

*Spring 2021*

# PROGRESS NOTES

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SPECIAL EDITION for 2021 2<sup>nd</sup> LOOK*



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# MSTP

**The University of Virginia Medical Scientist Training Program**

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# UVA MSTP 4<sup>TH</sup> YEAR MEDICAL STUDENTS CELEBRATE RESIDENCY MATCHES TO TOP U.S. PROGRAMS, REFLECT ON YEARS AT UVA

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By Jessica N. Little

## 2021 Match Results

Name	Institution	Specialty
Richard Baylis	Massachusetts General Hospital Stanbury Physician-Scientist Pathway	Internal Medicine
Jacob Eccles	University of Illinois Chicago Physician-Scientist Development Program	Internal Medicine
Daniel Hess	University of Alabama at Birmingham	Internal Medicine
Jessica Little	University of Pennsylvania	Neurology
Sarbajeet Nagdas	University of Pittsburgh Medical Center American Board of Internal Medicine Research Pathway	Internal Medicine

### **Richard A. Baylis, Ricky – Internal Medicine at Massachusetts General Hospital in Boston MA**



Ricky is from Cincinnati, Ohio and received an undergraduate degree from the Ohio State University. He completed his Ph.D. under the direction of Dr. Gary Owens. In his thesis work, he used cell-specific lineage-tracing mice to track cellular adaptations that occur during chronic non-resolving stress in atherosclerotic lesions. He is engaged to Dr. Molly Kelly-Goss, a graduate of UVA's biomedical engineering doctoral program and current medical student at Columbia; they are planning a wedding before starting residency together this summer. They share a beagle named Roux.

#### **Why did you choose to rank the internal medicine program at Massachusetts General Hospital?**

Because I was interested in a fast-track residency program (a program that shortens the internal medicine residency by one year to allow more time for research), I wanted a medicine training program with a reputation of pushing their residents hard during the first two years! I was couples matching with my fiancée Molly, and we both felt the physician-scientist track [at Mass Gen] was really supportive and a great fit for us both. We are excited to be immersed in the amazing research going on in Boston.

#### **Why did you choose to apply to research track programs?**

Molly and I both opted for the research track because we still have the ambition to lead basic science labs, and we were both fairly sure of our fellowship decisions (cardiology for Ricky and gastrointestinal medicine for Molly).

#### **What are your favorite memories of your time in Charlottesville and in the UVA MSTP?**

So many amazing memories! [Including] playing in the talent show with co-MSTP Mark Rudolf, proposing to Molly on the lawn, meeting life-long friends in the MSTP, defending my thesis in the rotunda, traveling to Germany to participate in the 68<sup>th</sup> Lindau Nobel Laureate meeting, setting the lobster eating record (8 lobsters!) at the Atherosclerosis Gordon Conference, and helping to start the MSTP clinical skills initiative. It has been a truly amazing 8 years and I am so grateful.

**Jacob C. Eccles, Jake – Internal Medicine at University of Illinois – Chicago in Chicago, IL**

Jake is from Corvallis, Oregon and received an undergraduate degree from Swarthmore College. After college, he spent time as an Americorps middle school teacher. He completed his Ph.D. under the direction of Dr. Judith Woodfolk, where he investigated B-cell responses to experimental human rhinovirus infection. His partner is Jennifer Ju, MD and they have two rabbits, Dunko and Emma.



**Why did you decide to specialize in internal medicine? Was it a difficult decision?**

I enjoyed the patient populations in both internal medicine and pediatrics. It was tough to decide between those two, but ultimately, I decided I preferred the colleagues in internal medicine.

**What approach did you take to research-track programs?**

Initially I did not apply to research-track programs because I was unsure about my fellowship preferences, especially considering my 4<sup>th</sup>-year was shortened due to the Covid-19 pandemic. However, UIC allowed me to complete a flexible application to their research-track mid-way through the application cycle and considered me for multiple fellowship options.

**What are your favorite memories of your time in Charlottesville and in the UVA MSTP?**

Re-entering clinical rotations after the Covid-enforced break and volunteering at vaccine clinics have been memorable experiences.

**Daniel L. Hess, Dan – Internal Medicine at University of Alabama – Birmingham in Birmingham, AL**

Dan is from Augusta, Georgia and completed undergraduate studies at the University of Georgia. He completed his Ph.D. under the direction of Dr. Gary Owens and Dr. Brian Annex, investigating the roles of perivascular cells in angiogenesis. Dan can be seen around Charlottesville with his super loyal and athletic 7-year old golden retriever, Goliath. Dan is planning a career as an oncologist.

How did you decide to apply for residency in internal medicine?

At the start of medical school, I was leaning towards internal medicine. Despite doing my best to go into every rotation with an open mind, no other specialty jumped out at me. Internal medicine encourages critical thinking, asking questions, and delving into the literature. Internal medicine allows you to take care of the whole patient, from the varied disease presentations to the complicating psychosocial factors.

