

Erfahrungsbericht

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Gesamteindruck Ihres Forschungsaufenthaltes

The work performed in this institution was perfectly complemented my technical education. I was able to learn new perspectives and experimental setups that I could incorporate into my research.

Moreover, this stay allowed me to discover another field of molecular and cellular biology, widening my general scientific knowledge and deepening my interest in this field. I gained new perspectives on translational research, focusing on patient well-being and targeted treatment. Due to the variety of techniques used, my supervisor always tried to teach me as many methods as possible and impart new knowledge. Difficulties that arose during the experiments were always discussed promptly in the research group to identify and solve any problems.

Qualität der Forschungseinrichtung

Scientific competition is evident in this institution, while at the same time, the motivating environment and proximity to clinical research drive everyone to accomplish the high expectations and responsibilities.

The laboratory is housed within Beth Israel Deaconess Medical Center (BIDMC), an affiliated teaching hospital of Harvard Medical School (HMS) and is only a short distance away from Mass General Hospital, Massachusetts Institute of Technology, and Harvard University. The Harvard Medical School (HMS) is one of the schools of the famous Harvard University, currently ranked worldwide as the top university (according to the Center for World University Rankings).

BIDMC ranks among the top four in National Institutes of Health research funding among independent U.S. teaching hospitals. The laboratory is also part of the Dana-Farber/Harvard Cancer Center and the BROAD Institute. In addition, as an affiliated teaching hospital of HMS, researchers at BIDMC have full access to the facilities and resources provided by HMS, such as screening facilities at Longwood. Indeed, the Longwood Medical Area, where both HMS and BIDMC are located represents one of the most important and stimulating campuses for biomedical research in the world.

Kontakte innerhalb der Forschungseinrichtung/Einbindung,

Zoom meetings were held once a week with all research group leaders, graduate students, and postdoctoral fellows from the institute to discuss the work of other research groups. This allowed me to get a broad overview of the topic of cancer biology to better understand connections between signal transduction, tumor resistance, and organoid platforms. In addition, I able to attend lectures on a wide variety of topics the Cancer Research Institute of Harvard Medical School and all affiliated institutions. My supervisor allowed me a certain amount of freedom in terms of the experimental setup during my work while always being open to my questions. After several weeks, I found my work balance and I was able to design the

experiments as independently as possible. Since my scientific background is not in cancer biology, I had to read deeper into the subject matter at the beginning to fill my knowledge gaps in this field. In the course of my work, I was able to integrate patient-derived breast cancer organoids from metastatic tumors into my developed biochip platform. Furthermore, this platform is suitable for reproducible modeling and monitoring of different tumor environments. Unfortunately, unforeseen problems arose over time. First, due to the COVID-19 pandemic, there was a shortage of important cell culture materials such as the hydrogel Matrigel, and second, the establishment of the analysis protocols took more time than estimated. However, my supervisor always tried to support the progress of my project during this time and showed new and more efficient ways to solve my problems.

Due to the promising results generated in this time, a longer-term collaboration with Dr. Muranen's lab and the TU Vienna in the form of publications and research proposals is now envisioned to expand the resulting know-how on both sides and to bundle capacities. Thus, the stay abroad supported my career path considerably, as it allowed me to expand my scientific network and lay an important foundation for future research projects.

Organisation/Studienort Empfehlungen für zukünftige Marshall Plan Studenten/Fellows

Due to the COVID-19 pandemic and the associated worldwide travel restrictions, I was unfortunately forced to postpone my planned research stay several times. My supervisor, Professor Muranen, as well as the Austrian Marshall-Plan staff were very helpful during this time and always a reliable and understanding contact for organizational issues. After a delay of almost a year, I finally started my stay at Harvard Medical School on April 1, 2021. I was warmly welcomed by all group members and was able to integrate quickly into the working group.

Overall, I can strongly recommend Dr. Muranen's group for future scholars. Dr. Taru Muranen's lab is part of the Cancer Center Institute in BIDMC and is thus one of the HMS-affiliated PIs. The lab's main topic focuses on understanding the interaction between cancer cells and their environment and how those interactions are involved in cancer cell-acquired chemoresistance in several types of cancers, such as pancreatic and breast cancer.