To: Nakatani Foundation

Nakatani RIES 2026 Final Report

Your name: Tvishi Ahluwalia

Your university: Tohoku University

Host lab in Japan: Nishizawa Lab

Research mentor(s): Kotaro Ishikawa

Meaning and Impact of the Nakatani RIES Fellowship: How would you describe the meaning and impact of the Nakatani RIES Fellowship on you?

The Nakatani RIES fellowship was incredibly impactful for me. This program provided me with my first opportunity to travel internationally in a more independent way, as prior to this, I've always travelled with family. Not only did I travel and get to explore so much of Japan on my own or with friends, but it was incredible to be able to stay for a longer duration. Living in Japan for 2 months, I got to experience what life is really like in a different country and environment. Experiencing this new culture really opened my world. Japan is such a beautiful country with a lot of rich history that I loved learning about, and I am so grateful for this experience.

Please complete the following sentences with potential applicants to the Nakatani RIES Fellowship as the intended audience.

- My favorite experience in Japan was...
    - Visiting different shrines and temples! The architecture on these structures was so beautiful, and it was really cool to learn about their history and appreciate how Japanese culture and traditions led to them being created. There was a lot of variation in how different temples and shrines looked and they each had so much meaning built into them.
- Before I left for Japan, I wish I had...
    - Done a bit more research on vegetarian/vegan restaurants. Being a vegetarian, I knew I would have a more difficult time finding food I could eat, but I underestimated how many restaurants don't have vegetarian options at all. Doing a bit more research could have saved me some trouble my first week!
- While I was in Japan, I wish I had...
    - Made more of an effort to learn the language. My lab members and PI all spoke to me in English, and I really appreciate their efforts in speaking a second language to accommodate me. I wish I had tried harder to learn Japanese while working with them, which maybe could have helped me make their lives a little easier too.

Research Internship Overview: Provide an overview of your research project and your experience during the internship. How did the project relate to your current or future academic interests? What was it like to work in an international research setting?

What did you learn from your research experience this summer, and how has it influenced, or

how do you expect it to influence, your future academic path or research interests?

During my time at the Nishizawa lab, I researched frustoconical porous microneedles and how they can be used to deliver insulin to diabetic patients. This project relates to my interest in drug delivery, but it was also very different from anything I have worked with before. In the past, I have researched drug delivery on a cellular level, but with this project I learned about drug delivery on a larger scale, and through experiments where we used our device to deliver insulin to hyperglycemic rats, I got to see how our work impacted the animal as a whole. It was an adjustment working in an international research setting, as the expectations were different. My lab really emphasized slowing down and working at a slower pace than I am used to. Nevertheless, I learned a lot about microneedles and how electrical charges can be manipulated to allow substances to move and be delivered as desired, and I really enjoyed my project! This experience has solidified my interest in the different aspects of drug delivery, and I hope to explore this field a lot more in the future.

Lab Environment Overview: Describe the lab environment and the personality and working style of your research group. What was it like to work with your research mentor(s)? How would you describe the overall group dynamic in the lab?

My lab was pretty quiet and reserved with me. I think this was partly due to the lab not being very international; almost everyone there was Japanese and everyone except me spoke the language proficiently. I believe the language barrier made it a bit difficult for the lab to be very outgoing with me, but they were still incredibly kind and welcoming. My research mentor was very helpful, and as I spent more working with him, he got more comfortable discussing things other than just lab work with me. Overall, the lab seemed to be a bit reserved, but still welcoming.

Daily Life in Japan: Describe your daily life in Japan. You may include the people you interacted with outside the lab, food, your housing and living experience, travel around Japan, challenges you faced, and rewarding experiences you had over the summer.

My daily life in Japan involved a lot of time spent in convenience stores. I absolutely loved all the snacks and food I could get there! Jokes aside, outside of the lab I got to travel a lot and see so much of the country. I was in a different city nearly every weekend, and on a lot of these trips I got to spend time with the other U.S. fellows. Despite our host labs being in different cities, we all got very close and made a lot of good memories together. When I wasn't traveling to another city, I spent a lot of time in downtown Sendai, exploring the different shops and restaurants it had to offer. I really enjoyed living in Sendai; it's a major city with a lot to do and see, but since it isn't as much of a tourist hub as other cities like Tokyo and Osaka, it is more peaceful and doesn't have as many overwhelming crowds. I was also really grateful to have roommates, as it gave me an opportunity to meet and befriend more people with a variety of backgrounds. Some were Japanese and others were international, and it was really cool to interact with them. I felt like I was part of a little community of my own in Sendai.

Experiences with Japanese Culture: Describe your most meaningful experiences with Japanese culture. These could include program activities, interactions with people in your lab, or experiences from daily life that you feel illustrate aspects of Japanese culture or values. What did these experiences teach you about Japan? What did they teach you about yourself?

I learned a lot about Japanese culture simply through living there and experiencing daily life more

like a local than a traveler. Through my time there, I learned how disciplined Japanese people are, and how trusting they can be due to this discipline. It is well-known that people abide by rules very well in Japan; they are quiet on trains, they don't litter, and even when the roads are empty, they don't jaywalk. What I never realized until living there is that this discipline allows for a lot of trust. For example, people don't lock their bikes as much, since they know that no one will steal them. There aren't a lot of trash cans out in the open like there are in the U.S., and people still don't litter. There aren't sensors outside every store door to catch shoplifters, since they aren't worried that people will try to steal from the store. The culture of respect and discipline in Japan has allowed for their society to be very trusting, which was really amazing to me. While I love the U.S., I never realized how little faith I and most other people have in everyone doing the right thing. Most people here are great and will follow rules, but there's always a fear that a couple bad apples will ruin the bunch. It was nice to see how different life can be when a society has faith in its people.

Returning to Japan: Do you plan or hope to return to Japan in the future? If so, what would you like to do? What would you need to make that happen?

I would love to return to Japan in the future! I would definitely want to spend more time in Kyoto, as it is one of the major cities that I felt like I didn't really get to experience during this trip. I would love to visit other places that I didn't see at all over the summer, such as Fukuoka and Hakone. To make this happen, I would need to plan ahead and utilize many shinkansens, but thankfully I already have experience!