Why did you choose to rank the internal medicine program at UAB?

I only applied to southeast programs because my parents and three siblings are all in the southeast and being close to them is extremely important to me. I enjoyed my interview days at several programs, but a key factor leading me to pick UAB is the fact that my brother (ortho surgery) and sister-in-law (OB/GYN) are residents at UAB. UAB has a very solid medicine program and is the primary hub for the entire state of Alabama, so you see both bread and butter cases but also more rare cases, both of which are essential to becoming a good internist.

What are your favorite memories from your time in Charlottesville and in the UVA MSTP?

I formed a strong core group of friends at the beginning of medical school, and together we experienced events like the medical school ski trip, bonfire, and Foxfield. We bonded abroad via a cruise to the Bahamas and a post-step1 trip to the Dominican Republic. During grad school, I traveled to the NIH and west coast to advance my scientific career. I also had opportunities to travel abroad to Spain, New Zealand, and Peru for adventures with friends and family.

**Jessica N. Little, Jess – Neurology at University of Pennsylvania in Philadelphia, PA**

Jessica is from Linden, North Carolina and received her undergraduate degree from North Carolina State University. She completed her Ph.D. under the direction of Dr. Noelle Dwyer. In her thesis work, she investigated regulation of neural stem cell divisions during cerebral cortex development using genetic murine models. She married her college sweetheart, Spencer Little, in 2017 after three-years of long-distance; they have enjoyed residing in the Fry's Spring neighborhood together. She adopted a kitten, Lexie, the month after she moved to Charlottesville – she is now seven years old!



How did you decide to apply for residency in neurology? Was it a difficult decision?

I love neurology! It was after shadowing a neurologist in college that I decided to apply to medical school. I love using the physical exam to localize lesions, the largely untapped potential of translating





basic neuroscience research to clinical disease, and the way that neurologic disease affects the very essence of who people are – how they walk, speak, think, etc. The only difficult decision for me was in deciding between adult and child neurology, as my graduate research was in neural development, but I found I related better to adult patients.

### Why did you choose to rank the University of Pennsylvania?

While I agonized over the rest of my rank list, UPenn was an easy choice for me. I loved the program leadership, liked that it is one of the bigger neurology residency programs, and felt the neuroscience research especially in genetics and development was exemplary. While there are no formal research-track programs in neurology, I can apply for funded research years as a resident. Furthermore, I thought Philadelphia struck a perfect balance between being not too-far from family, being fun, being affordable, and having job opportunities for my husband.

### What are some of your favorite memories of your time in Charlottesville and in the UVA MSTP?

Too many to count! I love my MSTP classmates and have enjoyed MSTP retreats, dinners at Ricky and Mark's house, afternoons at local wineries, my engagement party and wedding in North Carolina, and our infamous trip to Asheville with them. I have also enjoyed traveling with Spencer on many road trips and flights to Costa Rica, Canada, the Wizarding World of Harry Potter, Northern California, and western Europe, and now, Hawaii, where I am currently writing from.

### **Sarbajeet Nagdas, Sarb – Internal Medicine at University of Pittsburgh Medical Center in Pittsburgh, PA**

Sarb was born and raised in Nashville, Tennessee and then spent time in Fayetteville, North Carolina before attending the NC School of Science and Math in high school. He received his undergraduate degree from the University of North Carolina-Chapel Hill. He completed his Ph.D. under the direction of Dr. David Kashatus and Dr. Todd Bauer; in his thesis work, he demonstrated that Drp1, a GTPase responsible for mitochondrial fission, promotes KRas-driven pancreatic cancer growth in part through regulating distinct aspects of cellular metabolism. He is known as an awesome friend, dog, cat and human uncle to many.



### How did you decide to apply for residency in internal medicine? Was it a difficult decision?

I went into Internal Medicine because the efficient, deliberative, and collaborative approach to medicine meshed with my personality, it provided both high and low acuity scenarios that was attractive for me, and it readily allowed for a career in bench-based research as opposed to more clinically-oriented research. It wasn't a hard decision although I was contemplating general surgery prior to experiencing the entirety of internal medicine, because I enjoyed working with my hands and the high acuity situations.

### Why did you choose to apply to research track programs?

I applied to research track programs because, rather simply, I still wanted to pursue a career as a physician-scientist at the end of my MSTP training. At the end of my PhD, I was less enthusiastic about research as a career. However, as I advanced through M3, I realized I missed being in a lab

and investigating relevant and fun research questions despite very much enjoying patient-care. Thus, it became evident that I did still want to pursue a career as a physician-scientist.

What are some of your favorite memories of your time in Charlottesville and in the UVA MSTP?

