Meet scientists from the EMBO communities

Siddhesh Kamat
Collaboration beyond the own research field

Associate Professor, Institute of Science Education and Research, Pune | EMBO Young Investigator

Siddhesh Kamat explores lipid dynamics and lipase enzymes to prevent and treat diseases. His lab’s current project is to understand how lipases are affected by changing environmental conditions, such as temperature and pH, and how this affects the function of lipases in cells. His lab uses a combination of reverse genetics and metabolic flux analysis to identify new targets for drug discovery.

Monika Fajfer
Starting cross-disciplinary international co-operation

Assistant Professor, Department of Molecular Biology and Genetics at Cardinal Stefan Wyszyński University, Warsaw | EMBO Scientific Exchange Grant

Monika Fajfer has been working on understanding the role of mites in reptile disease transmission. She has identified new species of mites that are associated with geckos and reptiles, and has shown that these mites have a significant impact on the health of the reptiles. Her current research is focused on understanding the interactions between the mites and the reptiles, and how these interactions can be used to control reptile diseases.

Siddhesh Kamat and Monika Fajfer are two of the many young scientists who have benefited from EMBO’s funding and support. EMBO is dedicated to promoting excellence in research and to building international partnerships to advance science.

Perspectives from K. VijayRaghavan

Former Principal Scientific Adviser to the Government of India and Secretary of the Department of Biotechnology, Ministry of Science and Technology | Professor and former Director of the National Centre for Biological Sciences, Bengaluru | EMBO Associate Member

Can you share with us your professional journey? Traditionally, I studied in chemical engineering and went to the Indian Institute of Technology, Kanpur. It was an exciting experience. Our class was much larger than it should have been and many of us were therefore dumped into a postgraduate hostel from our own interests and drives are, we must always be challenged by significant crop failures, and look at problems very differently,” Vadassery says. The EMBO funding made travel and funding opportunities for young scientists. “It helped me gain new perspectives and look at problems very differently,” Fajfer says. The EMBO funding made travel and funding opportunities for young scientists.

How did you make the transition from research to science administration and policy? It was like the proverbial fish in a pond of water which is slowly being heated. Several of us were involved in starting the National Centre for Biological Sciences in Bengaluru. This effort included a lot of administrative work, and we were doing our research, too, realizing the intensity required for both. In hindisight it was far more intense than we felt when we were in the midst of it. When I was asked much later to take the position as Secretary of the Department of Biotechnology at the Indian Ministry of Science & Technology, I didn’t think much of that in terms of compromising research or as an administrative burden. I thought that the country had funded me very generously to do trustworthy research and do as I please, and therefore it would be inappropriate not to use such public responsibilities, with enthusiasm and commitment, when asked.

What are the current trends in the life science landscape in India? There is a dramatic change in the way we approach biology today. Sydney Brenner said that we are now an era of data, that but that data alone will not solve the big questions in biology. We need to make a clear plan, to understand the biology, but also to see the implications of theory in biology. We need to build not to get overwhelmed, to think deeply and experimentally understand specific areas. These requirements bring to the fore a strong interest in India, of mathematics and computing. So, in many ways, the only route that’s open to us is an opportunity for breaking departmental silos in India and integrating to include physics, mathematics, and computer science research in the core biology curriculum. There are positive trends in this direction, and they need to be consolidated.

How has this partnership benefitted scientists in India and Europe? A very important aspect of science is networking and the ambition you set yourself by interacting with people from different backgrounds and cultures. The EMBO funding allowed me to interact with the Tata Institute for my PhD. From which is in Bengaluru. Can you share with us your professional journey? Traditionally, I studied in chemical engineering and went to the Indian Institute of Technology, Kanpur. It was an exciting experience. Our class was much larger than it should have been and many of us were therefore dumped into a postgraduate hostel from our own interests and drives are, we must always be challenged by significant crop failures, and look at problems very differently,” Vadassery says. The EMBO funding made travel and funding opportunities for young scientists.

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Opportunities in India

EMBO Postdoctoral Fellowships

Fund scientists to carry out research for a period of up to two years. International mobility is a key requirement. Applications accepted throughout the year.

EMBO Scientific Exchange Grants

Support new, international collaborations, enabling the transfer of expertise unavailable in the applicant’s laboratory. They fund research visits of up to three months. Applications accepted throughout the year.

EMBO Core Facility Fellowships

Support training for staff of core facilities that provide services to research institutions or universities. They fund international exchanges of up to one month. Applications accepted throughout the year.

EMBO Young Investigator Programme

Supports group leaders in the early stages of setting up their independent laboratories for a period of four years. Networking is a key aspect of the programme. Application deadlines: 1 April.

EMBO Global Investigator Programme

Supports group leaders, who set up their laboratories in India, with financial support, training and networking activities. The Global Investigators have access to an international network of more than 400 current and former EMBO Young Investigators and Global Investigators. Application deadline: 1 June.

EMBO Practical Courses

Provide training in new techniques for researchers and core facility staff. Application deadlines for organizers: 1 March and 1 August.

EMBO Workshops

Bring together scientists to present and discuss their latest discoveries. Application deadlines for organizers: 1 March and 1 August.

India | EMBO Lecture Courses

Funding for lecture courses for PhD students and postdoctoral researchers in India. Application deadlines for organizers: 1 March and 1 August.

EMBO Press

The five journals of EMBO Press publish important advances in the life sciences from around the globe: EMBO Journal, EMBO Reports, EMBO Molecular Medicine, Molecular Systems Biology, and Life Science Alliance, which is published in partnership with Rockefeller University Press and Cold Spring Harbor Laboratory Press.

Focus on India

India and EMBO

India and EMBO

Key figures

India’s gross domestic expenditure on R&D (GERD) is 0.7% which is around 41 US dollars per capita. The government is the major contributor to R&D funding (nearly 60%); private participation is low. India’s number of researchers per million people increased from 238 in 2011 to 235 in 2017; with the total number of researchers in the country at 429,229.

In 2018, India employed nearly 522,000 personnel in its R&D institutions. Of this, 41.2% were women; 27.3% were engaged in administrative and non-technical support; 17.9% were engaged in auxiliary activities, and 13.7% provided technical assistance.

Five major scientific agencies under the central government, the Science Research and Development Organization (DSIR), Department of Space (DOS), Indian Council of Agricultural Research (ICAR), Department of Atomic Energy (DAE) and Council for Scientific and Industrial Research (CSIR), account for 82.2% of the total R&D spending. In 2014-15, the share of basic research was 23.9%, applied research contributed 35.9%, experimental development 32.4% and related supporting activities 0.9%.

India has 1,043 universities. Student enrollment reached 20,136,729 in 2019-2020. The percentage of female students enrolled is 44.9%.

India’s R&D spending in 2020-21 grew at 12.2% to $86.2 billion. The number of private startups has increased from 30 to over 5,300 in the last ten years, with a push from India’s Department of Biotechnology (DBT) and the Biotechnology Industry Research Assistance Council (BIRAC), an interface agency set up by the DBT.

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