

Genetics & Epigenetics Newsletter 2022

THE UNIVERSITY OF TEXAS
MD Anderson
Cancer Center

UTHealth
Houston

Graduate School of Biomedical Sciences

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Genetics & Epigenetics 2022 Program Retreat

Nov. 4-5, 2022

Moody Gardens,
Galveston, TX



Discovering the Basics

by Ambro van Hoof, PhD

Professor, Department of Microbiology and Molecular Genetics

Editor's Note: Many of us, who work in basic research, have been asked: What is the point of studying what you are studying? What is the utility? And this question had become more frequent during COVID when scientists were thrust into the spotlight of our society. While making this edition, I found out that basic research receives different names: useless-knowledge, undirected research, or, my favorite, curiosity-based knowledge. I also realized that others do not share my opinion of basic science, and what is readily important to me is not evident to others. But why is that? How do we define utility and importance? I don't have an answer, but I can say that it is all about perspective and as biology has demonstrated many times, it is all about the context.*

While bench-to-bedside research focuses on curing disease and gets a lot of the limelight, these translational approaches rely on basic science discoveries. Science history has demonstrated that some of the most significant medical breakthroughs originated from scientists that were not trying to cure a disease. Many of these were serendipitous discoveries built upon many years of dedication and hard work. As our Nobel Laureate James Allison puts it, he was just fascinated by his T cells. And we can say proudly that this relentless succession of basic discoveries and innovations is at the core of many labs in the Genetics and Epigenetics program at the GSBS.

There are many excellent examples that come to mind of recent basic research questions that led to enormous breakthroughs. But if we want to be up to date, there are no better examples than the controversial CRISPR twins and the COVID vaccine.

Jennifer Doudna and Emmanuelle Charpentier wondered how CRISPR systems cut DNA to defend bacteria from viral and plasmid invasion. In one beautiful paper, they determined how the enzyme Cas9 worked with two RNAs, how you could get it to work with a single guide RNA (sgRNA), and how you could change it to make single-stranded nicks or double-stranded breaks using classical RNA

biochemistry. The jump to using CRISPR/Cas9 to modify the genome of pretty much any organism in any way one desires was quickly made by five different labs within seven months of this publication. This has revolutionized biomedical research to the point that now genome editing is being used as a medical therapy.

Another excellent example comes from the recent success of mRNA vaccines. This vaccine's success was built on years of basic research by Katalin Karikó. She was curious to understand how mRNA nucleotides could be modified to evade the innate immune system. Moderna understood all too well the importance of making fundamental discoveries. They synthesized many mRNA sequences that encoded GFP to understand the rules for optimizing protein production. They painstakingly built pipelines to quickly produce and test anti-cancer vaccines since the time between cancer diagnosis and starting treatment is obviously critical. None of this was done to prepare for a coronavirus vaccine but understanding the basics and reiteratively improving these protocols clearly laid the groundwork for producing a COVID vaccine in record time.

The basic research that these breakthroughs were built upon is often harder to explain to the public than the breakthroughs themselves. To ensure such breakthroughs keep happening, communicating our science effectively to the public and decision-makers is a must. In the meantime, we shall celebrate the great freedom that an academic setting gives us to pursue questions we find interesting and the privilege we have to satisfy our curiosity. Thank you to all the G&E students that excel in your creativity and perseverance in your thesis work. Someday some of the basic science questions we are addressing today will lead to breakthroughs for curing diseases.

**Book recommendation: The Usefulness of Useless Knowledge by Abraham Flexner*

The
Usefulness
of Useless
Knowledge

ABRAHAM FLEXNER
With a companion essay by
ROBERT DIJKRAAF

From the Director's Desk...

Dear G&E Community:

While we have had another challenging year regarding the COVID-19 pandemic, we have begun to experience how our lives will get back to a new kind of normal. Precautions like mask wearing in our labs continue but are less onerous or communication hampering than they once seemed. Remote work with all its benefits and detriments is now a foundation of the modern world and has facilitated formation of long-distance collaborations and new opportunities to promote team-based scientific endeavors. On a personal note, pets have adapted to missing their beloved persons during the workday, and cooks have released their sourdough starters into the wild. I know our G&E community is thrilled to see the return of in-person summer students, classes, committee meetings, lab meetings, conferences, and our own terrific G&E Spring Career Symposium in May. Returning to my favorite Gordon Research Conference after not seeing my colleagues for three years felt like the best science summer camp ever – of course the mosquito bites, frog croaking, and dorm beds may have contributed to that feeling! Online conferences and symposia were certainly better than nothing and provided unique opportunities for inclusivity, but they lack the comradery and spontaneous scientific discourse that social beings like us need to thrive and efficiently advance and communicate our research. I have been amazed by the tremendous scientific progress that has been made despite the pandemic, and I know we are all looking forward to hearing about your research advances at our in-person G&E Annual Fall Retreat on November 4-5 at Moody Gardens in Galveston.

The ability to conduct cutting-edge research is such a privilege for all of us as we are passionate about science. The pandemic has highlighted that we can persevere in our passion despite enormous difficulties like lab shutdowns and shift work, moats to protect our vulnerable patient population, supply chain and inflation problems, and the loss of in-person meetings. However, the pandemic also highlighted the need to bolster our mental and emotional health. No one was unaffected by this global crisis, and in some ways, the unseen benefit has been a realization that mental health issues are prevalent and that mitigating them can and should be a part of any work and educational environment. There are resources available to you to improve your emotional well-being, and I encourage you to take advantage of them, not just in response to immediate crises, but holistically and habitually. Research is challenging enough without additional mental and emotional stresses and investing in your health will improve your science. gsbs.uth.edu/current-students/support.htm

Our G&E community continues to improve our research environment mainly driven by student-led innovations such as the GEM student seminars, faculty insight and historical perspective series, and the school outreach project. The leadership of G&E takes your student needs and ideas seriously and strives to quickly address issues – don't be shy about bringing anything up at the Director's Round Table, via email, or at our traditional G&E events like our Summer Ice Cream Social – back on after the long hiatus!

May science continue to surprise and delight you!

Francesca Cole, PhD, G&E Director

Rachel Miller, PhD, G&E Co-Director

G&E News



New Program Coordinator!

Welcome to Amy Carter, our new program coordinator. Her experience with other programs and her efficient and meticulous work pace will bring new perspectives to our community and the program.



Elisabeth's Retirement!

After 19 years in G&E, our beloved Elisabeth Lindheim retired. She invested all her time, love, and energy to help create the wonderful community that we are today. We will miss her, but we will ensure that her legacy lives on.

New Faculty!



Dr. Kadir C. Akdemir: Our lab focuses on integrative computational analysis projects to advance efforts for precision cancer medicine. We are analyzing multi-omics datasets from primary human tumors such as long-read whole-genome sequencing, genome-wide chromatin organization (Hi-C) and single-cell ATAC-sequencing from common (i.e. glioblastoma) or rare (i.e. chordoma) CNS tumor types to investigate how tumor evolution shapes the organization of chromatin in cancer cells and tumor microenvironment.



Dr. Peter Van Loo: Our lab is interested in cancer genomics, intra-tumor heterogeneity and tumor evolution. Our big question is: how do tumors evolve? To try to answer that, we view the cancer genome as an archeological record of the tumor's past, and use whole-genome sequencing and methylation.

