The Hallmarks of
UAB CANCER BIOLOGY
VOLUME 5 - ISSUE 1

Cancer Immunology at UAB: Flying High

Faculty in Focus: Cancer Immunology

In this Issue:

CANCER BIOLOGY
Graduate Program at UAB

CANCER BIOLOGY
Graduate Program at UAB

UAB GBS CANCER BIOLOGY THEME

From the Directors

It is our pleasure to release this Cancer Biology newsletter for the first half of 2018. We have just completed our new student recruitment this semester; we were able to attract highly talented students, including international students, for the Cancer Biology (CANB) theme. These students will matriculate into the UAB GBS program in August 2018. Many of the senior students from our theme were the driving force behind this recruitment event and actively participated in this process.

During the first half of this year, multiple students successfully defended their Ph.D. thesis work earning their Ph.D. degree centrally focused on Cancer Biology. Many of our students won travel awards to attend national and international conferences this Spring. This issue summarizes the Annual AACR meeting that was held in Chicago in April. Albeit very chilly and with a few snow showers, the Windy City provided a wonderful venue for our CANB students to get a mix of science and fun (yes, Hamilton too!). Another fun event was Movember during November 2017 that raised awareness for men's health issues, including prostate cancer, testicular cancer, and mental health.

As we set foot into summer and plan trips to the beach or the mountains or visit family and friends, we wish to celebrate yet another academically successful and memorable year.

Have a great summer :)

Lalita Shevde-Samant, Ph.D. & Soory Varambally, Ph.D.

Dr. Jianmei Leavenworth

by Sam Fehling

Dr. Jianmei Leavenworth is a tenure-track Assistant Professor in the Department of Neurosurgery and holds a secondary appointment in the Department of Microbiology. Her research focuses on cancer and immune cell crosstalk in the tumor microenvironment, using mouse models and specimens from patients with malignant tumors, with the goal of discovering new targets and developing better strategies for cancer immunotherapy.

Where are you from?

I grew up in Jiangyin, a city close to Shanghai in China, and completed my medical training at Nantong University School of Medicine. It was during this time that I became fascinated by the power of our immune system, and stayed in my university to accept a faculty appointment as a lecturer in Microbiology and Immunology. Driven by my passion in immunology, I left for the United States to earn my PhD in immunology followed by postdoctoral training at the Dana-Farber Cancer Institute at Harvard Medical School. I have contributed to understanding the cellular and molecular basis for the development and function of several types of immune cells in the context of autoimmune diseases and cancer. In particular, one of my projects led to a Phase 1 trial, where an antibody-based treatment displayed positive results in patients with rheumatoid arthritis. This experience cemented my passion for translational research in the sciences. After completing my post-doc, I was promoted to Instructor of Microbiology and Immunology, before joining UAB in 2016.

What interested you in UAB?

I was interested in UAB because I wanted to obtain an independent faculty position at an institution with strength in immunology and with the potential for growth in cancer immunology. I was also intrigued by UAB's collaborative environment, and the chance to translate my results from the lab to the clinic. This was a major draw for me. I now work with James Markert, MD, and Yancey Gillespie, PhD, for translational neuro-oncology research.

What are your current research interests?

My lab is currently focused on the definition and manipulation of effector and regulatory subsets within the tumor microenvironment, seeking effective strategies for cancer immunotherapy. We are asking what immune cells are influenced by specific tumors, and how we can manipulate these cells and associated molecules to stimulate the immune system in order to fight cancer more effectively, but without causing systemic adverse effects. We are interested in immune cells in both innate and adaptive immunity, particularly T cell subsets and natural killer cells. Using genetically engineered mouse (GEM) strains, pre-clinical tumor models and high throughput sequencing, we are taking a basic immunology approach using a Cre-LoxP system to specifically deplete specific molecules in particular immune cells. We then observe their impact on immune response and tumor growth. Using this approach, we aim to understand the mechanism through which these depleted molecules function and discover new molecules that can be targeted for use in cancer therapy.

We are also collaborating to help evaluate anti-tumor immune responses to oncolytic herpes simplex virus (oHSV)-based therapy of patients with recurrent gliomas, which is currently in a Phase I trial. We are interested in identifying immune cell subsets as biomarkers to predict which patients with brain tumors are likely to benefit from this therapy and which are not. Our goal is to improve strategies for patient stratification for future oHSV therapy and to form the foundation of developing the effective combinatorial therapy for brain tumors.

