

**H**ow does a faculty member, year after year, get Nobel Laureates to talk to his class and deliver public lectures on his campus?

Robert Broyles ponders the question. Sitting in the eighth-floor office he shares with an aquatic frog, Broyles is surrounded by floor-to-ceiling books. The inevitable piles of journals and paper cover available surfaces. The frog's aquarium hums from atop a file cabinet.

"Well, you have to have the gall to ask," he responds with a grin.

Over the past seven years, with surprisingly little fanfare, the professor of biochemistry and molecular biology has brought 10 Nobel Laureates to the OU Health Sciences Center. Three more are coming this spring for the seventh annual class and lecture series on Advanced Topics in Human Molecular Genetics.

Broyles agrees that 13 Nobel Laureates is pretty remarkable.

Other notables have come, too, he points out. By the end of the spring semester, he will have brought 33 members of the National Academy of Sciences and 12 Howard Hughes Investigators to the Health Sciences Center.

In addition to the superstars who have been recognized formally for their accomplishments, Broyles also invites scientists who are "working in an area of exceptional significance to human genetics" and the "up-and-comers who have done something new and unusual." Every spring, his current crop of graduate students has the opportunity to learn from a dozen or more of the nation's top genetic researchers—and interested Oklahomans have a chance to hear these remarkable men and women during public lectures.

Broyles explains how it all got started. In 1992, he had just returned to the HSC from the National Institutes of Health, where he spent two years as a consulting molecular biologist, furthering his investigation of hemoglobin gene regulation and seek-



Lanny David

A distinguished research scientist and teacher in his own right, OUHSC's Robert Broyles brings an amazing number of eminent colleagues, including Nobel Laureates, to Oklahoma as participants in his annual lecture series.

ing ways to infuse more molecular biology into the study of kidney and urologic diseases.

While at the NIH, he organized a symposium—a task that involved securing the services of 20 prominent speakers. Back in Oklahoma, he decided to invite some of the world-class scientists he had met through the symposium to visit his human genetics class and participate in a lecture series during the 1993 spring semester.

Then he held his breath, knowing that success was far from assured. "I learned more than molecular biology at the NIH," he explains.

He learned that accomplished scientists are a reluctant bunch when it comes to accepting speaking engagements. They do not say "no," but they do not say "yes" either. Broyles knew that success depended on a catalyst. Once a genuine heavyweight came on board, the rest of the program would fall into place.

He always will be grateful to Y. W. Kan of the University of California-

San Francisco for being the first scientist to accept an invitation to participate in the brand-new venture. Kan, the first to use molecular biology for prenatal diagnosis of an inherited blood disorder, definitely qualified as a heavyweight.

When Broyles informed the other invitees that Kan had accepted, most of them also agreed to come. If someone of Kan's caliber was willing to travel to Oklahoma City to talk to a graduate class and deliver a public lecture, perhaps they, too, could find the time.

Another participant in the 1993 series was Donnell Thomas, a Nobel Prize winner for his pioneering work with bone marrow transplants.

That first year was so successful that Broyles decided to try again in 1994, with two Nobel winners on the program. A tradition was in the making. In 1995, there were three Nobel Laureates, with one in 1996 and two in 1997 and 1998.

In spite of his track record, Broyles still holds his breath until he has that first major acceptance. The catalyst for the upcoming series is Nobel Laureate Harold Varmus, director of the National Institutes of Health. Broyles knew when Varmus said "yes," he was in business. Soon, the others began to accept, including Nobel Laureates Thomas R. Cech and Gobind Khorana.

"Once they get here, everyone is always surprised," Broyles says. "They are surprised to see this big medical center here in Oklahoma, surprised at the quality of the science and the scientists and students."

He makes sure that his students have ample opportunity—in and out of the classroom—to visit with the scientists. "It's useful for students to be introduced to very famous people and ask themselves what makes these individuals so outstandingly successful," he says.

Whenever a Nobel Laureate delivers a public lecture, Broyles anticipates a full house, with faculty, students and the general public in atten-

dance. With the non-Laureates, the audience is mostly from the academic community, including faculty and students from local high schools and other Oklahoma colleges and universities.

Sometimes, however, even a non-laureate attracts a lot of attention. This was the case last year when Keith Campbell, from the Scottish group that cloned Dolly the sheep, and three other scientists delivered lectures on the medical aspects of human cloning. Two years ago, Dean Hamer, the NIH researcher who found a genetic link to homosexuality in males, drew a large and curious crowd.

