoparticle vaccination generates stem-like TCF1+ neoantigen-specific CD8+ T cells. *Nat Immunol*. PMID: PMC7746638
- Oh NL**, et al. (2021) Provider communication and HPV vaccine uptake: A meta-analysis and systematic review. *Prev Med*. PMID: 33857561
- Smith CC, **Olsen KS**, Gentry KM, Sambade M, **Beck W**, et al. (2021). Landscape and selection of vaccine epitopes in SARS-CoV-2. *Genome Med*. PMID: PMC8201469
- Puett C**, et al. (2021) Applying synthetic radiography to intraoral tomosynthesis: a step towards achieving 3D imaging in the dental clinic. *Dentomaxillofac Radiol*. PMID: 32666823
- Dems D, Freeman R, **Riker KD**, et al. (2021) Multivalent Clustering of Adhesion Ligands in Nanofiber-Nanoparticle Composites. *Acta Biomater*. PMID: 33171314
- Riker KD**, et al. (2021) A Programmable toolkit to dynamically signal cells using peptide strand displacement. *ACS Appl Mater Interfaces*. PMID: 33938725.
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- Bowman NM, ..., **Rubinstein R**, et al. (2021) Clinical and Epidemiological Features of Acute Zika Virus Infections in Leon, Nicaragua. *Am J Trop Med Hyg*. PMID: PMC8592149
- Cerami C, ... **Rubinstein R**, et al. (2021) Household transmission of SARS-CoV-2 in the U.S: living density, viral load, and disproportionate impact on communities of color. *Clin Infect Dis*. PMID: PMC8436395
- Shrestha R, ... **Tulenko SE**, et al. (2021) Comparison of vertical cup-to-disc ration estimates using stereoscopic and monoscopic cameras. *Eye (Lond)*. PMID: PMC8602644.
- Yang Y, Lindsey-Boltz LA, **Vaughn CM**, et al. (2021) Circadian clock, carcinogenesis, chronochemotherapy connections. *J Biol Chem*. PMID: PMC8403766
- Dersh D, Phelan J, Gumina M, **Wang B**, et al. (2021) Genome-wide screens identify lineage- and tumor- specific genes modulating MHC-I- and MHC-II- Restricted Immunosurveillance of Human lymphomas. *Immunity*. PMID: PMC7874576
- Rose TL*, **Weir WH***, et al. (2021) Fibroblast growth factor receptor 3 alterations and response to immune checkpoint inhibition in metastatic urothelial cancer: a real world experience. *Br J Cancer*. PMID: PMC8548561.
- Steinberg HE, ... , **Zhu DR**, et al. (2021) Toxoplasmosis working group in Peru and Bolivia. Detection of toxoplasmic encephalitis in HIV positive patients in urine with hydrogel nanoparticles. *PLoS Negl Trop Dis*. PMID: 7954332

NIH F30 AWARDS

INDIVIDUAL MD-PHD PREDOCTORAL FELLOWSHIP



Last	First	TITLE
Brathwaite	Danielle	Emergency Department-Based Psychiatric Services for Children and Adolescents: An In-depth Investigation of Care in North Carolina
Brazeau	Nick	Identifying the Distribution, Origin and Threat of Plasmodium vivax in the DRC
Bukowski	Allie	The effect of epigenetic DNA methylation on the progression of HPV-associated precancerous cervical lesions
Diehl	Nate	Validation of WEE1 kinase as a clinical target in KRAS-mutant pancreatic cancer
Falcinelli	Shane	Reducing the HIV Reservoir: Next-Generation Latency Reversal Agents and T Cell Population Targets
Filer	Dayne	Expanding the utility of prenatal genetic testing
Fried	Inbar	Real-Time Bronchoscope Localization Using Machine Learning to Improve Lung Cancer Diagnosis
Gertner	Alex	Utilization and Access to Buprenorphine Treatment for Opioid Use Disorder in Medicaid
Grayeski	Phil	Structural Analysis of SERPINA1 RNA IN A1AT Deficiency
Keepers	Ben	Human CRISPRa Cardiac Reprogramming: Model Characterization and Epigenetic Mechanisms
Kovacs	Stephen	Inflammasomes and Gasdermins in the Pathogenesis of Bullous Pemphigoid
Lodge	Evans	Socioenvironmental Causes of Elevated Toxic Metal Levels and Epigenetic Aging
Lopez	Cesar	The Role of Dengue Virus Antibodies in Vector-independent transmission of Zika Virus
McDonell	Shan	Evaluating the impact of obesity-associated inflammation on breast cancer heterogeneity and metastasis using single cell RNA-seq
Mercer-Smith	Alison	Therapeutic Engineered Stem Cells as a New Adjuvant Therapy for Non-Small Cell Lung Cancer Brain Metastases
Necarsulmer	Julie	A Novel Mouse Model of TDP-43 Proteinopathy in FTLD-ALS: Elucidating the Role of TDP-43 Acetylation in Neurodegeneration and Proteostasis Impairment
Oh	Loren	Detection and treatment of breast and colorectal cancer in dual eligible beneficiaries in the Medicare Sharing Savings Program
Ok	Meryem	A Novel Planar Crypt Microarray for Real-Time Evaluation of Human Intestinal Stem Cell Fate
Puett	Connor	Improved cancer screening with synthetic and stationary 3D mammography
Sengottuvel	Nisitha	The Role of SPON1 Expressing Inflammatory Monocytes in Promoting Lung Cancer Metastasis.
Tulenko	Samantha	The impact of a Hepatitis B birth dose vaccine on HBV immunogenicity and incidence in children in the DRC
Vaughn	Courtney	Genome-wide Patterns of DNA Damage and Repair in Resistance to Platinum-Based Chemotherapy
Zhu	Deanna	Age in dengue antibody response and risk after primary natural infection