Where will your research take you next?

A major goal of my research is to help the body itself in the battle against cancer. By understanding the nature of immune responses within a specific tumor, we will be able to discover unique immune cells within the tumor and to develop selective and effective strategies to manipulate these cells to boost anti-tumor immunity without triggering systemic toxicity. These potential strategies will be combined with stand-of-care or with the current cancer immunotherapy approaches to increase the survival and improve the quality of life of patients with malignant tumors.

Are you interested in taking students?

Yes, I am currently looking to take students, and I have mentored a few rotation students in the past. My lab is at the intersection of tumor biology, immunology and cancer immunotherapy. Everyone can bridge the gap between tumor biology and immunology. This is one of the major forces in cancer research. It does not matter if a student has a limited background in immunology. Rather, it depends on the types of questions they ask and how they wish to investigate them. Every project offers many opportunities and approaches to learn.

Do you have any advice for current and future students?

I think it is important for students to have a genuine curiosity and interest in their field of research, as proper motivation is a big driving force for success. A student will find it helpful if they can think about their career trajectory, and to be practical when setting it up. They should be able to fulfill both their career and personal life goals. It is also a good idea for students to know themselves and to understand their own capacity. Setting oneself up at a good position during each step will foster improvement and growth in an effective and efficient manner. For this reason, students should learn how to prioritize their time and effort at each stage of their career.

Have there been any pleasant surprises about living in Birmingham? What do you do when you aren't in lab?

I like the peaceful and friendly environment in Birmingham, and I feel at home here. Outside the lab, I enjoy reading, hiking and exploring nature. I was surprised that there are so many hills here, and I enjoy the mountain parks, having fun with so many different kinds of trees to identify. I am looking forward to exploring more of what Birmingham has to offer.

What would be your ideal vacation?

I would like to take an extended trip around the world someday, just to explore what I want to know and what I do not know. I am always full of curiosity about the wonders of the world. After all, it's what brought me here!

Words of Wisdom

Interviews by Sweta Patel

What does it take to cross the finish line and obtain a PhD at UAB? Graduating Cancer Biology students share their experiences and advice for success in graduate school.

Abhi Gangrade

Mentor: Dr. Donald Buchsbaum

What is the title of your project?

Effects of novel inhibitors against Wnt/β-Catenin signaling in ovarian and triple-negative breast cancers

How would you describe your doctoral experience in one word?

Exploratory

How has your experience at UAB been?

It's been overall satisfactory. You gain benefit depending on how much effort you invest.

What has been the best part of your PhD?

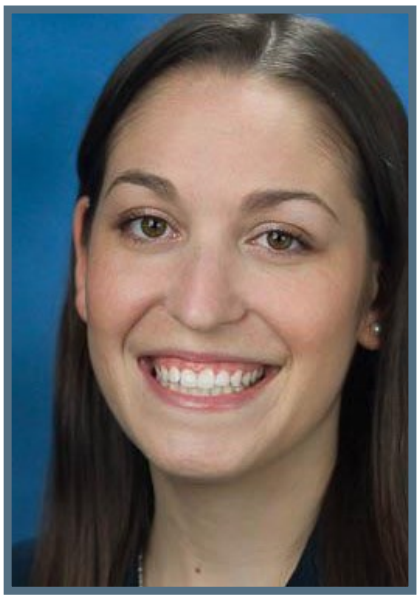
Meeting people with different ideas that have provided some food for thought. I'll always miss the relationships I developed with people.

What are your future plans? Or what is your career goal?

I want to be involved in clinical/translational sciences.

What one piece of advice would you give your juniors?

Explore other possibilities. Even if they may not relate directly to your thesis project, don't be afraid to examine other fields, methods, etc. Also, while cancer research may be a career choice for us, keep in mind the patients who suffer.



Dr. Laura Stafman

Mentor: Dr. Elizabeth Beierle

What is the title of your project?

The role of PIM3 kinase in hepatoblastoma tumorigenicity, cancer stem cell-like cell maintenance, and chemoresistance

How would you describe your doctoral experience in one word?

Challenging

How has your experience at UAB been?

