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Conversation with the Board

J. Keith Motley, PhD

J. KEITH MOTLEY, PHD, SAYS HIS connection to BSCP "starts where everyone else's starts, the dimensions of mentoring, sharing opportunities we may not have had." Then he chuckles. "But the main connector is Joan; her persistence is infectious." Motley, chancellor of the University of Massachusetts Boston, has known Joan Y. Reede, MD, MPH, MBA, since he became dean of the African American Institute at Northeastern University in the late 1980s.

Motley recalls that during his time at Northeastern, he and Reede, who had not officially launched BSCP but was already addressing the issues that led to its formation, worked together to create a pipeline for his students to the life sciences. "When I came to UMass from Northeastern in 2003 I got a little more involved because I joined the Board," he says. The educator learned the benefits of mentoring early. When he was in the sixth grade in Pittsburgh, Motley was selected to be among a group of students to study computers at Community College of Allegheny County. He loved it. As he grew older, "I thought I would be part of a group getting into speech pathology in a clinical setting," he says. Then, in college, he witnessed his first laryngectomy and the recovery process, and he walked away from the thought

of going into any health-care-related profession that might mean an encounter with blood. "The blood was too much for me," he says, and he turned his attention to a career in education.

But from the moment he entered the community college program and later, as part of the University of Pittsburgh Upward Bound program, Motley says, "There was never a time I didn't think I was college bound." Along the way, Motley had people like himself, or what he calls "bridge leaders," who may have been culturally different but acted as a bridge for him to the next level, helping him get to where he wanted to go next. He is still in touch with some of the mentors he met when he was in sixth grade, people who were "giants in their field."

"So I want to do that for others," he says. "It would almost have been hypocritical of me not to do it for others since people did it for me."

That is why he spends as much time as he can with BSCP — attending "everything I can." He and other faculty at his school spread the word about the organization on campus, where the majority of STEM majors are minority students, and BSCP students tell others about it. Motley brings students from the UMass Boston campus to the networking events before



J. KEITH MOTLEY, PHD

conferences and introduces them to people there. For some, it may be the first time they meet a researcher who started out planning to practice medicine, which can be an eye-opening experience. "It's amazing to see it happen," he says.

"There is hardly anyone on this campus who's successful who hasn't had a mentor, and we're very proud that we carry on the tradition," Motley says. ■

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Job Opportunities

Regulatory Affairs

FOR UNDERGRADUATE AND GRADUATE students in the biomedical sciences who think they might enjoy working in the biotechnology or pharmaceutical industry, regulatory affairs is a burgeoning area worth exploring. Though companies may structure their organizations differently, the responsibility of this group is to help guide product development, from pre-clinical trial through marketing, toward FDA approval. According to Cindy Theodos, associate director of regulatory affairs at Biogen Idec in Cambridge, Massachusetts, "Regulatory is an exciting area. ... The job is never the same two days in a row. It's always interesting, always challenging."

Theodos, who joined Biogen Idec in 2001 after eight years on the faculty at the

Cummings School of Veterinary Medicine at Tufts University, says the skills students learn as scientists — how to think creatively, form hypotheses, search a database, for example — prepare them well for the field. "Having a basic understanding of science helps a lot," she maintains.

At Biogen Idec, a global biotechnology company that develops and delivers therapies for a range of diseases and conditions to patients throughout the world, the Regulatory Affairs department has about 125 members and is divided into six sub-groups. The two main offices are in Cambridge and Maidenhead, UK, with satellite offices in Canada, Australia, Japan and China. The six sub-departments and their functions are:

- Regulatory Development, which provides guidance to the pre-clinical and clinical departments during drug development and the post-marketing setting for live-cycle initiatives;
- Regulatory Chemistry, Manufacturing and Controls (CMC), which is responsible for developing global submission content and supporting activities for the development, manufacture, release and distribution of clinical and commercial products;
- Regulatory Global Labeling, which works with many departments to develop core labeling information that forms the basis of those package inserts we receive with our prescription medications;

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Where Are They Now?

