

Annual Report 2017

Co-operation Agreement India – EMBC – EMBO

March 2018



INTRODUCTION	3
ACTIVITY REPORT 2017	4
1. EMBO Young Investigators	4
EMBO Young Investigators	4
Associated Funding/Benefits	4
2. EMBO Fellowships	5
EMBO Long-Term Fellowships	5
EMBO Advanced Fellowships	5
EMBO Short-Term Fellowships	5
3. EMBO Courses & Workshops	9
Workshops or conferences funded by EMBO	9
Courses funded by EMBO	9
India-EMBO Symposia funded by EMBO	9
Indian Scientists attending EMBO Courses & Workshops	10
Travel stipends	10
5. Funded Lectures	11
EMBO Keynote Lectures	11
EMBO Young Investigator Lectures	11
FINANCIAL SUMMARY 2017	12
CONCLUSION AND OUTLOOK	13

INTRODUCTION

EMBO and EMBC

EMBO promotes excellence in the life sciences by supporting talented researchers, stimulating scientific exchange and advancing science policies in Europe and beyond. Since its creation in 1964, EMBO has created, developed and diversified a community of the best life scientists and enabled them to advance in their international careers.

EMBO is funded by the European Molecular Biology Conference (EMBC), an intergovernmental organization established in 1969. EMBC today has 29 Member States, two Associate Member States and two Cooperating Partners.

EMBO, EMBC and India

The Government of the Republic of India, EMBO and the EMBC signed a Cooperation Agreement to strengthen scientific interaction and collaborative research between India and Europe. As a result of this, India became an EMBC Associate Member State in January 2016. Consequently, researchers working in India are now eligible to participate in all EMBO Programmes and activities. Indian scientists can apply for funding through EMBO Programmes, such as EMBO Long-Term Fellowships for postdoctoral researchers, EMBO Short-Term Fellowships, EMBO Courses & Workshops, as well as EMBO Young Investigator Programme membership.

The EMBO Young Investigator Programme attracts some of the best young group leaders in Europe and partner countries who are in the first phase of setting up their independent laboratories. In addition to receiving funding, they join a programme of scientific networking and training activities for three years.

EMBO Long-Term Fellowships support young scientists who have just completed their doctoral thesis. They fund two-year research visits to laboratories throughout Europe and the world. International exchange is a key feature and an essential requirement. Training and networking activities and generous family support add additional value to EMBO Fellowships.

EMBO Short-Term Fellowships, a transnational exchange programme, fund research visits of up to three months. The aim is to facilitate collaborations with research groups applying techniques that are unavailable in the fellow's laboratory.

EMBO Courses & Workshops provide funding for practical courses of up to 20 participants to be trained in new technologies, and for scientific conferences and workshops for 80 to 400 participants to present and discuss new research findings. The events are organised by leading research scientists throughout Europe and in partner countries. The EMBO Courses & Workshops Programme makes state-of-the-art knowledge and technology accessible to the scientific community, promotes discussions and catalyzes collaboration. Travel grants and registration fee waivers benefit scientists from resource-constrained countries and institutions.

ACTIVITY REPORT 2017

In 2017, scientists from India applied for and participated in the activities listed below.

1. EMBO Young Investigators

Applications received: 67

Applications awarded: 1

Success rate: 1,5%

EMBO Young Investigators

Through the Young Investigator Programme, EMBO identifies and supports some of the best young researchers in the life sciences. EMBO Young Investigators are group leaders in the early stages of setting up an independent laboratory in EMBC Member or Associate Member States. They receive financial and practical support for a period of four years to help them develop skills and connections that will help them during this career stage.

Awarded to	Institution	Project
Arun Shukla	Department of Biological Sciences and Bioengineering, Indian Institute of Technology, Kanpur	Structure, function and allosteric modulation of G Protein-coupled Receptors

Associated Funding/Benefits

Awarded to	Award Type	Activity
Minhajuddin Sirajuddin	Grant	Research
Minhajuddin Sirajuddin	Travel Grant	Networking
Arun Shukla	Grant	Research

2. EMBO Fellowships

EMBO Long-Term Fellowships

The EMBO Long-Term Fellowships are awarded for a period of up to two years and support post-doctoral research.

