

Final report

Internship abroad

Personal data and general information on the internship

Subject of studies: Molecular and Cellular Biology

Bachelor/Master/State exam: Master

Time of internship: 8.4.24 – 7.8.24

Place of internship: Milan

Internship institution: Human Technopole, Milan

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An Erasmus+ traineeship experience at Human Technopole Foundation in Milan, Italy.

1. Planning and Preparation

My Erasmus+ traineeship at the Human Technopole Foundation (referred to as HT from here on) in Milan, Italy was a wonderful solution for bypassing the bureaucratic hurdles involving a research stay in Italy as a recent graduate.

I first came across an offer for a paid research internship at HT on X (formerly known as Twitter). I reached out to the research group leader advertising the position with a short, one page letter expressing my motivation for the topic. This led to further correspondence followed by an interview where I presented my previous research, expressed my specific motivation for the project being carried out in the lab, and so forth. Finally, I obtained the position.

The topic of studying neurodevelopment was an exciting prospect for me, but soon I began to discover that the process of obtaining my master's degree certificate, having it translated, and then accredited by relevant Italian authorities was going to require three to four months. These constraints rendered it virtually impossible for me to carry out the internship – until my future supervisor suggested that I apply for an Erasmus+ traineeship.

Despite my initial anxiety about the process, the path to HT became quite straightforward, thanks to the support of the Career Service at LMU. After learning about the internship, I arranged a meeting with the Career Service, who informed me in detail about the documents required and specified the important deadlines- the documents involved were ones I would require for further bureaucratic processes as well, so this was rather convenient. After obtaining these documents, I was able to arrange my travel to Milan. I sublet my room in Munich and booked train tickets to avail the Green-Travel grant. My accommodation for the duration of the internship was arranged by HT, so that was rather convenient. The accommodation I have been provided is in Rho, a little suburb outside Milan, which is quite close to the campus, and at biking distance. For future reference, there is also a possibility that

accommodation to interns is arranged at a hotel in a nearby town called Novara, which can be a little cumbersome.

2. Internship

My internship at HT in the group of I.L. involves the study of dorsoventral patterning of the neural tube. The neural tube is a structure in the early development of the vertebrate central nervous system, which eventually forms the brain and spinal cord. The patterning of neural tube, which leads to the formation of distinct cellular domains is vital for the generation of the huge variety of cells that constitute the central nervous system.

At the start of my internship, alongside carrying out a number of onboarding processes at HT, I was reading extensively on neural tube development. My days would involve reading scientific reports and carrying out cell culture to maintain my stem cells which were to be used for future experiments. I also began to follow and optimise protocols for the generation of single lumen organoids, which are the models to be used to study the patterning of the neural tube. At this point, my days were about 50% reading, and 50% cell culture. Finally I presented my learning to the lab in the form of an hour long journal-club presentation, which led to a number of lively and integral discussions regarding neural tube biology, which I am sure will serve to help determine the future direction of the project.

In May, I also accompanied the lab to a scientific retreat in the Trentino region, where we all stayed in a chalet overlooking the dolomites, brainstormed potential projects, had 1 : 1 sessions where we spoke to invited guests about the progress of our projects and general career path.

I also undertook training courses in Automated Image Analysis with Fiji Macros, Proteomics theory and data analysis, Python for beginners: 8-11th July offered by HT, which I believe will help in my current project, as well as prepare me for my upcoming PhD.

3. Social Contacts

Making social contacts during my internship has been a tad-bit tricky. I live in a suburb of Milan called Rho, and in a studio, without roommates, so there is not much scope for meeting english-speaking residents, or socializing activities.

But because HT is very international, I have managed to become friends with some other employees, and that has been quite fulfilling.

4. Everyday life and leisure

Milan and nearby areas offer a lot of options in terms of activities for expats– sightseeing, bars, clubs, social activities like open-air theatres, pub-quizzes, and so on. It is also possible to visit the number of tourist attractions in the vicinity. But the cost of living in Milan is quite high – therefore it is not possible to engage in all of these activities. I have managed to find a gym, and to go out on the weekend which fulfils my needs for leisure.

5. Financing

The cost of living in Milan is quite high, gym subscriptions, everyday items tend to cost more, (coffee is cheap 😊) – but since my rent and lunch are covered by HT I am able to get by on my stipend. My advice would be to avoid eating out when possible, and shop at discount supermarkets. Milan also has a number of fleamarkets which can be really surprising in terms of what one can find. It would also be good to get a bike which can be sold off later, to save on travel costs to the institute.

