



WorthWELL

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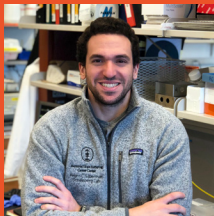
FACULTY



“Basic research can demystify disorders such as addiction.”

Anjali Rajadhyaksha, Ph.D.
 Associate Professor of Neuroscience **6**

STUDENT



“Weill Cornell encourages students to strive to make an impact and take advantage of the many resources available on campus.”

Pedro Silberman
 Ph.D. Candidate, PBSB Program **14**

ALUM NUS



“I see myself as a scientist with an entrepreneurial spirit.”

Ting Jia, Ph.D. '09
 Founder of Octagon Capital Management **20**



3MT® THREE MINUTE THESIS
 FOUNDED BY THE UNIVERSITY OF QUEENSLAND

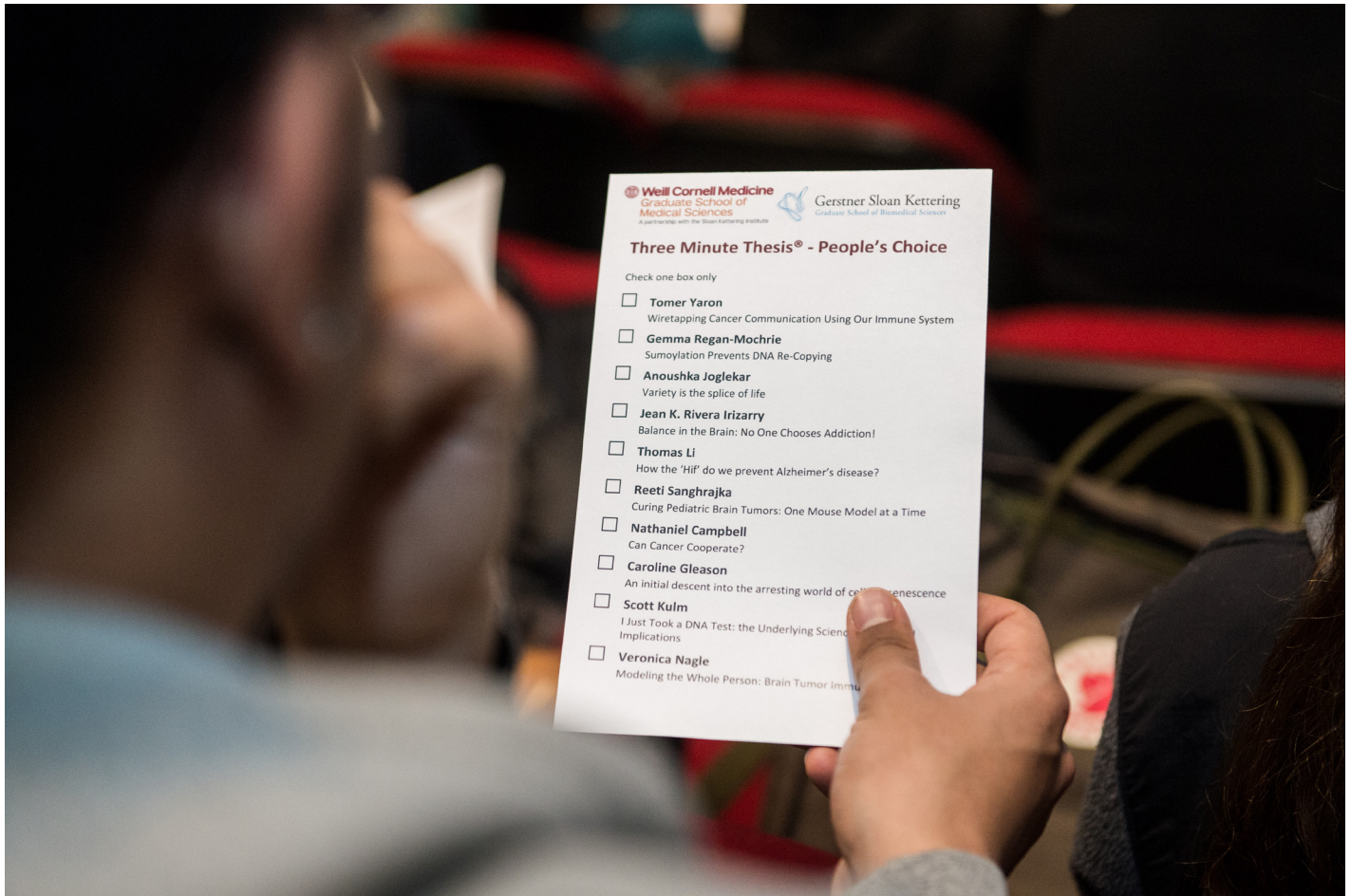
2019 THREE MINUTE THESIS COMPETITION



Dean of the Weill Cornell Graduate School of Medical Sciences Barbara Hempstead at the 2019 3MT® reception with the winners on November 18, 2019.

From left to right: Thomas Li, 3rd place; Dean Hempstead; Caroline Gleason, 1st place and People's Choice Winner; Nathaniel Campbell, 2nd place.

ON November 18th, 2019, murmurs and excitement filled the Uris Auditorium where hundreds of people from the Tri-I community—faculty, graduate students, research scientists and staff members—gathered to watch a rapid-fire style presentation known as the Three Minute Thesis or 3MT®. The auditorium became quiet as Dean Barbara Hempstead made her way to the podium for her opening remarks. One by one, the 10 finalists chosen from a preliminary round consisting of 16 Ph.D. students from different research backgrounds began to present their three-plus years of research in layman’s terms in three minutes using only a single static slide.



4th Annual Three Minute Thesis Competition. Audience members voted for their favorite presentation to determine the People's Choice Award winner.

FOUNDED BY THE UNIVERSITY OF QUEENSLAND in 2008, the 3MT® Competition is now held at more than 300 universities worldwide. The competition not only challenges students to summarize their research quickly and succinctly but also do it creatively. Furthermore, it gives students the opportunity to showcase their research to researchers throughout the network, as well as open doors to new collaborations for both students and PIs.

This year marks the 4th Annual Three Minute Thesis Competition initiated by David Christini, Ph.D., Professor of Physiology and Biophysics. The event has been an integral part of the Weill Cornell and Gerstner Sloan Kettering Graduate Schools ever since. The contestants were not the only ones faced with a challenge. The judges, which comprised of WCGS and Gerstner faculty, staff and students had their work cut out for them as well, as they had to decide between 10 well-prepared

candidates—and, on top of that, order the top three.

Gerstner student Caroline Gleason won first place and the People's Choice Award for her talk titled "An Initial Descent Into the Arresting World of Cellular Senescence." Gleason explained how cells become irreversibly growth-arrested and how that contributes to processes like tumor suppression and aging.

Second place went to a WCGS M.D./Ph.D. student, Nathaniel Campbell, who gave a presentation entitled "Can Cancer Cooperate?" Another WCGS student, Thomas Li in the neuroscience program took third place for describing his work on the effects of hypoxia and hypoxia inducible factor-1α's activation of g-secretase in Alzheimer's disease. Each of the three top finishers receive \$500 with an additional \$500 for the People's Choice winner.

"An Initial Descent Into the Arresting World of Cellular Senescence"



CAROLINE GLEASON

(Koff Lab)

First Prize & People's
Choice Award

Did you expect to win both the first prize and People's Choice Award?

Definitely not! It was a wonderful and flattering surprise. I had a lot of fun coming up with my presentation and I'm thrilled that other people found it relatable.

How did you prepare for this competition and what was the biggest challenge?

I spent quite a while coming up with an analogy that would make my research goals more accessible to the general audience and a lot of time rehearsing my talk. The hardest part for me was keeping the talk under three minutes. I had to practice it many times before I felt confident that I could get through the whole thing in less than three minutes without rushing.

Reason(s) that you participated in the competition.

Two previous GSK students in my lab, Marta and Mary, entered this competition and they both did well. So I felt like I had to do my best to carry on the Koff Lab tradition. My coworkers and PI also really encouraged me to enter.

How are you planning to spend the money?

I'm planning a trip to Paris in January, so I think I'll put it towards croissants and creme brûlée.

Any advice for future participants?