Way too many great memories and experiences to adequately capture- going to Carter Mountain in the summer, fall hikes, MSTP retreat in Wintergreen, among many others. I think the general theme of all of my favorite moments were just hanging out with friends—in particular my entering MSTP class who are my closest friends—doing various Cville and life activities. One quick and MSTP-funny example: we were driving down to Jess's wedding and between all the music, joking, and "normal fun activities," the entire car took some time to review one of Ricky's commentaries that he was preparing for submission.



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## INTRODUCING OUR NEWEST MSTPs!

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By Sarbajeet Nagdas

The entering class of 2020 arrived in Charlottesville during the last summer to embark on their latest journey here at UVA. Their newest transition was complicated by the ongoing pandemic, but they have still managed to find their footing in Charlottesville and UVA over the past year. Below is an introduction to this entering class of six, as they begin to integrate more into our community as we hopefully emerge from COVID-19-related precautions.

### **Andy Vo, Andy**

Andy joins us after making the long journey west on I-64 from his hometown of Richmond, VA. Andy attended Virginia Commonwealth University where he majored in biomedical engineering. During his undergraduate time, he worked in a Regenerative Immuno-Engineering Lab, where he investigated the immune response to titanium implants. After his time at VCU, he joined the NIH through the post-baccalaureate fellow program joining the 3D Tissue Bioprinting Lab at the National Center for Advancing Translational Sciences. There, Andy generated a *in vitro* tissue model of neurons and astrocytes in native ECM for drug screening in the hopes of finding treatments for opioid use disorders. When deciding about which MSTP to continue his training, Andy appreciated the diversity of research opportunities present at UVA from Biochemistry & Molecular Genetics to Biomedical Engineering as well as the stellar medical school. Furthermore, Andy enjoyed the comfortable atmosphere where he felt like he'd fit in well as well as proximity to his home. His current research interests include tissue engineering and regenerative medicine for transplant purposes (specifically inducing organized vascular architecture in liver and kidney tissues *in vitro*) as well as transplant immunology.



Like many of his entering classmates, Andy has many fascinating characteristics outside of biomedical academia. For instance, one of his hobbies is to not just read but also write novels—specifically sci-fi and fantasy novels! His other hobbies include drawing (presumably to illustrate his novels) and watching YouTube videos on science (mainly physics), history, economics, linguistics, and writing. Outside of these hobbies, Andy is trilingual but aiming to be penta-lingual (English, Vietnamese, and Spanish – dabbling in Japanese and French) and is skilled at mythology trivia, ensuring him a place in one of Cville's many trivia night teams!



## **Brett Ransegnola, Brett**



Brett hails from the Garden State, originally from Mendham, NJ. Brett attended Northeastern University for the first year and then transitioned to Cornell University, completing the remainder of undergraduate learning. While an undergraduate, Brett's research was to characterize antibiotic tolerance in clinically isolated Gram-negative Enterobacteriaceae. Brett next pursued a 1-year post-baccalaureate at the New York Blood Center, exploring mechanisms of hematopoietic stem cell maintenance. When deciding about next steps, Brett believed that dual training as an MSTP affords its trainees a unique window into the clinically relevant components of human disease and how research informs the future of medicine, pushing him to the path of a physician-scientist. Brett ultimately chose UVA's program for its well-rounded scientific and clinical training as well as observing that UVA was home to a lot of fantastic budding physician-scientists!

When not studying, Brett enjoys biking and simply relaxing with close friends. This has been difficult with pandemic precautions, but the miles of bike trails in central Virginia are waiting! Brett also possess musical talents—during more normal times, Brett is a huge musician, with skill in both orchestral and jazz percussion. Perhaps we can see a partnership with Nadine (one of our rising M4s who is a Jazz vocalist) in performance!

## **Magda Bujnowska, Magda**

The prevailing winds brought Magda to Charlottesville from her home of Chicago, IL. She completed her undergraduate degree from the University of Chicago in 2018 and then elected to work for 2 years as a research technician prior to joining the MSTP. Her prior research was focused on using microscopy to study small bacterial regulatory RNA as well as N6-methyladenosine RNA modification. Like many of us initially, Magda decided to pursue MSTP training because she wanted to have a career where clinical work and research motivate and inform each other. Her current research interests are more focused on the effects of epigenetic gene regulation and RNA biology on cancer and disease progression- a growing area of research with some innovators in the field found here at UVA.



In her free time, Magda enjoys reading novels and knitting! Perfect and cozy activities to do during the brisk fall nights in the foothills of Shenandoah!

## **David Leace, David**



David arrives at Charlottesville from his home in Philadelphia, PA. He graduated from Washington University in St. Louis in 2019. At WashU he researched organic chemistry, specifically in asymmetric organocatalysis. He then spent a gap year at the University of Pennsylvania. There, he took his previous chemistry training in a more biological direction, working on the molecular pharmacology of common anesthetic drugs such as propofol. When thinking about his current research interests and potential graduate training, David is interested in the rational design of small molecule therapeutics and using chemistry to study biological systems. As he was considering his MSTP training options, David ultimately chose UVA MSTP because of the reputations of our Pharmacology

and Biophysics departments. Furthermore, David also sensed that Charlottesville was the type of place he could thrive in, with Cville being a smaller town that is close to his home, mountains and nature.

