



Newsletter —

SUMMER @ MSK
NEW YORK, NY

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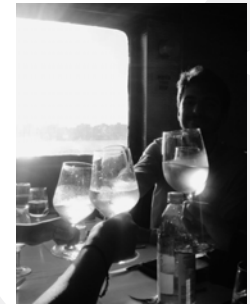
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At
work



At
play



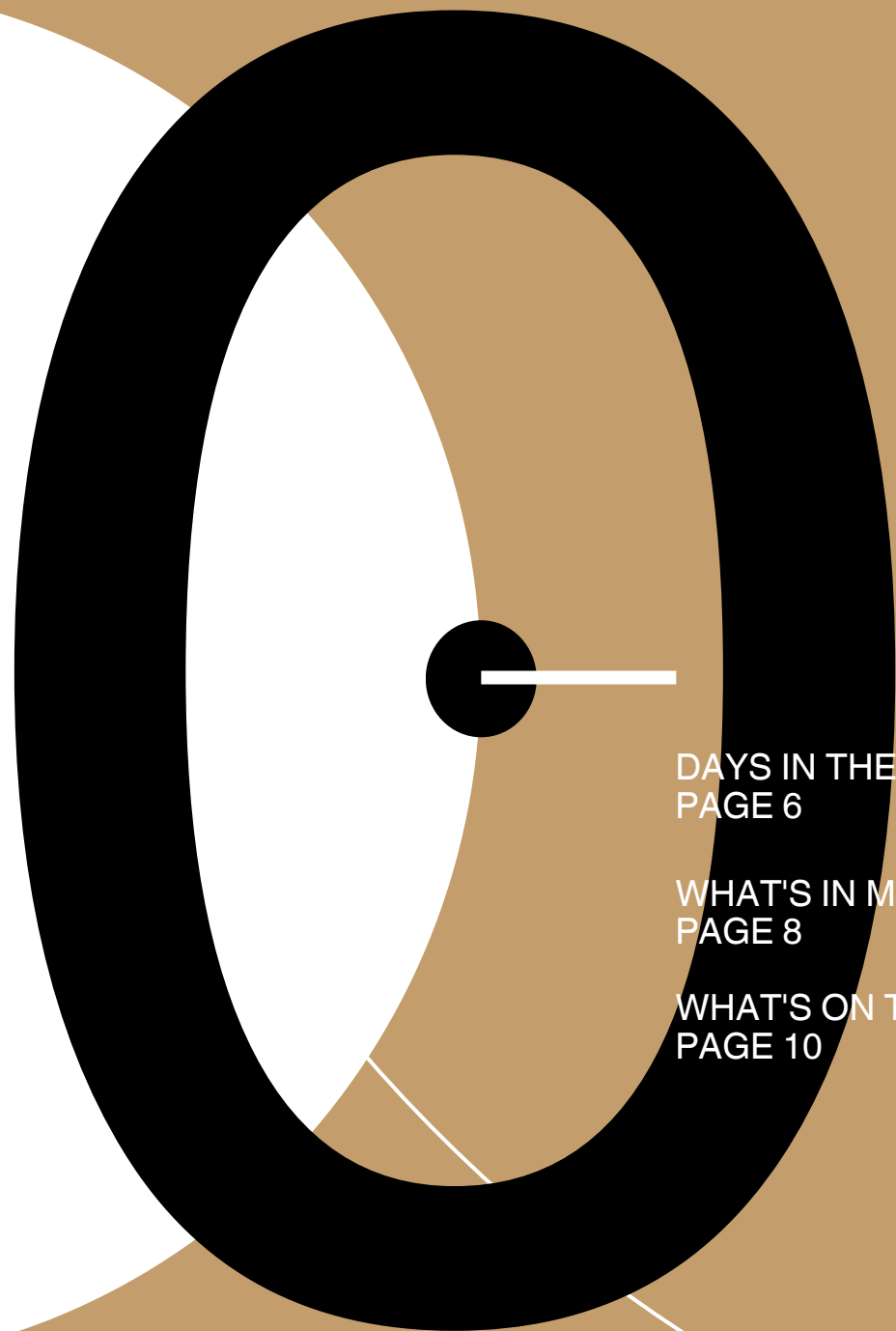
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specials

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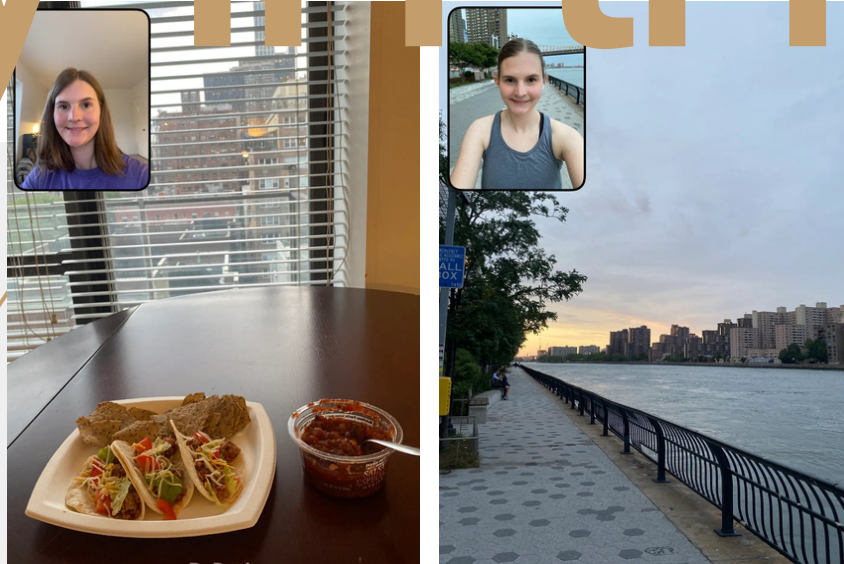
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At Work

Day in the life.



OF AN ESP INTERN

by Katie Impelman

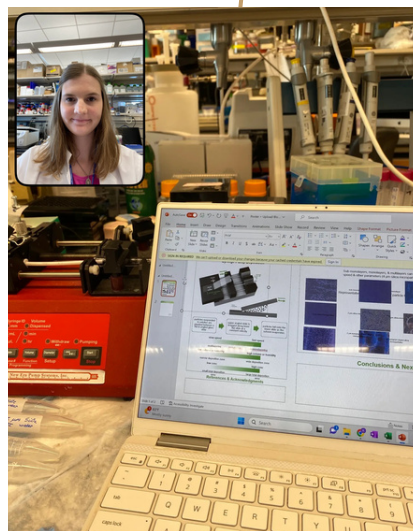
8-9 am: Wake up, eat a bowl of cereal & drink some Celsius while enjoying the view from my apartment, & get ready for the day

9 am-12 pm: Head to lab & prepare solutions for my particle deposition experiments & then maybe run one experiment before lunch

12-1 pm: Eat a packed lunch (usually some chicken noodle soup from Trader Joe's) with some of my lab members or attend a lunch seminar & listen to a talk given by one of MSK's faculty members

1-5 pm: Run some more particle deposition experiments while reading papers, analyzing data, or working on my poster

5-11 pm: If I'm not going to a Broadway show via the discounted ticket lottery, then I'll head to my apartment & cook dinner (my favorite meal to cook is tacos), maybe go for a run along the East River, & then attempt to read a book but end up watching tiktoks until bedtime