First of all, try it! You have nothing to lose. Even if you don't win anything, being able to discuss your work in a short, simple way is a really valuable skill to have. I also recommend coming up with a creative analogy and taking the time to make sure it works well to explain different facets of your project. Get feedback from your lab, as well as running it by some non-scientist friends and family. And most of all, have fun with it. If you're enjoying yourself, the audience will too. That's the best way to give a successful talk.

"Can Cancer Cooperate?"



NATHANIEL CAMPBELL

(Xavier & White Labs)

Second Prize

Did you expect to win second place?

No, I was pleasantly surprised to do so well since all the participants did an amazing job.

How did you prepare for this competition and what was the biggest challenge?

I prepared by rehearsing for my lab and friends to get feedback from diverse audiences. The hardest part was deciding what to include and what to leave out.

Reason(s) that you participated in the competition.

I participated because I thought it was important to challenge myself to present my science in this format.

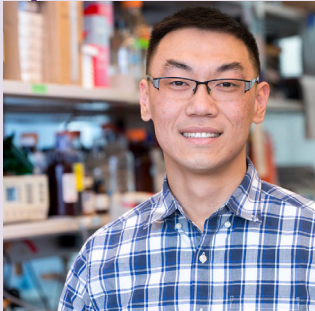
How are you planning to spend the money?

I will put it towards a vacation.

Any advice for future participants?

Try not to put too many ideas into one presentation. Practice a lot—both by yourself and in front of others.

"How the "Hif" Do We Prevent Alzheimer's Disease?"



THOMAS LI
(YM Li Lab)
Third Prize

Did you expect to win third place?

When I decided to enter the 3MT® competition, I had no expectations whatsoever. I didn't even think I was going to pass the preliminary round because I froze 10 seconds in and had to ask to restart.

How did you prepare for this competition and what was the biggest challenge?

When I found out I was a finalist, I practiced and fine tuned my talk to give myself the best chance at winning. I kept practicing out loud to myself, my dog and to as many people that would listen to me for three minutes. I believe the biggest challenge during the three minutes when you are on stage is managing your nerves so you don't lose where you are.

Reason(s) that you participated in the competition.

Besides the prize money, I was inspired by previous winners like Shira Yomtoubian, Lea Sanford, and Nicole Weiss. The way they were able to convey their science and research to a general audience made me want to challenge myself to do the same.

How are you planning to spend the money?

I didn't get to go on my honeymoon after getting married earlier this year, so I'm going to put it towards my honeymoon fund. Hopefully, I'll be able to go on a nice trip next year.

Any advice for future participants?

Looking up at all the faces can be a daunting experience—not making direct eye contact with anyone really helps. As funny as that sounds, it actually really helped me to focus on what I was saying and not on the person staring at you.

Congratulations to All the Winners and Finalists in the 2019 3MT® Challenge!



A group shot of the 2019 3MT® finalists.

From left to right: Back Row - Nathaniel Campbell, Jean K. Rivera Irizarry, Caroline Gleason, Scott Kulm, Reeti Sanghrajka, Tomer Yaron; Front Row - Anoushka Joglekar, Thomas Li, Gemma Regan-Mochrie, Veronica Nagle.



Graduate students, faculty and staff members were invited to join our 3MT® contestants at the evening reception with free food, drinks and music.

A black square containing the year '2020' in a bold, yellow, sans-serif font. The '20' is stacked above the '20'.

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20

GREETINGS FROM GSEC AND WE WISH YOU ALL A JOYOUS NEW YEAR AND CONTINUED SUCCESS IN 2020!

On behalf of the Graduate Student Executive Council, we would like to celebrate the successes of all of our students this past year. From our student participants in the annual Vincent du Vigneaud symposium to our Three Minute Thesis winners: Caroline Gleason, Nathaniel Campbell and Thomas Li, as well as all those who have secured student grants or defended their theses—I am constantly reminded of the amazing student and faculty work being done here.

Additionally, we would like to extend our warmest welcome to the interviewees. Congratulations on all you have accomplished thus far! We hope you enjoy your visit and wish you much success in the new year.

This past year, GSEC has had some great events in our fantastic new student spaces. The 5th floor of Lasdon, with its comfortable seating, numerous chairs and tables to work, exercise room and ping-pong table has been home to many student social activities such as our Super Bowl party and monthly student body meetings. The new Feil Family Student Hearth with its comfortable and cozy environment housed our annual student Thanksgiving potluck. These new spaces are great for students who are looking for a little downtime from the stresses of school and a place to hang out with friends. I encourage anyone who may have not seen the new spaces to go check them out.

Other GSEC events have also been great including our yearly charity drive and annual Halloween party. This year we partnered with Women In Need (WIN) again and thanks to your kind and generous support, we collected four boxes full of toys, clothes and other essential items. Furthermore, our entire student body—medical and graduate students—combined efforts to throw a joint Halloween party as part of our efforts to encourage community building here at Weill Cornell.

Over the course of the next year, GSEC's main mission is to continue efforts related to the strides made in the previous year on mental health and wellness, as well as work with the administration to plan bigger and better community building events. The Graduate School is made up of a diverse student body with varied interests: master's, Ph.D. and medical students, all united by our passion for learning. Our goal is to continue to foster a community that uses what we have in common to celebrate our differences, while simultaneously making new friends and future colleagues in the medical sciences. Along with the Graduate School administration, we are planning more school- and GSEC-sponsored community-building events, so look out for them!

As members of GSEC, we strive to support all student needs, big or small. We look forward to continuing to work with you all while making sure you have a platform through which your voices can be heard. We are always listening and receptive to any questions, comments or concerns. With your input, we hope to make 2020 even better than 2019!

Sincerely,

Dylan Murphy
GSEC President



Photo credit: John Abbott

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would think it makes it a bit easier to see a career path into academic research growing up as a daughter of a chemical engineer and professor father and a physical chemist mother. But not for Anjali Rajadhyaksha, Ph.D., Associate Professor of Neuroscience. It was only in her final year of college that Dr. Rajadhyaksha decided to pursue a Ph.D. and not until the latter part of her Ph.D. training that her desire to continue in academia blossomed.

Born in College Station, Texas and raised between two countries—the United States and India—Dr. Rajadhyaksha spent her high school and college years in Mumbai, India. She received her bachelor's degree in chemistry and physics from Bombay University and obtained her Ph.D.

in molecular biology from Purdue University focusing on transcription factor regulation of gene expression in cell systems. “I actually joined the chemistry department, which was considered one of the top chemistry programs in the country but ended up getting a Ph.D. in molecular biology instead,” she says. “There was one professor in the chemistry department studying transcriptional regulation and I was immediately struck by the field of molecular biology and the beauty of DNA, genes and how they control the function of cells.”

After earning her Ph.D., Dr. Rajadhyaksha did her postdoctoral training in neuroscience at Massachusetts General Hospital (MGH), Harvard Medical School, where she studied how neurotransmitters in the brain activate calcium channels and signal transduction pathways in neurons. After three years of postdoctoral training, Dr. Rajadhyaksha continued her career as a junior faculty at MGH/Harvard Medical School on an NIH Career Development Award (KO1). Her achievement and success led her to set up her addiction lab at Weill Cornell in 2005.

Dr. Rajadhyaksha shows the same commitment to mentoring students and serving as a thesis mentor and committee member to Ph.D. students as she does to her research. In May 2019, she was named the recipient of the Weill Cornell Graduate School Excellence in Teaching and Mentoring Award for her commitment to mentoring everyone from students through junior faculty and researchers. She has also been recognized by the Leadership Alliance, who awarded her the “Outstanding Performance as Undergraduate Mentor” award.

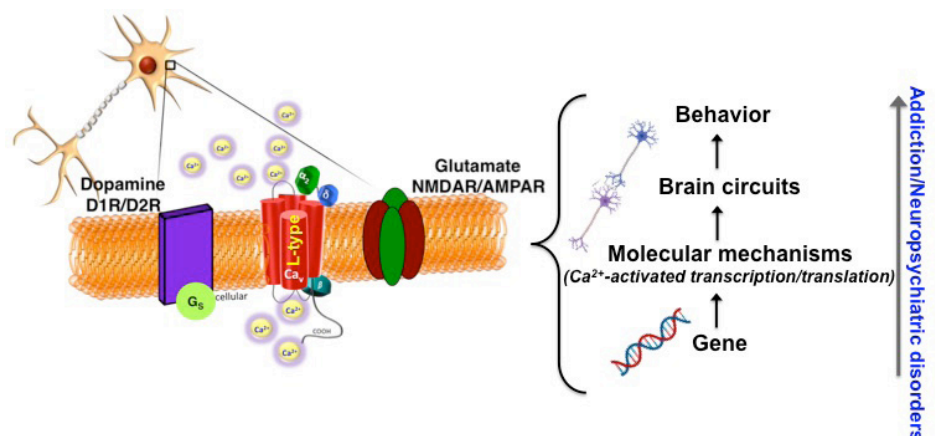
More recently, Dr. Rajadhyaksha was appointed to the position of Associate Dean, Program Development in the Weill Cornell Graduate School.

