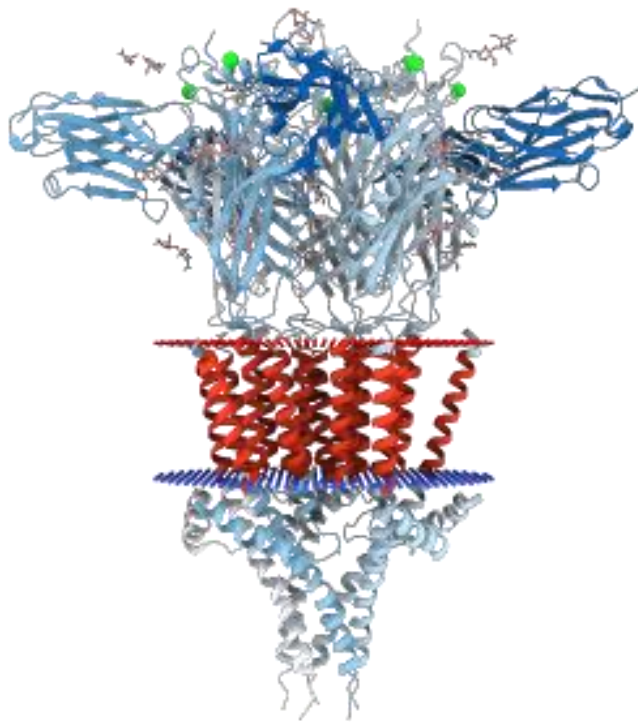


IITKGPF Award 2018

Yusuf Qutbuddin

15PH20037

Research Internship



Supervisor: Hugues Nury

Membrane Group

Institut de Biologie Structurale, Grenoble

France

Research Experience

During my time in IIT Kharagpur, while pursuing a Masters in Physics, I realised my interest in the field of Biology and Biophysics. However, I never found it a readily accepted choice of research for a student of Physics by my peers and also people in the field of Biology. I self-taught myself most of the things, and for all the problems that I couldn't face alone, there was always a friend by my side.

This research experience has successfully initiated and baptised me into the field of Biology. This was my first experience working in a structural biology laboratory, among some very brilliant and known people in their domain. Luckily, they were also some of the most open and accommodating people who accepted a Physics student who is in his grassroots level to help him learn and teach him wet-lab techniques and other skills in structural biology.

I had my research internship divided into two parts, computational and experimental biology. In the former part, I was working with our team leader Hugues Nury to study the role of outermost M4 helices in the serotonin (5-HT₃) receptor by calculating and classifying the interactions of the residues with the lipids. With Hugues, I learnt analysis of protein structures using VMD simulations that were a result of collaborative work. I also learnt the basics of building a model of protein based on the results of diffraction experiments. Simultaneously, I was working with another human protein TREK which has been related to pain reception, where our ultimate aim was to determine the structure of TREK heterodimer. While working with this protein, I learnt bacterial and insect cell culture, infection, Baculovirus-infected insect cells, Fluorescence-activated cell sorting (FACS), Fast Protein Liquid Chromatography (FPLC) for purification, SDS-PAGE, Western Blot, Hanging Drop Crystallization etc.

This research experience has increased my repertoire of experimental biology and also widened the set of opportunities for interdisciplinary research in the future.

Foreign Experience

Born in a Railway Hospital as a son of a Railway Engineer, I was more aware of the rumbling of trains than my own heartbeat. Before this experience, I never took part in the miracle of human flight, and the moment the plane took off and touched the skies, my heartbeats filled the void of train sounds that my brain associated with travel since my childhood.

I always had an affection towards art and culture, which motivated me to go around Europe on my weekends.

I visited some architecturally significant monuments, from Sagrada Familia in Barcelona to Milan Cathedral in Milan to The Atomium in Brussels to the Eiffel Tower in Paris.

To quench my thirst for art, there were a lot of museums like the Louvre in Paris, Van Gogh Museum in Amsterdam and the Museum of Rene Magritte in Brussels.

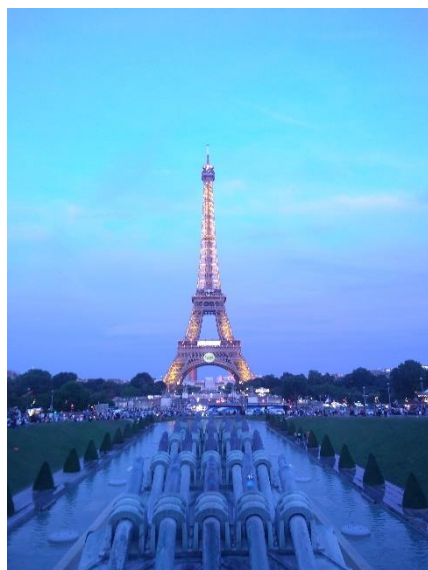
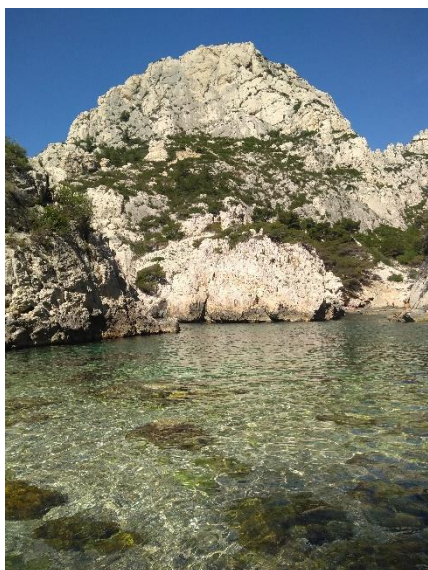
I also visited the Alps of Switzerland, Calanques of Marseille and the Beaches of Barcelona.

All the travel made me realise how culturally different the world is. The first things I noticed were that no jobs were considered menial, be it plumbers, electricians or mechanics. Also, since there are a lot fewer people than in my own country, the concept of doing your own work is very internalised.

The food, people, places, views, lifestyles, and atmosphere have definitely helped me to be more open and accepting towards people from different cultures, ethnicities, countries and backgrounds.

I hope this experience has made me a better person, and also a more experienced person.





THANK YOU