New Directors!

We want to welcome our G&E new directors, Dr. Francesca Cole and Dr. Rachel Miller. We also want to thank Dr. Jichao Chen for his fantastic work and dedication as the former director. We are looking forward to sharing all the new ideas and enthusiasm of the new leadership.



G&E Program Director Francesca Cole, PhD

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Department of Epigenetics
& Molecular Carcinogenesis

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Co-Editors: **Shuangjie You** and **Tolkappiyan Premkumar**

Editorial Assistance: **Amy Carter** and **Yejing Ge, PhD**

G&E Graduates & New Students

Congratulations G&E Graduates!

September 2021 to August 2022



Rachel Dittmar, PhD

Advisor: Subrata Sen, PhD

PhD Thesis: "Mutant KRAS Alters Extracellular Vesicle MicroRNA Sorting in Pancreatic Cystic Neoplasms"
Postdoctoral fellow, lab of Nicholas Navin, PhD, The University of Texas MD Anderson Cancer Center



Shannon Erhardt, MS

Advisor: Jun Wang, PhD

MS Thesis: "Yap and Taz are Required for Neural Crest-Derived Cardiovascular Development"
PhD Student, MD Anderson UTHealth Houston Graduate School



Russell Irwin, MS

Advisor: Michael Green, PhD

MS Thesis: "Cell-free DNA Sequencing in Multiple Myeloma"
To be determined



Naeh Klages-Mundt, PhD

Advisor: Lei Li, PhD and Bin Wang, PhD

PhD Thesis: "Development of the ARK Assay for Quantitating DNA - Protein Crosslink Accumulation and Fanconi Anemia Pathway Involvement in the Repair Process"
To be determined



Pranavi Koppula, PhD

Advisor: Boyi Gan, PhD

PhD Thesis: "Investigating therapeutic strategies to target metabolic vulnerabilities of NSCLC tumors with mutant KEAP1 Gene"
Scientist, Forma Therapeutics, Watertown, MA



Lalit Patel, MD, PhD

Advisor: Michelle Barton, PhD

PhD Thesis: "Genomewide CRISPR/Cas9 Screen Identifies Network of Protein Complexes that Regulate TRIM24"
Research Associate, lab of Guillermina Lozano, PhD, The University of Texas MD Anderson Cancer Center



Hieu Van, PhD

Advisor: Margarida Santos, PhD

PhD Thesis: "Plant Homeodomain Finger Protein 20 (PHF20) and its Homolog PHF20 Like 1 (PHF20L1) Define Two Distinct Non-Specific Lethal (NSL) Complexes"
Postdoctoral Fellow, lab of Dr. Kai Ge, NIH, Bethesda, MD



Brandy Walker, MS

Advisor: Rachel Miller, PhD

MS Thesis: "The Novel Role of Dnmbp in Kidney Development"
PhD Student, MD Anderson UTHealth Houston Graduate School

Welcome New G&E Students!



Lanxin Bei

MS Advisor: Wenbo Li, PhD
Department of Biochemistry & Molecular Biology



Mo-Fan Huang

PhD Advisor: Dung-Fang Lee, PhD
Department of Integrative Biology & Pharmacology



Richa Nayak

PhD Advisor: Jichao Chen, PhD
Department of Pulmonary Medicine



Bhargavi Brahmdra Barathi

PhD Advisor: Jason Huse, MD, PhD
Department of Translational Molecular Pathology



Ericka Humphrey

PhD Advisor: Yejing Ge PhD
Department of Cancer Biology



Phuoc Nguyen

PhD Advisor: Haoqiang Ying, MD, PhD
Department of Molecular & Cellular Oncology



Shuaitong Chen

PhD Advisor: Wantong Yao, MD, PhD
Department of Translational Molecular Pathology



Sseu-Pei Hwang

PhD Advisor: Catherine Denicourt, PhD
Department of Integrative Biology & Pharmacology



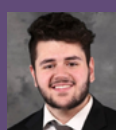
MennatAllah Shaheen

PhD Advisor: Anirban Maitra, MBBS
Department of Translational Molecular Pathology



Yi-Ting Chen

PhD Advisor: Wenbo Li, PhD
Department of Biochemistry & Molecular Biology



Joshua Lindenberger

PhD Advisor: Guillermina Lozano, PhD
Department of Genetics



Erin Simpson

MS Advisor: Wenbo Li, PhD
Department of Biochemistry & Molecular Biology



Ahmed Emam

PhD Advisor: John Tainer, PhD
Department of Molecular & Cellular Oncology



Parnaz Merikhian

MS Advisor: Wenbo Li, PhD
Department of Biochemistry & Molecular Biology



Llaran Turner

PhD Advisor: George Eisenhoffer, PhD
Department of Genetics



Nazanin Esmacili Anvar

PhD Advisor: Glen Traver Hart, PhD
Department of Bioinformatics & Computational Biology



Shucheng Miao

PhD Advisor: Don Gibbons, MD, PhD
Department of Thoracic/Head & Neck Medical Oncology



Shuangjie You

MS Advisor: Jun Wang, PhD
Department of Pediatrics

G&E Resources

Program Resources

G&E has resources to allow students to access opportunities and grow both inside and outside the lab.

- G&E provides awards to five to eight students for their outstanding service to our community. Various aspects of contribution are recognized: leadership on program committees, exceptional service in the planning of research, career development, networking program activities, program communications, and providing innovative ideas that strengthen our program community and enrich the training environment for all students.
- Support for one society membership per year per applicant.
Being a society member comes with many benefits, including reduced conference fees, eligibility to apply for external travel awards, and fellowships.
- Travel awards to support students who present at conferences and to support those who want to take short courses or workshops.
G&E may also reimburse the fees for online courses, although the eligibility is considered on a case-by-case basis. Contact our Program Coordinator, Amy Carter (amy.e.carter@uth.tmc.edu)
- New virtual meeting registration award to support students who participate and present their work in virtual scientific conferences.
Receiving a virtual meeting registration award doesn't prevent the student from being eligible for a regular G&E travel award in the same 12-month period.
- Our G&E library has over 35 books on topics including biomedical sciences, scientific writing, programming, biographies, and more. The books are located at our Program Coordinator Amy Carter's office, located in BSRB. Books can be checked out for two weeks.
If you have a book suggestion and/or need a book please reach out to our Program Coordinator, Amy Carter (amy.e.carter@uth.tmc.edu)

Detailed information on each of these resources can be found at: gsbs.uth.edu/genetics-and-epigenetics/resources



Books We Recommend

Biographies/Memoirs

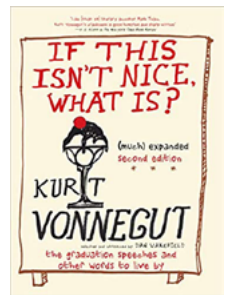
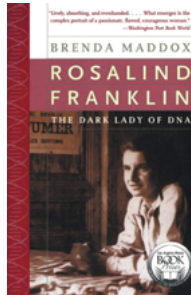
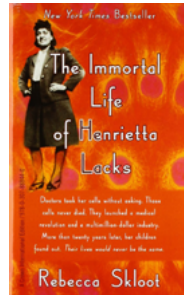
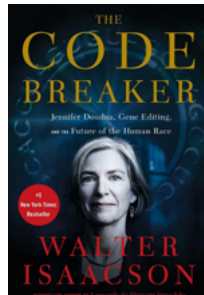
The Code Breaker - Walter Isaacson
Recommended by Dr. Jichao Chen