It has been great. There is always a lot going on at UAB. There are also a lot of mentors ready to help at any time.

What has been the best part of your PhD?

Getting to know other scientists

What are your future plans? Or what is your career goal?

I will return to general surgery residency training. Long-term, I would like to become a pediatric surgeon-scientist and have my own lab.

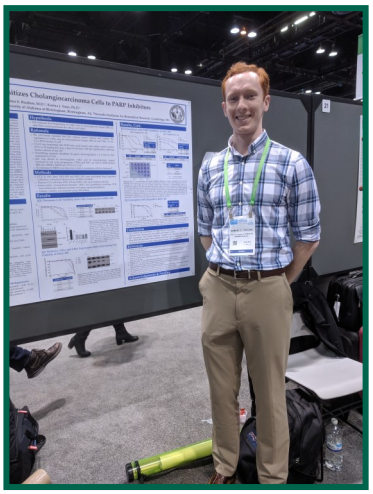
What one piece of advice would you give your juniors?

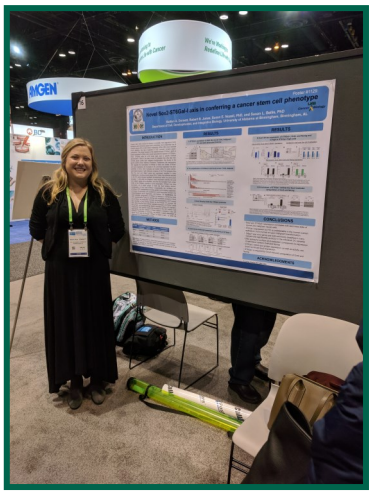
Listen to your committee – they are right and want to help you to be the best researcher you can be.

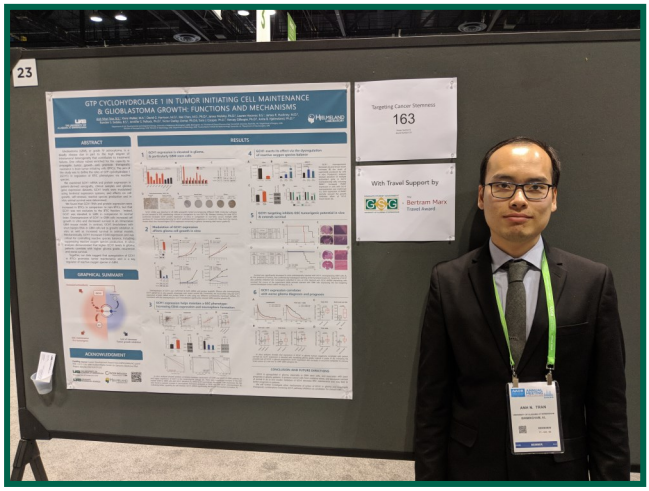
American Association for Cancer Research Annual Meeting, 2018

