



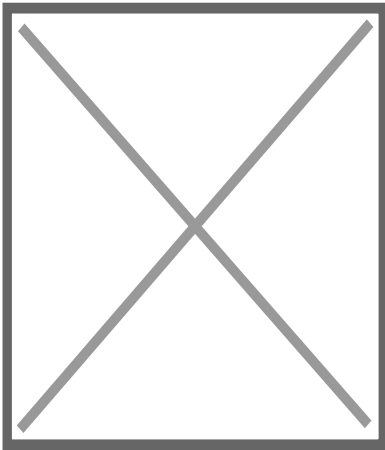
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"Industry Should Get Involved with Academia"

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On September 17, 2004, Dr Satyajit Mayor, a scientist at the National Centre for Biological Sciences (NCBS), Bangalore was bestowed with the prestigious Shanti Swaroop Bhatnagar award in biological sciences. His research specialization is in the area of molecular mechanisms of endocytosis in metazoan cells. Having spent most of his research life abroad at institutions such as Columbia University and Rockefeller University, which are veritable oases for scientists, many would consider his move to come back to India and work in a research institution a calculated risk. Mayor himself concedes this. "It is science that has kept me in India," he revealed in an interview with Priya Sreenivas of the CyberMedia News Service. Excerpts.

Congratulations on the award. How do you feel winning it?

Thank you. It feels nice to know that there are many peers who respect what one does. I just filled out the nomination form when I was told that it was just part of a routine. It was a surprise.

Having spent about eleven years of your research life in the US, what made you come back to India?

Being in the field of academia, one feels isolated and distant from the home country. After spending so many years away from India, I was deeply distressed by the rise of fundamentalism and the demolition of Babri Masjid in the early 1990s. So I thought that if I had to come back to India, I would need to learn to live in a changed atmosphere, which would otherwise be hard. I also wanted to try out research in India.

Biological research is quite nascent in India. But in the last five years, the scenario has changed. It was a little unnerving to come back. It was not science but change in India that made me come back. But now, the lure of science has been strong enough to make me stay in India.

Could you throw some light on your research areas?

For my PhD, I worked in the area of lipid anchored proteins in the parasite responsible for the African sleeping sickness. We wanted to find out if isolating the lipid specific to parasites would help us go after it. But we found that the mode of proteins anchoring to membranes happened in the general way. So I then focused on understanding why proteins get anchored to certain lipids.

It was a different trajectory that also involves the physics and chemistry within a cell. I did my post doc at Columbia University on cellular trafficking in mammalian systems. The research I'm doing right now is a synthesis of my prior research areas. We are a team of around 15 scientists including PhD students, post-docs and research assistants.

We are studying the molecular mechanisms of endocytosis in multicellular organisms. Most studies in this area just describe the phenomena but don't explain it. We don't have a language to describe the movement that goes on between cells. The scale of activity that goes on within a cell at the micron level is quite difficult to explain. We use physics and chemistry to understand the phenomena. If we can stand back and understand the pathways at the cell level, we could study how it would impinge at the multicellular level.

We work with scientists like Dr Madan Rao, Raman Research Institute, Bangalore, Dr Satyajit Rath, National Institute of Immunology, New Delhi and Dr KS Krishnan of TIFR(Tata Institute of Fundamental Research), Mumbai.

NCBS is collaborating on an HIV project with the National Institute of Immunology on how HIV intersects the immune system and perturbs the system from the cellular point of view.

What would be the possible impact of the research?

The mechanics of folates is poorly understood. One of the earliest cancer drugs metatraxate contains an anti-folate. We don't know how folates get into the cell. So the study of folate binding proteins can help in understanding drugs related to folates. While this would be just a by-product of the research, we are looking at the broader scene of folate metabolics.

The study of these pathways has an impact on understanding the cellular mechanisms including the loading of peptide on MHC molecules central to the development of immunity, and to several medically relevant processes such as the cellular basis of growth factor signaling alterations in cancers.

There is a common mechanism for anything that gets into a cell. Understanding the cellular scale phenomenon would help in development of drugs.

What is your take on the research scenario in the biotech industry? What steps do you suggest to strengthen the industry?

Because of the low-cost advantage, a lot of contract research is happening in India. But this means little to the overall research culture because of NDAs (Non disclosure agreements) with the client companies. If India wants to maintain its biotech edge, the industry should get involved with academia.

The number of people in biological research is small. Bioinformatics has shown a lot of potential thanks to the software industry. So many young people have basic education in biology. If there are at least 10 institutions like the NCBS, and then a hundred, India's biotechnology industry could make a huge impact on the world. It is not difficult since we have people to fill places. We need to build a momentum to create a boom in the biotech industry. We have extremely well trained people and low cost of labor.

What differences do you find in doing research here vis-à-vis the US?

I find that here, since there are not many immediate peers, one could explore whacky and different ideas in a fairly unconstrained way. One can explore without fetters and enjoy the intellectual freedom to take risks. In the US, on the other hand, you are straitjacketed into a particular area and unless you are at the top of your career, you cannot afford to carry out research in something different.

Priya Sreenivas