TEAM UPDATES

THREE OF OUR FIVE TEAMS HAVE NAMES HONORING OUR FOUNDING DIRECTOR, EUGENE (GENE) P. ORRINGER.



Cell Yeah

Co-Capt: Allie Bukowski

Co-Capt: Deanna Zhu

Team Cell Yeah is the proud transportation provider for all major MD/PhD program activities, including our Annual Retreat, Interview Weekends, and Second Look (back when everything was in-person—fingers crossed we will be providing transpo to y'all again very soon!) We are also in charge of organizing Interview Weekend #1, and we love being the ones to kick off our interview season every year. Our annual volunteer activity is one of the absolute highlights of our team: We volunteer at the NC State Fair's annual can drive for the Food Bank of Central and Eastern NC. We collect canned goods outside the fairgrounds and then get free entry to explore the fair, eat all the fried food, and see the pig and duck races. During the pandemic, we have hosted some low-key outdoor picnics and barbecues to keep our team connected!



EPO induced Progenitors

Co-Capt: Rebecca Rubinstein

Co-Capt: Julie Necarsulmer

Past EPO Activities: May 2020 - DNA Day 5K

volunteering. Helped organize, publicize, and fundraise for the Annual DNA Day 5K. Many team members also ran the race! The race raises money for science outreach events throughout the state. June 2020 - EPO Zoom Social – We hosted a social hour over Zoom. Dr. Duncan, one of our faculty mentors joined (our other mentor is the wonderful Dr. Jonathan Parr!), as well as students from multiple years. Talked about life, school, work, and the state of the world. July 2021 - Social Potluck. We got together at Evans' place to shoot the breeze and hang out with a chicken coop, all while tie-dyeing our team shirts! January 2021 - Recruitment weekend! We are in charge of the first weekend in January, now second overall recruitment weekend. October 2021—EPO potluck picnic at a local park in Carrboro, with some of our program's adorable puppies!



Future EPO activities: We are excited to have the opportunity to welcome two additional mentors from the PSTP program: Jose Martinez and our very own MSTP alumna Klara Klein! We look forward to growing our team with new members this year, and getting together as a group in whatever way possible.



Gene's Knockouts

Co-Capt: Sarah Glier

Co-Capt: Kelly Olsen

Genes Knockouts planned our fabulous in-person retreat last summer (July 2021) at the Durham Central Park Pavilion in downtown Durham. We were so fortunate to be able to gather in person for this event! We planned a lot of fun mentoring and team building activities including an epic game of dodge ball. It was an unusual retreat but we had so much fun getting to welcome our new students and get everyone back together again! We had hopes and plans for some other fun in-person activities this fall and winter and had hoped to carve pumpkins and decorate cookies for the holidays, but covid continues to mess with our plans, so we resorted to some virtual hangouts and are looking forward to a zoom game night in the next few weeks!



Gene's Dream Team

Co-Capt: Loren Oh

Co-Capt: Zachary Billman

Gene's Dream Team (AKA unrecognized dodgeball champions of the UNC MD-PhD summer orientation) finished out the year strong. We hosted a refreshing ice skating retreat to start out our winter vacation right and prepare everyone for the new year. We were so glad that many people from our frenemy teams joined us to shred on the rink. Coming up soon is everyone's favorite interview weekend, the cherished interview weekend 3. Get ready for the Zoom session of the year! Of course, as with every interview weekend, the help from current students from all teams make it possible. We are looking forward to warmer weather for another backyard campfire and service opportunities.