When not studying or working in lab, David is an avid golfer and is a hiker as well—a trait shared by many of his MSTP-mates with innumerable hikes within a 2-hour radius of Charlottesville. David also is a musician—specifically a blues guitarist! Although his opportunities to showcase his talents may have been limited during this first year in Cville, we look forward to David contributing the rich music scene in Cville!

### **Russell Hawes, Rusty**

Rusty joins our program from Simpsonville, SC. He attended Clemson University where he performed research investigating DNA repair mechanisms and homologous recombination. Upon graduating in 2018, he transitioned to the University of Kentucky for two gap years doing research where he studied platelet vesicle trafficking. When thinking about his next steps, Rusty wanted to pursue both an MD and PhD because he wanted to be able to treat patients while also improving that treatment through research. What attracted him to UVA was the medical school's emphasis on community engagement and was impressed by the MSTP's focus on strong mentorship and good science. As he starts deciding about his graduate career, his current research interests are in systems biology and computational modeling of molecular systems of infectious disease, development, and cancer—an area with numerous potential mentors available at UVA as well as a newly established university-wide Data Sciences Institute!



Rusty's extracurricular interests are hanging out with my friends and potentially enticing them to join him in exploring local restaurants and breweries. This is a bountiful endeavor in Cville (especially during non-pandemic times) given that our fair town reportedly (by word-of-mouth; still searching for citation) has the highest density of non-chain restaurants in the country! And like many other Charlottesvilleans, he also enjoys walking/running around campus and downtown!

### **Tula Raghavan, Tula**

Tula's hometown is Baltimore, MD where she spent many of her formative years. For her undergraduate training, Tula attended the University of Maryland-College Park as part of the Integrated Life Science Program. After, Tula took a gap year to continue her research enterprise; her research experiences include neurophysiology, molecular immunology, and translational glioblastoma research. When deciding about her next steps in training, Tula realized she valued the perspective a research PhD would provide as a physician, but she also believed that seeing patients in clinic would further motivate her in her research endeavors. Thus, she chose to pursue and MSTP and believed that UVA MSTP would best allow her to actualize her wishes. She is currently interested in pathways of both neural development and neurodegeneration—both of which are excellently represented at UVA.



Outside of research and medical school, Tula appears poised to contribute to the musical scene in the UVA MSTP—one of her main hobbies is playing the violin, specifically as a classical violinist. We hope to one day hear her violin echoing in the hills of Wintergreen during our annual retreat in the near future!

# STUDENTS ADAPT AND ENGAGE DURING THE COVID-19 PANDEMIC

By Najwa Labban

Just over a year ago, the COVID-19 pandemic swept the globe. A lot of attention has been given to the ways in which the pandemic has impacted students academically, especially considering the shift to primarily virtual learning for the first and second years in the program and the constraints placed on graduate students working in the lab. However, equally important are the effects the pandemic has had on students' personal lives given how the requirements for social distancing have resulted in feelings of isolation and inactivity. In an attempt to fully embrace the "new" in this age of what many have started to call the "new normal," students from across all classes of the MSTP have picked up hobbies and activities that have helped them stay sane during this extended period of change and uncertainty.



Katie Kraichely, who just completed the transition into her first year of graduate school, started a garden last summer. She described how all her neighbors, some of whom she'd never even spoken to before, were really invested in the garden. "Every time I was out there working in it, someone would walk by and tell me they'd been looking every day to see how the tomatoes and zucchini were coming along." By the looks of that picture, I'd say pretty darn well!



In addition to the garden, Katie has also been fostering a blooming (pun very much intended) "houseplant addiction." Some of her favorites include a big English ivy, a pothos, and a monstera. Honorable mention goes to a Thanksgiving cactus that survived a devastating fall off a shelf and is still going strong. Perhaps we could all take a lesson from this cactus as we brave the remainder of this pandemic.



As he heads into the third year of his PhD, Dane Sessions shared with us a newfound interest in baking bread. "I've been working on learning to bake sourdough bread at home using only a sourdough starter as a leavening agent. The first few loaves came out terribly but have improved significantly as I've learned to work with the yeast and dough." The picture says it all folks. If I saw this loaf sitting behind the counter at MarieBette or the Albemarle Baking Company, I wouldn't even bat an eye.

Elisa Enriquez Hesles was kind enough to share not one, but *two* changes that the pandemic has brought about for her. As a fourth year grad student, Elisa is no doubt very busy in the lab. Whereas before her attendance of various lectures was dictated by time constraints and her ability to physically get to their location around campus, the shift to virtual classes and seminars has enabled Elisa to tune into lectures she previously hadn't been able to. "It's been enriching, the many connections I've been able to make via zoom and the various subjects I've been able to learn about through the PhD+ program at UVA." And in case you thought the growth stopped there, think again. Elisa has also capitalized on her time in quarantine by getting really involved with running. She has regularly participated in the social distanced races held around the area, including a 4 miler at Whitehall, an 8k at free union, a 10 miler at Fox Field, and another 4-miler at Bold Rock. Elisa is planning on running the Richmond half marathon in November!