OF A SURP INTERN

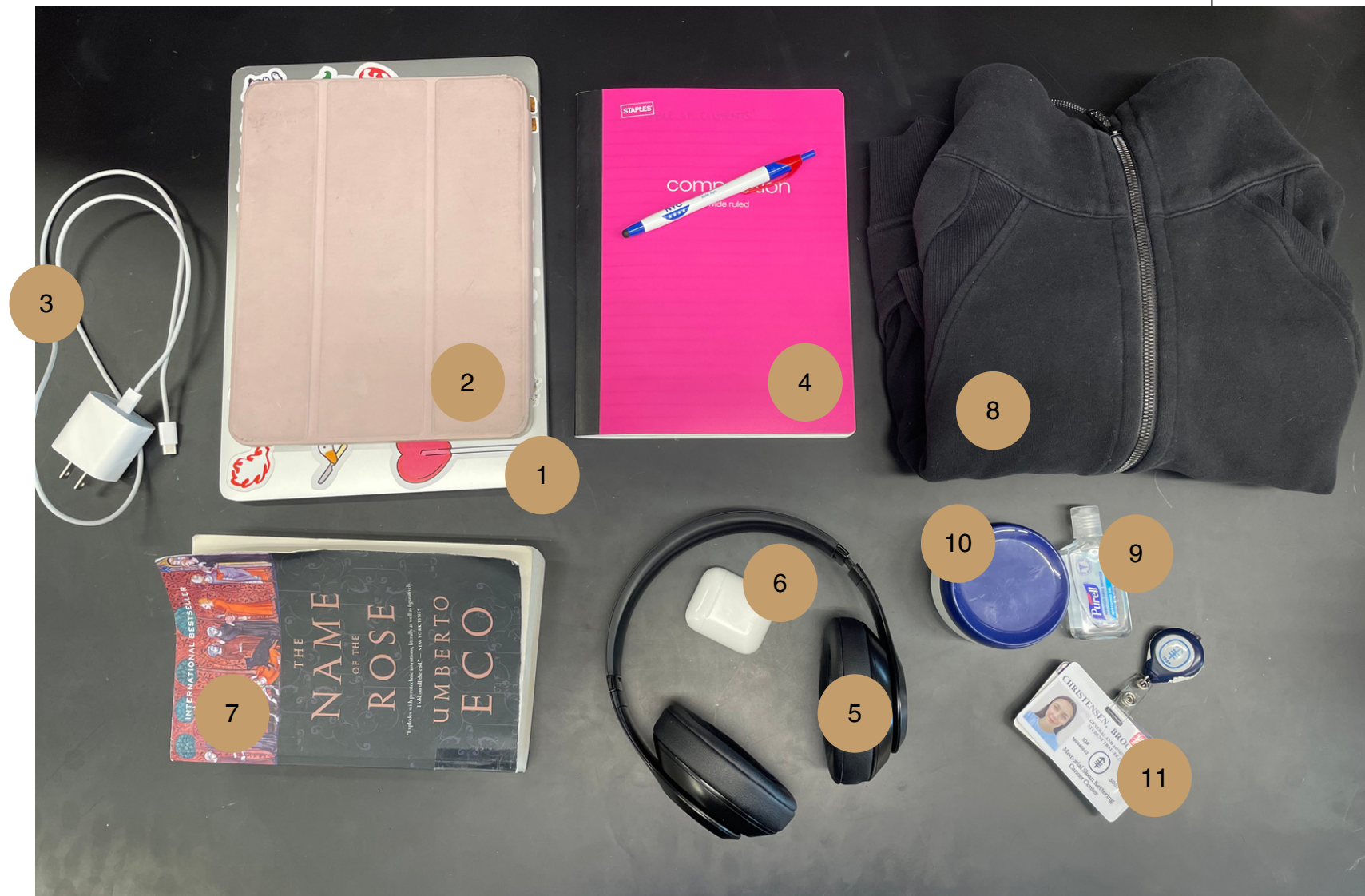
by Jacoby Weston

My mornings at MSK usually began around 7AM when I would wake up and get started on my simple, yet intensive, skincare routine. I value my face and always have to serve looks. Around 8AM, I stopped by Dunkin' Donuts or McDonalds to get breakfast. My go to was usually a sausage, egg, and cheese biscuit with a hash brown and cranberry juice. I would arrive in the laboratory around 9AM, where I would check my emails and then check in with my mentors to see what was on the agenda for today. It usually consisted of autoclaving, subculturing, measuring OD values, and many others. My work day usually ended around 5PM and then I would stop by Chipotle, McDonalds, or even Pizza Park to grab dinner. If I was not too exhausted by the end of the day, I often went on a small, but thrilling, shopping spree at UNIQLO, H&M, LEGO, Stadium Goods, or Nintendo. I always made sure to leave with at least one bag from each store.

What's in my bag?

by Brooklyn Christensen (MISP)

My summer here at MSK has been one of the most fulfilling experiences of my life. I have grown by leaps in bounds both in my professional and personal life. Among some of the many professional skills I've gained is one that may seem miniscule but has had a profound impact on my day-to-day experiences in the lab, what to pack in my work bag. So, without further ado, here is an intimate look into the bag of the MISP intern!



1. Laptop – This is a must for all interns, necessary for: finding research papers, compiling data, checking the intern schedule to ensure no important events are lost to the endless abyss of important information stored in your brain, keeping up to date with important MSK news, and, of course, lunchtime YouTube videos.
2. iPad – Optional, but a great resource if you prefer to handwrite notes as I do.
3. Charger – If you're anything like me, you will be on your laptop almost 24/7, so a charger is a must.
4. Lab notebook and pen – For anyone working in a lab, a physical notebook is essential to keep a record of all your experiments. Preferentially you will want an actual lab notebook but if your lab doesn't have a stock of them, the regular composition alternative works just fine for the summer!
5. Noise cancelling headphones – I am a person who is easily distracted and so my noise cancelling headphones are an absolute must for any task that requires more than 10-minutes of brain power.
6. Backup headphones – Whenever I forget to charge one, I make sure I have a backup since music is such a large part of focusing for me.
7. Book – I am a firm believer in brain breaks. A 15-minute intermission every so often is vital to your ability to think clearly and critically for long days in the lab! I am currently reading *The Name of the Rose* by Umberto Eco, it's a historical murder mystery set in 14th century Italy, I would definitely recommend!
8. Jacket – While summers in NYC are hot, your lab will be cold. Bring a jacket!
9. Hand sanitizer – An essential in all of my personal bags after the pandemic. Whether or not you work in the hospital, there are immune compromised individuals all around us; clean hands are the first step in ensuring the safety of everyone! Also, you only have 10-weeks here, not a lot of time research wise, so prevent sickness whenever and wherever possible for yourself.
10. Chapstick – Aquaphor girlies unite!
11. MSK ID – One of the most important, if not the most important things in my bag, necessary for your clocking and building access. When I am not wearing it, it stays in my bag to prevent from losing it!

***Not pictured:**

- Water bottle – You can't just drink coffee all day, balance it out with plenty of water.
- Lunch – Should be sponsored by Trader Joes frozen section.
- Umbrella – Lots of rain this summer!

Thanks for taking the time to see what I bring to the lab!

What's on the lab bench?



OF A SURP INTERN

by Adriana Cuibus

It depends on the time of day. Or the day. But the basics of gut microbiome wet lab research are LB (Luria Broth, aka the yummy soup bacteria LOVES to grow in overnight in the incubator), 70% EtOH (ethanol) bottle to ward off the pesky contaminants that ruined half of my experiments this summer, a waste container filled with bleach (never got used to that smell and every time it reminds me of the pool), Mili-Q autoclaved H₂O (this is just fancy water), and filters of all sizes including 50 mL, 250 mL, and 500 mL for making various potions at different sugar concentrations for my bacteria to grow in. Then you've got your tubes. On my bench, you could always find the 1.5 mL microcentrifuge autoclaved tubes, 15 mL conical tubes, and the cell culture tubes with a loose cap to allow for oxygen exchange when the bacteria slept in the incubator at night. MacConkey Agar Plates were also frequently on my bench as they have special growing conditions selective for the enteric bacteria I was working with.