The Immortal Life of Henrietta Lacks
- Rebecca Skloot
Recommended by Dr. Francesca Cole

Rosalind Franklin: The Dark Lady of DNA
- Brenda Maddox
Recommended by Dr. Francesca Cole

The Invention of Nature: Alexander von Humboldt's New World - Andrea Wulf
Recommended by Dr. Richard Wood

If This Isn't Nice, What is? - Kurt Vonnegut
Recommended by Dr. Richard Wood



Textbooks

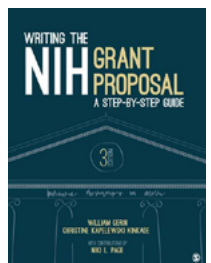
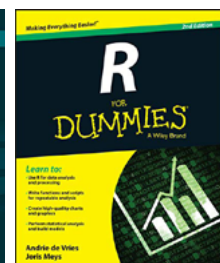
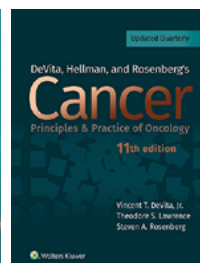
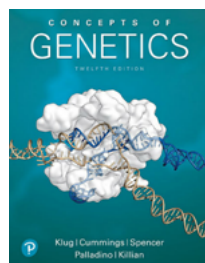
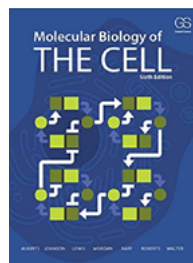
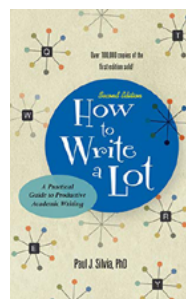
Molecular Biology of the Cell - Bruce Alberts, Alexander Johnson, Julian Lewis, David Morgan, Martin Raff, Keith Roberts, Peter Walter
Recommended by Dr. Jichao Chen

Concepts of Genetics - William S. Klug, Michael R. Cummings, Charlotte A. Spencer, Michael A. Palladino
Recommended by Dr. Jichao Chen

Cancer Principles and Practice of Oncology (DeVita)
Recommended by Dr. Jichao Chen

R for Dummies - Andrie de Vries
Recommended by Dr. Francesca Cole

Writing the NIH Grant Proposal: A Step-by-Step Guide - William Gerin
Recommended by Dr. Jichao Chen



Productivity

Effortless: Make it Easier to Do What Matters Most - Greg McKeown
Recommended by Dr. Richard Wood

At the Bench - A Laboratory Navigator
- Kathy Barker
Recommended by Dr. Pierre McCrea

How to Write a Lot: A Practical Guide to Productive Academic Writing - Silvia, Paul J.
Recommended by Dr. Francesca Cole

“So, what’s next?”

By Tanner Wright

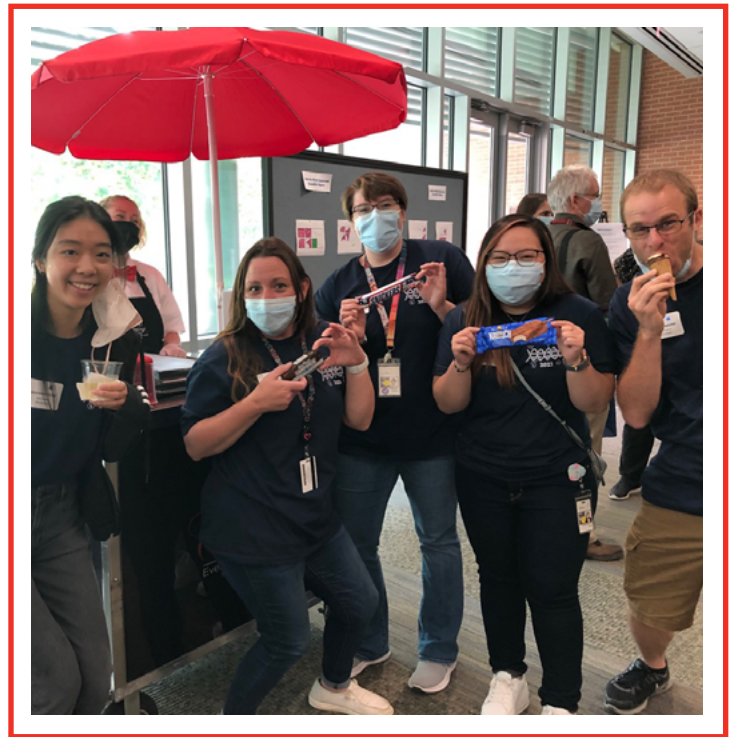
Will we pursue a career in the academia, private sector, civil service, or something outside of science entirely? It’s the question we repeatedly ask, especially as we reach educational milestones and graduation. Whatever the path, the G&E program takes a special interest in our individual career development to help us find that optimal fit. The annual G&E Spring Career Symposium, in particular, is an example of a student-led event geared toward helping us explore our different long-term career options.

This year’s Career Symposium, held on May 20, was a fabulous success! As the first in-person program-sponsored event in over two years, it was carefully crafted to meet current students’ needs and interests and to provide a social event to kick off our broader return to activities. Students and postdocs came away with sound direction and physical materials from experts tailored to the interests of the current student body.

One strength of the symposium is that students plan the entire event. The organizing committee, which was comparatively large, represented a broad range of career interests and included those interests in the program. Breakout sessions for academia focused on grants, lecturing, and insights into research careers, giving trainees a head start in career planning. Industry was well represented with sessions focusing on negotiations, harnessing the power of social networks, and a small group discussion with the keynote with many ties into the private sector. For those still exploring their interests, panels also discussed career options representing several fields, including project management, communications specializing, and administration. This peppering of different long-term career options was inspiring and invaluable.

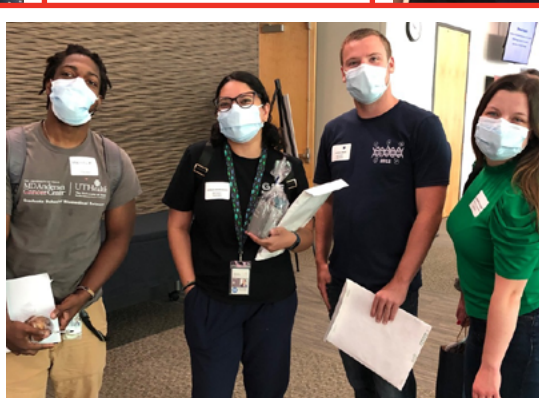
The symposium had more to offer than passive participation and note-taking, though. Participants teamed up for a hands-on competition for gift card prizes. Students and postdocs joined in a workshop with Jeanie Woodruff, Senior Scientific Editor from the Texas Heart Institute, to learn the principles of making effective figures. Participants were then teamed up and were tasked with “fixing” a (fictitious) journal-type figure. Attendees voted throughout the remainder of the symposium, and the winning team, “You guys stink” (team name), was awarded.