Applications evaluated in 2017: 63 (62 from India + 1 to India)

Applications awarded: 2

Success rate: 3.2%

Awarded to	Institution from	Institution to	Project
Narayanan, Sharat	School of Biology, Indian Institute of Science Education and Research, Thiruvananthapuram	Biozentrum, University of Basel, Switzerland	Investigating the role of Peptidoglycan dynamics in Vibrio Cholerae T6SS Assembly
Jain, Vitul	International Center for Genetic Engineering and Biotechnology, Aruna Asaf Ali Marg, New Delhi	Division of Structural Biology (STRUBI), The Wellcome Trust Centre for Human Genetics, University of Oxford, United Kingdom	The role of neuropilins in determining the outcome of the semaphorin-plexin signalling

Additionally, EMBO received 39 applications for Long-Term Fellowships from Indian nationals that were requesting funds for postdoctoral research not involving international exchange with India. Five of these applications were accepted (12.8% success rate).

EMBO Advanced Fellowships

EMBO Advanced Fellowships offer an additional two years of funding for EMBO Long-Term Fellows who can demonstrate exceptional progress during their current postdoctoral work.

Applications evaluated in 2017 (Indian nationals): 3

Applications awarded: 0

EMBO Short-Term Fellowships

EMBO Short-Term Fellowships fund research exchanges of up to three months between laboratories in eligible countries.

Applications evaluated in 2017: 57

Applications awarded: 24

Success rate: 42%

Awarded to	Institution from	Institution to	Project
Pallavi Gupta	Indian Institute of Technology, Roorkee	International School for Advanced Studies, Trieste, Italy	Electrophysiology of neurons on carbon nanotubes reinforced polymeric scaffolds for neural tissue engineering applications
Janesh Kumar	National Center for Cell Science (NCCS), Pune	University, Maastricht, Netherlands	Structural basis of Ionotropic Glutamate Receptor regulation by their cognate auxiliary proteins
Suprabhat Mukherjee	Visva-Bharati University, Santiniketan	French Institute of Health and Medical Research (INSERM), Paris, France	Regulation of human dendritic cells and T cell responses by filarial surface antigens
Pallavi Gaikwad	Savitribai Phule Pune University, Pune	University, Würzburg, Germany	RNA Seq based Transcriptome analysis for Chironomus ramosus larvae after exposure to low dose of gamma radiation
Arshad Rizvi	University, Hyderabad	Instituto de Tecnologia Química e Biologia, Oeiras, Portugal	Comparative analysis of NMR data from sera samples of TB Indian and Portuguese patients for identification of differential metabolites
Sivan Pramod	Rubber Research Institute of India, Kerala	Swedish University of Agricultural Sciences, Umeå, Sweden	Role of pectins in biosynthesis of plant cuticle; an ultrastructural and immunolabelling study in mutant Aspen plants overexpressing pectate lyase (PtxtPL1-27)
Siddhi Vora	The Maharaja Sayajirao University of Baroda, Vadodara	Aarhus University, Denmark	Adaptation of Sinorhizobium fredii NGR234 in the rhizosphere of the Cajanus cajan -Zea mays intercropping system
Rohith Kumar Nellikka	Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram	Instituto de Biologia Molecular e Celular (IBMC), Porto, Portugal	To study the role of alpha fodrin in mitotic regulation
Sushma Krishnan	Indian Institute of Science, Bangalore	MPI für Chemische Ökologie, Jena, Germany	Investigating olfactory receptors to examine chemical dialects between figs and their wasps in geographically separate areas of India
Sivaranjani Murugesan	Alagappa University, Karaikudi	University of Helsinki, Finland	Elucidation of molecular mechanism of the antibacterial activity of alpha-mangostin on