Team Wild Types

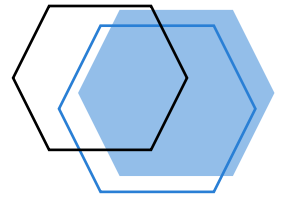
Co-Capt: Camille Morgan

Co-Capt: Inbar Fried

After a hiatus to in-person events due to the pandemic, Team Wild Types came together this fall for an outdoor lunch on Camille's deck. It was a lot of fun and a great opportunity for the MS1 and MS2 classes that joined during the pandemic to meet the upperclassmen and for the upperclassmen to meet them! We are planning our next social event as well as a community service activity for our team to do this spring. We want to come up with fun and creative ways to engage our teammates across the years. Our team is very excited to plan second-look weekend which (fingers-crossed) will be in-person so we can meet all the amazing applicants face-to-face!



STUDENT GROUPS



AIMS



UNC Advocates for Inclusion in Medicine and Science is a student organization at the University of North Carolina at Chapel Hill which has been founded for the purpose of promoting the success, recognition, and excellence of women and minorities in academic medicine and medical research. Further, we seek to understand the underrepresentation of women and minorities in MD-PhD programs and advocate for their success.

We strive to achieve these goals through:

1. Educating our peers and community on the barriers faced by women and minorities in academic medicine and research through article discussions and book clubs
2. Providing our members with practical career development skills through workshops
3. Creating vertical professional networks to foster mentor and sponsor relationships with successful faculty
4. Mentoring current undergraduates and high school students to encourage more women and minorities to pursue dual degree careers

Subcommittees

<p><u>Undergraduate Outreach</u></p> <p>Undergraduate Outreach strives towards increasing awareness of a career in medicine and/or science. Members of the Undergraduate Outreach leadership organize events and facilitate mentorship for undergraduates, including workshops on applying to medical school.</p>	<p><u>Research Diversity</u></p> <p>Research Diversity highlights academic research outside of the biomedical sciences to undergraduates, medical students and current MD-PhD students, aiming to increase exposure to the breadth of research that can be conducted.</p>
<p><u>Career Development</u></p> <p>Career Development focuses on professional development opportunities to current MD-PhD trainees. Events include workshops on building a professional brand, networking, CV/resumes, and grant writing skills.</p>	<p><u>Service Outreach</u></p> <p>Service Outreach aims to raise awareness of science and medicine in middle and high school students. Events include science activities and panels with middle and high school students around the Triangle.</p>

BRIDGE BUILDERS SEMINAR



The MD/PhD Bridge Builders Seminar was created and initiated during the summer of 2020, as a student-driven response to ongoing racial tensions in the U.S. The purpose of this seminar is to create intentional time and space to discuss racial issues and their impact on our personal and professional lives. Readings covered through this seminar have included: the 1619 Project by the New York Times, The New Jim Crow, White Fragility, So You Want To Talk About Race, Stamped From The Beginning, and How to Be an Anti-Racist. Topics covered have included: the true history of slavery, mass incarceration, higher education, healthcare, implicit bias, and starting conversations about race. During the 2021-2022 academic year, we hosted a Monday Night Seminar in December 2021 focusing on the book Caste by Isabel Wilkerson and we look forward to hosting a similar seminar in the Spring. We also designed a special seminar series for MS1 students, which will meet once a month through the Spring semester, focusing on topics of interest to the first-year students, including economic racism, international racism, and racism within healthcare. We have already seen students grow in their relationships with one another, their confidence in discussing difficult racial issues, and their foundational knowledge with regards to race in the U.S. We look forward to our Spring semester and continuing to improve upon this initiative in the future and beyond! The syllabus for this seminar has been shared widely both internally and externally to UNC, and you are more than welcome to contact one of the co-leaders at danielle_brathwaite@med.unc.edu if you would like a copy as well.

MINI MED SCHOOL



The third annual UNC MD-PhD Program-led Mini Med School will continue in spring 2022 in a Zoom webinar format. Mini Med School is a five-week lecture series, free and open to the public, led by MD-PhD student speakers and School of Medicine faculty. The series spans 5 weeks and is held on Tuesday evenings (6:30 – 8 pm EST) during the months of February and March. Topics planned for this year are as follows: vaccines (co-presented by our MSTP co-Director, Toni Darville), racial disparities in medicine, clotting disorders, chronic kidney disease, and atherosclerosis. Visit their [website](#) for more details and registration!