The concluding keynote, Dr. Arne Levken from the University of Houston, wrapped up the symposium with inspiring counsel and sage advice. He told his story of being “an unlikely scientist.” He shared his struggles and victories as he navigated his non-canonical path into academia. From his personal experiences, he highlighted work-life balance, finding joy in your work, finding fascinating questions, and determining your most important goals as key parts of finding your own success.



The reception was truly a treat. There was something to refresh everyone with drinks, finger foods, and an ice-cream cart. Wrapping up a fantastic symposium, it served as something of a symbol of good things on the horizon within the program, in-person meetings, one-on-one interactions, talking science, important steps into our future careers, networking, and continued growth as individuals and as a program.

So, what’s next? Good things are coming. Lots of good things.



G&E Events Round-Up



The G&E Monthly (GEM) student seminar series is organized by students for students.

It is an opportunity to

practice your oral presentation skills and learn how to communicate your science clearly. This seminar is held on the first Thursday of every month at noon. It consists of 20-minute presentations about the thesis projects of two current G&E students. Llaran Turner and Han Baek are the organizers of these series.

G&E Faculty Insight Series

For Students, Postdocs, & the G&E Community

The G&E Faculty Insight Series features informal, interactive discussions with professors on the

progression of their careers and how they have handled challenges and decision points. The goal is to provide trainees with insights based on diverse experiences and perspectives that inform their professional decisions and approaches to scientific and personal challenges. G&E Faculty Insight Series is organized by Rhiannon Morrissey, Archit Ghosh and Anna Shucheng.



The current historical perspectives of Science Seminar Series focuses on important discoveries

that transformed biology and medicine within the past 100 years. The goal is to learn from the history of scientific discoveries, the adversities scientists faced, and how they overcame them. Mabel Perez-Oquendo leads the series.



The Arts Showcase is co-sponsored by Neuroscience and G&E to celebrate our communities' creative and artistic talents. Students, faculty, postdocs, and staff will exhibit their visual art, perform musical works,

read their poetry, and showcase their craft talents during our event. The Arts Showcase is organized by Raisa Reyes Castro and Jing Cai.



G&E Winter Social

The Winter Social is an event hosted by the G&E Graduate Program community to promote networking among graduate students. The event was planned by the Community Committee Chaired by Dr. Michelle Hildebrandt and included games, snacks, and G&E picnic blankets for the students. Set on the patio between the BSRB and the McGovern/TMC Commons, this was the first offline event for the G&E community in nearly two years and was a lot of fun to attend!



G&E Retreat

by Ruoyu Wang

After almost three years of waiting, we are pleased to announce that our in-person Genetics & Epigenetics (G&E) graduate program retreat will be back this year! The G&E retreat is the program's biggest annual event, aiming to bring our entire community together in a pleasant and informal environment to foster both scientific and social communications.

This year we expect 186 attendees, including graduate students, postdoctoral fellows, and program faculty. The retreat will start Friday, November 4, 1 p.m. CT, and conclude Saturday, November 5, 4 p.m. It will be hosted at the Moody Gardens, a resort hotel in Galveston, TX. We have invited Dr. Lydia Finley from Memorial Sloan Kettering Cancer Center as our keynote speaker to join us and share her recent endeavors and career advice. The retreat program also includes selected trainee platform talks, poster sessions, and breakout sessions focusing on academic and non-academic career paths. In addition, we will have outdoor recreation activities and night social entertainment. Please feel free to contact any of us for questions or suggestions.

We very much look forward to seeing everyone at the retreat in November!

2022 G&E Retreat Organizing Committee

Vahid Bahrambeigi, Co-chair

Ruoyu Wang, Co-chair

Lanxin Bei

Dalia Hassan

Anna Miao

Nick Newkirk

Dr. Swathi Arur, Faculty Advisor

Dr. Kadir Akdemir, Faculty Advisor

Amy Carter, Program Manager

G&E Student & Faculty Awards & Recognitions 2021-2022



Congratulations to our students for their outstanding achievements!

STIPEND SCHOLARSHIPS & FELLOWSHIPS

American Legion Auxiliary Fellowship in Cancer Research
Vahid Bahrambeigi (Anirban Maitra, MBBS), 2022-2023
Nick Newkirk (Swathi Arur, PhD), 2022-2023

Dean's Excellence Scholarship
Ericka Humphrey (Yejing Ge, PhD), 2nd year, 2022

Dean's Research Award McGovern Medical School, UTHealth Houston
Ruoyu Wang (Wenbo Li, PhD), 1st Place, 2022

Dr. John J. Kopchick Fellowship
Jovanka Gencel-Augusto (Gigi Lozano, PhD), 2nd year, 2022
Archit Ghosh (Kunal Rai, PhD), 2021
Celine Kong (Jichao Chen, PhD), 2021
Ruoyu Wang (Wenbo Li, PhD), 2022

GSBS Oates Family Fellowship
Mabel Perez-Oquendo (Don Gibbons, MD, PhD) 2021-2022

GSBS Presidents' Research Scholarship
Ruoyu Wang (Wenbo Li, PhD), 2022

John and Rebekah Harper Fellowship in Biomedical Sciences
Ruoyu Wang (Wenbo Li, PhD), 2nd Year, 2022

Larry Deaven PhD Fellowship in Biomedical Sciences
Maria Jose Gacha Garay (Jichao Chen, PhD), 2022-2023

NIH/NCI – Ruth L. Kirschstein National Research Award (Parent F31-Diversity) Individual Predoctoral Fellowship to Promote Diversity in Health-Related Research
Mabel Perez-Oquendo (Don Gibbons, MD, PhD)

NIH F31 Fellowship
Rhiannon Morrissey (Guillermina Lozano, PhD), 2020-2023

Predoectional Fellowship (Parent F31) from the National Cancer Institute
Rhiannon Morrissey (Guillermina Lozano, PhD), 2nd year

Rosalie B. Hite Fellowship
Vahid Bahrambeigi (Anirban Maitra, MBBS), 2nd year, 2022-2023
Jovanka Gencel-Augusto (Guillermina Lozano, PhD), 2nd year
Mo-Fan Huang (Dung-Fang Lee, PhD), 2022-2023

Ruth L. Kirschstein National Research Service Award (NRSA)
Rhiannon Morrissey (Guillermina Lozano, PhD)

Sowell-Huggins Fellowship in Cancer Research
Hanghui Ye (Nicholas Navin, PhD), 2nd year, 2022-2023

T.C. Hsu Memorial Scholarship
Hanghui Ye (Nicholas Navin, PhD)

UTHealth-CPRIT Innovation Training Fellowship
Ruoyu Wang (Wenbo Li, PhD)

Wei Yu Family Endowed Scholarship
Rhiannon Morrissey (Guillermina Lozano, PhD)

STUDENT AWARDS

American Association for Cancer Research (AACR) Minority Scholar in Cancer Research Award
Jovanka Gencel-Augusto (Guillermina Lozano, PhD), 2022
Mabel Perez-Oquendo (Don Gibbons, MD, PhD), 2021 & 2022

American Society for Cell Biology (ASCB) International Training Scholarship Program Award (\$15,000, Principal investigator)
Jovanka Gencel-Augusto (Guillermina Lozano, PhD), 2022

