

UPFRONT

RYAN LEE



Wesleyan Joins State Stem Cell Initiative

OLIVIA BARTLETT



Wesleyan has gained a key role in Connecticut's effort to foster stem cell research.

Among the handful of states that have authorized research on stem cell lines other than the limited number approved by the federal government, Connecticut has taken the lead by allocating \$100 million over the next decade. The state awarded \$5 million in November to establish two independent research centers where research on unapproved cell lines can be conducted without violating federal guidelines.

Wesleyan was a corecipient with the University of Connecticut of \$2.5 million for one of the Human Embryonic Stem Cell Core Facilities, which will be located in Farmington. Professor of Biology Laura Grabel is the new codirector, along with a colleague from UConn. Yale will direct the other facility and also received \$2.5 million.

Separately, Grabel received \$878,000 in state funding for a stem cell research project related to epilepsy and to identifying signals that push embryonic stem cells towards becoming neurons.

Grabel has been outspoken in her criticism of the federal guidelines, which severely restrict the ability of scientists to work with human embryonic stem cells thought to hold great potential for treatment of numerous diseases. The restrictions are particularly onerous for academic scientists since virtually every university with a significant research program receives federal funds. In response, states including California, New Jersey, Maryland, and Illinois have

opted to fund stem cell research on their own. In no other area of scientific research has politics produced such a fissure between the states and the federal government.

Grabel welcomed Connecticut's initiative for providing "a world-class facility that will be a tremendous benefit to the state's residents as well as our faculty and students. We'll be training a whole new generation of stem cell researchers."

Grabel's individual grant will fund her study of how to generate neurons from embryonic stem cells and how to improve the process of implanting stem cells in the brain in order to generate new, healthy neurons. "In some cases the stem cells become healthy neurons; they migrate and form connections with other neurons," she says. "They appear to integrate into the host brain quite well. But this doesn't happen every time. We'll be looking at how we might improve the chances of a positive outcome."

She has done similar work using mouse embryonic stem cells transplanted into a mouse model of epilepsy, but will now have the opportunity to use human embryonic stem cells. "This is going to be far beyond what we were able to do before," she told the *New York Times*.

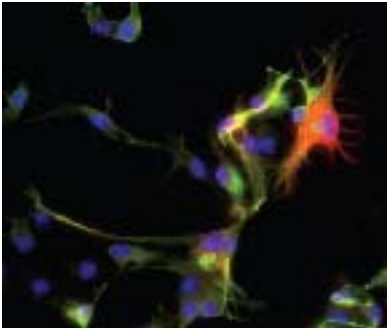
Grabel's coinvestigators are Janice Naegele, chair and professor of biology, and Gloster Aaron, assistant professor of biology. This same team, under Naegele's leadership, is undertaking another stem cell project pertinent to epilepsy, thanks to a new \$300,000 grant from the McKnight Foundation.

This work involves a mouse model for human temporal lobe epilepsy. The group, also including a neurobiologist at New York University, will attempt to take mouse embryonic stem cells and induce them to form a type of neuron responsible for a key chemical messenger in the brain that reduces seizures. Their hope is to implant these neurons (called GABAergic neurons) and have them function in the brains of mice that have epilepsy.

Although animal epilepsy isn't identical in all facets to the human counterpart, it is close enough that success in this project would go a long way to help scientists understand potential treatment implications for humans.

This three-year study will involve postdoctoral students, five doctoral students, including one who has worked with human embryonic stem cells, and undergraduate students at Wesleyan.

"This is really exciting because it is bringing together three labs here and a lab at NYU," Naegele says. "The expertise in each complements the others. It's a more risky study than others in this area, but the potential information we can generate will really be useful as we move forward investigating if this can be an effective treatment for epileptic seizures." **UPFRONT**



Wesleyan scientists Janice Naegele (foreground), Laura Grabel and Gloster Aaron are pursuing stem cell research under Connecticut's new \$100 million, decade-long initiative. Embryonic stem cells are shown above making neurons; large blue nuclei are prominent.

