



The CHUST Committee



Travel Story 2023

Name: Lina LÖfstrand

Year and line of study at KTH: Starting my 1st year of Medical Biotechnology

Which university did you visit?: University of Colorado, Boulder

Time Frame: 10 Weeks

Visa Category: J1 Intern

Insurance Coverage: International Student Insurance

Scholarship Details: 7500kr from CHUST, 4500 USD from University of Colorado

Project Overview:

My supervisor had previously developed an allosterically regulated T7 RNA polymerase, which should be activated by the addition of a small ligand called indole. The project was focused on using this polymerase in E.coli and demonstrating the ligand-responsiveness by trying to control expression of a reporter gene, in this case one encoding GFP. We wanted to investigate a way to control both cell growth and GFP fluorescence, and achieve something called dynamic metabolic control. This was done through cloning the relevant genes, transforming E.coli and running different types of assays to study bacterial growth and fluorescence in various growth conditions. I also spent a bunch of time reading articles, doing some light programming and making graphs.

The aim was for me to work independently for the latter half of the project, and to meet with the professor once a week. In reality, my project ended up not working as expected, and the project plan had to be adjusted several times. This led to me working together with my supervisor almost the entire time, with me performing some tasks independently when needed. I met the professor less than once a week, but when we met, he asked a lot of detailed questions (I usually couldn't answer all of them) and seemed very focused on me gathering as much data as possible. He also seemed very busy, so meetings were kept short. My supervisor was helpful, although he did not always inform me of exactly what we were doing or why we were doing certain experiments until I asked much later. The days in the lab were also quite long and a bit unpredictable.

Learning & Development

I was fortunate enough to learn several laboratory techniques, for example PCR, Gibson Assembly, E.coli transformation (Heat Shock/Electroporation), gel electrophoresis, preparation of media and agar plates, bacterial cultivation, aseptic techniques and running molecular and biochemical assays. Outside of the lab, I was tasked with plotting our results in Python and doing statistical analysis, so I learned a couple of things about this area as well. I got valuable insight into how a research lab operates and what doing a PhD is like, and at the end I held a 25 minute presentation for the research group, which also taught me about presenting data in a clear way.

I feel like my supervisor trusted me to complete most laboratory tasks independently, even though I did not get that opportunity as frequently as expected. I was entrusted with some laboratory work, and most of the calculations and graphing, which I appreciated. Honestly, it surprised me that the project was connected in some way to many of the courses I took during my bachelor's, so it felt really relevant and I felt as though I had a lot of helpful knowledge. That being said, I still felt very confused and slightly unintelligent at times, but I think that partially comes with spending the days with super smart people who always respond to your questions with more questions. In the end, I appreciated this, as I feel like I learned a lot from it. Since my project also did not work as expected until the start of week 9, I quickly learned about problem solving and managing my expectations.

Life on Campus:

University of Colorado, Boulder has a beautiful campus, but most students leave during the summer and there are not many activities for students/international people during this time. Boulder is a student city of about 100 thousand people and the nature is gorgeous. I spent a lot of my free time exploring the many nearby hiking trails, and I visited Denver, Rocky Mountain National Park and during 4th of July weekend, I took a quick trip to NYC to visit other CHUST interns. We also did a couple of outings with the lab, including two hikes. Rent in Boulder was surprisingly expensive and I got a “decent” deal with my own bedroom, shared bathroom for \$1200/month in a relatively worn down house. I only had 20 minutes to the lab, though, and I was pretty close to the city and many hiking trails, so all in all the situation was decent. The university offered summer internship housing, but applications had closed long before I was nominated. My stipend paid for a decent amount of the trip, and then I used the scholarship from KTH and some personal funds.

Application & Stay Insights:

I faced no specific challenges, except maybe that it took a while to get the VISA and I had it in my hand only two weeks before departure to the US. I had to constantly reach out and put pressure on different members of university staff to get everything done, but it worked out in the end. So I would say, as long as you keep going and don't mind annoying people, it should work.

Required documentation from what I remember:

University: CV, passport copy, bank statement, proof of English ability. The university also send me several documents with personal details, contact info etc to fill in and send back.

Embassy: passport, photo for VISA, DS-160, DS-2019, DS-7002. I also brought bank statements, proof of English and other documents that I ended up not needing.

Expense	Monthly cost (in USD)	Notes/Comments
Rent/housing (incl. utilities)	1250	Boulder rent is pricy!
Food	Not sure (but a bit pricy)	
Transport costs	0	
Health Insurance	~25	