Cancer Prevention and Research Institute of Texas (CPRIT) Single Cell genomics Grant (\$10,000, Principal Investigator)
Jovanka Gencel-Augusto (Guillermina Lozano, PhD), 2021

Foundation Leducq Best Oral Presentation Award – Weinstein Cardiovascular Development and Regeneration Conference, Marseille, France, May 2022
Shannon Erhardt (Jun Wang, PhD)

Genetics & Epigenetics Annual Retreat Flash Research Presentation, 2021, Pre-Candidacy Category
Nick Newkirk (Swathi Arur), 2nd place

Genetics & Epigenetics Annual Retreat Flash Research Presentation, 2021, Post-Candidacy Category
Celine Kong (Jichao Chen, PhD), 2nd place
Han Bit Baek (Swathi Arur, PhD), 3rd place

Genetics & Epigenetics Annual Retreat Oral Presentation Competition
Shannon Erhardt (Jun Wang, PhD), 2nd place

GSBS Graduate Student Research Day Oral Presentation Competition
Shannon Erhardt (Jun Wang, PhD), 1st Year Bonus Award, Pre-Candidacy Category

GSBS Graduate Student Research Day – 2021
Shannon Erhardt (Jun Wang, PhD), First Year Student Oral Presentation, Bonus Award
Celine Kong (Jichao Chen, PhD), Oral Presentation, Post-Candidacy, 2nd place

Student InterCouncil (SIC) Positive Impact Award – UTHealth Houston
Mabel Perez-Oquendo (Don Gibbons, MD, PhD)

UTHealth BMB Department Retreat - Award for Outstanding Poster Presentation
Lanxin Bei (Wenbo Li, PhD), 2nd place, May 2022

Vascular Biology Conference held by North American Vascular Biology Organization (NAVBO) - Outstanding Poster
Celine Kong (Jichao Chen, PhD), 2021

G&E STUDENT SERVICE AWARDS

Jace Aloway	Mabel Perez-Oquendo
Han Bit Baek	Sreepadha Sridharan
Shannon Erhardt	Heather Tsong
Archit Ghosh	Ruoyu Wang
Dalia Hassan	Tanner Wright
Celine Kong	Hanghui Ye

G&E Travel, Virtual Meeting & Course Registration Awards (2021-2022)

Mary Adeyeye (Xiangli Yang, PhD) to attend GRS/GRS Bones & Teeth Conference in Ventura, Calif. September 2022

Jace Aloway (Richard Behringer, PhD) to attend the AQLM course at the Marine Biological Laboratory at Woods Hole, April 2022

Maxsam Donta (Pierre McCrea, PhD) to attend the GRC Cell Biology of the Neuron in Waterville Valley, New Hampshire, June 2022

Shannon Erhardt (Jun Wang, PhD) to attend Foundation Leducq Travel Award – Weinstein Cardiovascular Development and Regeneration Conference, Marseille, France, May 2022

Melissa Frasca (Francesca Cole, PhD) to attend the Gordon Research Seminar & Conference Meiosis in New Hampshire, June 2022

Maria Jose Gacha Garay (Jichao Chen, PhD) to attend Keystone Meeting in Keystone, Colorado, June 2022

Jovanka Gencel-Augusto (Gigi Lozano, PhD) to attend the International p53 Workshop in Tel Aviv, Israel, May 2022

Tolkappiyan Premkumar (Francesca Cole, PhD) to attend Evolution 2022 in Cleveland, Ohio, June 2022

Hanghui Ye (Nicholas Navin, PhD) to attend Single-Cell Cancer Biology Gordon Research Conference in Easton, MA, June 2022

Faculty Awards & Recognitions 2021-2022

Swathi Arur, PhD
Emerging Leaders in Health and Medicine by the National Academy of Medicine
Presidential Honoree for Education and Mentorship Advancement at MD Anderson Cancer Center
Promoted to Professor
Elected Deputy Chair, Department of Genetics

Jichao Chen, PhD
Recipient of the Paul E. Darlington Mentor Award for GSBS Faculty

Sharon Dent, PhD
Recipient of the John Mendelsohn Award for Faculty Leadership
Promoted to *dean ad interim*, MD Anderson UTHealth Houston Graduate School

Michael Galko, PhD
Elected GSBS faculty president from September 2021 to September 2022

Boyi Gan, PhD
Recipient of the Dallas/Fort Worth Living Legend Faculty Achievement Award in Basic Research from MD Anderson Cancer Center in 2021.
Recipient of the Faculty Honoree Award in Research Excellence from MD Anderson Cancer Center in 2021
Promoted to Professor

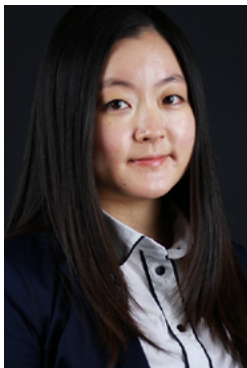
Yejing Ge, PhD
Recipient of the Andrew Sabin Family Award

Li Ma, PhD
Recipient of the Sue Eccles Award in cancer metastasis research from the Metastasis Research Society in November 2021
Promoted to Professor

Diana Milewicz, MD, PhD
Recipient of the Leducq Foundation International Network of Excellence grant

Zhongming Zao PhD, MS
Elected as a fellow of the American College of Medical Informatics (FACMI)

G&E Alumni Success



Rhea Kang, PhD

Scientist III Luminex Inc., Austin, Texas

PhD 2019

Advisor: Francesca Cole, PhD

Please tell about yourself, your current job title, and your day-to-day work.

I am currently a scientist III at Luminex and part of LuminexPLORE team that offers customized genomic and proteomic assays. We help scientists from various fields including pharmaceutical companies,

government, biotech companies, small incubators, and startups to meet their specific research goals.

Have you considered staying in academia? If so, when you decided on industry what helped you decide?

Before entering graduate school, I worked briefly at a biotech company as a manufacturing associate for six months as a contract. This experience was very unpleasant because it was all about following the protocols, which achieves consistency, which is important, but I really missed the learning opportunities and flexibility that comes with a research environment. I therefore joined graduate school and during my graduate career, I realized that my passion was bench science – designing and performing hands on experiments, analyzing my data, troubleshooting, and solving problems via critical thinking and literature search. Most PIs do not have time for bench work and I also had to be realistic about the current job market in academia, and be aware of sacrifices people make on this path. So, what helped me decide, was me taking the time to analyze what I liked doing and am good at, and identifying the career path that was best match suited to the life I wanted. I do miss autonomy in projects that I had in graduate school.

Can you describe your transition to industry?

I started with informational interviews and research on different positions in industry, other than manufacturing. I contacted people I knew, and then expanded my network by cold-messaging PhD industry scientists on LinkedIn. By doing informational interviews, I learned that while a postdoctoral experience was sometimes desired in research-intensive pharmaceutical companies, it wasn't required, especially at biotech companies that are more focused on developing products and testing technologies. I then looked and applied for scientist positions that fit my experience, background, and interest. The opportunity at Luminex was recommended to me by a former employee of Science Park, who was recruiting at that time. Overall, it took me about 1.5 years from thinking about my careers and passion to finally landing a job. In hindsight, I wish I had started thinking about my career and started applying for jobs much earlier.