Bonus points go to the rising G4 class for finding a super creative way to have a COVID-safe hangout: a few months ago these students met up at the Crozet tunnel, a walk that recently opened up in the area. The walk looks magical but be warned: the tunnel is pretty long and dark, so bring a flashlight!

At a time when it can be difficult to feel motivated, it's more important than ever to find activities and hobbies that can help us maintain our physical and mental health - whether that means running, baking, gardening, or absolutely anything in between!



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## SENIOR STUDENTS EARN MSTP OUTREACH AWARD AND 2021 GRATTON ALEXANDER LITZ, III AWARD

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By Mark Rudolf



### MSTP Outreach Awardee and 2<sup>nd</sup> Look Speaker, Sarb Nagdas!

Congratulations to Sarb Nagdas, M4, for receiving two distinctions from his fellow MSTP students: He was elected to be this year's 2<sup>nd</sup> Look Speaker and awarded the first ever MSTP Outreach Award! The student selection committee (3 junior students) unanimously chose Sarb to be the 2<sup>nd</sup> look student speaker due to his active involvement in MSTP and APSA committees over the years, in addition to his recent outstanding match to a research-track residency internal medicine program at Pitt. The Outreach Award is given annually to the student who has done the most to advance recruiting and outreach, promote diversity and inclusion, and mentor fellow trainees. Sarb was nominated by two current students in the program to receive the first APSA award for expanding the reach of the MSTP. He was then voted as winner by his peers from among a competitive pool of 11 nominees.



Sarb double-majored in chemistry and biology at the University of North Carolina and performed biochemistry research investigating non-muscle myosins. It was there he developed an interest in cancer biology. Sarb came to UVA because of its growing cancer research portfolio, joining Dr. David Kashatus' lab investigating mitochondrial fission in pancreatic cancer. For his primary project, Sarb forged a collaboration with Dr. Todd Bauer (who became a co-mentor) as well as partnerships with trainees (MSTP and others) in Pharmacology. Through his gained expertise, he became involved in numerous collaborations in different fields. He also mentored two undergraduate students and numerous summer students and rotating graduate students. Outside of research, Sarb served on numerous MSTP committees, including recruitment co-chair, scientific committee, clinical skills program, and communications committee, which strengthened the program. He is on track to becoming an oncologist-scientist investigating the interactions between cancer cells and their microenvironment.

Sarb's nomination for the Outreach award, written by an anonymous MSTPer, is below:

*"Sarb is a constant source of support and representation for our program. Since I have been here, I have felt his presence in all facets of the program, and have took notice of his active participation in various APSA committees including the scientific committee, professional development, and recruiting. Even in his packed M3 and M4 years, Sarb continues to partake in these ventures as an active participant. His feedback is always genuine, constructive and well thought out. I have also heard many of stories from students older than me about more personal mentoring that Sarb has provided for them, specifically in guiding them through their PhD years. I know for me, if there is a burning question I have about the program, about being successful, or about progressing through the PhD, Sarb would be one of the first people I would ask."*

## Gratton Alexander Litz, III Awardee, Ricky Baylis!

Congratulations to Ricky Baylis (M4) for earning the 2021 Gratton Alexander Litz, III Award for outstanding performance during the internal medicine clerkship. This award recognizes a fourth-year student with the ability to apply medical knowledge clinically, while demonstrating compassion for patients.

An excerpt from the UVA Medical Alumni Association is below:

*“Baylis excelled in all of his pre-clinical studies and clinical clerkships. At UVA, Baylis worked in the lab of Gary Owens, PhD, and already has multiple publications in very high impact journals on underlying immune mechanisms that contribute to the development of cardiovascular and atherosclerotic disease. He was selected as a junior AOA member and was inducted into the Gold Humanism Society in addition to numerous accolades he earned during his research time, including being invited to the 68th Lindau Nobel Laureate Meeting. He will continue his training at Massachusetts General Hospital as a resident in internal medicine.”*

Congratulations, Ricky!