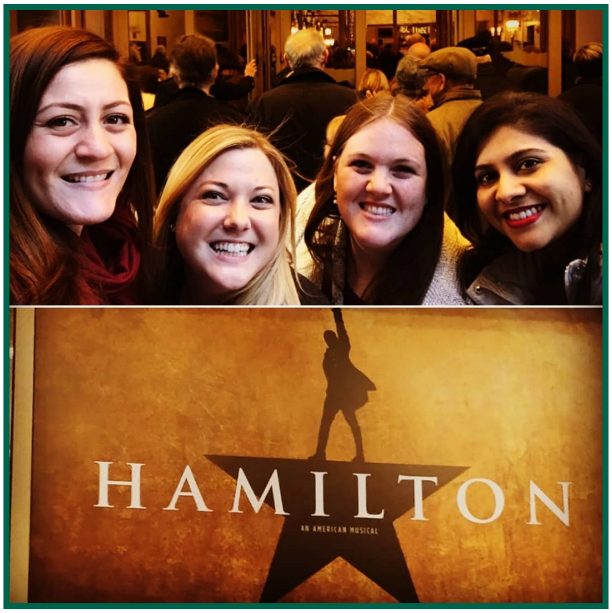
by Kaitlyn Dorsett

The American Association for Cancer Research Annual Meeting was held this April in Chicago. The theme this year was "Driving innovative cancer science to patient care." Over the course of the four days this meeting was held, there were a plethora of major- and mini- symposia as well as many poster presentations discussing a broad range of topics. Many of the cancer biology theme students that attended this meeting, did so with the help of the Bertram Marx foundation. This foundation provides scholarships that are essential in providing funding for travel, room and board, and registration fees. One very exciting change seen this year at AACR is that there will no longer be a membership fee for students seeking their Ph.D. This decision made by the AACR board of directors will open the possibility of attending these meetings to a larger group of students, now that membership requires no fee. Large meetings such as this one are of critical importance to the training and career development of a Ph.D. student. AACR gives us the opportunity to learn about the current hot topics in the world of cancer research, but also allows us the opportunity to share our own research. This can prove invaluable as a way of networking, initiating collaborations, and receiving constructive feedback. While we spent the majority of our time in Chicago listening to seminars, presenting our research, or networking, we did make time for some fun too!









UAB Pathology Department Trainee Research Day

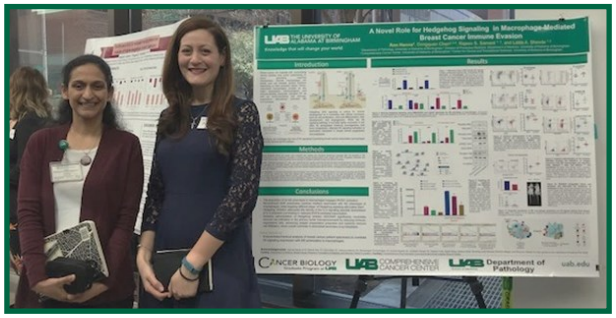
by Ann Hanna

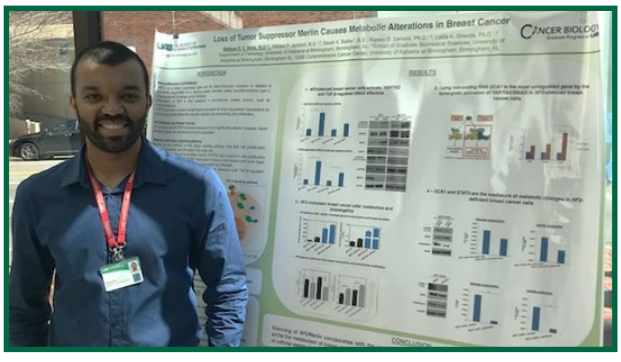
The UAB Department of pathology hosted its 13th Annual Department Trainee Research Day on May 2nd. Trainees from every level, undergraduates, graduate students, postdoctoral fellows, and medical residents, were encouraged to participate and share their work with their colleagues in the department. Several of our students not only participated in the event to showcase their research projects, but were also involved in the organization of the event. The event features a guest speaker, usually a former trainee from the department. This year's keynote speaker was Dr. Laurie Harrington, Associate Professor in the Department of Cell, Developmental, and Integrative Biology, who shared her scientific journey with the audience and encouraged the trainees to pursue their ambitions with hard work and determination. Ann Hanna and Mateus Mota won awards for Most Outstanding Research Presentations and Tshering Lama-Sherpa was awarded the Betty Pritchett Spencer Travel Award for Most Outstanding Cancer-Related Research Presentation.

Susan G. Komen North Central Alabama Breast Cancer Symposium

by Ann Hanna

The annual Komen North Central Alabama research roundtable was held on February 27that UAB. The symposium titled "Bridging the Gap between Survivors and Researchers" focused on finding common ground between breast cancer patient survivors and advocates and researchers. Breast cancer researchers, including physicians and students, discussed their work in hopes to shed light on the different aspects of biomedical research that takes place at UAB. The event was a wonderful opportunity to meet real patients who are affected by cancer and witness their perseverance and how they continue to fight for their lives every day. Our students Tshering Lama-Sherpa, Mateus Mota, and Ann Hanna presented their work at the event and got an opportunity become exposed to a different side of cancer: patient experience and care. Hearing the moving stories of breast cancer survivors was a true inspiration to work hard and fight to discover novel cures.





