

## "I heard about the Ramalingaswami Fellowship from friends and DBT roadshows"

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The main focus of my work is understanding how biological systems work, especially from a molecular perspective. I believe that I was pushed along this path right from my school and college days in Delhi, where I spent several winter days sitting on the lawns reading popular science literature. I then continued to do a masters in biotechnology from Indian Institutes of Technology, Bombay and like a lot of my classmates, headed off somewhere to do a PhD, in my case Heidelberg, Germany.

I must also acknowledge several summer projects that I carried out in the Indian Institute of Science, that helped me understand what I did and did not want to work on and especially Dr Murthy, one of my mentors during this period, who infused a lot of his enthusiasm for biophysics in me. I then went on to do a PhD in biophysics and computational biology, where I revisited several physics classes and tried to unearth some of the mysteries that cellular membranes do their best to hide from us.

This followed a post-doctoral stint in Netherlands with more computational work, occasional experiments in the wet lab and a lot more of membranes! At this point, I heard about the Ramalingaswami Fellowship from friends and also from the roadshows that the DBT organized at international conferences. The entire fellowship process took about six months, and several nail biting moments, which were helped by the prompt replies to my emails by DBT people. All of this paved my future path and made it much easier to transition onto the next phase.

I am currently working as a Ramalingaswami Fellow at the National Chemical Laboratory, Pune. In my group, we look at the dynamic interplay within cellular membranes and how different components, lipids, proteins, cholesterol, and glyco-conjugates work together. This organization can be conceptualized as the children's toy lego, where the whole is more than the sum of parts. To answer these questions, I use mainly computational methods using principles and concepts from physical chemistry combined with occasional visits to the wet lab to test out our predictions. Getting together a group of people, motivating them to work towards a common goal is always difficult. Trying to convince students to answer problems

in membrane biophysics sitting in a chemistry institute and using computational approaches has proved rather tricky. I have also had to resort to innovative (and preferably not too time consuming ways) to deal with the administration. Thanks to the extreme flexibility of the Ramalingswami Fellowship, I have been able to wade through a few tricky waters and deal with some of the situations better than I would have been able to otherwise. However, at the end of the day, when everything falls in place, it is extremely rewarding.

There are two main changes that I see in life sciences today - a bit contradictory to one another. On one hand there is a lot more emphasis on basic biology and understanding the processes itself using the state of art tools. On the other hand, there is a lot of push towards translational science.

An increasing number of researchers are applying cross disciplinary approaches and borrowing techniques and ideas from different fields to answer questions from different perspectives. However, this seeming contradiction is only skin deep and once we have a better understanding of the basic questions can we tune and modulate our systems for societal needs.