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## AMERICAN PHYSICIAN SCIENTIST ASSOCIATION (APSA) AT UVA

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### Spring 2021 APSA Leadership Team

<b>President</b>	Brandon Podyma	<b>Diversity Committee</b>	Gustavo Pacheco
<b>Vice Presidents</b>	Ashley Bolte, Arun Dutta	<b>Events Committee</b>	Najwa Labban
<b>Treasurer</b>	Blair Towers	<b>Medical Student Liaisons</b>	Ana Brennan, Nisha Dabhi
<b>Secretary</b>	Bri Wilson	<b>Communications</b>	Mark Rudolf
<b>Clinical Skills</b>	Greg Busey, Tommy Scott	<b>Scientific Committee</b>	Chris Henderson, Adi Narahari



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## AFFIRM: ADVOCATES FOR FEMALES IN RESEARCH AND MEDICINE

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by Sarah Wang

Advocates for Females in Research and Medicine (AFFIRM) is a student run organization with the mission of addressing the specific needs of female MSTP trainees at the University of Virginia. As a group we would like to increase the awareness of the challenges and inequalities women face in the medical sciences, prepare members for successful careers, and develop a network of current students, alumni, and physician scientist mentors.

As we've all experienced, this year has been a unique challenge where we've learned to adapt to the world of virtual communication. Last November we hosted our first virtual seminar with Dr. Resar, a successful physician scientist and advocate for females from John Hopkins, and we look forward to hosting a virtual career panel this coming fall. Additionally, we've found fun ways to gather through Zoom; for example, our annual holiday cookies event became a virtual ornament paint night. I loved seeing all the creative designs and below is only a small sampling of our winter cheer and UVA spirit!



Also, this year I'm excited to announce a newly designed AFFIRM white coat pin. These pins are available for free to all MSTP students regardless of gender so please come grab one and show your support for the group!



As always please be on the lookout for future AFFIRM updates through our listserv. We will continue to host Zoom events and hopefully be able to gather in-person sometime soon.

If you would like to be added to the listserv, get more information about AFFIRM, or have any ideas for future events or initiatives please email Sarah Wang at [scw5dn@virginia.edu](mailto:scw5dn@virginia.edu).

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## STUDENT UPDATES

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### 2021 Public Defense Dates (since Spring 2020 Newsletter)

- May 27, 2020 – Mark Rudolf (Corwin Lab)
- September 16, 2020 – Adam Lu (Beenhakker Lab)
- October 7, 2020 – Jeffrey Xing (Loughran Lab)
- January 27, 2021 – Brandon Podyma (Deppmann Lab)
- January 28, 2021 – Ashley Bolte (Lukens Lab)
- February 1, 2021 – Amanda Ward (Tamm Lab)
- March 30, 2021 – Adishesh Narahari (Bayliss Lab)



### Awards, Scholarships, Honors (since 2020 Newsletter)

- Michael Kovacs (Grad 2, Harris Lab) on receiving an **F30 Pre-Doctoral Fellowship Award** for MD/PhD students from the National Institute of Allergy and Infectious Diseases
- Ashley Bolte (Grad 3, Lukens Lab) on receiving an **F30 Pre-Doctoral Fellowship Award** for MD/PhD students from the National Institute on Aging
- Elisa Enriquez Hesles (Grad 3, J. Smith Lab) on receiving an **F30 Pre-Doctoral Fellowship Award** for MD/PhD students from the National Institute on Aging
- Briana Wilson (Grad 3, Dutta Lab) on receiving a National Cancer Institute **F30 Pre-Doctoral Fellowship Award** for MD/PhD students
- Sayo McCowin (Grad 3, Petri Lab) on receiving a National Institute of Diabetes and Digestive and Kidney Diseases **F30 Pre-Doctoral Fellowship Award** for MD/PhD students
- Jessica Little (Med 4, Dwyer Lab) – **inducted into Alpha Omega Alpha (AOA)**, the national medical honor society
- Sarbajeet Nagdas (Med 4, Kashatus Lab) – **inducted into Alpha Omega Alpha (AOA)**, the national medical honor society
- Nadine Michel (Med 3, McConnell Lab) – **2020 Raven Society Scholarship** (<https://aig.alumni.virginia.edu/raven/>)
- Janet Arras (Grad 4, Bouton Lab), Jon Suzich (Grad 4, Cliffe Lab), and Briana Wilson (Grad 3, Dutta Lab) – **2020 Double Hoo Awards** (<https://undergraduateresearch.virginia.edu/our-opportunities/grants/double-hoo-award>)



### Publications Since Spring 2020 Newsletter

Alencar GF, **Owsiany KM**, Karnewar S, Sukhvasi K, Mocci G, Nguyen AT, et al. Stem Cell Pluripotency Genes Klf4 and Oct4 Regulate Complex SMC Phenotypic Changes Critical in Late-Stage Atherosclerotic Lesion Pathogenesis. *Circulation*. 2020 Nov 24;142(21):2045–59.

**Bolte AC**, Dutta AB, Hurt ME, Smirnov I, **Kovacs MA**, McKee CA, Ennerfelt HE, Shapiro D, Nguyen BH, Frost EL, Lammert CR, Kipnis J, Lukens JR. Meningeal lymphatic dysfunction exacerbates traumatic brain injury pathogenesis. *Nat Commun*. 2020 Sep 10;11(1):4524. doi: 10.1038/s41467-020-18113-4. PubMed PMID: 32913280; PubMed Central PMCID: PMC7483525.