UAB Celebrates Movember

by Rachael Orlandella

This past November, the UAB department of Urology and the UAB department of Pathology formed a partnership to celebrate Movember, an annual event that challenges participants to grow mustaches during the month of November. The event was initially started by the Movember Foundation, a global movement that aims to stop men from dying too young. Movember raises awareness for men's health issues, including prostate cancer, testicular cancer, mental health, and suicide prevention. The Movember foundation also raises money for research, and helps to fund over 1,200 projects around the world.

Last year, UAB got involved and hosted a Movember celebration with food, drinks, and prizes for the best mustaches. Moreover, the departments of Urology and Pathology joined together to raise more than $1,000 for the UAB-Movember team! Faculty and students wishing to join the Move-ment this November can get involved by growing mustaches and attending events sponsored by the UAB-Movember team. This year will feature a larger event, where the UAB Movember team is planning to partner with the American Cancer Society of Birmingham. Until then, those interested in supporting the Movember Foundation can donate year-round.

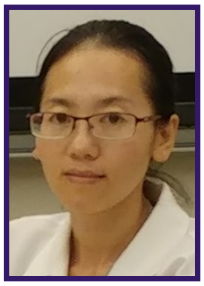
Special thanks to Morgan Samples for providing photos and event details

NEW! UAB Comprehensive Cancer Center Trainee Seminar Series

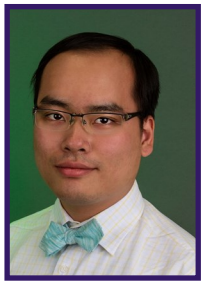
by Dr. Lalita Shevde-Samant






The UAB Comprehensive Cancer Center (CCC) has had a vigorous and broad-based Education and Training Program to enrich the training experience of our next generation of scientists, clinician scientists, and clinicians engaged in the delivery of cancer care. Education and training are critical to achievement of both the mission and vision. We have education and training programs at all levels - for undergraduates, graduates, and post-doctoral trainees. In addition, we have residency and fellowship programs in multiple cancer specialties and subspecialties. Because of our unique location in the Deep South, we have had a special interest in training and education in minority populations. The UAB CCC invests in supporting cancer education and training through multiple mechanisms.



Cancer education is not solely about facts regarding the etiology and treatment of the disease; rather it encompasses both didactic and non-didactic learning. One important nontechnical skill includes clear communications, whether oral or written, with people with different backgrounds that can be developed and honed. The UAB CCC's comprehensive educational program now includes one more exciting professional development opportunity - The Trainee Seminar Series.

The Trainee Seminar Series was officially launched in September 2017 and meets once a month on the third Thursday in WTI 101 at noon over lunch. This Seminar Series is intended to provide a platform for Trainees at all levels – graduate students, postdoctoral fellows, junior faculty, residents, and fellows. This platform enables trainees to showcase their ongoing research, solicit suggestions for grant proposals, or solicit collaborative relationships through proposing new ideas or concepts. Taking advantage of an interactive seminar, trainees can use this opportunity to design comprehensive and nifty slides, critically analyze their data, hone their public speaking skills, and "think on their feet" as they answer questions from the audience and get prepared for the next phase of their career.


We encourage all Trainees to take advantage of this opportunity. To schedule your seminar please email Lalita Shevde-Samant (lalitasamant@uabmc.edu) or Susan Lobo Ruppert (sruppert@uab.edu).