To move on to more standard things, including the pipettes. The 1000 uL, 200 uL, and 20 uL were my most helpful friends this summer along the multi-channel pipettes. I especially loved the automated multi-channel pipette. I always pulled out this big guy while plating my bacteria, making the end-of-my-day task more fun and efficient. Off my lab bench and as a part of the virtual world, you can also find Excel and MATLAB. Finally, I want to give a shout-out to my lab notebook. And there it will remain even after I am gone marking the contributions I made to the Xavier Lab during the summer of 2023. As we all learned in our science classes: the laboratory notebook never leaves the benchtop ;).



OF AN ESP INTERN

by Sonia Bhaskaran

At first glance, my lab bench looks like a hardware drawer and a medical supply cabinet coughed out their contents all over it. Posts, screws, mirrors, lens tubes, and translation stages sit side-by-side with ultrasound gel, swabs, and alcohol wipes. One minute, I might be searching through the selection to find a hammer or file to assemble 3D printed parts. The next, I'll be pulling out a Petri dish to soak a tissue sample in vinegar (it helps create contrast for imaging). A stack of reference materials from my mentor includes instructions for setting up a specialized lens as well as a textbook on skin pathologies.

This summer, I worked at an imaging lab in the dermatology department, helping to develop microscopes for skin and oral cancers. The research sits at the intersection of pure optical and mechanical engineering and translational work where the devices we build are tested on biological samples and eventually, hopefully, are used in patient care. My lab bench is set up for the interdisciplinary nature of the work I'm doing. It's also the site of many fun memories from research this summer: hours spent talking to my mentor about how to troubleshoot a particularly thorny issue, hours more spent taking test images of everything from paper to my own hand. And located on the 18th story of the Koch Center, the bench has a wonderful view of the East River and Roosevelt Island where I've made many great memories outside of lab, exploring with friends I've made through this program.

When I leave New York and head back home, my lab bench will have to stay here, but I'll be bringing with me all the lessons, skills, and memories that it represents.

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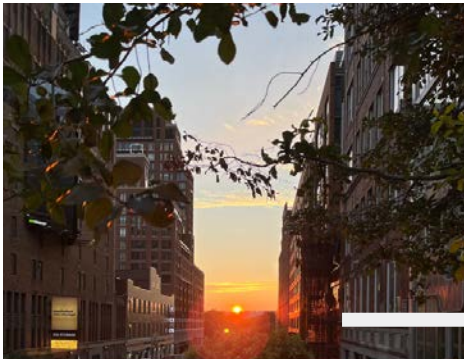
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Little Island

By Julia Frederick (ESP)



On the seventh Saturday since the start of the program, I forced the introvert inside of me to be an extrovert for yet another day. Most weekends, and some weekdays, had been filled with countless adventures, sightseeing, and food-seeking surrounded by good company, so when there was talk about dinner and the High Line, I knew I had to go. I put on a floral top and a pair of comfortable walking shoes, and I met my fellow interns in the Sloan House lobby once again.

We took the subway to Hell's Kitchen where I tried Korean barbecue for the first time. It was also only the second time I had ever used chopsticks- the first being when we got sushi at the very beginning of the program. Afterwards, we went out for dessert, and we stopped to eat at the Hudson Yards shopping center before starting our trek on the High Line.

The weather was perfect for a summer day, and the air felt fresh and cool. We took the old railroad tracks passed odd sculptures of pink trees and dinosaur vases, passed twisted modern buildings and all different kinds of flora, and passed various sunset viewing points and balconies overlooking the city. As we walked, I would fall into conversations with everyone as people moved ahead or fell behind. I would talk to one person and learn interesting facts about the city and its buildings. Another person would tell me about their hopes and dreams and interests in pursuing graduate school. With another, I would engage in a conversation about the price of movie tickets in their hometown. There was never a dull moment or a dull view.

We continued on the winding path until we reached Little Island. The sun had nearly set, and the walk over the wooden bridge felt like an entry to a new world. Following a new path, steps led us up to the top of a green hill where people were gathered to see the NYC skyline across the water. I felt as if for every step that I took, I would need a picture to remember it. The path looped around as it spiraled back down, passed an amphitheater on the water to an open area filled with rainbow chairs and colorful tents and lights. There we sat as all of us who were ahead or behind had joined around two small

tables moved together to create my favorite memory of the night and of all my time in NY.

With the faint sound of a concert in the background and strangers sitting at a public piano, we gathered around those tables and talked until it was truly night. We talked about how we got here. How we all applied and had similar- or different- expectations. How our choices and our passions brought us together. How our connections helped us on our paths. How we all experienced setbacks or failures. How we were all learning from this program, from our labs, and from each other. It was a completely honest and heartfelt conversation, not without its fair share of jokes and stories. It made the night feel truly timeless, and I am grateful that this will always be the way that I remember Little Island.

We passed by the concert as we took the bridge back over and left. As we traced the streets and subways back to Sloan House, I continued to fall into pockets of conversation. Funny stories. What it means to be a first-generation college student. To be an international student. The importance of family. The motivations that drive us. Those conversations carried us back to Sloan House and stayed with me as I walked off the elevator alone to my apartment.

As I write this and reflect on my time in this program and in New York, I can tell you that the greatest lesson that I have learned is that the most important aspect of any job or program or institution is the people there. I am leaving this program having learned how to use chopsticks, ways to form meaningful connections, and so much more in addition to all of the microbiology lab techniques and paths to earning a PhD. As I move forward into my senior year of college, I am so grateful for this program and for all of the people that I have met during my time here. I can only hope to surround myself with the same support and sense of community that this program fostered throughout these 10 short weeks. If you ever get the chance, take a trip to Little Island with good company, and I hope you can experience the same magic that I did while I was there.

Day Trips

Carbs (at MSK) and carbon diamonds (at Tiffany)

by Arian Hajihassani (ESP)

My MSK summer experience: from learning how Fructose metabolism can be advantageous to some cancers, to getting lectures from the most world-renowned scientists. From meeting the most intelligent interns, learning how Tiffany & Co diamond rings are priced, to seeing Todd's favorite shirt.

Last year, when I was reading about cancer metabolism while taking my biochemistry classes, I learned that MSK/Weill Cornell/Rockefeller have the most unique interdisciplinary approach. That's how my journey started applying to this program. When I found out that I got matched with my top choice lab working on cancer metabolism, I was very excited. Over this summer, I learned how cancers metabolize the sweetest of all natural carbs, fructose. But more than that, through our program I got to get lectures from the author of a paper I read last year: "The metabolic requirement of cell proliferation" by Dr. Craig Thompson. It was unbelievable to actually meet a scientist who is a giant in the field.

But MSK had much more to offer on top of science. Amidst all the learning and discovery, I got to meet peers in my program and other programs who are also very passionate about science and are unique. Learning and exploring with such people in NYC was immensely enjoyable. Exploring the New York fancy lifestyle was also a memorable time. A Tiffany & Co employee offered to show me around the secret world of celebrity shopping – a separate entrance, special floors, and themed wonders at Tiffany & Co with \$2 million rings.