Her Current Research...

As a molecular lab studying addiction, we are interested in the molecular mechanisms underlying drug addiction, with a focus on L-type Ca^{2+} channel mechanisms and cocaine behaviors. These L-type channels play a key role in integrating signals from dopamine and glutamate, two major neurotransmitters in the brain, that lead to activation of signal transduction pathways that contribute to the life-long brain changes that underlie addiction. The goal is to identify new molecular pathways that drive cocaine’s long-lasting addictive effects that could serve as targets for developing therapeutics.

More recently, the genes that code for these L-type channels have emerged as top candidate risk genes for neuropsychiatric disorders. Many of them like bipolar disorder and major depression are highly

co-morbid with substance use disorders. Thus, my lab’s research has expanded to exploring overlapping brain mechanisms between these mood and substance use disorders.



Her Career Journey...

I didn't quite know what I wanted to do when I first started my Ph.D. I knew I enjoyed science and wanted to grow my knowledge and learn how to do research and think scientifically. Towards the end of my Ph.D., I had grown to love research, sitting down with data, analyzing it and figuring out what the data was telling me. This is what drove me to pursue a postdoc. I loved discovering new things and I still do. And I have always loved solving puzzles—I'm now solving the mysteries of biology and the human system.

After finishing my Ph.D., I was fortunate to secure a postdoc position in neuroscience at MGH, Harvard Medical School in Boston. I was keen on applying my molecular background to either immunology or neuroscience. I fell in love with the brain and became fascinated by how the brain functions and how it can go awry.

and memory. Not having much background in the field, I applied for and secured a KO1 career development grant to train in the field of addiction neurobiology. I continued at MGH as a junior faculty member for the five-year KO1.

I then moved to Weill Cornell as an assistant professor to establish my addiction lab and subsequently joined the neuroscience graduate program in 2009.

What Motivates Her Research...

Addiction is such a complex disorder and treatments either don't exist or are suboptimal. To complicate matters, mood disorders including depression and bipolar are common psychiatric conditions among patients with substance use disorder.

We all know someone that has suffered from this illness and constantly see it

stress levels have grown worldwide, especially in the younger generation. I have also learned tremendously from my lab members who are passionate about the topic from the science behind the disease to removing the stigma to policy surrounding treating drug-dependent individuals.

Also, advances in technology over the last several years have allowed us to probe the brain and biological systems in new ways that was not possible until recently. This has aided in unraveling all kinds of complex behavior-based disorders.

How Her Research is Impacting Society...

In addition to gaining a better understanding of the molecular basis of addiction that we hope will eventually guide new treatments, a stigma still exists. Many believe that addiction is a result of weak willpower and is a personality issue. This is not true. No one chooses this disease. Basic research can demystify disorders such as addiction.

There is growing evidence that a combination of genetic/epigenetic predisposition, environmental factors, as well as co-occurring mood disorders can contribute to the risk of addiction. Thus, basic science can be very powerful in educating our community that addiction is a brain disorder and not a personality disorder. It can inflict anyone and often is a result of other neuropsychiatric disorders, such as bipolar disorder. Singers Demi Lovato and Michael Angelakos have openly spoken about their challenges with bipolar and drug dependence. I envision that the more we uncover the biological underpinnings of addiction, the better we will be able to communicate the information to communities, families and healthcare policy makers at state and federal levels.



“Basic science can be very powerful in educating our community that addiction is a brain disorder and not a personality disorder.”

Two years into my postdoc, I decided to apply my molecular background to the field of addiction. This was at a time when only a few labs had begun thinking about the molecular basis of addictive behavior. I had gotten interested in how the brain learns and remembers. Addiction was an ideal disease model to study as it was becoming clear that addiction is a problem of maladaptive learning

in the media. When I got into the field, I was struck by the high rate of relapse particularly for cocaine and opioids, despite abstinence for years. This suggested that these drugs cause life-long changes in the brain. Thus, understanding the mechanisms is important for us to be able to help drug-dependent individuals.

Stress is another contributing factor, and



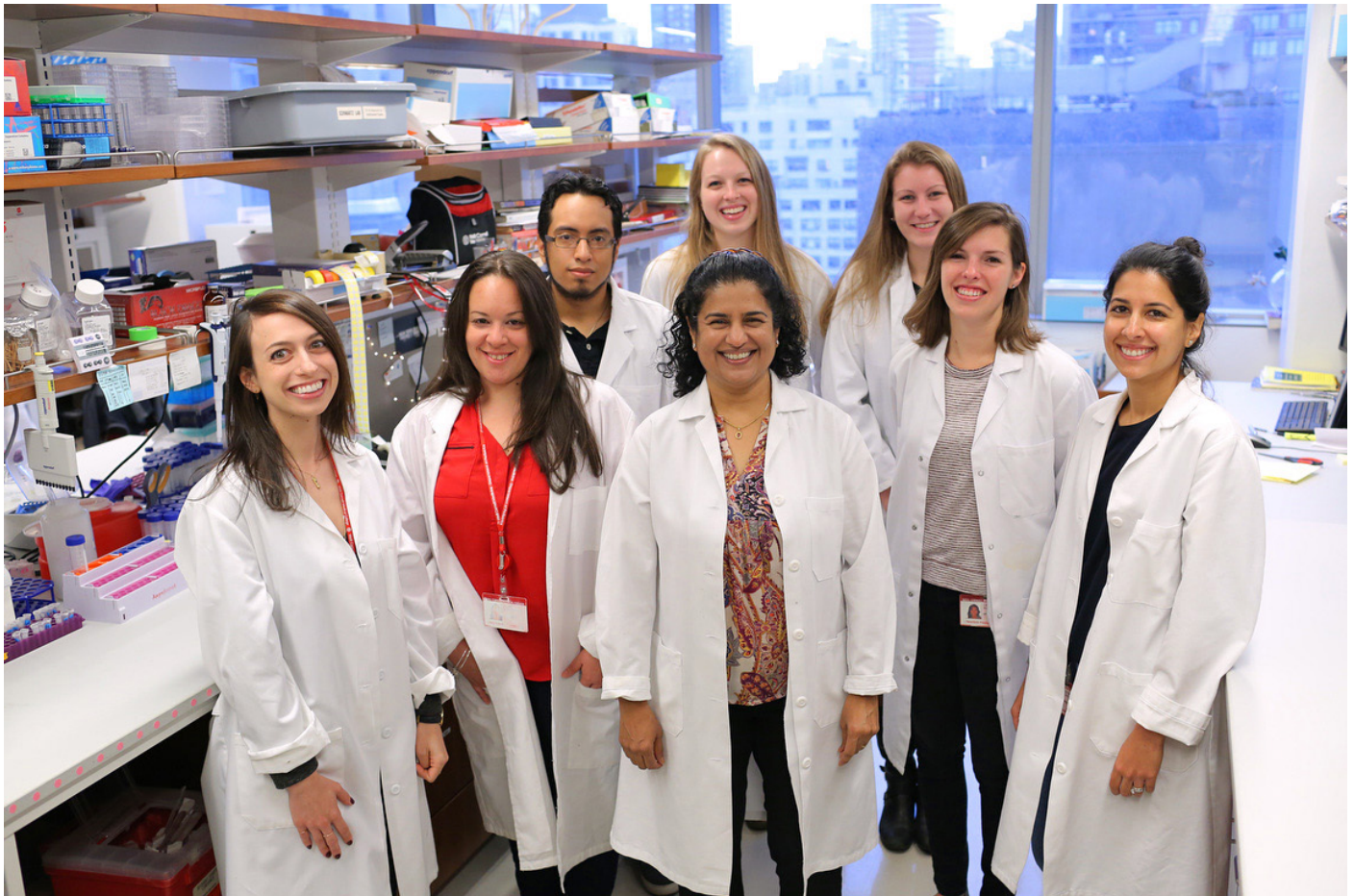
“I moved to Weill Cornell because I wanted to be in an environment that allowed me to teach, train and mentor graduate students and postdoctoral fellows. And working closely with physician scientists has propelled my lab's basic science research in ways that would not have been possible at many other places.”