Bulut Gamze B., Alencar Gabriel F., **Owsiany Katherine M.**, Nguyen Anh T., Karnewar Santosh, Haskins Ryan M., et al. KLF4 (Kruppel-Like Factor 4)-Dependent Perivascular Plasticity Contributes to Adipose Tissue inflammation. *Arteriosclerosis, Thrombosis, and Vascular Biology*. 2021 Jan 1;41(1):284–301.

**Chatrath A**, Ratan A, Dutta A. Germline Variants That Affect Tumor Progression. *Trends Genet*. 2020 Nov 14; doi: 10.1016/j.tig.2020.10.005. [Epub ahead of print] Review. PubMed PMID: 33203571; NIHMSID:NIHMS1639985.

**Cheon H**, Dziejulska KH, Moosic KB, Olson KC, Gru AA, Feith DJ, Loughran TP Jr. Advances in the Diagnosis and Treatment of Large Granular Lymphocytic Leukemia. *Curr Hematol Malig Rep*. 2020 Apr;15(2):103-112. doi: 10.1007/s11899-020-00565-6. Review. PubMed PMID: 32062772; PubMed Central PMCID: PMC7234906.

Gorick CM, **Mathew AS**, Garrison WJ, Thim EA, Fisher DG, Copeland CA, Song J, Klivanov AL, Miller GW, Price RJ. Sonoselective transfection of cerebral vasculature without blood-brain barrier disruption. *Proc Natl Acad Sci U S A*. 2020 Mar 17;117(11):5644-5654. doi: 10.1073/pnas.1914595117. Epub 2020 Mar 2. PubMed PMID: 32123081; PubMed Central PMCID: PMC7084076.

Guagliardo NA, Klein PM, Gancayco CA, **Lu A**, Leng S, Makarem RR, Cho C, Rusin CG, Breault DT, Barrett PQ, Beenhakker MP. Angiotensin II induces coordinated calcium bursts in aldosterone-producing adrenal rosettes. *Nat Commun*. 2020 Apr 3;11(1):1679. doi: 10.1038/s41467-020-15408-4. PubMed PMID: 32245948; PubMed Central PMCID: PMC7125102.

**Khan AK**, Jagielnicki M, McIntire WE, Purdy MD, Dharmarajan V, Griffin PR, Yeager M. A Steric "Ball-and-Chain" Mechanism for pH-Mediated Regulation of Gap Junction Channels. *Cell Rep*. 2020 Apr 21;31(3):107482. doi: 10.1016/j.celrep.2020.03.046. PMID: 32320665.

Kozlowski MM, **Rudolf MA**, Corwin JT. EGF and a GSK3 Inhibitor Deplete Junctional E-cadherin and Stimulate Proliferation in the Mature Mammalian Ear. *J Neurosci*. 2020 Mar 25;40(13):2618-2632. doi: 10.1523/JNEUROSCI.2630-19.2020. Epub 2020 Feb 20. PubMed PMID: 32079647; PubMed Central PMCID: PMC7096146.

Kumar P, Kiran S, Saha S, Su Z, Paulsen T, **Chatrath A**, Shibata Y, Shibata E, Dutta A. ATAC-seq identifies thousands of extrachromosomal circular DNA in cancer and cell lines. *Sci Adv*. 2020 May;6(20):eaba2489. doi: 10.1126/sciadv.aba2489. eCollection 2020 May. PubMed PMID: 32440553; PubMed Central PMCID: PMC7228742.

Lammert CR, Frost EL, Bellinger CE, **Bolte AC**, McKee CA, Hurt ME, Paysour MJ, Ennerfelt HE, Lukens JR. AIM2 inflammasome surveillance of DNA damage shapes neurodevelopment. *Nature*. 2020 Apr;580(7805):647-652. doi: 10.1038/s41586-020-2174-3. Epub 2020 Apr 8. PubMed PMID: 32350463; PubMed Central PMCID: PMC7788527.

LeBlanc FR, Pearson JM, Tan SF, **Cheon H, Xing JC**, Dunton W, Feith DJ, Loughran TP Jr. Sphingosine kinase-2 is overexpressed in large granular lymphocyte leukaemia and promotes survival through Mcl-1. *Br J Haematol*. 2020 Aug;190(3):405-417. doi: 10.1111/bjh.16530. Epub 2020 Mar 2. PubMed PMID: 32124438; PubMed Central PMCID: PMC7415522.

**Lu AC**, Lee CK, Kleiman-Weiner M, Truong B, Wang M, Huguenard JR, Beenhakker MP. Nonlinearities between inhibition and T-type calcium channel activity bidirectionally regulate thalamic oscillations. *Elife*. 2020 Sep 9;9. doi: 10.7554/eLife.59548. PubMed PMID: 32902384; PubMed Central PMCID: PMC7529462.

