

Field report

Florian Kabinger

The Koch Institute for Integrative Cancer Research at MIT, Cambridge, USA

February – December 2019

General impression of my research stay abroad

First, I would like to express my gratefulness for receiving financial support from the Austrian Marshall Plan Foundation. It enabled me to perform an 11-month research internship at the Massachusetts Institute of Technology that was truly memorable for me.

My passion for biological sciences developed during my Bachelor and Master program at the FH Campus Vienna. This motivation was strongly increased by the dynamic scientific community around Cambridge, while I was spending almost one year at the Koch Institute of Integrative Cancer Research at MIT. I joined the research group with the goal to develop an assay to investigate the interaction of transcription factors and their interactions partners. Developing, optimizing and applying that assay enabled me to nominate a small molecule that showed the desired phenotypic effects. Thus, I was able to generate data that initiated a patent application and suggest that this molecule might be interesting as a chemical probe with therapeutic potential. Beside my own project, I got the chance to participate in several other projects which had the common goal to find small molecule probes that target transcription. I was heavily involved in the screening and evaluation of proteolysis targeting chimera (PROTACs). Developing PROTACs gave me an insight into the great potential of small molecules used as “molecular glues”, a concept that revolutionized the use of small molecules.

In addition to the hands-on experience that I could gain, I was fortunate to be associate member of the Broad Institute of Harvard and MIT. It was extremely motivating to participate in a variety of scientific seminars. Listening to great scientists and to feel how excited they are about their research, is one of my biggest sources of inspiration.

Summarized, my stay in Boston has strongly supported my development as a person and as a scientist. Being abroad was a challenging but very rewarding experience which I would definitely recommend to everyone who is passionate about biological sciences.

Quality of the host institution

The Koch Institute of Integrative Cancer Research is located at the center of the prestigious MIT campus. Thus, it is surrounded by a thriving environment that accelerates scientific progress. Indeed,

research benefits by the physical proximity of several prestigious institutes including, the Broad Institute of MIT and Harvard and the Whitehead Institute for Biomedical Research. Fortunately, I was allowed to conduct my research in a laboratory that was located at Koch Institute and associated with the Broad Institute. Because of that, I was able to build on the support of a large number of research laboratories utilizing their instruments. Beside the impressive environment, I was positively surprised by the structure of the Koch Institute itself. It brings together more than 1000 scientists, working in research groups of 29 principal investigators including Nobel prize laureates. Moreover, it harbors several core facilities (e.g. Proteomics, Transcriptomic, Flow Cytometry, High throughput screening) which provide a great resource when equipment or expertise is required for a specific experiment. Thus, the Koch Institute presents the perfect environment to conduct research in interdisciplinary fields that require a high degree of collaboration.

Contacts within the host institution

Knowledge exchange between research groups located at the Koch Institute was facilitated with great success. Institute-wide weekly focus talks with a subsequent social hour were very helpful to connect with numerous scientists. Beside that, I was allowed to present my research results in a monthly floor meeting and several group meetings. This provided the great opportunity to practice presentation skills in a competitive but friendly environment.

Recommendations for future Marshall Plan students and fellows

After performing two internships abroad, one in Sweden and one in the USA, I am happy to say that it was always an amazing experience to be in a new environment. However, it has to be mentioned that being abroad can be stressful and sometimes even overwhelming. Personally, I experienced challenging situations in two different contexts. First, the organization and planning of the internship requires a lot of preparation. Especially, in the case of the USA, dedication was necessary to complete the paperwork regarding visa process and to find accommodation. Starting early, keeping the goal in mind and being pragmatic helped me to overcome these challenges. Second, conducting research in a highly competitive environment is inspiring and rewarding. Despite, it is also time-consuming and implies to fail. Thus, I think it is important to preserve a life unrelated to research to avoid getting overwhelmed by failures. Personally, I found a balance in sports and sailing at the Charles River.

Summarized, I would definitely recommend performing an internship abroad. Paired with dedication for research and an open mindset, it is guaranteed that valuable experience will be gained.