We also need to take steps to prevent addiction at earlier ages. Adolescence is an extremely vulnerable stage and drugs can alter brain development and have long-term consequences. I have been fortunate to train students and postdocs at Weill Cornell who are passionate about the topic. We need more addiction scientists in all realms, research to advocacy to policy to have a real impact on society.

Challenges and Opportunities for Women in Science...

Being a female scientist does have its challenges. It is much better now than when I was a graduate student and postdoc. Yet there is still a lot of room for improvement. The best way I know to deal with issues such as gender bias, poor mentoring, lack of support, and balancing work and

family is to work hard—be creative with time management and most importantly, create a positive network of colleagues. This strategy has allowed me to have a full life of science and family, and most important to me, the ability to be an effective mentor. Being able to provide an enriched environment not just for my lab members but the extended community around me has been highly fulfilling.



Anjali Rajadhyaksha, Ph.D. and her lab members.

Photo credit: John Abbott

I strongly believe that challenges can be converted to positive growth with the right environment and support.

Likewise, it has definitely gotten harder to secure funding. With the rapid advancement in science and technology and the bar constantly rising for getting grants funded and papers published, collaborative work bringing in complementary expertise has become essential. Being in an environment like Weill Cornell with brilliant, collegial colleagues with a wide range of expertise has definitely been a positive in dealing with funding challenges.

I could not have done the science I do today without the camaraderie at Weill Cornell. The current challenges and rapid pace of science pushed a basic molecular biologist like myself to get to where I am today—studying the brain from genes to cells to brain circuits to behavior.

Joining Weill Cornell...

I moved to Weill Cornell because I wanted to be in an environment that allowed me to teach, train and mentor graduate students and postdoctoral fellows. I really enjoy teaching and working as a team with students and postdocs and growing with them. It is such a fulfilling experience. I have been extremely fortunate to have bright, young and highly motivated lab members including serving as a thesis committee member for a large number of Ph.D. and M.D./Ph.D. students.

When I interviewed at Weill Cornell, my first impression was that of a supportive, collegial, close-knit community. Not often can we say that first impressions are lasting impressions but in my case this has been true. Working closely with highly driven colleagues and students doing cutting edge research has

allowed my lab members and me to flourish. And working closely with physician scientists at Weill Cornell has propelled my lab's basic science research in ways that would not have been possible at many other places.

Advice for Ph.D. Students...

One of the best decisions I made was to pursue a Ph.D., which goes beyond scientific learning—something I realized only in the latter part of my postdoc and after starting my lab and becoming a parent.



“Don't be afraid to seek help from faculty and peers as needed. WCGS is a very supportive community.”

Ph.D. training prepared me for life, both professional and personal. The first piece of advice I would give all graduate students is to know that many of us faculty have gone through the same insecure, unprepared feelings that they often feel during graduate school and many of us still do when we start new adventures. This should not hinder one's goals: “Life begins outside of one's comfort zone.”

Be patient and persevere, be self-aware, be willing to embrace the challenges and struggle and be aware that progress and success will come one step at a time in this exciting journey. It is important to stay focused on learning and growing. Don't fear failure, learn from it. Own your projects, own your career path and work hard, as that is one thing no one can take away from you. But don't be afraid to seek help from faculty and peers as needed. WCGS is a very supportive community and our faculty is always available and happy to help during challenging times.

Your first year can be overwhelming. However, it is also exciting to start a new journey. Lab rotations are great to get a feel for a lab. Every student has different mentoring, lab environment and science needs. Find a great mentor who fits your personality and aspirations and a motivating, supportive and complementary lab environment.

Embracing the challenges and struggles of the Ph.D. and postdoc years allowed me to grow in ways I would have never imagined. My experience now allows me to give back to my lab, Weill Cornell students and postdocs and my colleagues, in a fruitful way.

In Her Spare Time...

I love music, football and TV. I also played a good amount of video games during undergrad and grad school. I always found it relaxing. I often find myself parallel processing TV and games. Before my daughter left for college, I truly enjoyed every aspect of being a mom. Even though it was a lot of juggling schedules and hard work, incorporating all her activities into my responsibilities made my life richer.

Since teaching and education is a passion, I have been doing a lot more thinking and reading about areas of graduate school education that we could improve upon to meet the needs of the current generation of Ph.D. students, as well as science outreach to K-12 students and the community around us.

On a more regular basis, I stay connected with former students and postdocs, most of them from Weill Cornell. They have become an integral part of my life, both personal and professional. I feel very fortunate.

DIVERSITY AND INCLUSION

By AVELINO AMADO, PH.D.

The 2019-20 academic year kicked off with the second annual New Student Diversity Mixer at the end of orientation week, which included both medical and graduate students.



Members of Tri-Institutional Minority Society and Diversity Mixer Planning committee.

From left to right: Shakarr Wiggins, Taylor Floyd, Katherine Lopez, Nneka Southwell, Josue Barnes.

This event was a collaborative effort between the Office of Student Diversity, the Tri-Institutional Minority Society and Students for Equal Opportunity in Medicine.

Second-year medical student Yendé Grell says it was heartwarming to see so many students of color gathered together in one space. “It was only the first week of school but I already felt like these were my people. I couldn’t have imagined a better way to bond with other students of color than over good food, music and most importantly a good time.”

“I thought the Diversity Mixer was a huge success,” says Josue Barnes, a Ph.D. student in the PBSB program. “It exceeded our expectations. The energy was vibrant. Everyone was happy, vibing to music, and eating good food.”

The Office of Student Diversity has also launched two major initiatives within the Weill Cornell Graduate School—the Initiative for Maximizing Student Development (IMSD) and Esprit de Corps programs. The IMSD program aims to increase the number of underrepresented minority students while providing them with leadership and professional training to prepare them for successful careers in a

variety of biomedical and science-related fields.

Four Ph.D. students were selected for the first cohort—Amanda Simon, Viktor Belay, Valerie Gallegos, and Rafael Colon arrived in July 2019 to participate in the Early Start Program, one of the marquee initiatives of the grant. The Early Start Program provides IMSD fellows with the opportunity to do a summer rotation before the rest of the first-year class join in August.

Recreational and social events such as a game night in Brooklyn, a trip to the MET, and a family-style BBQ were also part of the program which gave IMSD fellows a chance to get acquainted with the Weill Cornell community, faculty and senior graduate students. As the Diversity Program Manager, I believe the Early Start Program is a really special opportunity for the students and program directors, Drs. Marcus Lambert and David Christini—it has allowed the leadership team to form a bond with the students and help them get acclimated to this new environment.

Furthermore, getting to know their personalities and aspirations as scientists makes me really excited to see how they develop over the course of their time at Weill Cornell.



Initiative for Maximizing Student Development (IMSD) Inaugural class. From left to right: Rafael Colon, Viktor Belay, Amanda Simon, Valerie Gallegos.

The IMSD program aims to increase the number of underrepresented minority students while providing them with leadership and professional training to prepare them for successful careers in a variety of biomedical and science-related fields.

I'm very fortunate and honored that I get to be a part of their process.

In addition to social outings, there were also roundtable-style lunches where students engaged with members of their community in informal discussion, a welcoming and friendly setting for them to discuss their thoughts. A variety of topics were covered during lunch sessions including the importance of mentoring when picking the "right lab" and how to navigate some of the perils of graduate school informal open forum.

The IMSD fellows agree that the Early Start Program helped boost their confidence as scientists because it allowed them to focus on their lab rotations without the stresses of class. Having the opportunity to be on campus, interact with other faculty, students and staff allowed them to feel more prepared going into their August orientation. More importantly, the program helped them realize that becoming a scientist is possible and that it is more than just an aspiration.

The momentum of the Early Start Program rolled into the Esprit de Corps program, a mentoring initiative by the

Office of Student Diversity. Currently in its second year, the Esprit de Corps program aims to build community while also providing important pieces of professional development for new students. This year-long program offers a wide range of workshops and seminars: a panel discussion led by veteran graduate students on how to pick a lab, grant writing and financial wellness seminars, to name a few.