One day, I walked to Rockefeller center to just look around. There, I was looking for a place to wash my hands. I entered a random store; they had a sink with soap literally in front of the entrance. I washed my hand, and it felt amazing. After I dried my hands, a shirt caught my eye. I was like what if I just try it on? There was a very minimal light in the fancy fitting room. I walked out to look in the mirror, and an employee there looked at me and said, "That's Todd's favorite shirt." They were waiting for me to walk out of the fitting room to give me the full set of accessories that went well with that single shirt. Those accessories cost more than our entire stipend. However, I had to get my fancy dinner from the Halal food truck outside, that's why I left without buying anything. Later on, I learned that Todd Snyder is a famous fashion designer.

Lesson learned: explore and enjoy science and don't randomly walk into a store, it's hard to get out.



Special Day

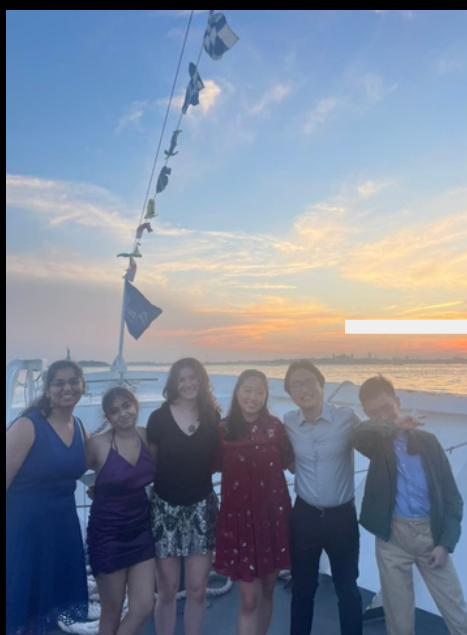
by Jacoby Weston (SURP)

Around halfway through the program, I ended up joining the ESP group on an outing to the NY Aquarium and Coney Island, followed by dinner at a Persian restaurant. I was apprehensive initially because I assumed the group had already formed tight bonds and wouldn't want to welcome a newbie; however, that was not the case at all. It was honestly one of the best days since my time here at MSK. I was able to see athletic sea lions, ride a swinging ferris wheel, and try various kabobs and basmati rice. At the end of the day, the ESP group welcomed me so much that I honestly felt like I was a part of the group. It certainly was not the last time I hung out with them as we explored various places together such as the NY High Line and Queens Night Market.



The "Times Square" Hum

By Raymond Lam (ChBSP)



Could I be waxing lyrical about all the moments of intelligentsia and secret in-jokes that only me and a handful of selected few were chosen to be privy to? How at the Functions all of the cohorts code-switch seamlessly between their weekend adventures and lab speak of PCRs and Algorithms and Quenches and Reactions and Extractions like REAL NEW YORK CITY CANCER SCIENTISTS ought to? How every 20 Something transported from their lazy college towns to this slice of the country is most surely at the absolute epicenter of both their personal coming-of-age movies life and The World?

(Not quite all of these things listed are exactly true. I believe life is more spicy if you adopt a revisionist approach and embellish your memories a bit. There were times where I truly committed to the bit of pretending I was the protagonist of a Greta Gerwig feature, when most days all I really did was buy dessert after work and call it a night.)

Unfortunately, spending a 10-week sabbatical in NYC will not solve your problems, nor will it be the absolute zenith of your young adulthood, but it's not a bad place to be!

In truth, I had a lot of fun doing cool research with my first real jaunt into more thorough molecular biology escapades, failed and not-failed experiments alike. I liked trying lots of food in interesting places, as well as talking to (or simply nodding in agreement when it was too loud to hear) all of the cool people around me. I'll try my best not to forget anyone here for as long as I can, and I'm really thankful for everyone I met, really.

But, in true self-absorbed coming-of-age Christine-LadyBird-McPherson fashion, a lot of the things you'll remember best are the memories shared with yourself and yourself only. You do spend a lot of time with your thoughts as company when you go somewhere like this.

Maybe your balcony will have a view of Ice

Spice's apartment building, and you'll have to keep tabs on who you used that icebreaker on already for every awkward elevator silence. Your prehistoric iPhone might hit 5% while you're out and about taking too many videos in Brooklyn, and your intuition of the MTA honed over 4 weeks of codependency to Google Maps will be put to good use. You could take blurry pictures of the bird statues and vulgar paintings in the Met and hope the people around you think you're an arts student and not a tourist with an undeveloped sense of humor. These could instead be anecdotes about arduous late nights lit by Bunsen burner, yes, but you'll have plenty of those in the future should you go down the path of science. Remember to call home every now and then to let them know how you're feeling.

And, if you stand at just the right spot, you'll hear a hum.

It's been left unlabeled since its installation by Max Neuhaus in 1977, as it was meant to be stumbled upon serendipitously by commuters or passerby. Google Maps does a pretty good job of destroying the artist's original intent and directing you halfway there though. Step on exactly the right grating on the triangular pedestrian island near 45/46th street and 7th avenue, and listen closely. It's easy to miss as it's so similar to the usual subway din and Times Square chatter. It kind of sounds like an extended hollow brass, or maybe a warm, metallic drone. Save for a ten-year hiatus between 1992 and 2002, it's been a hidden fixture of the plaza, unyieldingly and unassumingly broadcasted, ready for interns who wander into Times Square alone and against their dislike of touristy crowds (why did I apply to NYC internships then??) that have nothing better to do after work.

Is it worth the soon-to-be \$2.90 trip fare when there's endless other wilds here to explore? Not really, but it's something you and you alone can commit to memory for however long you'd like.

CBSP Adventures

by Opalina Vetrichelvan

When I first stepped onto my 14th floor balcony in Sloan House with unobstructed views of the Chrysler building, I knew I needed to throw many gatherings for the interns- in no world could I hog this view to myself. This initiated a chain of social events in my apartment (14F), and beyond!

Kicking off our social escapades was the legendary "Whitney Wednesdays," inspired by the infamous Pink Whitney drink. We played games to get to know each other, such as "hot seat" where each person had two minutes to answer any question posed by the group. Fellow intern Suhani had provided an array of board games to choose from, and "Secret Hitler" easily became our favorite. As the weeks went on, we became closer as a group and could almost instantly decipher each other's playing styles and strategies.

This tradition paved the way for many more social events. As a member of an acapella group, I was craving karaoke, and on one spontaneous evening, our group of interns luckily stumbled upon a small local bar during their weekly karaoke night, called The Hunterian. Every Thursday we sang our hearts out to a mix of Olivia Rodrigo's emotional ballads, Taylor Swift's anthems, and the timeless "Mr. Brightside." It was these nights that discovered the hidden singing talents among the interns.

We also of course had to participate in the Barbenheimer trend. As a group dressed in all pink (or black), we made our way to Oppenheimer in the morning (watching in 70mm of course), grabbed lunch, and finished off with Barbie. The night ended on a sweet note with boba in the well-known Grace Street Cafe in K-town. And as our internship journey neared its conclusion, we celebrated our accomplishments with a delightful Sichuan dinner at Hui, capping off a day of successful poster presentations.

