Teaching and Research Initiatives in India

Science education and research in India are experiencing a huge fillip. In addition to cutting-edge and exciting research in existing institutes,[1] new and exciting educational initiatives have been set into motion in the past four years. This is not only transforming the opportunities for talented young students of science, but also providing an incentive for researchers to return to India now. However, the scale of these new Indian initiatives poses many challenges. This is mainly in light of a lack of adequately trained teachers and researchers in the cutting-edge areas of science in India today. This is particularly acute for biology, where the number of top-quality practicing scientists in the whole country of India just about approaches that in a medium-sized university system in the U.S.

Opportunity and Enthusiasm

In this regard, some of the members of the ASCB International Affairs Committee (IAC) felt that the membership of the ASCB provides a wonderful opportunity to draw on a pool of talented and inspiring teachers and researchers to help bridge this gap in India. In particular, we believe that this holds true in some specific areas where a set of identified institutes have expressed a need. To initiate this engagement, we contacted a few colleagues at three institutes to ask their views about what they would envisage for such a program. At the outset, this initiative has received very positive replies and reflects huge enthusiasm to engage with ASCB researchers in India.

In the initial phase of this engagement, the National Centre for Biological Sciences (NCBS) will serve as a nodal agency to coordinate arrangements in India. In addition to spending some time at any one or more of the institutes listed below, we hope that ASCB members will be able to visit NCBS during their stay in India. There they can engage with researchers and students and also give research seminar(s).

Biology coordinators at the newly founded Indian Institutes for Science Education and Research (IISER) have expressed an interest in having ASCB members visit India for a few months at a time and possibly teach a course at an Indian institution. The Institute names are abbreviated, as almost everything is in India, as the IISERs and the newly formed Stem Cell Biology Institute is called inSTEM (see below for an explanation of IISER and inSTEM). I think these institutions present an excellent opportunity for ASCB members to engage with an international effort in India.

Teaching an excellent freshman course could be very valuable at some places, while more advanced courses—including hands-on workshops—are what are needed at others. The presence of international researchers on campus interacting with the students over a period of a few months would leave an even more lasting impression. Workshops are also an important activity that will bring to bear the considerable human resource base of the ASCB to this exciting experiment in research and education in India.

The author (Satyajit Mayor, NCBS) and IAC Chair Jim Spudich (Stanford), along with Hema Somanathan and MK Mathew (for IISER, Trivandrum), L. Shashidhara (for IISER, Poona), and Jyotsna Dhawan (for inSTEM, Bangalore), have agreed to act as the initial coordinators. Interested participants may write to iac.ascb.org and queries will be directed as needed.

IISERs

The IISERs at Trivandrum and Poona are two of five such institutes set up by the government of India over the past four years. The others are in Mohali, Bhopal, and Kolkata. These Institutes admit students after high school for an integrated master's program—i.e., the students graduate with master's degrees in mathematics, physics, chemistry, or biology. The first two years of the program are common for all incoming students. The students choose their majors in their third year and graduate in five.

The IISERs are not exclusively undergraduate teaching institutions as they also have vigorous research programs and will (at steady state) be admitting graduate students in significant numbers—perhaps half as many as their undergraduate intake. They also plan to have their undergraduates undertake a year-long

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research project during their fifth year.

The initial batches of students admitted were drawn in large part from applicants to the Indian Institutes of Technology (IITs) and had ranked among the top in their entrance exam. They are, in general, very bright. However, many of them have limited exposure to or affinity for biology. It would be extremely valuable to expose these students to very well taught biology courses. Educators who could also inspire enthusiasm about biology are needed.

The IISERs aim to have many graduating students trained in different disciplines, with an affinity for biology. The IISERs' faculty was chosen for research that is intrinsically interdisciplinary and goes beyond the boundaries of conventional thinking. This is in addition to the faculty's obvious research accomplishments, promise, and teaching proficiency. One of the great strengths of IISERs is their interdisciplinarity. While purity of individual disciplines is maintained, IISERs have physicists, chemists, biologists, and mathematicians working shoulder to shoulder, without any departmental (or compartmental) structure. At IISERs, the ambience is very academic, energy levels are high, and there has been great enthusiasm among the faculty and students to carry out high-quality research.

inSTEM Bangalore: www.ncbs.res.in/inStem

inSTEM is an autonomous institute of the Department of Biotechnology, India. It is located at and nurtured by the NCBS, Bangalore. The mandate of inSTEM is to serve as the umbrella organization for three initiatives: 1)inSTEM itself, at its Bangalore premises, represents the core intramural program for interdisciplinary basic and translational research in the areas of stem cell and regeneration biology; 2)the Center for Stem Cell Research located at CMC Vellore, a center for translational and clinical research in stem cells and regenerative medicine; and 3) an Extramural Program in Stem Cell Research, a funding initiative for support of stem cell research nationwide.

Prof. Jyotsna Dhavan, one of the deans at inSTEM, thinks that the initiative to engage the ASCB in educational programs in India is very timely. InStem is beginning to develop its graduate program and would be very interested in mechanisms that would not only help define course structures but also create ways to involve an international faculty in this collaborative process.

I hope that ASCB members will visit www.ascb.org/iweb/membership/membercontentnews.aspx (member login required, then click on "Teaching Opportunities in India") to take advantage of these wonderful opportunities to share their knowledge and enthusiasm in India. ■

—Satyajit Mayor, on behalf of the ASCB International Affairs Committee

Reference

[1]Vale RD, Dell K. (2009).The biological sciences in India: aiming high for the future. *J Cell Biol* 184, 342–353.

Cottam Honored as Young UK Cell Biologist

Nathanael Cottam

Nathanael Cottam of the University of York has received the 2010 British Society for Cell Biology (BSCB) Young Cell Biologist of the Year Award. The award was presented at the April 2010 BSCB meeting at the University of Warwick, UK. Cottam was awarded for his work on "A Cell-Free Vesicle Tethering Assay."

The award is presented to a PhD student who has not yet received a degree and who is the first author and presenter of a poster at the BSCB spring meeting in any area of cell biology. Cottam will receive an expense-paid trip (compliments of BSCB) and meeting registration (compliments of ASCB) to attend the ASCB's 2010 Annual Meeting in Philadelphia. Cottam will present his poster during the ASCB Annual Meeting, and will report on his meeting experience for both the *ASCB* and *BSCB Newsletters*. ■

—Thea Clarke