A cornerstone of the Esprit de Corps program are graduate students that serve as near-peer mentors or coaches, most of whom participated in the program. These individuals play an important role in helping first-year graduate students make important decisions and get acclimated to the Tri-I community.

In the New Year, the group will focus on developing networking skills and scientific writing. The year will be capped off with a networking mixer featuring a diverse group of professionals from various career fields. The event will give our students an opportunity to put their newly acquired skills to work.



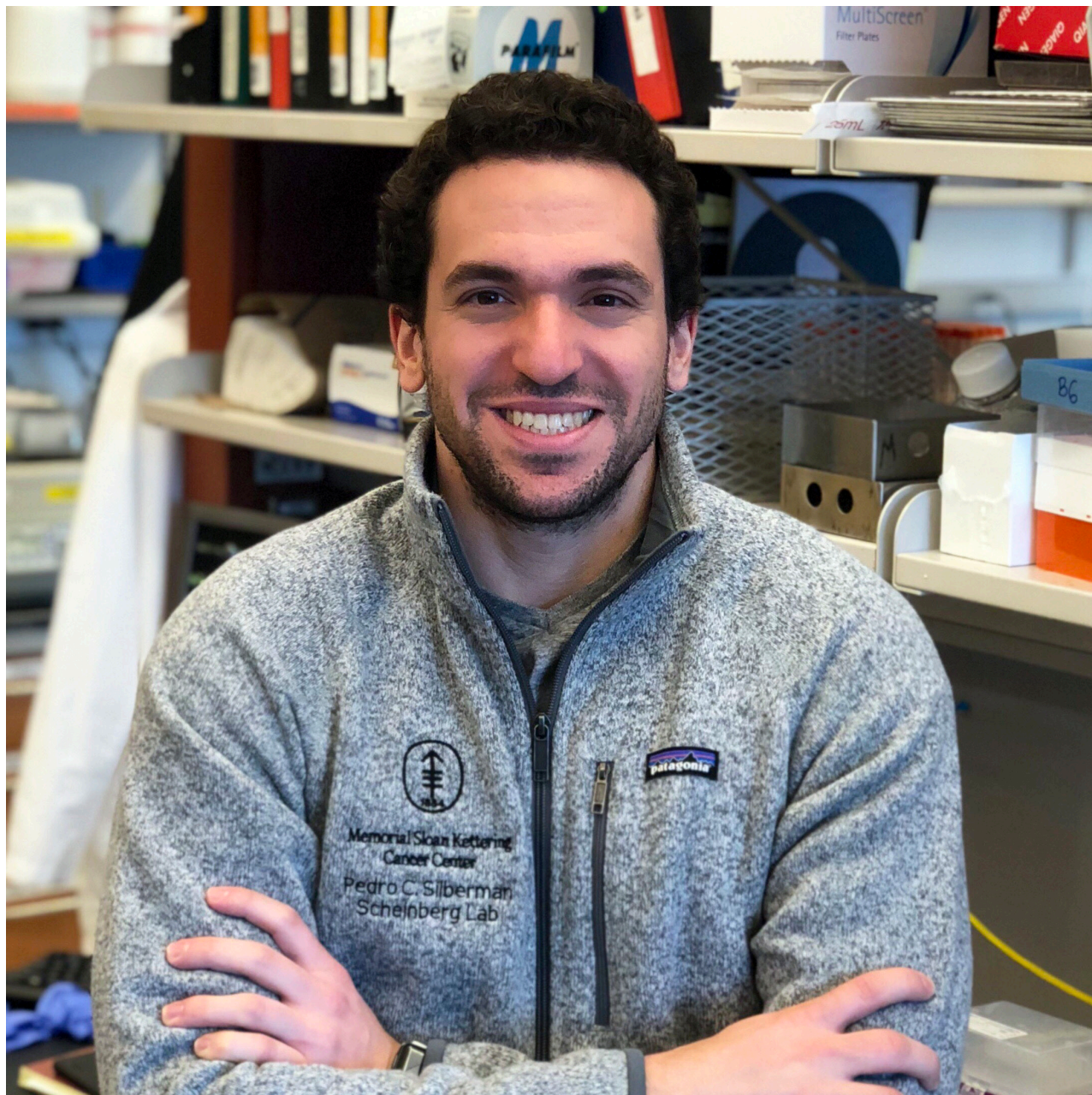
Dr. Marcus Lambert (front) and IMSD fellows enjoying social outings in New York City as part of the Early Start Program.



Esprit de Corps members enjoying an afternoon picnic in Central Park at the end of orientation week.



Student panelist for the "How to Choose a Mentor" workshop.
From left to right: Ashley Jeng-Yun Chui, Jamal Elkhader, Pedro C. Silberman, Christopher Bourne, Taylor Floyd, Amanda Acosta, Jordana Thibado.



“

I'm fortunate to have found this immense support from my lab head and fellow members for my creativity and ideas to come to fruition — I believe this type of environment makes WCGS special.

”

PEDRO C. SILBERMAN, Ph.D. Student Physiology, Biophysics, and Systems Biology

Pedro Silberman was three years old when his parents decided to migrate to the United States for the opportunity to achieve higher education and a better future. They left Rio de Janeiro, Brazil and settled in San Diego, California. The transition was not easy—Silberman did not speak nor understand English. Furthermore, he was shy, had a stutter and did not have many friends. “This made the relationships with my parents and younger siblings a critical aspect of my early development,” Silberman says. “From helping me with homework assignments to supporting me through some tough periods both in sports and socially—everything became a team effort.”

Despite the hardships, Silberman was keenly engaged in sports, in which he excels, and managed to keep a good balance between academics and extracurricular activities. Towards the middle of high school, Silberman chose to focus on volleyball over soccer and ended up playing for the #2 USA Junior National Team. Besides many national tournaments and junior Olympics, he also competed internationally three times at the Maccabi Games in Israel. Silberman continued to play throughout college and still plays competitively today.

Silberman’s approach to sports can also describe the way he copes with academic challenges and stressful environments. “You learn to become comfortable with failure and to perform in high pressure and intense situations,” he says. “This trait has helped me deal with some of the challenges graduate school has thrown at me.”

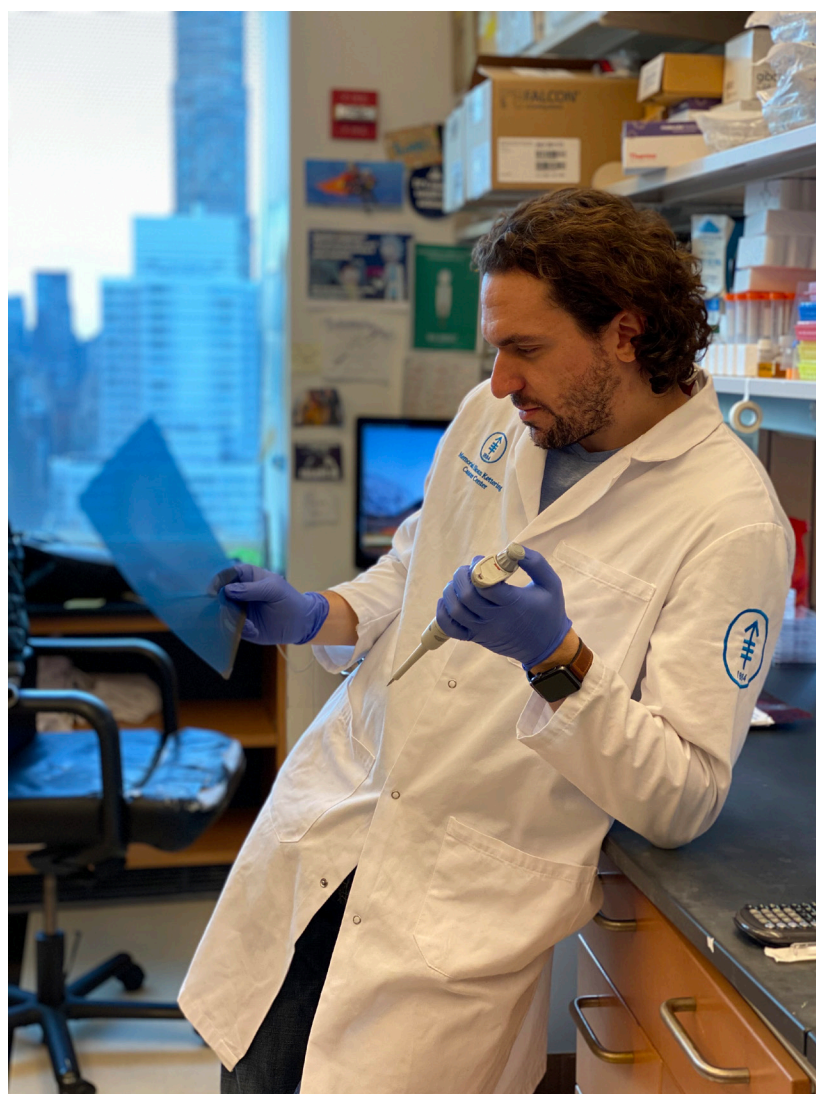
During his undergraduate studies at UC San Diego, Silberman worked in the Gage Lab at the Salk Institute where he developed a model of hippocampal adult neurogenesis using human pluripotent stem cells. “I helped develop a MATLAB algorithm to analyze Calcium imaging of ES/iPS-derived neurons to determine inter-neuronal communication dynamics in in-vitro cell culture,” he says. Additionally, he also participated in the Research Experience for Undergraduates program at Carnegie Mellon University and University of Pittsburgh in the summer. “I worked in the Human Engineering Research Laboratories with Dr. Rory Cooper and subsequently in Dr. Kris Dahl’s lab, both of whom