			Staphylococcus epidermidis cells through Transcriptomic and Proteomic approaches
Mukul Rawat	Indian Institute of Science Education and Research, Pune	Université II, Montpellier, France	Characterization and comprehensive genome-wide analysis of histone acetyltransferase, GCN5 as a master regulator of stress responses in Plasmodium falciparum
Susmita De	National Institute of Technology Calicut, Kerala	Technical University of Munich, Garching, Germany	Understanding the effect of Be-MHC protein binding in beryllium toxicity
Kavita Kavita	Guru Jambheshwar University of Science and Technology, Haryana	Université II, Montpellier, France	Crispar Cas9 mediated Gene knockout of Amastigote specific genes in Leishmania donovani
Abhishek Vats	Sir Ganga Ram Hospital, New Delhi	University, Sheffield, United Kingdom	Establishing the zebrafish model to examine the proteotoxic effect of L84F SOD1 mutation associated with amyotrophic lateral sclerosis
Shrikant Harne	Indian Institute of Science Education and Research, Pune	ETH Zurich, Switzerland	Structural characterization of molecular machinery involved in Spiroplasma motility and helical shape determination
Deekshit	Nitte University, Mangalore	University College, Dublin, Ireland	Studying the genetic factors contributing to the survivability and adaptability of gut pathogens in antibiotic rich environment
Prabha Devi Sankaran	National Institute of Oceanography, Goa	Katholieke Universiteit, Leuven, Belgium	Studies on cono-toxins from the Indo-pacific cones for research and medicinal application
Hemendra Pal Singh Dhaked	Indian Institute of Technology, Mumbai	Paul Scherrer Institut, Villigen, Switzerland	Determination of the structure of FtsZ in complex with the antibacterial agents BT-benzo-29 and SB-RA-2001
Thibaut Lagny	Institut Curie, Paris, France	National Centre for Biological Sciences, Bangalore	Influence of myosin 1b on actin dynamics in cells
Nagender Rao Rameshwaram	Centre for DNA Fingerprinting and Diagnostics, Hyderabad	University, Gothenburg, Sweden	The glycosylation of Mycobacterium tuberculosis PPE68 protein – Involvement in immunogenicity and virulence

Gajraj Singh Kushwaha	International Centre for Genetic Engineering, New Dehli	Philipps-Universität Marburg, Germany	Structural studies on catalytic domain of stringent response protein RelA
Bharti Krishnamoorthy Dharapuram	Indian Institute of Science, Bangalore	Observatoire océanologique de Banyuls-sur-Mer, Banyuls sur Mer, France	Interpreting population genetics patterns in marine snails by simulating their larval dispersal in the Indian Ocean using oceanographic models
Nasheeman Ashraf	Indian Institute of Integrative Medicine, Jammu	University of Castilla-La Mancha, Albacete, Spain	Identification of novel regulators of apocarotenoid biosynthesis in <i>Crocus sativus</i>
Mahes Wari	Mother Teresa Women's University, Kodaikanal	University of Malta, Msida, Malta	Development of mutation screening system to detect predisposition to osteoporosis for high throughput molecular diagnostics

Additionally, EMBO received 11 applications for Short-Term Fellowships from Indian nationals that were requesting funds for research exchanges not involving international exchange with India. Six of these applications were accepted (55% success rate).

3. EMBO Courses & Workshops

Workshops or conferences funded by EMBO

EMBO Workshops are scientific meetings that bring together scientists to present and discuss their latest discoveries.

Applications received for events taking place in 2017: 5

Applications awarded: 2

Success rate: 40%

Main organiser	Type	Title	Held in
Carsten Janke	EMBO Workshop	Frontiers in cytoskeleton research	Pune
Soniya Eppurath	EMBO Conference	Micro and metabolic regulators in plants	Thiruvananthapuram

Courses funded by EMBO

EMBO Practical Courses offer training in emerging techniques, taught by experts. Practical courses promote the transfer of new methodologies between laboratories.

The EMBO Lecture Courses aim is to teach participants, primarily PhD students and postdoctoral researchers, about a particular topic in the life science. It should provide participants with background and underlying concepts, thereby making the topic accessible to scientists with diverse scientific background.

Applications received for events taking place in 2017: 3

Applications awarded: 2

Success rate: 67%

Main organiser	Type	Title	Held in
Aparup Das	Lecture Course	Malaria genomics and public health	Madurai
Darius Koester	Lecture Course	Experimental and theoretical approaches to cell mechanics	Bangalore

India-EMBO Symposia funded by EMBO

India-EMBO Symposia should address discovery and innovation through an interdisciplinary approach, with the speakers and participants discussing important global challenges in the context of the life sciences. India-EMBO symposia are jointly funded by EMBO and Wellcome Trust/DBT India Alliance.