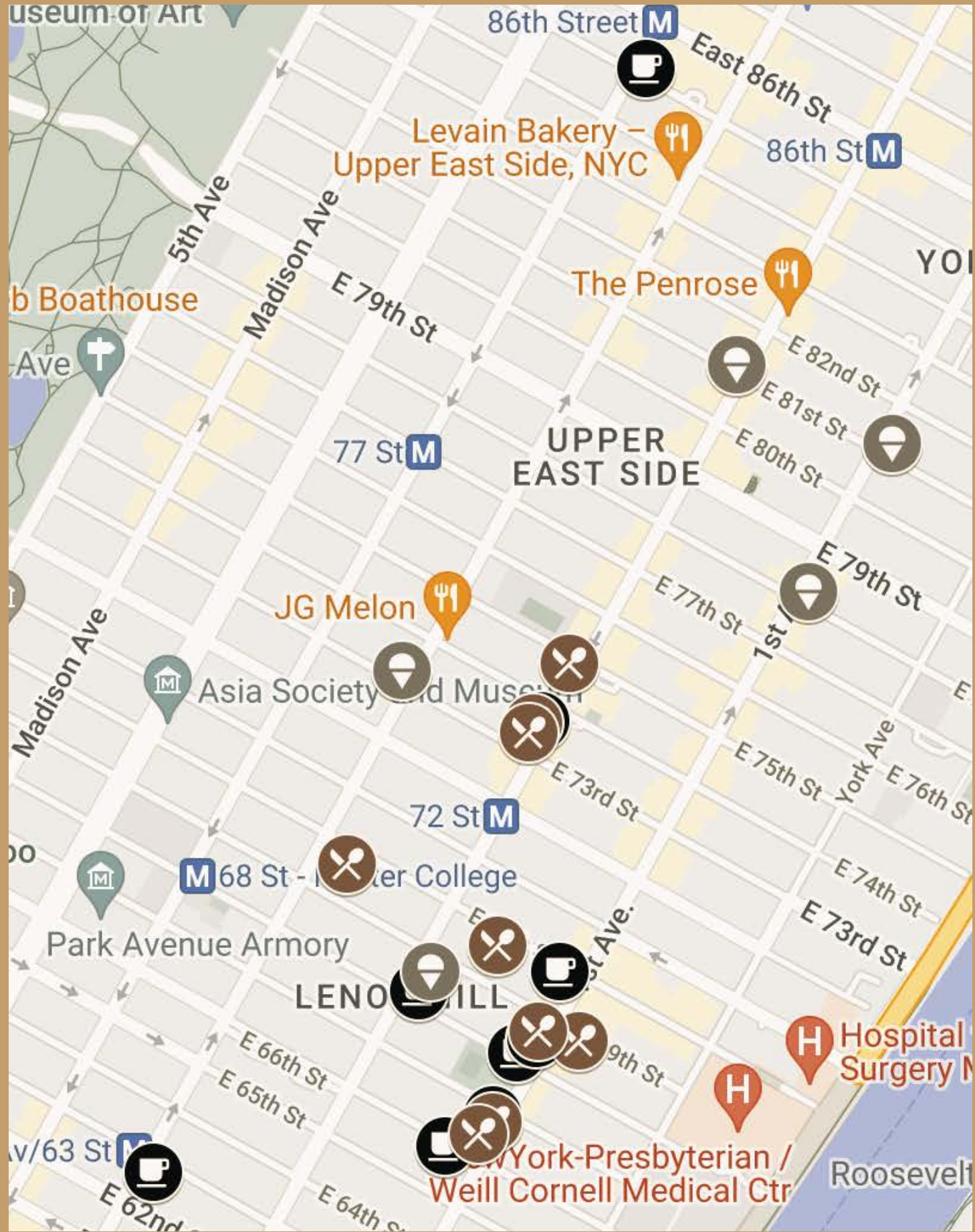
On the last day of the internship, our social calendar returned full circle, with a cross-program final gathering in my beloved apartment 14F, to celebrate not only the work we accomplished but also all the new lasting connections we made.



Our faves

Survey responses to:
"Favorite thing you did/saw in New York"

- | | |
|-----------------------|--|
| AC Flores | Central Park |
| Jierui Xu | Walking down Fifth Avenue all the way from Central Park to Battery Park! |
| Shahd EINaggar | Summerstage Concert |
| Allison Hartley | Finger painting in Central Park |
| Swathi Shekharan | Hanging out in central park |
| Sergio Quispe Sanchez | Walking/biking around central park |
| Karl Schumacher | The sunset over the Onassis Reservoir in Central Park |
| Alice Gao | the highline/chelsea/hudson yards area |
| Ivory Tang | Walking the High Line to SOHO |
| Rebecca Bender | The High Line or walking the Brooklyn Bridge |
| Julia Frederick | The High Line |
| Arian Hajihassani | Walking around little Island, I accidentally met a Harvard faculty working on cancer immunotherapy |
| Adriana Cuibus | The Fourth of July fireworks at Sutton Park |
| Kate Goundry | The Thursday Jazz Concerts in Battery Park were really fun |
| Nicholas Skoufis | Inwood Hill Park |
| Mahak Kathpalia | Views of Lower Manhattan and Brooklyn Bridge from Dumbo during sunset! |
| Zachary Fischer | Sunset under the Brooklyn/Manhattan bridges with ice cream :) |
| Deenan He | The Hudson at sunset |
| Saaya Patel | Free/discounted events - lottery Broadway shows, museum nights, shows |
| Katie Ko | Broadway shows!! Join the lottery every day |
| Manny Spanos | Saw Hadestown on Broadway. |
| Arnav Nagle | Hadestown |
| Katie Impelman | watching Harry Potter & the Cursed Child on Broadway |
| Judey DaRos | Harry Potter and the Cursed Child |
| Brooklyn Christensen | Gotham Comedy Club |
| Meysoon Quraishi | All of the museums |
| Dominika Rogalska | Mets game |
| Suhani Balachandran | <i>Swan Lake</i> and <i>Romeo and Juliet</i> by the American Ballet Theatre! |
| Kiara Johnson | Carnegie hall chamber music performance celebrating Azerbaijani composer Gara Garayev |
| Ophelia Lee | Queens Night Market |
| Kate Enquist | long island city in queens! |
| Jacoby Weston | I visited Chinatown NYC in SoHo |
| Jamie Wang | The MET, late nights in KTown, and all of the great food! |
| Kaicheng (Justin) U | The view from Edge Hudson. If you go there for a meal at the Peak, basically a free ticket to go all the way up for a perfect view and without a line. |
| Kiki Zhang | Music at Public Records in Brooklyn |
| Ria Hosuru | Jazz on the stoop, hosted by The National Arts Club |
| Opalina Vetrichelvan | Thrifting in Brooklyn (beacons closet, 2nd street, and flea markets) |
| Raymond Lam | The subway is pretty cheap and will take you to lots of hidden landmarks if you know where to look (and has many itself), so take advantage of it!! |



Eat & drink UES

Selected survey responses to "Best place nearby to eat/get coffee/get ice cream"

Food

- "Chamoun's Way!!!!!! Cheap and super delicious. Literally the best falafel I've had in NYC" - Ria Hosuru
- Up Thai
- Bagelworks
- Persepolis
- Tacombi
- Hui
- Ravagh Persian Grill
- Yia Yia's
- Kuu Ramen
- THEP Thai

Coffee

- "Variety Coffee Roasters. Out of the way, but the barista rolled his eyes at me when I ordered an iced latte with *regular* milk, so that's how you know it's good NYC coffee" - Suhani Balachandran
- Matto
- 787 Coffee
- Gregory's Coffee
- Java Girl
- Black Press Coffee
- Cafe Fresco
- Weill Cornell MRIRI Keurig Machine
- Gotham Cafe
- "Frame! Cool vibes and the BEST avocado toast. Nice place to work on the weekend" - Jamie Wang

Ice cream

- Anita's: 50% of all answers, and of Manny's spending this summer
- Sedutto; "the coffee and Oreo flavor is delicious!" - Mihika Shah
- Van Leeuwen
- Häagen-Dazs
- Emack & Bolio's Ice Cream
- Any ice cream truck
- "Lactose intolerant :/" - Brooklyn Christensen

Access the map of all of these great places [here!](#)

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Program Events



The 6 Train, the Yankees, and the outfielder who made me swoon

by Allison Hartley (MISP)

In the greatest logistical miracle of late July, 50 MSK interns made it to Yankee stadium for the first Yankees v. Royals game of the series. Our excitement and sheer numbers made the 6 train bulge, and plenty of commuting New Yorkers probably overheard my embarrassingly basic questions about baseball.