helped kickstart my interest in research,” Silberman says.

Silberman then earned a master’s degree in Biomedical Engineering from Cornell University focusing on cancer nanotechnology under the tutelage of Dr. Michael King. “This was a transformative experience for me,” he says. “It was my first time doing cancer research and I had an amazing time in both Dr. King’s lab and at Cornell’s main campus.”

Prior to joining Weill Cornell Graduate School of Medical Sciences (WCGS) in 2016, Silberman worked as a research assistant for two years in the Glimcher Lab at Weill Cornell, followed by a year-long stint in Dr. Jason Huse’s lab at Memorial Sloan Kettering.

Silberman is a recipient of a T32 training grant and an author on a paper published in Nature Communications in March 2018.





RESEARCH

We have all heard the saying “create a life of meaning”—no matter how clichéd this phrase may be, the search for life’s meaning has motivated Silberman to pursue further training and a career in cancer research. Silberman notes he was lucky to be born healthy and to a good family. “Whether you lose the genetic lottery or develop spontaneous mutations, to me it seems to break logic that a person’s body will go out of control from within with possible catastrophic results—I see this problem as an obligation to fix.”

Silberman’s research in Dr. David Scheinberg’s lab focuses on chimeric antigen receptor (CAR) T cells to target cancer. He remains enthusiastic that in spite of the many challenges facing the application of CART technology to solid tumors, Silberman says that CAR T cells have shown promise in the clinic in treating hematopoietic tumors in human patients. “There are limited tumor specific targets on solid tumors and this can lead to off-tumor, on-target toxicities,” he explains. Silberman’s research aims to develop contextual gating strategies for CAR expression so that CAR T cells

can kill tumors selectively and spare toxicity to normal tissues.

“This is an exciting time to be a scientist and to turn innovative ideas into cancer therapies,” he says. “I think at the core, we all want to contribute to something during our lives.” Silberman hopes his work will lead to the expansion of human knowledge to treat devastating diseases. “I can’t imagine a better motivation to come to the lab every day.”

WHY WEILL CORNELL

By the time Silberman was ready to pursue a Ph.D., he already had a project in mind. Silberman’s five years of research experience and clear focus boosted his chances for acceptance into Weill Cornell’s pharmacology graduate program. “When I applied to graduate school, I pitched an innovative project idea to Dr. Scheinberg, which led to my current thesis work,” he says. “I am fortunate to have found this immense support from my lab head and fellow lab members for my creativity and ideas to come to fruition—I believe this type of

environment makes WCGS special.”

Furthermore, Silberman says that not only does the partnership between Weill Cornell and Sloan Kettering allow him to work with pioneers and leaders in the field of adoptive cellular therapies, but also the constant interactions between researchers and clinicians helps even more. “These interactions foster an environment where we push the boundaries of cancer research to directly impact patients,” he says.

After nearly four years at Weill Cornell, Silberman is impressed with the support and encouragement provided by WCGS, as well as the opportunities to engage in ongoing conversations that have a significant impact on students’ academic and professional success including well-being. “Weill Cornell encourages students to strive to make an impact and take advantage of the many resources available in the Tri-I community,” he says. “This allows us to focus on our research while encouraging us to explore our interests to pursue various career paths.”

MENTORING FELLOW STUDENTS

Silberman has excelled in both academics and service. He has been actively involved in both Tri-Institutional Minority Society and Tri-Institutional Outreach events since joining the graduate school. He also served as a mentor to an undergraduate student and younger graduate students through the Advancing Cornell Career Experiences for Science Students and the Esprit de Corps programs, respectively. “Realizing my success has come from a lot of hard work and a lot of chance, I have decided to dedicate my time and energy to the service of others that haven’t had the same luck as me,” he says.

“**Y**ou need to be very comfortable with failure and cherish the small achievements, even if other people don't think it's a big deal.”

In 2017, with help and guidance from Dr. Marcus Lambert, Assistant Dean of Diversity and Student

Life, Silberman initiated the High School Science Immersion Program designed to offer hands on biomedical research exposure to New York high school students of all backgrounds. He credits his parents and all the mentors throughout his life for instilling the value of mentoring in him. “As a Latino immigrant, mentor and mentee relationships have been key to my path in academia,” Silberman says. “Mentorship is one of the most important aspects of the scientific process and something that Weill Cornell truly emphasizes.”

Silberman hopes this seven-week program will give these children a support system in science and inspire them to pursue a STEM major in college. “Since I started this program from the ground up, I plan to build a program that will be successful at the goal of exposing high school students to scientific research and building a community that will help guide their futures,” he says. “Most importantly, by being involved in the variety of programs at Weill Cornell Medicine, I noticed there was a unique opportunity for me to leave my own mark and make a significant contribution to Weill Cornell’s impact on the community in NYC.”

Last year, Silberman was chosen to participate in the Yale Ciencia Academy (YCA) along with 39 doctoral students from institutions across the country. This year-long program provides graduate students with opportunities for mentoring, peer support and networking that aims to broaden access to scientific knowledge to students from underrepresented and underserved communities. He states that Yale Ciencia Academy has been able to supplement his training through transferable skills that may not normally be found in traditional academic settings. “The combination of skills obtained from Weill Cornell Medicine graduate training and Yale Ciencia Academy will be fundamental for my development and the careers of my future trainees,” Silberman says.

In 2018, Silberman represented the Weill Cornell Ph.D. students in the Rally for Medical Research to meet with Congress senators and representatives in Washington, DC, to stress that the support of the members of Congress on medical research funding is of the utmost importance.

“CHOOSE YOUR OWN ADVENTURE”

Self-doubt is a common part of the Ph.D. training process for many students. For Silberman, the pursuit

of a Ph.D. has been something of a “choose your own adventure” experience, a term he got from Dr. Jake Sneva when he interviewed at Weill Cornell. “This is the time to explore your interests, get out of your comfort zone, challenge yourself, and be curious,” he says. “There’s no right way to do this except for the best way for you. You never know where you’ll end up!”

And if you don’t find it right away, that’s fine too. It’s all part of the adventure. “You need to be very comfortable with failure and cherish the small achievements, even if other people don’t think it’s a big deal,” he says. “I think the hardest thing a Ph.D. student needs to do is believe in themselves, because if you don’t believe that you’re capable, it makes it much harder for other people to believe you are.”

FUTURE PLANS

Silberman plans to go to medical school after finishing his Ph.D. “I want to pursue a career where I hope to contribute to lessening the suffering of others through medicine—and running my own lab developing and translating therapies to treat cancer by using concepts of cancer biology, immunology, pharmacology, and biomedical engineering.” he says. “Hopefully I’ll end up somewhere with a scientific and medical community as great as Weill Cornell and Sloan Kettering!”