Applications received for events taking place in 2017: 7

Applications awarded: 1

Success rate: 14%

Main organiser	Type	Title	Held in
Santosh Chauhan	India I EMBO Symposium	Autophagy: Cellular mechanism(s) and significance in health and disease	Bhubaneswar

Indian Scientists attending EMBO Courses & Workshops in 2017: 664

Travel stipends for Scientists from India to attend EMBO Courses and Workshops in 2017: 103

5. Funded Lectures

EMBO Keynote Lectures

EMBO Keynote Lecture	Organizer	Lecture name	Held in
Anthony Hyman	Smita Jain	9 th Young Investigators's Meeting 2017	Goa
Christopher M. Dobson	Samrat Mukhopadhyay	Intrinsically Disordered Proteins: Forms, Functions and Diseases)	Mohali
Victor de Lorenzo (2 lectures)	Sujoy Das Gupta Himanshu Sinha	Microbial metabolism, enzymology and regulation	Kolkata, Chennai

EMBO Young Investigator Lectures

EMBO Keynote Lecture	Organizer	Lecture name	Held in
Nicolas Plachta	Joyoti Basu	Quantitative single cell imaging to understand biological processes	Kolkata

FINANCIAL SUMMARY 2017

The approximate direct costs associated with the activities described in this document are summarized below:

- a) **EMBO Young Investigators**
EMBO Young Investigators are supported by EMBO during four years. There are currently two active EMBO Young Investigators in India: 1 selected in 2017 and the other in 2016. The average benefit per researcher in 2017 was 9,770 euros.
- b) **EMBO Long-Term Fellowships**
Long-term fellowships are awarded for periods of two years. Two candidates were selected in 2017 and one in 2016. The average cost of a long-term fellowship is 40,500 euros (excluding travel and allowances).
- c) **EMBO Short-Term Fellowships**
Short-term fellowships are awarded for a maximum period of three months. During 2017, 24 applications that directly benefited the scientific community in India were selected. The average cost of each one of these fellowships is currently 7,640 euros.
- d) **EMBO Courses & Workshops**
In 2017 five events took place in India. On average, each of them was funded by EMBO with 30,000 euros. This amount does not include the costs incurred by EMBO for providing the websites and registration systems.
- e) **Travel stipends**
In 2017 travel grants were provided to 103 researchers from India to attend EMBO Courses or Workshops. The average value of a travel grant was 530 euros.
- f) **EMBO Lectures**
In 2017 there were five lectures in India given by EMBO Members or EMBO Young Investigators. The estimated cost of each one of these was 1,370 euros.
- g) **Administration, communication and site visits**
The estimated cost of these activities during 2017 is 62,000 euros.

CONCLUSION AND OUTLOOK

EMBO is receiving a growing number of applications from India. This translated into an increase of the number of accepted applications, as summarized below:

EMBO activity	Awards (Applications) 2016	Awards (Applications) 2017
Young investigators	1 (21)	1 (67)
Long-term fellowships	1 (121)	2 (63)
Short-term fellowships	16 (38)	24 (57)
Courses and workshops	1 (2)	5 (15)
Travel grants	58*	103
Lectures	4 (4)	5 (5)

* EMBO previously reported 49 travel grants during 2016. The additional nine travel grants were processed after receiving all documentation, which only occurred after the 2016 report had been sent.

In summary, 2017 confirmed that there is a significant and growing interest from the Indian scientific community in EMBO and its activities. 2018 should further confirm this tendency and the number of applications and awards is expected to continue to grow.

In 2018, EMBO will also be funding two EMBO Laboratory Leadership courses in India. Moreover, in late 2018, a new initiative to further strengthen the interactions between the life sciences communities from Europe and from India will be launched. This new activity will provide networking opportunities for recently established group leaders to interact with each other. After a very successful year in intensifying the relations between the Indian and European life sciences communities, we believe that this new initiative will help to consolidate these interactions and help to establish long-lasting co-operation between scientists from these two geographically distant regions.