I'm not not a sports person, but baseball was foreign to me. Fellow MSK interns Kate, Brooklyn, and Helen kindly got me up to speed on the path for players to get the the MLB (there are so many leagues!) and the whole strike/out system.

I was excited that my first baseball game would be a Yankees game. The team loomed large in my imagination... the caps are so iconic, they're practically a stand-in for New York City as a brand. Plus, my favorite bumbling anti-hero George Costanza worked for the Yankees. I was already a fan.

I've been able to catch a ball since I was 5, but those navy-pinstriped professionals did it like nobody else. The precision! The accuracy! The grace! When one of my outfielder heroes leapt five feet in front of the outfield fence to deny a dinger, I must admit I swooned.

By the fifth inning, I had a hot basket of stadium-priced chicken tenders and fries in my lap. Behind the jumbotron, the Bronx skyline basked in the golden hour light. The Yankees won — due in no small part to an enthusiastic sound board technician, who played threatening noises for Royals hitters with two outs.

After the best (and only) baseball game I've ever seen, the MSK contingency of section 432 dispersed back into the subway. Waiting on the platform to transfer to the 4, Kate, Brooklyn, Helen, Emily, and I wound down a quintessential NYC night with what felt like a behind-the-scenes clip of the city: a worker chugged through the tunnel at the helm of a flatback transporting wood to a maintenance site, sipping his coffee.

CBSP HACKATHON

by Jierui Xu

What are those tech geeks doing in a secret room in Zuckerman for 8 whole hours?

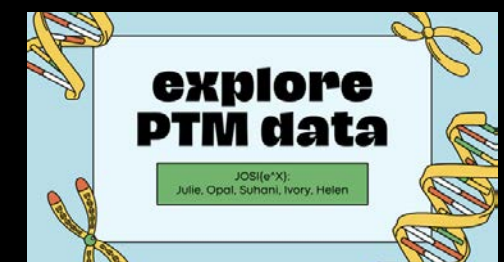
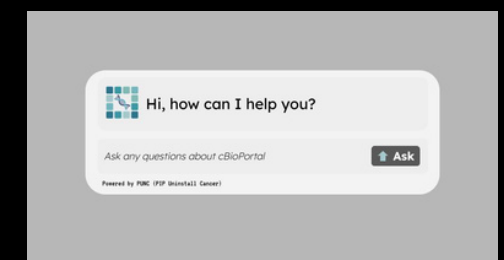
Let me take you on a quick trip to the Hackathon Hub of cBioportal. The vibes? Positively charged! It was as though every coding station was bursting with brainpower. Seriously, it was like catching waves on a mental surf!

Now, let me first spill the tea about Team Barbie! They pulled off the most spectacular presentation, rocking a Barbie pink PowerPoint theme. No kidding! I never thought I'd say this, but Biology and Barbie — it's a match made in coding heaven. I mean, it was blindingly cool, and everyone was here for it.

For our team Pip Uninstall Cancer, I doubt you could think of a more creative idea than us! We made a sleek, ultra-cool ChatGPT virtual assistant dedicated solely for cBioPortal. Imagine the power of ChatGPT meshed with the genius of cBioPortal — it was like creating a Marvel superhero but for gene data exploration. We took those nifty online documents, transformed video tutorials into text, and voilà! An assistant ready to answer any query and guide folks on a whimsical journey through the cBioPortal universe. Every time it answered a question, I could hear virtual applause in my mind. It was... AWESOME!

Then there was the JOSI{e^X}, pulling off an analysis project that could've made Sherlock put on his bio-detective hat. These champs dived deep into the data abyss of cBioPortal, creating insights that even Watson (not IBM's, the other one) would be envious of.

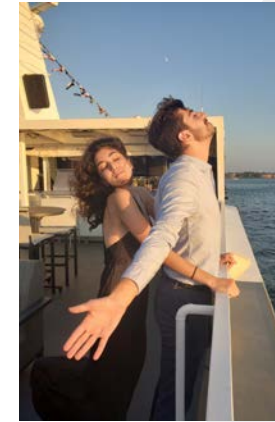
I have to say, it was the kind of summer that makes you want to wear sunglasses indoors, drink iced coffee at midnight, and code until dawn (maybe not really doing the last one).



The dinner cruise

by Judey DaRos (ChBSP)

As a unit of six, ChBSP trekked in the heat to Pier 61 for the boat cruise. Upon arrival, the more mature members of the group pretended to be under 21 so we could all be together. We sat down at a nice, but rocking table. Whilst waiting for the boat to take off, we were confronted with motion sickness. Luckily this got better after we went ham at the buffet. We discussed at length the DJ's technique of pausing midway through one 2010's song and abruptly hitting play on another one. Though we love NY, we got down to Katy Perry's California Gurls (which I'm only now realizing is spelled like that). After ending up as the last group on the back of the boat, we set out to find where people in the other programs had gone. We made our way across the dance floor an embarrassing number of times and tried to open a locked door before we found the deck of the boat. The highlight of the cruise for me was watching Mihika run over to the other side of the boat and thinking she had said she was going to see her friend Steven. Next thing I know she is pointing at a building that says Stevens in big red letters. We hit the dance floor for a little and capped the night by enjoying some gelato with people from the ESP and SURP program. Highly recommend the pistachio and raspberry from Anita.



Best part

Survey responses to:
"Favorite part of your internship at MSK"

the people

- Shahd EINaggar The people
Julia Frederick Connecting with other interns
Katie Impelman getting to know the people in my program & the people in my lab
Jierui Xu I like the Whitney Wednesday and all the social events with the people in CBSP! Such an excellent and cool community!
- Deenan He The people
Mihika Shah Everyone I have had the honor to meet at this internship has been so friendly and just amazing. I know it sounds cheesy, but the people make this program what it is and I am so grateful I could be part of this amazing cohort.
- Manny Spanos Getting to know everyone in CBSP :).
Nicholas Skoufis Spending time with the other interns
Kate Goundry Getting to meet all the other interns!
Opal Vetrichelvan hosting Whitney Wednesday (or Board game night parties) with the interns
Ria Hosuru USHMA <3
Adriana Cuibus Being able to make so many new connections and friends along the way
Raymond Lam Meeting everyone AND having all the time in the world time to solo travel

the city

- Karl Schumacher Being able to get out and explore the city every weekend
Alice Gao Working in a cool lab on the 21st floor of a building and then being able to get off work and go anywhere in the city
- Ethan Wan Living in Midtown
Allison Hartley Doing 20 96-well plate assays in one day! Just kidding, my 19th floor balcony.

the program

- Swathi Shekharan Boat cruise!
Rebecca Bender All of the seminars and professional development talks
Arian Hajihassani Joining all the scientific lectures even if they were not part of my program and just learn from them. I could feel the passion for science and research through the voice of scientists here.
- Judey DaRos leaving a speaker's talk and turning to the person next to me only for us to say something along the lines of "wow" or "I needed that" at the same time
- Kiki Zhang Lectures given by MSK researchers and physicians. (My favorite one is from Dr. Viviane Tabar and she's amazing!)
- Dat Nguyen I love the bi-weekly journal club where two of us would pick the article to discuss and we would spend an hour presenting on it

our labs

- Jacoby Weston I was able to work alongside top-notch scientists and learn more about their perspective on research in academia.
- Zachary Fischer Definitely getting to know the lab and being able to talk to fellow lab members about their day-to-day lives as grad students (which will be very helpful in planning for the future).
- Kaicheng (Justin) U The connection with my PI, didn't imagine to build such a great relationship during such a short period.
- Arnav Nagle Friday lab happy hour at MSK Student/Faculty Club + Pony Bar right after
Sergio Quispe Sanchez Getting the chance to meet so many passionate scientists, do research alongside them, and receive guidance from them regarding future plans
- Meyssoon Quraishi Getting to talk to faculty and explore future career options
Sonia Bhaskaran My favorite part of the internship was getting to work with so many people who are really experts at what they do. It is really nice as a student to be surrounded by such a wealth of knowledge, and to know that there are people around able and willing to talk you through any challenges, whether they are related to engineering, biology, or clinical practice.
- Mahak Kathpalia It was great experiencing a new kind of lab environment and mentorship style. It really helped me gain a better perspective of what graduate school might look like. Moreover, I also feel that my work here has led me to develop interests in research that directly translates into some biomedical applications.
- Suhani Balachandran My amazing lab!! It was an absolute privilege to learn from so many deeply talented scientists who are truly driving computational biology forward.

