

Top students such as Mufaddal Soni will help foster a vibrant scientific community between Wisconsin and India.



Science Ambassadors

An exchange program helps create a “seamless scientific community” between the United States and India

by Masarah Van Eyck

WHEN MUFADDAL SONI spent a summer researching type 2 diabetes in the lab of CALS biochemistry professor Alan Attie, he was surprised by the degree of autonomy that he enjoyed, even as an undergraduate.

“The work culture was really different,” remembers Soni, then a visiting student from Chennai, India. “Everyone in the lab was really independent.” In fact, he admits, it was a bit disconcerting to have “the liberty to do any experiment and not be questioned at that time.”

But for Soni and many of the some 15 research interns from India who come to CALS for 10 weeks each summer as part of the Khorana Program for Scientific Exchange, the benefits of learning to work with such autonomy outweigh the discomfort. “It helps you grow as a person,” Soni says.

And the Khorana program helps CALS grow as a presence in India, one of the world’s fastest-growing economies. The brainchild of CALS biochemistry professor Aseem Ansari and Ken Shapiro, former associate dean of CALS International Programs and a CALS professor of agricultural and applied economics, the Khorana program was founded four years ago in response to the many requests Ansari was receiving from cream-of-the-crop young Indian scientists seeking research opportunities in his lab.

“I knew some of these students were very, very good,” says Ansari, who was raised in Mumbai. And he recognized the long-term benefits of such a program

PHOTO BY WOLFGANG HOFFMANN

President Barack Obama learning about CALS soil testing in India during a recent visit.

to CALS. "These students will be leaders, and their eyes were opened for the first time at UW-Madison," says Ansari. "They are the best ambassadors we could have."

He and Shapiro saw the opportunity for CALS to forge stronger ties with an emerging global power committed to educational and scientific excellence. The Khorana program, including its rural development arm (see sidebar), aims to foster what Shapiro calls a "seamless scientific community" between the United States and India.

Its name pays tribute to Har Gobind Khorana, who received the Nobel Prize in 1968 for his work—while a member of CALS' biochemistry faculty—showing how nucleotides in nucleic acids, which carry the genetic

code of a cell, control the cell's synthesis of proteins. "There is a real value to having the Khorana name on this program," says Ansari, noting that Khorana never would have had the opportunity to make such research strides in India at that time. "It's a living symbol of how this exchange benefits both cultures."

Such exchanges are more important now than ever. "In this day and age, you need to understand the global aspects of research and be able to communicate across cultures," says Shapiro. "These students will become part of international labs. The sooner they become able to operate in such contexts, the better for them."

The experience leads to lasting connections. Some young scientists, like Soni, even return to CALS as graduate students, recruited by the faculty they met as interns. Now a doctoral candidate in the Integrated Program in Biochemistry (IPIB), Soni continues to study type 2 diabetes in Attie's lab.



PHOTO COURTESY ASEEM ANSARI



Har Gobind Khorana meeting Khorana exchange students on campus.

But more than simply providing a space for Indian scientists to train, Ansari and Shapiro wanted to create an enriching exchange experience that would emphasize the diversity of cultures both inside and outside the lab.

As part of it, CALS undergraduates travel to India and conduct research—often their first opportunity to do so—in some of the best laboratories in India, including the National Center for Biological Sciences (NCBS) and AstraZeneca in Bangalore. There each intern experiences scientific research—and life—in a remarkably different culture from his or her own.

Erica Barts, a CALS biochemistry major who spent last summer interning at NCBS, was surprised by the amount of time the Indian researchers spent in the lab, working Monday through Saturday and typically staying until after 8 p.m. "I realized that to work with science, you need to have patience because the reactions and time processes take a while to get quality results," Barts says.

Barts gained research experience that will help her no matter where she chooses to work. "I had read about transformation, Western blots and transfections before, but I was never able to actually perform the experiments," she says. "This was a really nice opportunity to get hands-on experience and practice what I have been learning."

The Khorana program is resonating with funding agencies in both countries and will expand to other campuses, Ansari says. By 2013, up to 100 students from each country per year could be involved in Khorana exchanges. 

Help on the Ground

In addition to student exchanges, the Khorana program supports rural development projects between CALS faculty and partners in India. CALS and UW Extension dairy scientists Jerry Guenther, Bob Kaiser and Ken Bolton, for example, are working with women's self-help groups through the Rajiv Gandhi Charitable Trust to improve dairy productivity in the state of Uttar Pradesh, one of the poorest places in the world. Their efforts helped double the dairy and agricultural productivity of many of the some 50,000 families they worked with, notes Aseem Ansari.

And CALS soil scientist John Peters, director of the University of Wisconsin Soil Testing Labs, partnered with Indian industrial conglomerate Mahindra and Mahindra to establish a nationwide network of some 120 soil testing laboratories and full-service agricultural assistance centers, called Samriddhi Centers from the Hindi word for "prosperity."

Peters recently returned from almost two years in India, where he helped establish the centers and train staff. "In general, the farmers traditionally follow the same practices as their predecessors and neighbors," he says. "Now they can actually know the acidity, alkalinity, salt content and nutrient levels of their soils to make sound decisions regarding their farming practices."