In his time away from the lab, Silberman enjoys playing volleyball, soccer and tennis. He also volunteers once a week to teach coding and robotics to elementary school kids at the New York Public Library and is passionate about science policy and advocacy.

“Mentorship is one of the most important aspects of scientific process and something that Weill Cornell truly emphasizes.”



Weill Cornell Medicine High School Science Immersion Program Closing Gala. Pedro Silberman (far left), WCGS graduate students and postdoctoral fellows who served as mentors to the high schoolers (front) wrapped up the 7-week program in August 2019. The Closing Gala including poster presentations marked the culminations of weeks of research for the 2019 cohort.

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Weill Cornell Medicine
Graduate School
of Medical Sciences



Personal and professional issues

Contact:

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Dr. Judith Cukor



212.821.0627



juc2010@med.cornell.edu



Counseling services

Contact:

Student Mental Health Program,
Dr. Richard Friedman



212.746.5775



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TING JIA, PH.D., a 2009 graduate of Weill Cornell Graduate School of Medical Sciences and a founder of Octagon Capital Management has always been interested in the field of general medicine, particularly immunology. “During my time in college, I wanted to do something in research and at the same time related to clinical,” Dr. Jia says. “Immunology is one of the areas that has the best combination with both basic science and clinical education.”



From a lifelong interest in science to the influence of his marine chemist father and physician mother, it is not surprising his decision to become a scientist came easily. After earning his bachelor’s degree in biological sciences at Sun Yat-sen University in Guangzhou, China, Dr. Jia joined the Immunology and Pathogenesis Microbial (IMP) graduate program in 2004. While at WCGS, his research focused on understanding how immune cells and signaling proteins migrate from bone marrow to points of inflammation. Dr. Jia completed his dissertation in the lab of Dr. Eric Pamer in January 2009. He also published eight papers in top journals, four as first author, with over 2,200 citations.

After completing his Ph.D., Dr. Jia stayed in the Pamer Lab at Memorial Sloan Kettering as a postdoctoral fellow for a year. As much as he loved research and intended to have an academic career, Dr. Jia decided to explore a nontraditional career option. He joined McKinsey & Company as a management consultant for four years and moved on to a private investment firm, BVF Partners LP in San Francisco as an investment analyst. Dr. Jia then spent three years as a Managing Director at Hillhouse Capital Management before he founded his own healthcare-focused fund, Octagon Capital Management in 2018.

What does Octagon Capital Management do?

We are an institutionalized investor seeking to invest in life science opportunities. Octagon Capital invests in both public and private companies, focusing primarily in innovative products. We also partner with entrepreneurs to help them think through some of the business key elements, brainstorm their next steps and help with their product development process. We pride ourselves for our scientific understanding, vast network and valuable relationships with successful scientists in industry and entrepreneurs.

What is a typical day for you as the founder and Managing Partner of Octagon?

My day starts at 6 a.m.—breakfast, the morning news and send my kids to school. Once I arrive at the office around 8-ish, it's my time to think and prepare my day ahead. I usually jump on some early conference calls and watch the stock market so I can make investment decisions on public companies.

Most days are spent doing fundamental research on companies, reading scientific articles, meeting with clients, talking to scientists and physicians about certain science mechanisms and drugs. Additionally, we meet with marketing people to understand how big the market is and have internal discussions to decide if an investment opportunity is interesting. I also watch a lot of news to stay informed about current events and healthcare trends.

Generally, I finish work around 6:30pm. I use the evening to connect with my family and I always scan my email before going to bed.

What is your favorite part of your job?

Doing fundamental research and learning about the company, such as their program, the projects they are working on and their latest development. I especially enjoy interacting with stakeholders, talking to scientists and physicians about their views on the effects of drugs, its mechanisms of action and the utilities of certain drugs.

What motivated you to start your own company?

I think it's the entrepreneurial spirit in me. And of course, the curiosity. As an investor, one has to be curious and constantly want to find the next interesting investment idea. If I'm good at doing that, I should be able to generate return in two ways—one is the return from a financial perspective but more importantly, a return from a social impact perspective—we put capital to work in supporting the drugs that are being developed and ultimately to the benefit of patients.

Besides, I wanted to set up a company where I can capture

the innovation with long-term success and relevance. I want to take a long-term view on the investment. A lot of the investment funds are set up for short-term gain rather than long-term gain, which I don't necessarily like.

Why did you choose Weill Cornell Graduate School of Medical Sciences for your Ph.D. training?

I wanted to join an institution where I had the opportunity to do basic science and at the same time, develop an understanding on how science can apply to a clinical setting. So, I chose Weill Cornell mainly because it aligned with my interest in terms of science and medicine. I also liked the fact that WCGS allowed students to take courses from different training areas and provided the flexibility to work with top-notch faculty across Weill Cornell, Sloan Kettering and HSS.

Moreover, I grew up in a big city and I like the vibrant side of the city. New York is a great place—you have a large pool of skilled and educated talent in all industries. I'm very happy with my decision to join WCGS.

When you first started the Ph.D. program, did you know what you wanted to do after graduate school?

No, I had no idea. I always wanted to do research and have a successful academic career. I got a lot of help from my colleagues and postdocs in the Pamer Lab. I was very fortunate to have great mentorship.

How did your career plans or goals change by the time you were finishing your Ph.D.?

Around my 4th year in grad school, I started exploring various career choices, did a self-inspection and some soul-searching to see what could be a bigger impact coming out of my research. At that point, I had one paper accepted and a second paper in very good shape going to a top journal. I was trying to figure out, in addition to publishing, what does my research mean to patients and society.

I know I like to do research and I enjoy teaching, so I Googled those key words and consulting came back as a search result. And just by chance, McKinsey was on campus the following week. I had no idea what McKinsey was at the time, but I went anyway partly because there was free pizza. It didn't take long to realize it was one of the best consulting firms. The whole process of interacting with people from McKinsey was very pleasant and rewarding. So, in 2008 in the middle of the global financial crisis, I applied for a job at McKinsey and was very fortunate to get an offer. Still, I wasn't completely sure—I continued to debate between a consulting and academic career.

Dr. Pamer has been extremely understanding throughout this process. He told me to explore my curiosity and if it doesn't work out, I can always return his lab and do a postdoc. That was the push for me to try consulting and the rest is history.

Share with us some of the challenges you are facing.

Every single stage of my life has some challenges. For instance, when I was at McKinsey, it was a huge shift from academia to the business world. From the mentality perspective, the work flow is completely different. The pace is so much faster and I was not used to that at all. Communication skill is critical. Having that said, my first year at McKinsey was very challenging yet very rewarding for me.

The challenge from consulting to the investing world is one needs to be more thorough and take accountability. As a consultant, one advises and communicates suggestions to the client but one doesn't need to take the responsibility and consequences for the client's decisions and actions. As an investor, it's very different because you're putting your money to work. In other words, you'll see and feel the impact of losing and gaining.

My most recent change from employee to entrepreneur is also a huge shift of mindset because as an entrepreneur, you'll need to do almost everything—fundraising, setting up the operation and hiring people—you need to believe in yourself and you need to create a vision to lead the team. My current role is not only as an investor but a business owner too.

Does being an international student add another layer of challenge?

For me it's the language barrier. However, I don't see it as a shortcoming but view it as an opportunity to explore and understand the world better. Being able to speak a second or multiple languages could be valuable to your team.

Do you see yourself as a scientist or as an entrepreneur?

I see myself as a scientist with an entrepreneurial spirit—I'm curious, meticulous, logical and I have a strong passion to create and build things.

Is it important for you to incorporate science into your job?

Yes, it's very important. A large part of our investing decision is based on our interactions with scientists and understanding the scientific research. My knowledge and Ph.D. training help us analyze clinical data and to better

understand the benefits of these drugs for patients.

What advice would you offer to Ph.D. students who are interested in the same career path as yours?

For consulting, you'll need problem solving and communication skills. You need to solve the problems and communicate the process to the client—this means understanding what the scientists are telling us and communicate the suggestions back to the scientists in a manner that is relevant for them or their business. It's never about the actual answer, it's about how you get to the answer and what exactly helps the client arrive at their own decision. The Ph.D. training not only gives you the knowledge but more importantly, teaches you how to think logically. This skillset not only helps you on the scientific front but almost every single part of your life and career will benefit from it as well. Lastly, hone your presentation skills.

