



## CHUST – Chemical U.S. Travels



### Travel Story 2015

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**Name:**

Johannes Yayo

**Year and line of study at KTH:**

First year in the master of Environmental and Industrial Biotechnology.

**Which university did you visit? (Name, city, state)**

Massachusetts Institute of Technology (MIT)

Time frame: 9 weeks.

Visa type: J-1.

Insurance: MIT Student Extended Insurance Plan (\$567 for three months)

Scholarship: 26 600 SEK from CHUST

**Project description**

**Can you describe the project you were working on? What subject area did it cover? How did the contact with the Professor/supervisor work? How long was an average day in the lab?**

I worked on the enzyme Ribonucleotide reductase (RNR), which converts nucleotides to deoxynucleotides and plays an essential role in the DNA replication in almost all organisms. My project aimed to investigate whether or not the *Salmonella Typhimurium* RNR class Ib has a manganese cluster. It included cloning, expressing and purifying relevant cofactors and coenzymes, as well as reconstitutions and activity assays.

My supervisor in the lab was a PhD in his last year. We were in contact every day, planning the experiments and discussing the results. He was a great tutor and scientist, always available, helpful and very patient. The summer ended with a presentation and report with feedback from the professor.

**What new things have you learned during the project? Was your prior knowledge sufficient for you to handle the tasks presented to you? How much responsibility were you given?**

My prior knowledge was sufficient for a basic understanding of the techniques used in cloning, expression and purification. Also, a background in biochemistry was necessary during the literature review. However, I got a deeper understanding of the biochemistry between the enzyme and its cofactors/coenzymes while working on project. I learnt about radioactive assays, reconstitutions of metal clusters, how to set up an experiment and interpret the data. I also got a habit in laboratory techniques for protein quantification, identification and purification (SDS-PAGE, agarose GE, Ni-affinity chromatography, ion exchange chromatography) and how to prepare primers and cloning from template genome (BLAST, NEB). My personal take-home

message from this internship includes focus on key projects, planning a workday, setting up an experimental method and presenting relevant data. I was responsible of my own projects but did always have discussions with my supervisor on how to precede.

### **Campus life**

#### **What was life like at the university you visited? Campus life, nightlife and potential trips?**

The chemistry department arranged activities such as volleyball, boat cruise and barbeque. Campus had different pubs, food trucks and even free food at least once a week (chicken wings at Muddy Charles were really good). There is a student union center with a lot of different services and free gym membership. I highly recommend getting a free sailing card at the MIT sailing pavilion and enjoy dinghy sailing with an amazing view of Boston city (free and anytime you want). I can also recommend seeing other parts of the US – both Boston bus station and Boston Logan international airport are closely situated to MIT. For example, I visited Niagara Falls (amazing), Thousand Islands (archipelago, Canada), New York City, San Francisco and Maine (beautiful environment).

#### **How much did it cost living in your city? How did you finance the stay in the U.S? Scholarship or private funds? If you received any scholarship, did you need to send any documents to the university in order to receive the funds?**

Boston is relatively expensive and prices are comparable to Stockholm. I financed my stay with the scholarship from CHUST and private funds.

#### **How did you find housing during your stay at the university and how much did it cost? How satisfied were you with the housing situation?**

MIT did not have on-campus housing for visiting students but there are many summer sublets available in Cambridge. The cost ranged between 900-1400 USD per month. A friend and I rented a 2-bedroom apartment with kitchen and living room close to Harvard Business School and paid in total 2700 USD per month. I was very satisfied with the housing due to the location (safe, close to the river, nice view from the balcony, beautiful surroundings) and a spacious and modern apartment. It was a bit far from campus, but it was convenient to commute with the bike rental service in Cambridge (Hubway, 20 USD/month). Walking or biking to Cambridge always involved crossing the river on one of the beautiful bridges, which always offered a spectacular view. Harvard square and some bigger convenience stores were within 10-15 min biking distance.

### **Application**

#### **Were there any problems that did arise during your stay that you think future students need to know about? In such case, which problems did you encounter?**

No particular problems were encountered during application.

#### **What documents did you need to send to the university and what did you need to bring to the embassy in order to get your visa approved?**

MIT needed a passport copy, student registration proof (KTH registreringsbevis), proof of English proficiency and funding documents. As a visiting student I had to provide a bank statement of a total amount covering living costs and the summer term fee, i.e. 2 689 USD/month plus a summer fee of 900 USD. At least 51% needs to be from an external source,

for example a scholarship, so I also needed to send a certificate from KTH/CHUST stating the CHUST scholarship amount.

I brought the following documents to the embassy (the required documents may change, so make sure to visit the embassy's webpage): DS2019, DS-160 confirmation page, I-901 proof of payment, embassy appointment confirmation, "120 personbevis - alla relationer" (Skatteverket), proof of language proficiency (KTH), invitation letter from MIT, proof of scholarship (KTH), proof of studies at KTH, grade transcript, CV, photo (5x5 cm) and passport

**May we publish your travel story on the official CHUST webpage ([kongligkemi.se/chust](http://kongligkemi.se/chust)) so that future exchange students can be helped by the information?**

Yes.

**Thank you for taking the time to fill out this form and share your story!  
Name the document according to: "University – Your Name" and send it as a PDF to [chust@k.kth.se](mailto:chust@k.kth.se)**

Best regards,  
CHUST committee 2014/2015