STUDENT COUNCIL



The mission of the MSTP Student Council is to: (1) Create an additional avenue for vertical integration within the program; (2) Create an additional avenue for peer advising and resource sharing; (3) Ensure the success of students at every stage of the program; (4) Enhance communication between students and program leadership. One representative from each class in the program is nominated to serve on the Student Council for a one-year term. A senior member of the council serves as President and a second member serves as Vice President. The Vice President serves two consecutive terms first as VP and the following year as President. The Council meets once per semester and then follows up with program leadership to present feedback and create action plans. In the short time since our Student Council was created, it has already led to concrete changes within the program that improves access to resources available to students and clarifies transition processes between Med and Grad.

CLASS	Representative
MS1	Zach Schrank
MS2	Monica Lyons
PhD1	Kelly Carey-Ewend
PhD2	Gavin Schmitz
PhD3	Julie Necarsulmer
PhD4+	Ben Keepers
MS3	Alison Mercer-Smith
MS4	Tim Dinh

2021 RETREAT 🌴 DR. BOB DURONIO

DURHAM CENTRAL PARK

KEYNOTE TALK

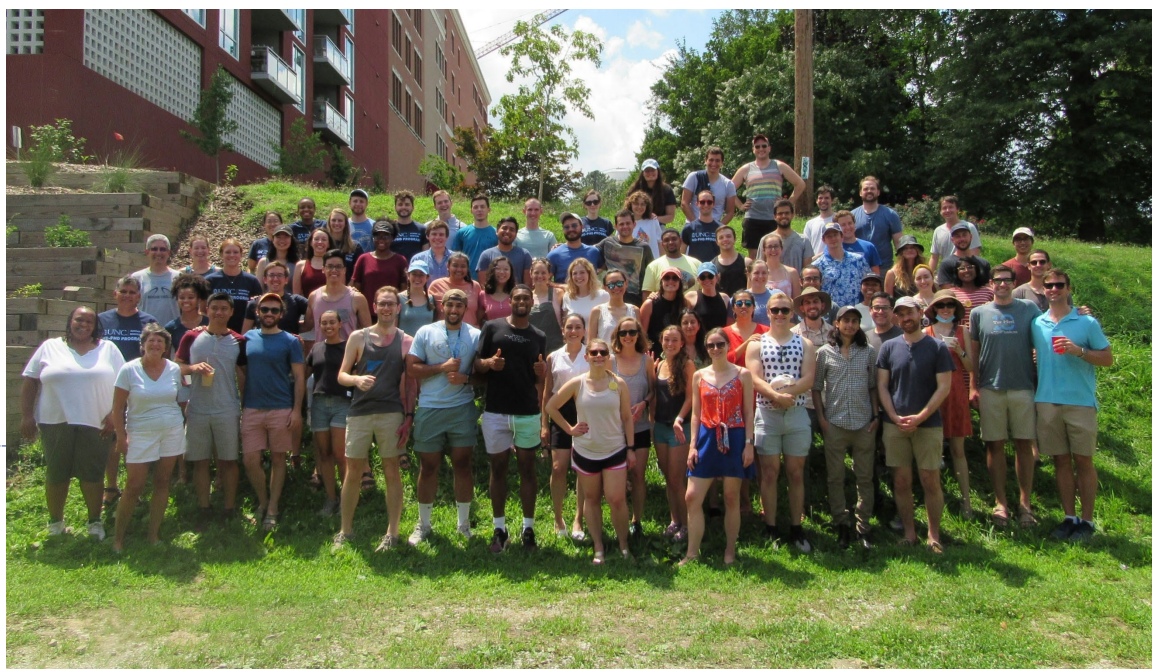
DEVELOPING A CAREER IN (ACADEMIC) RESEARCH

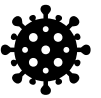


Our annual MSTP retreat provides peer mentoring, career development, team building, and program planning opportunities, and is held in July before classes start to kick off the new academic year. Each year, we are fortunate to secure nationally recognized scientists to join us for a keynote talk and to participate in mentoring and team building activities. This past summer, we were fortunate to have Dr. Bob Duronio join us! Dr. Duronio currently serves as the UNC School of Medicine's Associate Dean for Research. In addition, he holds appointments as a Professor of Biology in the College of Arts and Sciences and a Professor of Genetics in the School of Medicine. He is a member of the UNC Lineberger Comprehensive Cancer Center and directs the Integrative Program for Biological and Genome Sciences.



A decorated researcher and fellow of the American Association for the Advancement of Science, Dr. Duronio's research focuses on the genetic and epigenetic control of animal development, with a specific emphasis on DNA replication and mechanisms of gene expression that regulate progression through the cell cycle. Dr. Duronio has received multiple awards including the Ruth and Phillip Hettleman Prize for Artistic and Scholarly Achievement, a Damon Runyon Scholar Award, a National Science Foundation Career Award, and recognition as an Academic Leadership Fellow at UNC's Institute for the Arts and Humanities.





RETREAT 2021 PHOTOS