"When I introduce a speaker, I focus on the educational endeavor," Broyles says. "I point out that we have gathered in the spirit of free inquiry to learn and examine new knowledge."

With the growing awareness of the importance of the Human Genome Project, he predicts that the January 19 lecture by project director Francis Collins will be well attended.

He also anticipates that the May 6 lecture on spinal-cord regeneration by Mary Bartlett Bunge, of the Miami Project for Paralysis, will be of great interest to the public.

"In my opinion, if Christopher Reeve and others with spinal cord injury are ever restored to health, it will be because of Mary Bartlett Bunge and her group in Miami," Broyles says.

Occasionally these scientific visits take on an added dimension. Post-doctoral opportunities have developed for Broyles' students. He and his HSC colleagues have made valuable contacts and established scientific collaborations. The Dolly group recently invited Broyles to write an article for a special journal issue.

He is always on the lookout for future lecturers, making trips back to the NIH and attending scientific meetings. More and more, his colleagues from OU and the Oklahoma Medical Research Foundation put in requests for a scientist they would like to meet. Broyles says he invites people who are not only prominent in the field of human genetics but would be "good with the students."

He admits that the lecture series has taken on a life of its own. It is stealing away more and more of his hours at a time when he is at such an exciting place in his own research. His

recorded voice-mail message—"We seek to cure sickle cell by the year 2000"—demonstrates that excitement.

Broyles is striving to cure the disease by switching off the sickle gene and switching on the fetal hemoglobin gene. "We believe we have found a key component of that switch—a DNA-binding protein," he says.

His finding has met resistance, however. Most hematologists believe this particular protein is not found in the cell nucleus, where the genes are located. Now, however, other groups have confirmed its existence in the nucleus, which should make it easier for Broyles to secure funding to prove his theory.

Currently, the lecture series Broyles founded is supported on a year-to-year basis by the HSC provost's office and the Presbyterian Health Foundation. He wonders if it is time to seek an endowment that would provide for staffing and assure the future of the series.

"It is the best of its kind," he says. "I would like it to continue."

—JUDITH WALL

OU Health Sciences Center Public Affairs

## 1999 Advanced Topics in Human Molecular Genetics

- Jan. 12: Harold Varmus, *Nobel Laureate*, director, National Institutes of Health.
- Jan. 19: Francis Collins, director, Human Genome Project and member, National Academy of Sciences, "The Human Genome Project and the Future of Medicine."
- Jan. 26: Thomas R. Cech, *Nobel Laureate*, University of Colorado, Boulder, "Telomerase in Aging and Cancer."
- Feb. 4: Gordon Keller, National Jewish Medical and Research Center, Denver, "Immortalization of Embryonic Hematopoietic Cells by HOXII." (Co-sponsored by Oklahoma Medical Research Foundation.)
- Feb. 16: Timothy C. Thompson, Baylor University, Houston, "Induction of Apoptosis in Prostate Tumors."
- Feb. 23: Steven L. McKnight, UT-Southwestern, member National Academy of Sciences, "Gene Regulation and Its Modulation to Treat Human Diseases."
- Mar. 2: Brian Sauer, Oklahoma Medical Research Foundation, "Inducible Gene Targeting in Mice Using Cre/lox."
- Mar. 23: George Stamatoyannopoulos, University of Washington, founder, ASGT, "Gene Therapy: Progress, Prospects and Promise."
- Mar. 30: Connie Eaves, Terry Fox Laboratory, Vancouver, B.C., "Ex Vivo Manipulations to Optimize Stem Cell Gene Transfer."
- Apr. 6: Margaret Goodell, Texas Children's, Baylor University, Houston, "CD34(-) Hematopoietic Cells: A New Target for Gene Therapy?"
- Apr. 8: Mien-Chie Hung, University of Texas/M.D. Anderson, "Cationic Lipid-mediated Gene Therapy for Cancer."
- Apr. 20: Gobind Khorana, *Nobel Laureate*, MIT, "Rhodopsins and Intramolecular Charge Transfer in Vision."
- Apr. 22: Jon Wolff, University of Wisconsin, "Naked DNA for Gene Transfer in Mammalian Cells."
- Apr. 29: Robert Floyd, Oklahoma Medical Research Foundation, "Free Radicals in Alzheimer's: From a Research Hunch to New Therapeutic Approaches."
- May 6: Mary Bartlett Bunge, Miami Project for Paralysis, "Axonal Regeneration in Adult Mammalian Spinal Cord."

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