Are there common misconceptions about research in industry that you wish to debunk?

Industry may be difficult to break into in the beginning but once you are in it, it opens doors to numerous opportunities. You can do similar quality of research and science you do in academia with higher salary, better work life balance, and with a more immediate impact in improving human health. [You can read the full interview here:](#)



Avinash Venkatanarayan, MS, PhD

Principal Scientist & Group Leader,

Bristol Myers & Squibb, MA

PhD 2015

Advisor: Elsa R Flores, PhD

Please tell us about yourself and your current job title/role.

I am Principal Scientist at the Bristol Myers & Squibb Mechanisms of Cancer Resistance (MOCR) thematic research center in Cambridge, MA. I started as a Group Leader

at MOCR after completing my postdoctoral fellowship training in Dr. Shiva Malek's lab at Genentech, Inc. in South San Francisco, CA. My laboratory at MOCR focuses primarily on identifying tumor intrinsic targets across lung, pancreatic, colorectal and melanoma that serve as a critical drivers of tumor resistance. We spend a considerable amount of time understanding biology and validating hypotheses before we pursue an early drug discovery program wherein, we work closely with other functional groups including Chemistry, lead discovery group, in vivo pharmacology and drug metabolism and pharmacokinetics. Apart from supporting pipeline related projects, a part of my lab focuses on asking basic science questions. My training in biochemistry and cancer cell signaling has generated newfound fascination about kinase regulation especially in the context of a diseased state like cancer. I view kinases as "molecular switches" and its deeply intriguing to identify novel protein pockets that are druggable and how disease evolution mutates these pockets preventing drug binding and therapy resistance.

What made you interested in pursuing a postdoctoral fellowship at Genentech?

As a graduate student in Dr. Elsa R. Flores lab at MD Anderson, I was trained as a mouse model geneticist, and I had characterized the function of oncogenic isoforms of p63 and p73 in cancer. With the help of Dr. Flores, I narrowed down my post-doctoral fellowship applications to a few labs at MIT and Harvard to train further in cancer metabolism and mouse genetics. At least during my tenure at MD Anderson, a post-doctoral fellowship in industry was not very common. However, I had a chance to interact with Dr. Frederic de Sauvage, VP Discovery Biology at Genentech, during his visit to MD Anderson as a Blaffer Seminar speaker. I was pleasantly surprised to hear about the post-doctoral program at Genentech where one has the opportunity to pursue cutting-edge basic science at the intersection of drug discovery. This prompted me to learn about post-doctoral programs at other leading pharmaceutical companies including Novartis, Pfizer and Regeneron.

I had a chance to interview to all the programs and eventually I had decided to pursue an opportunity at Genentech in Dr. Shiva Malek's lab (currently Global Head, Novartis). Dr. Malek was the Sr. Director leading the oncogenic signaling group and her lab specifically focused on MAPK biology where group played a critical role in the approval of Vemurafenib (BRAF V600E inhibitor). I had the opportunity to train as a biochemist in her lab and at the same time generate a few important mouse models to understand the kinase independent functions of CRAF, an essential kinase in KRAS mutant signaling. My training at Genentech provided me a fantastic opportunity to learn drug discovery and basic science in fast-paced and highly collaborative environment.



What are the similarities and differences between a postdoc in industry and academia?

There are considerable differences and commonalities between training in an industry compared to academia and each have their own pros and cons. The core element of training, which is to discover and understand novel biology and function as an independent scientist remains the same. The differences arise when considering what career path one wants to pursue after completing their fellowship. In academia in some instances the entire lab might be focused on a common topic or technology that in some ways is related to the Investigator's interest and the grant funding. A defined number of trainees work on specific projects to demonstrate progress. The advantage of training in academia is that it sets you up to write early career grants like the K99 etc, which may provide competitive advantage for positions in academic universities.

However, industry functions a little differently in that not everyone in the lab works on a common topic. For instance, during my training at Genentech our lab included four fellows and two research scientists. The scientists only work on pipeline projects. The trainees had diverse background training in structural biology, bioinformatics, and protein sciences. I was the only trainee with biochemistry and cancer biology training in our lab. As a result, I worked to be self-sufficient and collaborate with members within our lab and other functional groups. I was able to form a core team of expert scientists related my project questions (like a committee) to mentor and guide me as I progressed through my training. As in academia, post-doctoral projects were very focused basic science and academic questions that focus on basic spin-offs from pipeline projects or can be observations that originate from the trainee. The biggest advantage is that most trainees walk a very thin line between drug discovery and basic science projects. I had the opportunity to observe and work very closely on the development of Genentech's MEK and RAF inhibitor programs during my tenure. However, only discovery projects are publishable and pipeline projects in most cases are not publishable until the drug is approved. Although in industry we do not specifically train to write grant applications, writing for publications become an integral part of training. The fellowship programs in other pharmaceutical companies can be very similar or different than what I had experienced at Genentech.

You can read the full interview here:



Aimee Farria, PhD

*PennPORT Fellow at the University of Pennsylvania
PhD 2019*

Advisor: Sharon Y.R. Dent, PhD

Please tell us about yourself, your current job, your title, and your workday.

I am a PennPORT (Penn - Postdoctoral Opportunities in Research and Teaching) Fellow at the University of Pennsylvania. This is a three-year teaching postdoc.

My work as a postdoc is varied, and my days are never the same. During my first year, I mainly did research in the lab, but did not do too much teaching. Only in the summer I was able to mentor a student. In the fall semester of my second year, I started teaching classes asynchronously online at a community college. Then, I was teaching an elective in epigenetics, my specialization. In this job, there is a lot of mentoring and teaching. I am also a mentor in the Postbac program at Penn. Currently,

I am working on applications for faculty positions. I spend 75% of my time in the lab and 25% teaching, and I also spend time with my three children.

Some people consider that we are facing a Catch-22 problem in academia: It is one of the most passionate and stable jobs, but it also represents many challenges. Why did you stay in academia?

There are good and bad aspects of every profession, no matter if you are in academia or industry. The job market is saturated; it is not only a problem in this field, but a reality in many other professions. Being in academia does not necessarily mean that you have to become a PI; there are many different pathways that you can pursue. Sometimes as a PI, how much science are you actually doing? It turns out to be more about grants and dealing with all the bureaucracy.

Regarding the salary, I earn a decent salary, and I don't care about money that much. My priorities in life are different. I never had a black professor during my time as a student. I never felt represented by anyone in academia. I decided I wanted to stand in front of a class as a black woman and be able to tell my students, "You can do this." That was and still is my goal.

Which part of the graduate school training has become your biggest strength in your current position, and what did you have to learn?

The biggest strength that I got is being able to be an independent scientist. Sharon, my mentor, gave us a lot of freedom in driving our projects. That was the biggest advantage for us as grad students in the lab. She let us sort of drive our projects. So, moving on to a postdoc position was not a journey where I had to learn how to be more independent because I already was as a grad student. The thing that I didn't get was the teaching aspect. That had more to do with our location and also a bit with the graduate school too. There were not a lot of opportunities for mentorship and teaching.

In hindsight, would you have done anything different during grad school?