For investing, I'd say learn more about the industry, familiarize yourself with different type of research and the healthcare market, as well as business fundamentals. For example, if you want to invest in biotech, it's worth paying attention to the news on the latest scientific mechanisms, clinical data and be aware of the industry landscape. Secondly, getting financial training such as the CFA exam will be key to preparing for a career in investing.

Knowing what you know now, would you still follow the same career path if you had a chance to start all over again?

I'm very happy with my career journey. Each career is like a new role for me. I got a taste of different life, which I think it's a good thing. It's not only challenging but I'm also having fun.

Do you miss bench work?

Yes, I do. In fact, Dr. Pamer will tell you that I'm a very good bench scientist. I always enjoyed organizing all the tubes, pipetting, analyzing histological images and flow cytometry data, and seeing all the beautiful colors resulting from experiments. And I like working with animal models as well.

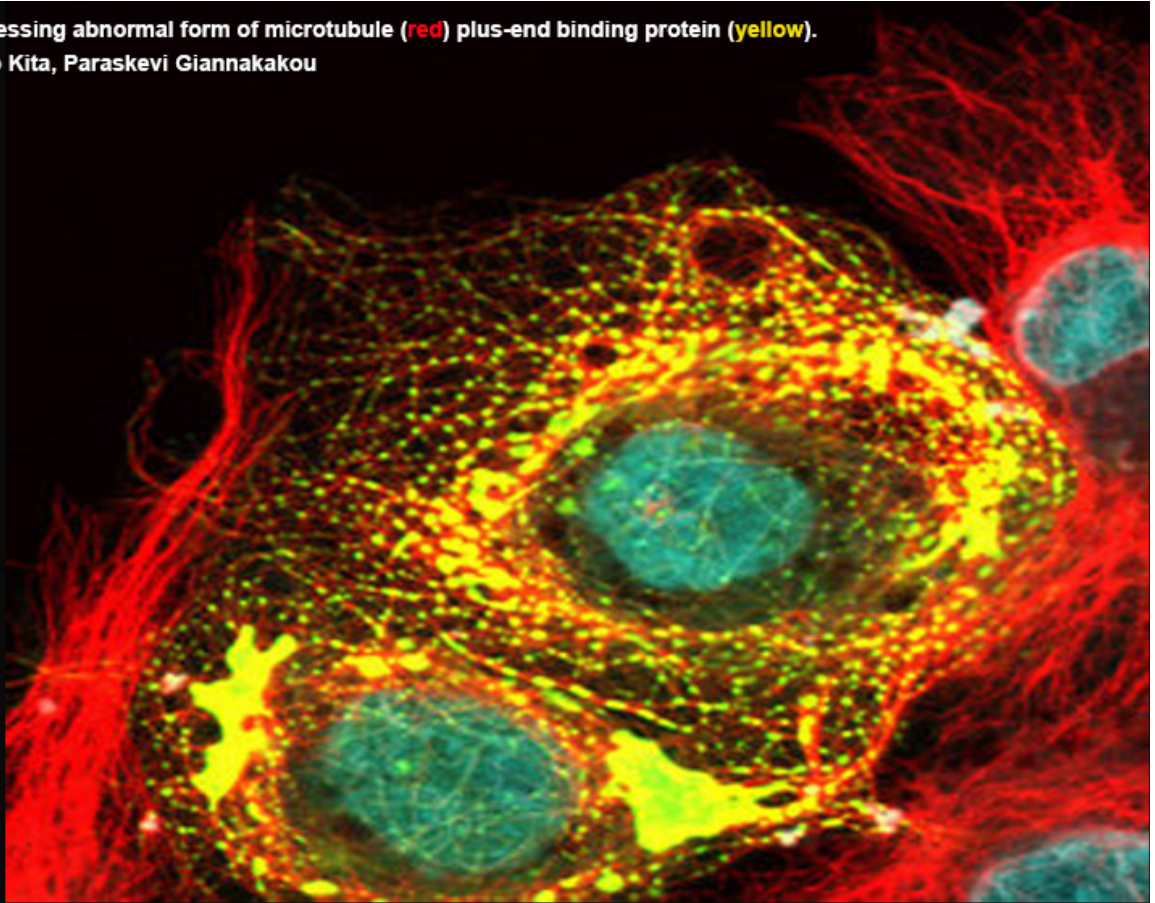
What do you like to do in your spare time?

I don't have spare time.

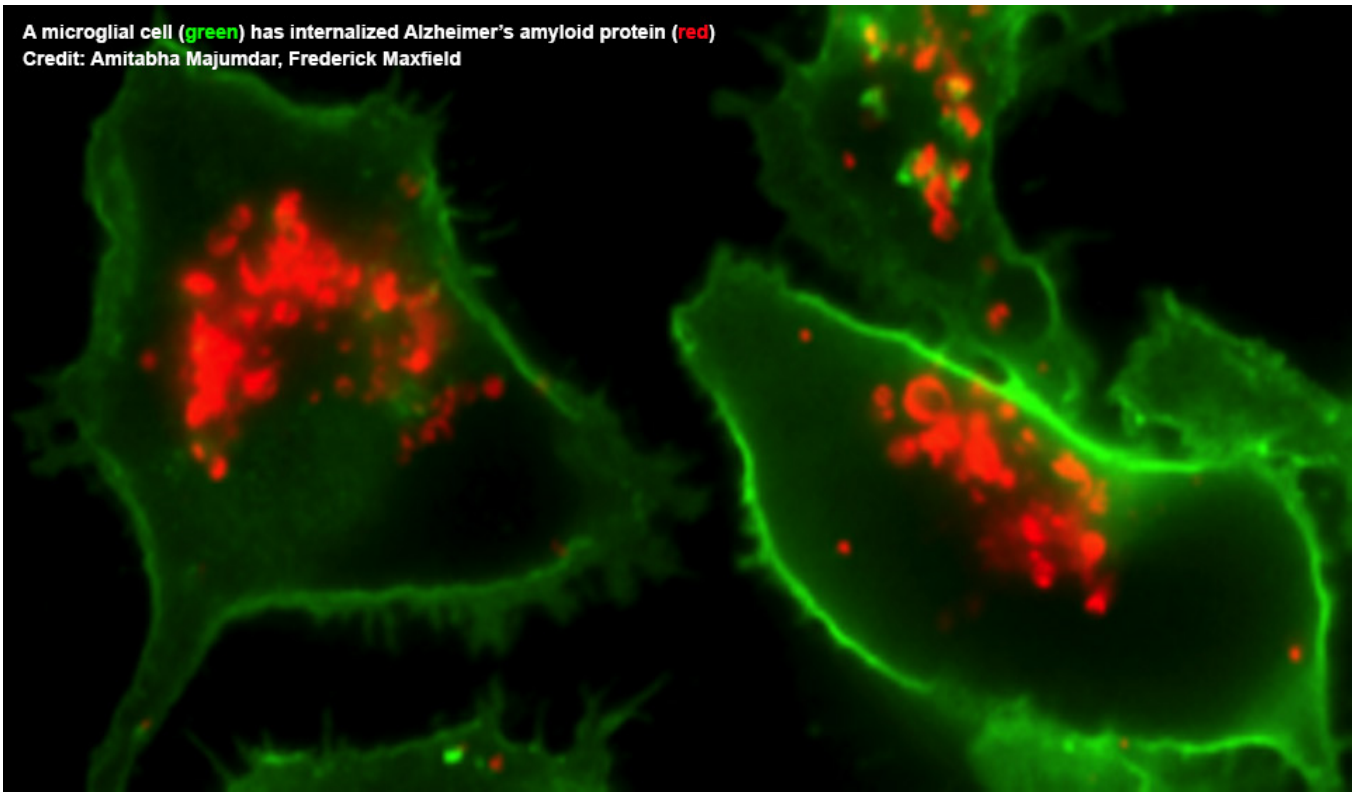
Let's say if you have some spare time.

If I do have spare time, I spend it with my wife and three sons age 9, 5 and 3. We play lots of different sports. If spare time is defined as time outside of sports and family, then I literally have no spare time.

COS-7 cells expressing abnormal form of microtubule (red) plus-end binding protein (yellow).
Credit: Katsuhiro Kita, Paraskevi Giannakakou



A microglial cell (green) has internalized Alzheimer's amyloid protein (red)
Credit: Amitabha Majumdar, Frederick Maxfield



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