

Your Name: Eva Greiner

Host Lab in Japan: Ryuji Yokokawa, Kyoto University, Department of Microengineering

Meaning of Nakatani RIES Fellowship: How would you describe the meaning/impact of the Nakatani RIES Fellowship

This fellowship was a great opportunity to improve my own experimental methods with cell culture. My mentor taught me some techniques that I had not learned on my own. I was also able to experience more advanced research through my mentor, such as stem cells and organoids. For me personally, this fellowship has given me a clearer direction in what I'd like to do in life; doing a Master's abroad is now one of my major goals. I was also given the opportunity to contribute to Yokokawa-sensei's research and to the thesis of my mentor, to hopefully make some small contributions to the field of micro physiological systems.

Research Internship Overview: Provide a description of your research project and experience during your research internship. How did your project relate to your current or future academic interests? What was the experience of working in international research setting like? What will you take away from your research experience this summer and what impact do you think this has had or will have on your future academic career or research interests?

At the Yokokawa Lab, I worked on assessing the cytotoxicity of PDMS, the current material used for micro physiological system (MPS) chips but is highly absorbent of hydrophobic compounds, and COP, a promising new material that allows for both hydrophobic and hydrophilic drugs to be tested on the plated cells. Choosing the best material for MPS enables the field of tissue engineering, which I would like to enter upon graduation, to become more versatile. Variations of these MPS are used to grow organoids, which are the first step to growing full sized human organs.

Working in an international setting was eye-opening for me. The lab has much higher standards of neatness than my home lab at Georgia Tech, and is overall much more organized. I hope I can bring some of these standards back to my lab, if the members would like to implement them. I much preferred working in a Japanese laboratory to my lab at home; this is the primary motivation for me now planning to do a research-based Master's degree in Japan if possible.

Lab Environment Overview: Provide an overview of what the personal environment of the lab was like. Describe the personality and working style of your research group? What was it like working with your research mentor/s and the overall group dynamic in the lab?

I was first assigned to work in the 2D group in Yokokawa's lab, working with Nakamoto Shogo, a first year Master's Student. Ma Cheng, a PhD student, was working as a mentor to Nakamoto, so he ended up becoming a mentor to me as well. While Nakamoto worked on quantifying the absorbance of certain hydrophobic and hydrophilic compounds by PDMS and COP, I was working on the second half of the project with the cytotoxicity of these materials. I designed an experiment and conducted it mostly independently, aside from Cheng helping me with some experimental optimization and debugging. It took me some time to receive a proper project in the lab, but once I did, I was able to complete it on my own and with promising results.

Daily Life in Japan: Provide an overview of what your daily life was like in Japan. This could include the people you interacted with outside the lab on a day-to-day basis, food, your housing/living experience, your travels around Japan and the challenges you faced and the rewarding experiences you encountered over the course of the summer.

During the week, when I worked in the lab, I made an effort to visit at least one shop where I would have to speak Japanese. This had varying levels of success, but it helped me to better understand Japanese mannerisms that I was able to emulate later in the program. I mostly ate at local restaurants or conbini food, and was able to find a few favorite restaurants that I would return to weekly. My housing accommodations were wonderful; it was a one bedroom apartment that had everything I needed, so I was very happy.

On the weekends I made an effort to travel everywhere around Japan. I made my way from Okinawa to Sapporo throughout the program. Some challenges I faced were the strict timetables for transportation; I missed multiple trains and ferries and had to rework my plans because I was only 10 minutes early, instead of the required 15 minutes. Overall, though, I had very positive experiences with strangers around Japan and enjoyed each and every day.

Experiences with Japanese Culture: Provide an overview of your most meaningful experiences with Japanese culture. This could be program activities or interactions you had with your lab or within your daily life in Japan that you think best exemplify aspects of Japanese culture or values. What did the experience/s teach you about Japan? What did they teach you about yourself?

I found that everyone in Japan was very respectful, and following that respect was very important. Talking loudly on the bus was frowned upon, and you are trusted to pay for your fare. You avoid bumping into people on the street and most people stand up for elderly people.

One of my favorite experiences was, while I was walking to the bus stop, an elderly lady stopped me, a very obviously not Japanese person, and asked me for directions, and all of this was in Japanese. I was able to explain that we were next to Nakanohashi Gojo and found directions to her destination on my phone, about 30 minutes away. She apologized for taking my time, saying I must be very busy. A complete stranger cared about my time, though I was in no rush and it was a maximum of 5 minutes. I was really proud of myself for stumbling through that conversation in another language, and I found myself worrying all day if she was able to figure it out. The respect and soft-spokenness of the people I interacted with in Japan were very comfortable to me, and I definitely want to go back someday.