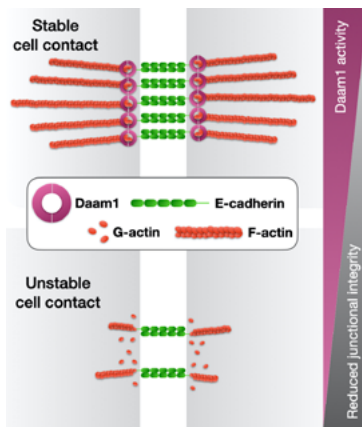
I feel that everything that I've done brought me to this place. I can't regret anything I've done because I am where I am because of my decisions. I think I would have tried harder to get more teaching experience. Maybe, searching for more positions on my own, but at the time, I was very busy because I also did have two of my children while I was in grad school. So, doing grad school and having a family life is something I do not regret, and I'm getting the skills now.

Do you have any advice for current graduate students considering this career pathway?

Don't get discouraged. We all hear that 90% of the experiments will fail or will be negative data. But that is part of it. Don't let anybody else, even your PI, tell you it is a make or break. Also, not everybody's path is linear. I didn't start grad school until I was 30. I took some time to have fun and work, then I figured out what I wanted to do. I found it, I finished my degree and went to grad school at 30. During that time, I got married and had three kids, and I'm still going. Remember that you are not on anybody's timeline but your own. Don't let anybody, even your hire-ups, stress you so much that you start hating your job. That's why people leave academia. Yes, there are high expectations on us, but there shouldn't be unrealistic expectations. We deserve to have all the respect, a life, happiness, and everything that comes with that. Science is my job, not my life. **You can read the full interview here:**



Student Publication Highlights

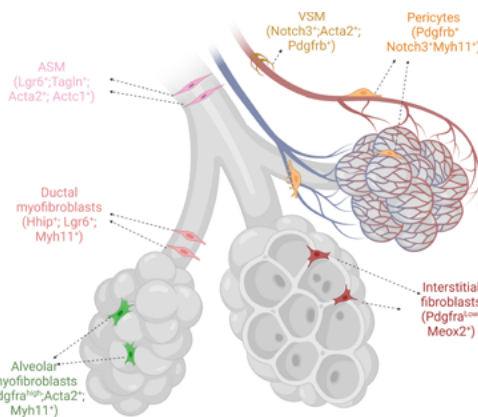


Using *Xenopus* embryonic kidney and Madin-Darby canine kidney (MDCK) cells, **Vanja Krneta-Stankic**, alumna from Dr. Rachel Miller lab, uncover critical proteins required for tubulogenesis and epithelial adhesive remodeling. They identify that a Wnt/planar cell polarity formin Daam1 (Dishevelled-associated activator of morphogenesis 1) regulates cell adhesion by promoting localization of cell adhesion protein E-cadherin. They show that Daam1 localizes to newly formed cell-cell junctions and facilitates contact formation between cells in the kidney tubules called nephrons. The localized Daam1 mediates efficient and timely localization of E-cadherin via its formin homology domain 2 (FH2). Finally, they also show that without Daam1, the actin cytoskeletal membrane dynamics and organization in renal cell movement are both reduced. Together, they identify that a formin Daam1 is essential for epithelial tissue organization.

Vanja Krneta-Stankic, Mark E. Corkins, Adriana Paulucci-Holthauzen, Malgorzata Kloc, Andrew B. Gladden, Rachel K. Miller, *The Wnt/PCP formin Daam1 drives cell-cell adhesion during nephron development*, *Cell Reports*, 2021; Volume 36, Issue 1, 109340.

DNA needs to be replicated each time a cell divides, and fast-dividing cancer cells are prone to replication stress. During replication stress, the protein complex that coordinates DNA replication stalls. These replication forks must be protected from DNA degradation to ensure genome integrity. Replication fork protection proteins, FANCD2 (Fanconi anemia Complementation D2) and Abro1 (Abraxas brother protein 1), protect DNA from MRE11/DNA2, and DNA2/WRN mediated degradation, respectively. **Ahmed Emam**, alumnus from Dr. Bin Wang lab, show that this protective behavior of Abro1 and FANCD2 limits the innate immune response while providing a potential mechanistic link. The cells lacking Abro1 or FANCD2 show an accumulation of single-stranded DNA including ribosomal DNA in the cytosol consistent with the fork degradation. Fork stalling in these cells also triggers the interferon STING-dependent innate immune response. Additionally, they also see an accumulation of P-bodies suggesting that immune response might also be from increased P-bodies. In summary, they show innovative ways to selectively modulate the innate immune response in cancer cells with high replication stress, while providing protein targets that could be used for therapeutic purposes.

Ahmed Emam, Xiao Wu, Shengfeng Xu, Longqiang Wang, Shichang Liu, Bin Wang. *Stalled replication fork protection limits cGAS-STING and P-body-dependent innate immune signaling*. *Nat Cell Biol* 24, 1154–1164 (2022). Ahmed is a former MS student in Dr. Bing Wang's lab. Currently, he is a Ge&E Ph.D. in Dr. John Tainer's lab.

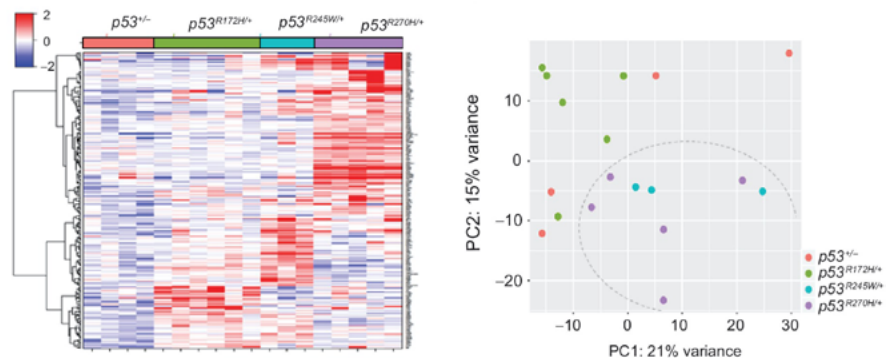


Odemaris Narvaez, alumna, and Maria Jose Gacha current student from Dr. Jichao Chen's lab published their research in the journal *Development* in March of 2022. They explored the heterogeneity of the pulmonary mesenchyme and identified the markers for each mesenchymal cell subpopulation. Using single cell transcriptomics, lineage tracing, and 3D immunostaining they define three distinct mesenchymal trajectories during the development of the mouse lung. In their study, they classified the mouse lung mesenchyme into three proximal-distal axes that are associated with the endothelium, epithelium, and interstitium. Importantly, this study identifies a marker, *Meox2*, for the population of 'interstitial fibroblasts', which can serve as a signaling hub in the lung. In summary, this study proposes that the integration of molecular profiles with positional information lays a robust foundation for understanding mesenchymal cell subpopulations.

Narvaez Del Pilar O, Gacha Garay MJ, Chen J. *Three-axis classification of mouse lung mesenchymal cells reveals two populations of myofibroblasts*. *Development*. 2022 Mar 15;149(6):dev200081.

