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Visiting Professorship Program Fosters Indo-US Co-operation

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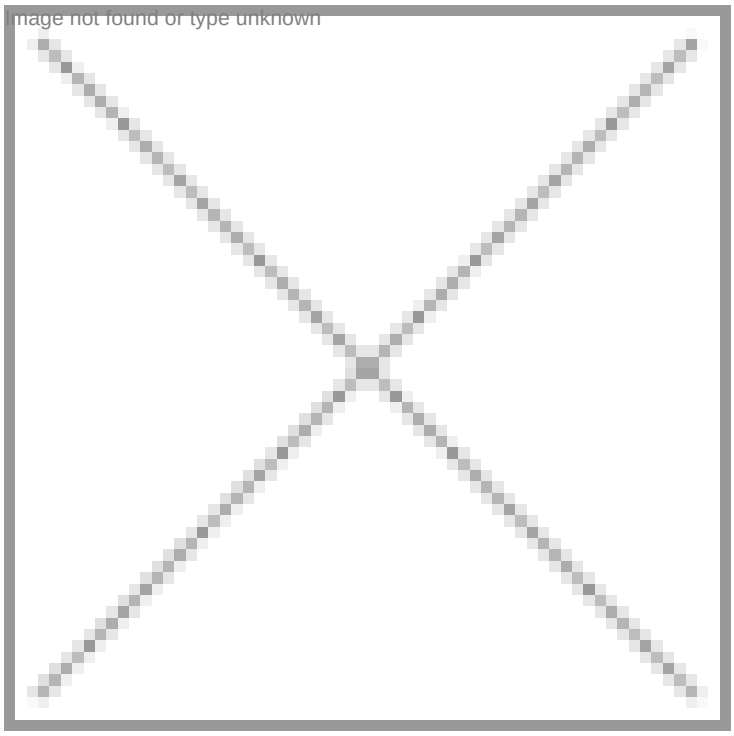

Indian scientists can partner with their American counterparts to build research collaborations, learn about US policies and other issues.

In 2001, shortly after anonymous letters containing powdered anthrax spores were discovered in the US, scientists in India announced the development of an affordable and effective vaccine against the deadly bacterium through a funding from the Department of Biotechnology (DBT). Development of this vaccine at the time of the US outbreak was merely coincidental as these scientists had already been working on this problem because of a prior anthrax epidemic in West Bengal. However, this illustrates how research and development (R&D) in India can add exceptional value to the global scientific enterprise in unique niches. Of course, this is not the only example, where the solution to a global scientific problem came from India.

India has had a long history of producing some of the world's best scientists in Physics, Chemistry and Mathematics. Today, India is at a juncture of unprecedented development in the field of biomedical research. Several factors contribute to the growth in this area. First, India has recognized the need to overhaul the R&D infrastructure in its university systems and the need for public-private partnership for the development of translational research. Second, by aiming to conform to the World Trade Organization's (WTO) agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) in 2005, India is now on a path to restructuring its patent regime so as to promote further innovation. Third, the Government of India continues to provide commitment and financial support to scientific and technological development as India becomes a knowledge-based economy. This trend is reflected in the recent boost of funding by DBT, which is also preparing to unveil a National Biotechnology Policy addressing measures to enhance competitiveness in both academic and industrial sectors and to encourage public-private partnerships.

The next wave of Science and Technology (S&T) development in India, following information technology (IT), is that of biotechnology and the pharmaceutical industry. Like the IT industry, where India serves as a major outsourcing hub for Britain and the US, the Indian drug industry â€“ long established leaders in generic drug markets under prior patent regime â€“ may soon churn out contract research organizations (CROs) catering to developed nations in the area of research-based drug development, particularly for downstream events in the development process, clinical trials and manufacturing. Multinational drug companies look towards India not only for cost savings but also for the knowledge base that India has to offer, such as in medicinal chemistry, chemical engineering and chemical/biomedical informatics.

Another major strength of India lies in the expertise of physicians and nurses. Going back to the case of anthrax epidemic in West Bengal, Indian scientists and physicians have a better understanding of microbial diseases that plague the developing world due to their direct experience with patients and conditions that are only subjects of medical text books in the developed world. Yet, with emerging and newly discovered infectious diseases and the ever-increasing threat of bio-terror agents, such expertise is in increasing demand even in countries such as the US. Indian scientists are in a position to take advantage of every opportunity for cooperation in the global village. Cooperation between Indian and American scientists on such subjects, where both stand to benefit from mutual expertise, can not only help in the advancement of science in the two nations but can actually benefit the global community.

