

**TO: Nakatani Foundation**

## **Nakatani RIES GE 2019 Report**

Your Name: Marika Trumm

Your University: Heidelberg University

Host Lab in Japan: Kyoto University – Institute for Integrated Cell-Materials Sciences (iCeMS), Kamei Laboratory

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

The Nakatani RIES Fellowship gave me the opportunity to pursue research abroad, I am very thankful for this experience and would always choose to do it again. Not only did I learn many new techniques and methods during my research internship but also was I given the opportunity to explore Japan simultaneously. Nakatani RIES gave me the opportunity for my first research experience out of Europe and I was excited to experience the differences between research in Japan and Germany as well as getting to know life in Japan. Additionally, through Nakatani I was able to make international connections by working in an international research group, which in my opinion is becoming more and more valuable and important in today's globalized world.

Complete the following sentences with the intended audience for these responses being potential applicants to the Nakatani RIES Fellowship.

- My favourite experience in Japan was...
  - Travelling! I really enjoyed visiting and exploring different cities every weekend. My favourite trip was the weekend in Tokyo with some of the other Nakatani RIES Fellows. I was amazed by the diversity one city can offer, from seeing a traditional sumo ritual at a shrine to wandering the busy streets of Akihabara.
- Before I left for Japan, I wish I had...
  - Learned some more Japanese phrases, for example how to introduce myself or order food in a restaurant, which would have been very helpful.
- While I was in Japan, I wish I had...
  - Seen Japanese fireworks and travelled to Mount Fuji. Also, I wish I had been a little bit more adventurous regarding Japanese food and tried more different Japanese recipes and ingredients when cooking.

**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 an 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?

During my research internship I worked in the Kamei Laboratory at Kyoto University's Institute for Integrated Cell-Materials Sciences (iCeMS). My project dealt with optimizing RNA extraction from an integrated Gut/Liver-on-a-Chip platform developed as an in vitro non-alcoholic fatty liver disease model. Kamei-sensei, the principle investigator, gave me the opportunity to obtain much knowledge about microfluidics and cell culture and he was always available to discuss progress and problems in detail. The project related to my personal interests, since even before coming to Japan I wanted to improve my skills in working with cell culture and was interested in the development of in vitro approaches for drug screening and disease modelling. Therefore, the by Kamei-sensei pursued approach of a body on a chip as an alternative to in vivo animal testing was of great interest for me and I am happy to have had the opportunity to gain hands-on research experience in microfluidic technologies. The project was done in cooperation with the Nano/Micro System Engineering Laboratory in the Department of Micro Engineering at Kyoto University and I was able to visit this lab to learn about fabrication of the microfluidic device I was using. This was a great opportunity for me to gain knowledge about the engineering side of microfluidics. I am aware, that six weeks is quite a short time for a research internship, but regardless the project I worked on was a success and I am looking forward to hearing more about the progress of the integrated Gut/Liver-on-a-Chip platform as an in vitro non-alcoholic fatty liver disease model.

**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?

Compared to most labs I've been before in Germany the Kamei group is quite small, but I think especially this contributes to the personal atmosphere in the lab. I felt like there is not much of a hierarchy in the lab and everyone faces each other on the same level. Kamei-sensei always took time to explain things in great detail in case I had questions or wanted to discuss something. All group members were very kind, supporting and welcoming, not only on the professional level but also on personal level. I felt like everyone was always glad to help when it came to questions about the research topic but also regarding questions like where to eat good sushi in Kyoto or where to buy the best mochi. The Kamei group also collaborates with other research groups, therefore I got to spend three days at the Nano/Micro System Engineering Laboratory in the Department of Micro Engineering at Kyoto University on a different campus to learn how to fabricate the microfluidic chips I used for my project. The weekly lab meetings were always very insightful, and everyone had the chance to present their results from the prior week and discussed what is planned for the upcoming week. For me it was very interesting to learn about the other member's projects and how they approach different research questions.

**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 my time in Japan daily life during the week differed greatly from life on the weekends. On weekdays the day to day lifestyle consisted of walking to iCeMS in the morning together with Marie, the Nakatani RIES fellow who also did her research internship in the Kamei laboratory, once arrived I either went directly into the lab to start some experiments or care for my cell, or went to the office to catch up on some reading and start writing up my report about the research internship. Marie and I had lunch together every day and sometimes met with some of the other Nakatani RIES fellows in the cafeteria next door. In the evening I would walk back to apartment, get some groceries on the way and meet up in the apartment with two of the other Nakatani RIES fellows, Marie and Nils. We would cook together and plan what to do on the upcoming weekend. On nights we did not feel like cooking, we had dinner at one of the numerous restaurants around the neighbourhood we lived in and enjoyed a variety of Japanese foods such as sushi, yakisoba, tempura, takoyaki and much more.

Kyoto is known as the city of shrines and temples and I can confirm that now! I enjoyed taking some time to walk around town and visit some of the numerous shrines and temples or to explore different neighbourhoods in Kyoto. With some of the other Nakatani RIES fellows I went to Gion one day early in the morning to see the beautiful traditional Japanese houses in the district without the tourist masses and grabbed a matcha latte at the Japanese style Starbucks before heading to the lab. I tried to not only make the most out of my research experience in Japan but also out of my free time, so every weekend I either went to a different city in Japan which included a trip to Tokyo, Nara, Osaka, Kobe and Himeji, or did some sightseeing in Kyoto.

Overall it took me some time to get used to my daily life in Japan and looking back it would have been very helpful to know some basic Japanese, to make daily tasks like grocery shopping or ordering food at restaurants easier. Even though I was not able to speak any Japanese, everyone I interacted with was always very nice and did their best to help.

***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?

One of the experiences with Japanese culture I remember best is the welcome dinner Marie and I had together with all members of the Kamei Laboratory. It was one of our first days in Japan and we went to a restaurant to have traditional Japanese food. In contrast to Germany, in Japan it is common to order food for the whole table and to share everything. This gave me the opportunity to try many different Japanese dishes. I even tasted and was shown how to cook sting ray, something I probably would have never experienced on my own. All lab members were happy to answer all my questions about Japanese food and culture and encouraged me to try everything. I really appreciated spending time with the lab outside from

work, since it encouraged me to shift the focus of the conversation away from science and research. While in Kyoto I really enjoyed wandering around the city and exploring different temples and shrines, but I wish that I had learned some more about the meaning of those and did not only enjoy their beautiful appearance. Overall, I was amazed by the kindness and respect the Japanese have for everyone and for their surroundings. I did not meet anyone in the lab or outside of the lab who was not understanding whenever I did not know how to act correctly or accidentally broke a rule without even knowing there was one.