Sederick Rice, PhD

WHEN SEDERICK RICE, A NATIVE OF Pine Bluff, Arkansas, first got to the University of Vermont (UVM) to work on his PhD, "for about a year and a half I avoided BSCP," he says, despite the urging of his professors to become involved. He was stressed out about school, struggling to adjust to life in the Northeast and neither knew nor cared what this alphabet soup of an organization was all about.

Lise Kaye convinced Rice to come to Boston. "I was blown away," Rice says. "They opened up a wealth of knowledge and opportunity for me. Not only did I go to the [Biomedical Careers Student] Conference, I began bringing students to the conferences." Three years after attending his first BSCP Conference in 1998, Rice was a HOPE Scholar, which allowed him to buy his first computer. "Just the ability to purchase a device to help with my studies was key," he recalls.

Today the father of three is an assistant professor of biology at the University of Arkansas at Pine Bluff, where he received his BS in biology in 1994. He teaches undergraduate and graduate biology, genetics, cell biology, bioinformatics, computational sciences, and anatomy and physiology. He also mentors students in the school's STEM Academy and Ronald McNair Scholars Program. But the path from student to teacher wasn't direct. Back when he was at UVM, "I had ideas of getting my PhD, working in research and making lots of money," he says. "But God had another plan."

Throughout his life, Rice's two passions have been science and music. He details both in his memoir, *Four Tubs, a Guitar, and a Gallery of Cheerleaders: Transition in the Life of a Black Ph.D.* He says the book "is about my growth, maturity, and life journeys that interconnected me with people who encouraged, motivated, and criticized my steps with love, compassion, and care."



SEDERICK RICE, PHD

And it's his way of thanking those people. At the University of Arkansas, he played the tuba for the Marching Musical Machine of the Mid-South. After graduating, he pursued an MS in biology from Delaware State University (DSU), where he performed with the DSU Approaching Storm band. At UVM, he received a PhD in cellular and

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Speaker Profile

Robert S. Langer, ScD

Robert S. Langer, ScD, the David H. Koch Institute Professor at the Massachusetts Institute of Technology (MIT), delivered the keynote address at the New England Science Symposium on March 2 this year. There are only 14 Institute Professors at MIT, the highest honor awarded to a faculty member. A biomedical engineer who focuses on biomaterials, Langer is renowned for his revolutionary work on new and different ways to administer drugs to patients.

At MIT's Langer Laboratory, he has developed a variety of novel drug-delivery systems based on polymers, including materials that can release drugs continuously over a prolonged period of time. In the field of nanotechnology, he is developing particles that precisely target disease sites, including tumors. Langer is also a pioneer in the field of tissue engineering, where his discoveries led to the creation of new tissues such as artificial skin for burn victims. Currently, he is working on engineering more complex tissues, such as cardiac-tissue scaffolds that include electronic sensors.

After receiving his ScD in chemical engineering from MIT in 1974, instead of going to work in the petroleum industry, as



ROBERT S. LANGER, SC.D

most of his fellow graduates did, Langer took a postdoctoral position in cancer research with Judah Folkman, MD, at Children's Hospital in Boston. Working in Folkman's lab, he developed polymers that allowed the large molecules of a protein to pass through membranes in a controlled manner to inhibit angiogenesis, the process by which tumors recruit blood vessels. This is critical in fighting cancer because the new blood vessels sustain tumors and are thought to allow their cells to escape into the circulation and lodge in other organs. "There's no question that my

decision to join Judah's lab exposed me to things I'd never seen, and that few chemical engineers at the time had seen," he said.

The most cited engineer in history, Langer has more than 810 issued and pending patents throughout the world. He has received more than 220 major awards. At a White House ceremony in February, President Barack Obama gave him the National Medal of Technology and Innovation. He is one of only a handful of Americans to have received both that and the National Medal of Science (in 2006). He has also received the Charles Stark Draper Prize (considered the engineering Nobel Prize), the Lemelson-MIT prize, for being "one of history's most prolific inventors in medicine" and Israel's Wolf Prize in Chemistry, which will be presented by President Shimon Peres in May. Langer is one of the few people to be elected to the Institute of Medicine, the National Academy of Engineering and the National Academy of Sciences.