**Mathew AS**, Gorick CM, Price RJ. Single-cell mapping of focused ultrasound-transfected brain. *Gene Ther*. 2021 Feb 1; . doi: 10.1038/s41434-021-00226-0. [Epub ahead of print] PubMed PMID: 33526842.

**Mathew, AS**, Gorick, CM, Thim, EA, et al. Transcriptomic response of brain tissue to focused ultrasound-mediated blood-brain barrier disruption depends strongly on anesthesia. *Bioeng Transl Med*. 2020; e10198. <https://doi.org/10.1002/btm2.10198>

**Narahari AK**, Kreutzberger AJ, Gaete PS, Chiu YH, Leonhardt SA, Medina CB, Jin X, Oleniacz PW, Kiessling V, Barrett PQ, Ravichandran KS, Yeager M, Contreras JE, Tamm LK, Bayliss DA. ATP and large signaling metabolites flux through caspase-activated Pannexin 1 channels. *Elife*. 2021 Jan 7;10. doi: 10.7554/eLife.64787. PubMed PMID: 33410749; PubMed Central PMCID: PMC7806264.

Newman AAC, Serbulea V, **Baylis RA**, Shankman LS, Bradley X, Alencar GF, et al. Multiple cell types contribute to the atherosclerotic lesion fibrous cap by PDGFR $\beta$  and bioenergetic mechanisms. *Nature Metabolism*. 2021 Feb;3(2):166–81.

Olson TL, **Cheon H, Xing JC**, Olson KC, Paila U, Hamele CE, et al. Frequent Somatic TET2 Mutations in Chronic NK-LGL Leukemia with Distinct Patterns of Cytopenias. *Blood*. 2021 Mar 30.

Przanowska RK, Sobierajska E, Su Z, Jensen K, Przanowski P, **Nagdas S**, Kashatus JA, Kashatus DF, Bhatnagar S, Lukens JR, Dutta A. miR-206 family is important for mitochondrial and muscle function, but not essential for myogenesis in vitro. *FASEB J*. 2020 Jun;34(6):7687-7702. doi: 10.1096/fj.201902855RR. Epub 2020 Apr 11. PubMed PMID: 32277852; PubMed Central PMCID: PMC7427345.

**Rowley CA**, Sauder AB, Kendall MM. The Ethanolamine-Sensing Transcription Factor EutR Promotes Virulence and Transmission during *Citrobacter rodentium* Intestinal Infection. *Infect Immun*. 2020 Aug 19;88(9). doi: 10.1128/IAI.00137-20. Print 2020 Aug 19. PubMed PMID: 32631916; PubMed Central PMCID: PMC7440760.

**Rudolf MA**, Andreeva A, Kozlowski MM, Kim CE, Moskowicz BA, Anaya-Rocha A, Kelley MW, Corwin JT. YAP Mediates Hair Cell Regeneration in Balance Organs of Chickens, But LATS Kinases Suppress Its Activity in

Mice. *J Neurosci*. 2020 May 13;40(20):3915-3932. doi: 10.1523/JNEUROSCI.0306-20.2020. Epub 2020 Apr 27. PubMed PMID: 32341094; PubMed Central PMCID: PMC7219294.

Schaff DL, **Singh S**, Kim K-B, Sutcliffe MD, Park K-S, Janes KA. Fragmentation of Small-cell Lung Cancer Regulatory States in Heterotypic Microenvironments. *Cancer Res*. 2021 Feb 2.

**Singh S**, Sutcliffe MD, Repich K, Atkins KA, Harvey JA, Janes KA. Pan-Cancer Drivers Are Recurrent Transcriptional Regulatory Heterogeneities in Early-Stage Luminal Breast Cancer. *Cancer Res*. 2021 Apr 1;81(7):1840–52.

Sutcliffe MD, Galvao RP, Wang L, Kim J, Rosenfeld LK, **Singh S**, et al. Premalignant oligodendrocyte precursor cells stall in a heterogeneous state of replication stress prior to gliomagenesis. *Cancer Res*. 2021 Feb 2;

**Ward AE**, Kiessling V, Pornillos O, White JM, Ganser-Pornillos BK, Tamm LK. HIV-cell membrane fusion intermediates are restricted by Serincs as revealed by cryo-electron and TIRF microscopy. *J Biol Chem*. 2020 Nov 6;295(45):15183-15195. doi: 10.1074/jbc.RA120.014466. Epub 2020 Aug 11. PubMed PMID: 32788212; PubMed Central PMCID: PMC7650252.

**Zeigler AC**, Nelson AR, Chandrabhatla AS, Brazhkina O, Holmes JW, Saucerman JJ. Computational model predicts paracrine and intracellular drivers of fibroblast phenotype after myocardial infarction. *Matrix Biol*. 2020 Sep;91-92:136-151. doi: 10.1016/j.matbio.2020.03.007. Epub 2020 Mar 21. PubMed PMID: 32209358; PubMed Central PMCID: PMC7434705.







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