Opportunities for Indian scientists

The Indo-US ASM Visiting Professorship Program in Microbiology, established from funds provided by the Indo-US Science & Technology Forum offers opportunities to Indian scientists and physicians for partnering with American counterparts. Administered by the American Society for Microbiology (ASM), which brings to this alliance its years of expertise, the Visiting Professorship Program is intended to foster exchange between the two countries in diverse areas of microbiology â€“ from classical bacteriology and parasitology to the recent advances of bioinformatics, functional genomics, proteomics or molecular epidemiology.

Since its inception in August 2003, six American scientists have been awarded the Indo-US ASM Visiting Professorship Program to partner with Indian scientists at various academic and research centers.

As one of the first recipients of this award, Professor Nirbhay Kumar from Johns Hopkins University in Baltimore, Maryland traveled to Karpagam Arts and Science College, Bharathiar University in Coimbatore. Together with his host, Professor K. Murugaiah, he presented a five-day workshop on Malarial Genomics involving teaching faculty from Chennai, Mumbai and Bangalore. The workshop was attended by 25 student participants who trained in parasite biology, treatment and prophylaxis, malarial immunology and genomics. As an outcome from this training workshop, the chairman of the college pledged (Rs 25 lakh) to set up a Malaria Research Center at the college. Malaria is one of the leading causes of sickness and death in the developing world

Dr Micah Krichevsky, chairman of Bionomics International, an educational foundation in Maryland, visited University of Pune to teach a course on concepts for establishing and operating a microbial culture collection, in cooperation with Dr Ashok Kolaskar, Vice-Chancellor of the University. Held at the Bioinformatics Centre, this five-day course was part of the International Conference on Biodiversity Informatics & Microbial Culture Collection (BIMCC) sponsored by several funds and focused on collection and management practices involving microbial cultures and data, and the use of the Internet in problem solving. Twenty six participants received electronic copies of presentations as follow-up resource to this coursework.

In cooperation with Dr Tapas K Maiti at the Indian Institute of Technology in Kharagpur, Dr Jamboor K Vishwanatha, from the University of Nebraska Medical Center presented a short course entitled "Genomics and Proteomics in Biomedical Research." The course, which included both hands-on presentations and discussions, was attended by nearly 75 participants that included full-time faculty of different departments, graduate students working towards their PhD and MTech. in

biotechnology and medical science, and undergraduate BTech students.

Professor Karl Klose from the University of Texas in San Antonio, Texas, offered a five-day course entitled "Molecular Genetics of Vibrio cholerae" in cooperation with Dr Sujit Bhattacharya, director of the National Institute of Cholera & Enteric Diseases (NICED), Kolkata (Calcutta). This course also involved other faculty members of NICED, and provided a group of 21 students a "hands-on" experience on the use of molecular techniques to study Vibrio cholerae pathogenesis. For Dr Klose, an American scientist who had been studying cholera for 12 years in the laboratory, it was a learning experience. He pointed out later to news reporters, "There's a real distance between studying the organism in a very academic way and actually seeing the impact of this organism on the human race ... it gave me a real appreciation of the impact of this organism that I've been studying for so long. Where it becomes very important to interact with Indian scientists is because they deal with the disease on a regular basis â€“ they know cholera and they deal with people with cholera."

Partnering for research collaborations

This is the purpose of the program â€“ to build cooperation in areas of mutual interest between India and the US. Its goal is also to help Indian and American scientists to explore unique opportunities. According to Dr Daniel Sordelli, chair of the International Microbiology Education Committee of ASM, "This type of program lets people from distant countries to get together to know professors in the States and establish future cooperation." And so, the cooperative activities continue. The Indo-US S&T Forum and the ASM seek the enthusiastic participation of Indian scientists in similar training programs in the US. Indian scientists can partner with American scientists to develop their own courses or offer courses as part of a workshop or symposium held in the US. They can also utilize this opportunity to build research collaborations, learn about US policies pertaining to public health, ethics, clinical trials, regulatory affairs, intellectual property issues and funding opportunities.

Details regarding the Programs and application procedures can be obtained from the ASM website: http://www.asm.org/International/index.asp?bid=2781.

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