He received his BS from Cornell University in 1970 and his ScD from MIT in 1974, both in chemical engineering. ■

SEDERICK RICE

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molecular biology, with special emphasis in pediatric oncology and environmental toxicology. He was selected as an American Association for Cancer Research (AACR) Minority Scholar in 1998/2002 and researched the genotoxic effects of chemotherapy in children with acute lymphocytic leukemia. After receiving his PhD, he accepted a post-doctoral position at the National Center for Environmental Assessment (NCEA) in Washington, D.C., as a research biologist/toxicologist.

In 2006, Rice's career took a turn. He became a public school teacher at Bowie High School in Maryland. "What I didn't understand, going into teaching," he says, "was that a PhD wasn't enough." The highly educated and experienced mentor had to return to the classroom as a student to become certified as a teacher. "I really appreciate the opportunity, though at the time I didn't understand why I had to take all those courses," he says. Rice enjoyed teaching high school and says it made him the effective instructor that he is today. He remained in Maryland until 2010, when he decided to return home, in part because his mother was ill.

He has been teaching at his alma mater ever since. A highly sought instructor, he always tries to show his students the value of science "and what it can be used for." He is currently working on two grants for student training, one to establish a laboratory at his school for pancreatic cancer research where he could hire and train students, helping them transition to graduate programs around the country.

Through the grants, Rice says he hopes to be able to start bringing his students to Boston for BSCP conferences. "BSCP created a model of mentoring and support that is the same model that I operate now." ■

SAVE THE DATES

Biomedical Science Careers Student Conference

The Westin Hotel Copley Place, Friday, April 4 and Saturday, April 5, 2014

Audience: Postdoctoral fellows, medical/dental/graduate students, post-baccalaureates, college and community college students, high school seniors and juniors

New England Science Symposium

Harvard Medical School, Sunday, April 6, 2014

Audience: Postdoctoral fellows, medical/dental/graduate students, post-baccalaureates, college and community college students. For more information, contact Lise Kaye, lise_kaye@hms.harvard.edu or (617) 432-0552.

Reminder

Please remember to update your contact information and post your resume at www.bscp.org. Click on "Update /Submit Your Information," then enter your information under "Current and Former BSCP Participants."

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JOB OPPORTUNITIES

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- Regulatory Advertising, Labeling and Promotions (ALP), which develops region-specific labels, maintains and updates product labeling, files requests for a drug's trade name and reviews all promotional materials and external communications (e.g., press releases);
- Regulatory Operations, which prepares and submits all of the submissions that are filed with regulatory agencies globally; and
- Regulatory Intelligence, which conducts surveillance and analysis of the regulatory and development landscape, searching

for changes in policy from global regulatory authorities, including new legislation, regulations and guidance documents.

Smaller companies may have a single person or a single group handling all of these activities, but the goal is the same.

Eydith Comenencia, a former BSCP student and Hope Scholar, has been working at Biogen Idec since September 2012. She is in a program rotating through the Regulatory Development, Regulatory ALP, and Public Affairs departments. Comenencia, who joined the company after receiving her PhD from Tufts University, says she learned about Biogen Idec through BSCP. Regulatory affairs, an area she admits to

knowing nothing about a mere two months before her first visit to Biogen, appealed to her. "It was a really nice transition from basic research, because regulatory affairs is an area outside of the bench where having scientific training is still useful," she says, adding that the rotational program allows her to gain exposure in two regulatory affairs groups as well as on the policy and patient advocacy areas of public affairs that are also of interest to her.

"When you're in the academic environment, sometimes it's difficult to see how what you do will make a difference," she says. "Here, you know that what you work with every day has the potential to have a direct impact in patients' lives." ■