6. Internship and Studies

I obtained a master’s degree in Molecular and Cellular Biology prior to the internship, which is highly relevant to the topics I am studying now. Theoretical and practical knowledge of molecular and cell biology have made it quite convenient for me to pick up the skills required for my current project and have allowed me experience a steep improvement in my understanding of the field and my own research interest. Considering that I will be using organoid models during my upcoming PhD studies, the internship has set me up to confidently weather the challenges I will encounter during my PhD. A main learning that I have acquired here is that it is exceedingly important to ensure a cordial work environment – this makes scientific research fun, and allows one to endure its difficult aspects.

7. Conclusion

My time at HT has exceeded all my expectations – working with my research group has allowed me to acquire invaluable skills in stem cell culture, as well as a number of soft skills that I cherish deeply. I have also been able to participate in a number of courses to begin building a base for computational skills I will require in the future. The large scope of research topics being explored here has truly expanded my perspective of biomedical science. For future interns, I would recommend to keep track of the formal requirements of the internship and their own stay (residence permits, future travel) and so on. Keeping track of

documents required by offices across institutions can be a little tricky, but it must be handled with tact, and planning.

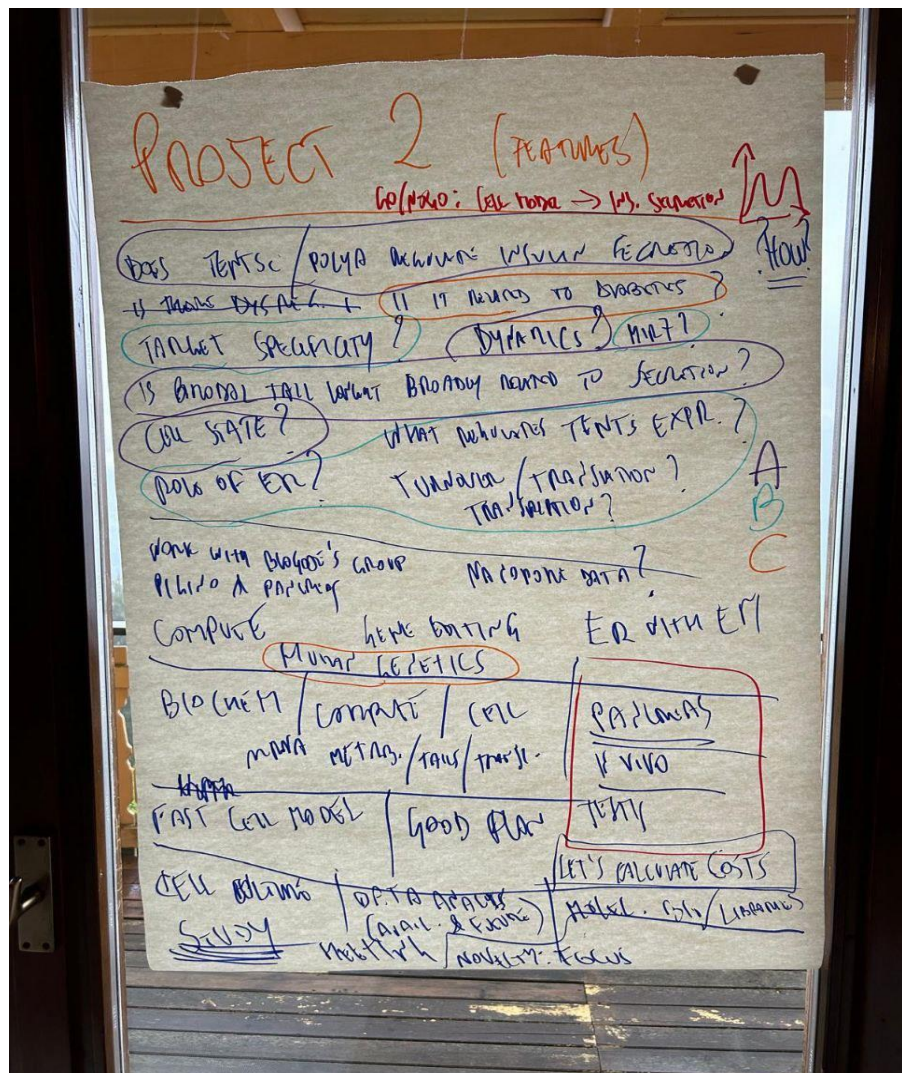
My time at HT and Milan has been magical and I highly recommend HT for any future biomedical scientists, and I would like to extend my sincere thanks to LMU, and the Career Service at LMU to make this opportunity possible for me.