Presenter photos courtesy of trainee seminar fliers


Awards and Accolades

by Shelly Nason and Sweta Patel

Our New Publications

- **Cui J.; Placzek**, W.J. PTBP1 enhances miR-101-guided AGO2 targeting to MCL1 and promotes miR-101 induced apoptosis. Cell Death Dis.2018, 9(5), 552.
- Meares GP, Rajbhandari R, Gerigk M, Tien CL, Chang C, **Fehling SC**, Rowse A, Mulhern KC, Nair S, Gray GK, Berbari NF, Bredel M, Benveniste EN, Nozell SE. "MicroRNA-31 is Required for Astrocyte Specification". Glia. 2018 January 30.
- Bownes LV, **Stafman LL**, Maizlin, II, Dellinger M, Gow KW, et al. Socioeconomic disparities affect survival in malignant ovarian germ cell tumors in AYA population. J Surg Res 2018:222:180-186 e183.
- **Stafman LL,** Maizlin II, Dellinger M, Gow KW, Goldfarb M, et al. Disparities in fertility-sparing surgery in adolescent and young women with stage I ovarian dysgerminoma. J Surg Res 2018:224:38-43.
- **Stafman LL,** Mruthyunjayappa S, Waters AM, Garner EF, Aye JM, et al. Targeting PIM kinase as a therapeutic strategy in human hepatoblastoma. Oncotarget 2018:9:22665-22679.
- **Tran AN**, Walker K, Harrison DG, Chen W, Mobley J, Hocevar L, Hackney JR, Sedaka RS, Pollock JS, Cooper SJ, Gillespie GY, Hjelmeland AB. Reactive species balance via GTP cyclohydrolase I regulates glioblastoma growth and tumor initiating cell maintenance. Neuro-Oncology. February 2018, epub ahead of print.
- Libby CJ, **Tran AN,** Scott S, Griguer C, Hjelmeland AB. The pro-tumorigenic effects of metabolic alterations in glioblastoma including brain tumor initiating cells. BBA Reviews on Cancer. April 2018, 1869(2):175-188.

New Graduates

- Congratulations **to Ashiya Buckles, Abhi Gangrade, Kelly Krietzburg and Laura Stafman** for successfully graduating this semester.

New PhD Candidates

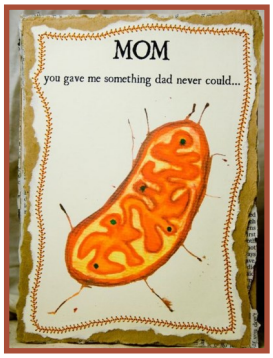
- Alyncia Robinson and Sweta Patel successfully passed their qualifying exams to advance towards candidacy this semester.

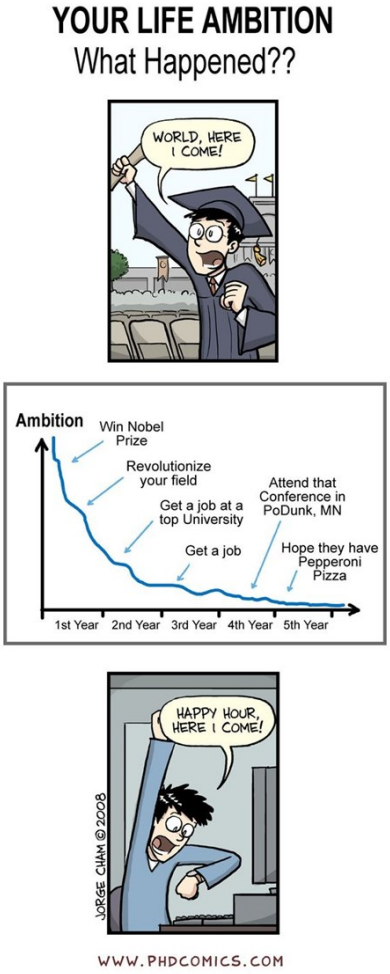
Awards and Honors

- **Anh Tran** was awarded a Bertram-Marx Travel Grant; a Graduate Student Government Travel Grant; a Grow with Google Challenge Scholarship; and won the First $1000 i2b2 Abstract Contest (Finalist).
- **Jia Cui** was awarded the Second Place ASPET Poster Award at ASPET 2018 Annual Meeting (Experimental Biology 2018), and an ASPET Graduate Student Steven E. Mayer Travel Award for ASPET 2018 Annual Meeting (Experimental Biology 2018).
- **Ann Hanna** won the Outstanding Research Presentation Award at the Pathology Trainee Research Day; was awarded a Bertram Marx Travel award; and was awarded an AACR Scholar-in-Training Award.
- **Mateus Mota** was awarded the Outstanding Research Presentation (Data blitz) at Pathology Trainee Research Day (05/02/2018). Awesome!
- **Tshering Sherpa** received the Pritchett Spencer travel award for the most outstanding cancer related research presentation at Pathology Trainee Research Day May 2, 2018.

#justphdthings

by Ann Hanna





Fun Fact:

Scientists at UNC Chapel Hill innovated an interesting strategy for melanoma treatment. The transdermal injection of melanin into mice generates heat, which enhances antigen uptake and presentation by dendritic cells and promotes effector and cytotoxic T cell functions. You can read more about this study here:

http://immunology.sciencemag.org/content/2/17/eaan5692.long