Dhruv Chachad, from Dr. Guillermina Lozano's lab, published his research in *Cancer Research* in May of 2022. In this study, he investigated the function of p53 hotspot mutants and their contribution to tumorigenesis. They generated mice harboring a novel germline Trp53R245W allele (contact mutation) and compared them with existing models: Trp53R172H (structural mutation) and Trp53R270H (contact mutation) alleles. All three hotspot mutations in heterozygous mice inhibited wild-type p53 transcription in vivo, and their tumors showed similar levels of heterozygosity loss, but these mutations differ in their gain of function (GOF) activities, with stronger tumor-promoting activity in contact mutants and distinct protein partners of each mutant driving tumorigenesis and metastasis. Their data show that both the inhibitory effect of mutant over wild-type p53 and GOF activities of mutant p53 contributed to tumorigenesis in vivo. Targeting p53 mutant-specific pathways may be important for therapeutic outcomes in osteosarcoma.

Xiong S, **Chachad D**, Zhang Y, Gencel-Augusto J, Sirito M, Pant V, Yang P, Sun C, Chau G, Qi Y, Su X, Whitley EM, El-Naggar AK, Lozano G. *Differential Gain-of-Function Activity of Three p53 Hotspot Mutants In Vivo*. *Cancer Res*. 2022 May 16;82(10):1926-1936.



Extended student publications here:





Students' note (by Sreeja Sridharan): The best quality of G&E is our close-knit community, and Elisabeth Lindheim was instrumental in building the supportive, innovative network that we have today. All the wonderful events that we have, including the retreat, socials, and the symposium, would not have run smoothly without her tireless dedication and effort. Her contributions are foundational to the G&E program, and we are so grateful for all that she has done for us!

How did you get to G&E?

I came to G&E when it was established in 2017, after supporting the Genes & Development Program (G&D), one of the three G&E legacy programs, since 2003. Before that, I'd worked for almost 20 years in the tech world, in account and project management, and marketing communications.

So why Higher Education?

Well, by 2003, I'd worked for one too many start-ups that didn't pan out, and I wanted something more stable and more personally fulfilling. MD Anderson's Molecular Genetics Department (now 'Genetics') hired me to be the first G&D program coordinator. They had funding for 2 to 3 years, so I figured I'd give it a try and probably return to tech a few years later. Well, the rest is history! I found my home in the world of graduate education and a community of amazing graduate students, faculty, postdocs and admin staff.

How have things changed in the last 19 years?

In 2003, there were many fewer G&E/G&D program activities & events: no social media, no team of GSBS program coordinators, no Doodle polls, and no Google Forms, which changed how I did my work. There were retreats but they weren't organized by student-run committees (a great enhancement) and you registered by turning in a paper registration form!

What made you stay?

The students! I loved getting to know you, working with you, helping you, and guiding you through the planning of big events. I also always appreciated the independence and flexibility I had to do my work, the confidence program directors had in me to let me run with new ideas, and the opportunities to develop new program activities.

What is your best memory?

That's an impossible question - I have too many great memories and can't single one out. I loved all the annual retreats (once all the planning was done!), and the arts showcases, lunar new year events, unique ice cream socials and career symposia stand out. As I looked through the gorgeous album of photos and messages that Sreeja, Han, and Jace assembled, so many memories came flooding back. But most of all, I was reminded of this very special graduate student community that I was part of for 19

years. Of the lives I touched and those that touched me.



What's to Come?

I am truly excited as I take on my new role as Program Manager and support the Genetics & Epigenetics program. This opportunity allows me to continue supporting graduate students and faculty, as well as to satisfy my personal goal of helping people. It is invigorating to play even a small part in helping the next generation of scientists while they make significant contributions to health and find treatments and

cures for diseases. I am also excited about the added challenge of leading other Program Coordinators as they support their programs.

It was an easy decision to take on this new role, as I have always heard such positive things about the G&E program. In my brief tenure supporting the program, I have been so impressed by the its cohesiveness and the students' enthusiasm. The leaders are so responsive and are committed to serving the program students with

their best interests in mind. Additionally, G&E offers innovative programming such as the Lunar New Year event and the Arts Showcase. I feel that there is a great benefit from these events being co-hosted with other programs. It speaks to the inclusiveness of the G&E program and our desire to build a strong community.

I see the G&E program continuing to be active and vibrant in future years. We have a strong leadership team with Drs. Francesca Cole and Rachel Miller who are committed to the success of the program. I know that we will continue to offer fun programming with the help and leadership of our planning committees, including the Community Committee, Symposium Organizing Committee, and Retreat Organizing Committee.

I look forward to working with these committees to introduce some new activities based on the needs of the students, specifically in the area of wellness.

- Amy Carter

Life Outside the Lab



Student Association Highlights

By *Diana Machado*, AMBR President

The Association of Minority Biomedical Researchers (AMBR) aims to ensure Access, Support, and Outreach to all students. Our goal is to support minorities in the field of biomedical sciences by enhancing the professional development of students at the GSBS, especially for those that traditionally lack access to resources needed to succeed in higher education. We emphasize that our definition of “minority” is any individual who identifies as one in the social categories of gender, race, religion, ethnicity, sexual orientation, national origin, socioeconomic status, disability etc., or are statistically underrepresented in the field of biomedical research. AMBR wants to ensure students at the GSBS have a supportive community and access to resources that cater to their needs and assist them in their educational, academic, and career endeavors. AMBR works with other GSBS organizations in serving our local community in outreach events. The type of activities we host are a combination of in-person social activities and virtual seminars. Our plans for this school year are to host social activities such as Game Night, AMBRUNCH, and our Annual Volleyball social, as well as virtual seminars on various topics with experts on Data Organization, Science Communication to Nonscientists, and Taxes 101. Additionally, we host an Empowerment in Science series that covers topics students want to discuss. We invite students to join our mailing list and provide input on the topics for future seminars and events!

Many G&E students are actively participating in AMBR and other student associations that you can check on gsbs.uth.edu/student-associations/

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Day in the Life of a Content Creator

By *Llaran Turner*

Editor's note: Sometimes, as PhD students, we consider that we need to be 24/7 in the lab and that our research has to be our life. However, to be successful and enjoy our time in grad school, we have to find other interests, activities, or hobbies. We bring you here an example of a great scientist and amazing woman who finds in social media a way to communicate her science and speak out for her community.

I had started my YouTube Channel and content creation while in undergrad at Hampton University, but I stopped once the pandemic hit. The purpose of my channel was to document my college experience, which was unfortunately cut short during my senior year due to COVID. Once I started graduate school, I decided it was time for me to start picking things back up. My channel mainly focuses on my life outside of the lab, but I will be starting a series on breaking down graduate school and the application process to encourage more students from diverse backgrounds to apply and continue their education.

Time management is probably the most difficult part of being a full-time graduate student and content creator. Since most of my days are dedicated to completing course and lab work, I usually will create and edit videos that I have compiled over the week, on the weekends and at night. I also rely on the use of apps that can automatically post content for me, so I don't have to. My personal social media pages (@llaranturner) and my women's health awareness page (@the_cookiejarproject on Instagram) wouldn't be up and running if it wasn't for the technology that keep those pages active.

I feel like I haven't reached true “influencer” status yet, but I'm working on it! Ultimately, I hope it brings attention to others who are considering graduate school that you can pursue a career in STEM and still live your best life once you clock out.

Personal Pages: @llaranturner

Women's Health Awareness: @the_cookiejarproject @the_CJP

Work Hard, Play Hard