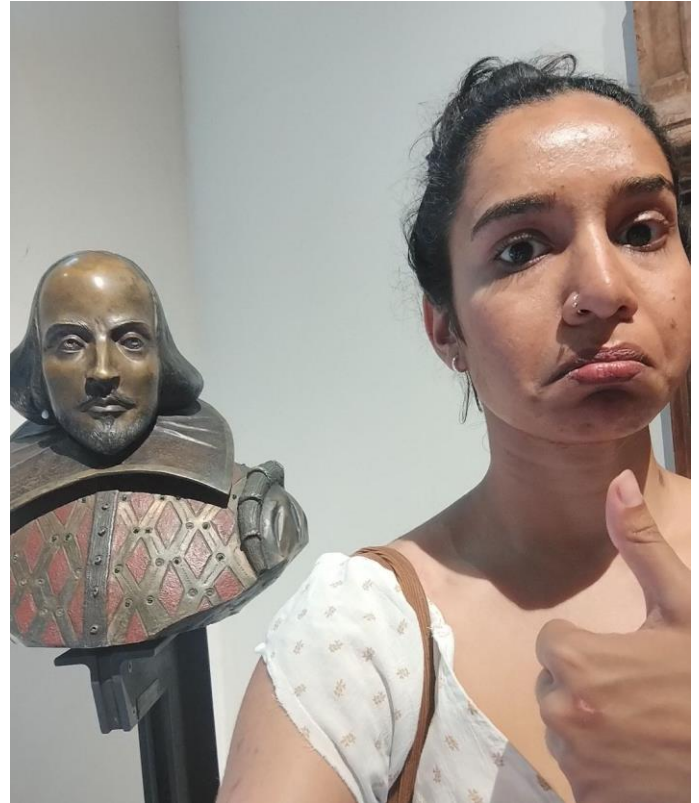
The lab and I after finishing a rewarding scientific lab retreat !



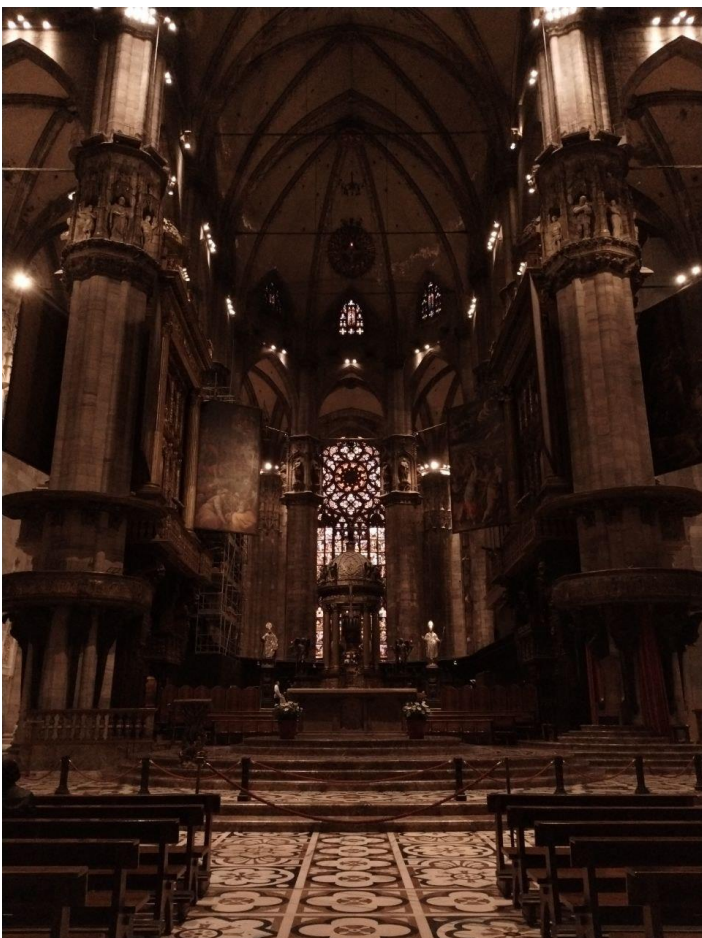
Kayaking in pairs in the canyons of the Trentino region – an exercise in patient communication !



Brainstorming ideas for a community lab project !



With the Bard himself, in Verona !



Inside Duomo di Milano