MSK magic

- Julie Tran Getting to be a part of unimaginably high caliber, translational research with other college students (now lifelong friends) who share the same love for the quirky beauty of computational biology <3
- Ivory Tang Getting to learn new skills and how research is conducted at a research-specialized institution simultaneously -- and getting to meet some cool people to learn with :)
- Kiara Johnson Getting a chance to experience a big research institute!
Jamie Wang Performing translational research. It was much more motivating and exciting to see how research we were performing could directly impact others.
- Katie Ko To see all of the groundbreaking research being done at MSK. I had no idea that science like this existed, so to get to learn from and meet the innovators pushing forward the medical field was super inspirational.

4 Lessons learned

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LEARNING FROM FAILURE
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5 THINGS I LEARNED

by Dat Nguyen (ChBSP)

1/ Lots of new skills: My previous research background had mostly revolved around organic chemistry. And although organic synthesis has its own charms, I knew I wanted to delve deeper into interdisciplinary research. And the ChBSP

gave me such valuable experience. My project in Dr. Tarun Kapoor's lab studied small molecule inhibition of certain ATPase as a way to understand their biological functions. Along with my skills in organic synthesis which I was able to carry on to my project, I also had the opportunity to explore the more biological side of the research. Throughout the ten weeks, I learned so many new biology techniques such as protein purification, and running multiple enzymatic assays. It was always gratifying to see that the molecules that I developed were able to engage with the target enzyme, which solidified my interest in chemical biology, transferring the skills that I learned in chemical analysis into the study of biological systems. Also, being in a much larger lab environment than my home institution allowed me to learn all sorts of things other people are doing in the lab, from understanding molecular mechanisms to exploring certain proteins' influence on cellular pathways.

2/ Multitasking: Being a chemical biology intern meant that I had the chance to explore both the chemistry and biology side of things. I had two working areas: my lab bench where I usually conducted my biology experiments, and my fume hood where all the organic chemistry happened. Sometimes, that meant I would have to bounce back and forth between my two stations, so organization was key. What I found to be really helpful was to always write a sticky note at the end of the workday detailing your game plan for the next day. Try to be as specific as possible, being aware of the time it would take for each step. A 4-hour reaction allows a perfect time for you to set up an assay and get it running. And while your proteins are happily incubating for a couple more hours, you could check back on your chemistry experiment and work it up. Having a schedule laid out every day could help you get things done quicker while avoiding confusion when you are juggling multiple tasks.

3/ Time management: Research is slow, both in terms of progress and in the nature of experiments. Sometimes, reactions take hours to complete, and that leaves you with a lot of dead time. So, you learn to be efficient with your work. Every Thursday I would go into the lab a little bit early and set up an enzymatic assay, and during the 3-hour incubation period, I could run to the lab's weekly meeting and search for protocols for my next organic synthesis experiment. And when the incubation had finished, I would add the final component and place the protein samples into a plate reader. While it's collecting data, I would focus on setting up the reaction which would have to go overnight. I found myself to be always on the move during the day, but still try to finish things up in a reasonable time and get out of the lab by 6 pm.

4/ Patience: Sometimes, research can be so result-driven that you just want to churn out experiments as quickly as possible. But with rush comes the possibility of a lot of errors. This is especially true when you are running column chromatography to purify your material. If you are not careful with your sample and push things through too quickly, you risk contaminating your product and would have to do the process all over again. Be patient. The product is not going anywhere, in fact, it is literally stuck to a bed of silica gel. Go slow and eventually you will achieve your results. This also applies to biological work. I remember a single mispipetting that caused me to start over a one-hour prep, and I was so frustrated with myself. Take the time to go over every step of your experiments, and you will accomplish your tasks much faster.

5/ Having fun: Research can be repetitive at times. No one enjoys pipetting into small tubes for hours every single day (or at least I don't know anyone who likes it). So make your lab work a little less tedious by incorporating some fun elements into it. Of course, I cannot advocate for things like watching your favorite show while prepping a very precise protein sample, but you could have some music playing to make time go by faster. I even curated a playlist for when I need to run a column, which requires you to sit in one place for three hours, sometimes even more. The list is mostly late 2000s-early 2010s pop beats (don't judge me), but it gives me enough serotonin to help me last the long hours of collecting fractions. And have fun outside of work too! See a show. Take a walk in the park. Go to your favorite restaurants. Sometimes you could feel so wrapped up in your research that having some time when you don't have to think about your experiments could allow you to come back with a fresh mind to tackle work much more effectively.

Needless to say, I had a fantastic experience with the ChBSP. I acquired so many new skills that would help me become a better scientist, I learned various new things that helped me discover my interest in chemical biology, and I got to meet amazing and talented people in the lab and the program. But most of all, I had fun doing research. And I know that this is the path that I want to pursue.

LEARNING FROM FAILURE

by Rebecca Bender (ESP)

As I walked to the Rockefeller Research Laboratory for one of our weekly seminars, I found myself holding back tears. The experiment I had spent weeks practicing techniques and preparing for had failed that morning. I was so disappointed and frustrated. This seminar came at the perfect time because I needed to be away from the lab to process what had happened.

The second I walked into the room, I started to feel a little bit better. 1) I was met with pizza which always brightens my mood. And 2) I got to see some of my fellow interns and learned that a lot of them were going through something similar. It was week 6, the height of the internship if you will, and a lot of us were finally starting the bulk of our experiments. Things were bound to go wrong, especially because we were learning. It was just nice to know that I was not alone. I took my seat, pizza and diet coke in hand, and turned my attention to our speaker.

The universe certainly is a magical thing because to my surprise, the talk, presented by Ifé Akano, was titled "Failure: A stepping stone to success". I couldn't help but smile at how serendipitous it felt. We started by all taking a deep breath together which really grounded me. The stress of the morning was no longer weighing heavy on me. I was ready to hear how to turn my failures into success because boy did I need it in that moment.

Failure isn't really talked about and definitely not embraced. All too often we tend to sweep our shortcomings under the rug and never address them due to fear of embarrassment or guilt. However, the reality is that no one is perfect, and things don't always go right. I sat in awe as Ifé bravely shared with us some of her biggest successes coupled with some of her biggest failures.

It's not every day that someone openly admits to all the times they fell short of something they wanted. Her vulnerability was admirable. But I had an even greater appreciation for her because of how she normalized talking about failure. Big or small, we all experience rejection and imperfection on a daily basis, so why are these normal things never talked about? Of course everyone wants to share exciting things that happen to them and advertise their accomplishments, but as Ifé beautifully explained, good things can and often do come from the bad.

One of the biggest takeaways I had from Ifé's presentation was that publications and CVs only tell us what worked and went well which is often an extremely small percentage of the entire story. These metrics of success fail to mention the blood, sweat, and tears, the failed experiments, the rejected applications, and more that ultimately lead to the accomplishment. Going into this seminar, I was so caught up in the fact that my experiment failed that I didn't stop to see the bigger picture. By discovering what did not work, I was now one step closer to figuring out what would work (and spoiler alert... I did). It is okay to not get something right on the first try. If that were the case, science would be easy! What's not okay is to dwell on the negative and limit yourself because you are scared of rejection. It's always a no if you don't try.

Although it's been difficult, I have been trying to embrace my failures and openly communicate my shortcomings, just as Ifé did, to help others realize that they're not alone in sometimes feeling less than. At the end of the day, the more we talk about it, the more we will accomplish because failure truly is a stepping stone to success.

Odd One Out



by Julie Tran (CBSP)

Thanks to the quarter system, I started my internship two weeks late and had my first day of work immediately after finals week, waking up for my flight 90 minutes after submitting a paper at 4:30am. To put it one way, all of my hometown friends thought I was crazy.

I definitely underestimated how stressful those last few days of school would be, but I wanted to get to MSK as soon as possible to start my project and socially adjust after being the last to arrive. As I toiled over inductive proof exercises and comparative literature drafts in LA, seeing the CBSP group chat blow up during everyone else's first days with messages about picnicking in Central Park and hanging out after work was excruciating. I was paranoid about being the odd one out.

It quickly became evident that I had nothing to worry about. There's a natural intrigue that comes with meeting new people from very different places, but when you add in the self-selecting factor of being interested in the quirky intersection between computer science and biology, you get interns who are inspirationally curious and unafraid of pursuing unorthodox passions—all while knowing how to have fun during a summer in the city.



We've shared research grievances about genomics analyses and struggles with self-built drug discovery pipelines, but most of our greatest hits were during weekly Secret Hitler nights and spontaneous neighborhood explorations. Whether it was serenading (or torturing) Upper East Side patrons with a group karaoke rendition of "Mr. Brightside," scheming how to steal the sheep statues in the Macklowe building after work, or letting it loose on a dance floor in the middle of the Hudson, there were many sides to our collective shenanigans.

With uplifting professional mentorship, the generosity of intern friends willing to grab groceries during an unexpected COVID quarantine, and needed conversations of sage advice with Ushma, I have been amazed at the strength of the community I have had the privilege to be a part of this summer.

For what it's worth, between solo adventures and living in a single-occupancy apartment, I learned extremely fulfilling things about myself that I couldn't have gained without a little city solitude. But ultimately, what I'll miss the most about this program is how special of a place it was to belong.



Our advice

Survey responses to:
"Biggest lesson you learned
throughout the internship"

in general

Shahd EINaggar Resilience
Swathi Shekharan Perseverance!
AC Flores Your mind is your biggest tool
Judey DaRos be grit full and grateful
Meysoon Quraishi Patience and Teamwork
Nicholas Skoufis Don't be afraid to challenge yourself!
Kiki Zhang Consistency is powerful for long-term goals.
Katie Ko Keep an open mind, and stay spontaneous! I never would have imagined that I'd be here this summer, nor that ChBSP would have been so impactful in my view of my future, but I'm so happy that it has shaped me in this way.

Ria Hosuru Finding time in your day to slow down! NYC can be very hectic, especially with time constrained research projects piled on top. So learning to dedicate time to yourself outside in nature helped me balance living in the city and work.

the city

Ethan Wan NYC ain't cheap. I knew it was gonna be expensive but my gosh...
Kiara Johnson Trying to eat protein on a New York budget is rough!
Jierui Xu Work hard play hard and stop working on lab things 24/7! New York is such an excellent city and it is always important to find a work-life balance and enjoy life. And likely it will turn out that the more you relax after work, the better work you did!

failure

Alice Gao Keep working hard and people will notice your effort, even if you don't have the prettiest results to tie it all together
Rebecca Bender 1. Experiments that don't work are just as important as those that do.
Ophelia Lee 2. It's okay to not have everything in your life figured out. No one does :)
Manny Spanos That nothing needs to be perfect -- If science is truly for me, I'll enjoy whatever comes my way
Sergio Quispe Sanchez A lot more ideas are going to fail than pan out. Successful research is all about trying stuff, discussing the results with other people, trying to fix it, and ultimately moving on if it doesn't work or incorporating it if it does.
Suhani Balachandran You can take something away from every experiment even if the results were the opposite of what you expected. Failure gives you the chance to better understand the protocol you are doing, improve your technique, etc.
You will fail way more than you succeed, and that's okay - in fact, it's expected. What matters more is how you come back from it!

science

Zachary Fischer Everyone in research is searching for answers, and no one truly knows everything. We're all in a system of progression together, there's not a finite solution.
Adriana Cuibus Science humbles us with the unknown. Science is difficult for everyone at no matter what level. Humility is the biggest lesson science teaches us constantly, and we have to embrace its lesson if we want to continue.
Kate Enquist that science is highly interdisciplinary and successful projects usually leverage approaches from many disciplines

mentorship

Brooklyn Christensen You don't need to know it all, but you should WANT to know it all. Science isn't about being the smartest person in the room, it's about learning from the smartest people in the room. strike a balance between making your own decisions & asking for advice regarding experiments
Katie Impelman Just how open people are to offering mentorship, career, and life advice across all of the institutions I interacted with, from my lab all the way up to MSK and WCM faculty and admin.
Karl Schumacher I learned to be curious and explore. Also, not be scared to ask questions from all the top-notch scientists at MSK/Cornell/Rockefeller. They are extremely open to discuss, and very excited to help you.
Arian Hajihassani There's always more to learn, so don't be afraid to ask questions
Dominika Rogalska Ensure to make most of the resources available to you! Connecting and seeking mentorship from multiple people can really help in making informed decisions for your future.
Mahak Kathpalia You can learn all sorts of new things from other people doing research with you, so definitely don't be afraid to get to know them!
Dat Nguyen You will not know everything, and that is okay! Be open to ask for help and also feel free to ask questions. My previous research experience was completely unlike what I did over the summer so I felt like a fish out of water. I was very hesitant to bother my mentor before and did not ask her about anything that confused me, which just led to me slowing down our project, but after I opened up to her and told her about all the things I did not understand, everything went so much smoother!
Mihika Shah This experience taught me that no matter how inexperienced and nervous I feel, being honest about my thoughts is the best way to go.
Julia Frederick The most important aspect of any job/school/place/etc. is the people
Arnav Nagle Having fun people in the lab makes a huge difference

speaking up

Julie Tran Do not be afraid to advocate for yourself and understand that learning what you don't like is just as valuable as learning what you do like. When you find something you think you might like, go for it and never discount your ability to succeed at doing what you want to do.
Ivory Tang Don't be afraid to take up space and make mistakes!
Opal Vetrichelvan don't be afraid to advocate for yourself and ask for the projects you want!
Allison Hartley Don't let yourself or anyone else make you feel incapable for asking for what you need. Be patient with yourself and ask for patience as you learn.
Jacoby Weston Don't put the cheese in your purse and just settle for anything you're not comfortable with.

yourself

Saaya Patel No longer interested in doing a MD-PhD lol
Jamie Wang How to grow as a more independent individual and researcher.
Raymond Lam Always look in places you normally wouldn't! And know your worth.
Sonia Bhaskaran I learned a lot about engineering and translational medicine, but I think that one of the most significant things I learned was that I really enjoy doing research as a full-time job! I definitely felt at home in the lab environment and it has made me more confident in my decision to apply to graduate school.



Thank you —

FOR AN AMAZING
SUMMER @ MSK 2023!