Wesleyan Ranks

RYAN LEE



- #1 National Science Foundation (NSF) funding among liberal arts peers
- #1 Science and math publications among liberal arts peers
- #3 *Washington Monthly* ranking based, in part, upon service
- #6 *U.S. News & World Report* ranking for academic reputation
- #7 *U.S. News & World Report* ranking among "Most Economically Diverse Liberal Arts Institutions"
- #8 Wesleyan athletics' NCSA Power Ranking among Div. III schools
- #10 *U.S. News & World Report* ranking among liberal art colleges in 2006
- #10 *Black Enterprise* Top 50 U.S. colleges/universities for African Americans

Connecticut Professor of the Year

Scott Plous, professor of psychology, was named the Connecticut Professor of the Year by the Carnegie Foundation for the Advancement of Teaching and the Council for Advancement and Support of Education (CASE).

This designation means he is among only 43 professors working in the United States, the District of Columbia, and Guam to be considered a 2006 U.S. Professor of the Year.

"It was quite a surprise, as you can imagine," Plous says.

The goal of the U.S. Professors of the Year Program is to increase awareness of the importance of undergraduate instruction. In recognizing faculty members for their achievements as teachers, the award gives institutions an opportunity to celebrate excellence and provide models for faculty and students.

Plous, who joined the Wesleyan faculty in 1990, is an expert on the psychology of prejudice and discrimination, decision-making, and the human use of animals and the environment.

The CASE-Carnegie award is Plous's second major teaching award. In 1998, he received Wesleyan's Binswanger Prize for Excellence in Teaching.

The recipient of numerous awards, Plous is a faculty associate of the Tufts University Center for Animals and Public Policy and is on the editorial board of *Analyses of Social Issues and Public Policy*.

For this achievement, Plous was invited to a congressional reception in Washington, D.C., and was given a framed certificate of recognition.

Class of 2006 Career Plans

- 26.6% Business
- 18.6% Education
- 17% Graduate Study
- 7% Health Professions
- 6% Communications
- 6% Nonprofit
- 5% Government
- 4.5% Law
- 3.6% Arts
- 3% Entertainment/Media
- 2.6% Life/Physical Sciences

ALLISON PILOUS



Do you have an opinion about our UPFRONT section? Please write us at letters@wesleyan.edu.



SCHOLAR-ATHLETES

No Time to Change

Ben Byers '07 loves swimming so much he probably would compete in his clothes. A four-time participant in NCAA championships and an All-American (2005), he placed second this

year in 1,000- and 1,650-yard freestyle events at the NESCAC championship. When he is not breaking Wesleyan team records, he teaches swimming to local disadvantaged youths, or plays water polo, or studies the injury culture in youth sports for a senior essay. This double-major in economics and sociology says, “If I could pick one place to be on campus, it would be on Foss Hill in the spring with a book and a bunch of friends, just hanging out, shooting the breeze, and taking in a baseball game.”

ENGAGED WITH THE WORLD

Count on It: Kids Understand Numbers at an Early Age

Most children learn the concept of “one” soon after learning to count. Typically, about six months after that, they comprehend the idea of “two,” and about six months later they understand “three.”

“Studies have established that once children understand the concept of three it usually clicks for all the other numbers,” says Hilary Barth, assistant professor of psychology.

Thus, counting may be tougher than parents realize, but, curiously, arithmetic may be easier than they think. Barth confirmed this with a study, “Abstract Number and Arithmetic in Preschool Children,” published in an issue of the *Proceedings of the National Academy of Sciences*. The study showed that long before they learn how to add big numbers exactly in school, preschoolers can add big sets approximately.

“The children were consistently able to recognize the differences between the dot sets, even in the tasks that included adding the dots,” Barth says. “The sets were too big for these kids to count, yet they had no problems recognizing which sets, when combined, would be larger than the third set. And we didn’t find any differences in gender: girls were just as adept at this as boys.”

One of Barth’s students, Ariel Ballinger '07, designed a study based on Barth’s work, thanks to a fellowship from the Hughes Program in the Life Sciences. The fellowship provides a stipend so students can undertake full-time research during the summer.

Her study, “Counting, Estimation and Approximate Nonverbal Addition in Young Children,” is a new examination of number approximation in children who have reached different levels of verbal counting ability.

“Some previous studies showed that a child’s ability to estimate numbers is related to verbal counting range,” Ballinger says. “These studies showed that kids who could count to 100 guessed pretty well. But kids who could only count to 30, for example, could only guess well for sets of up to 30 dots. For bigger sets, they had no idea. These studies often averaged the performance of large groups of children with very different levels of counting skill. I wanted to test this rela-



Counting to three is crucial in child development, say Ariel Ballinger '07 and psychologist Hilary Barth.

tionship by looking at more specific groups.”

Ballinger divided her children into three groups based on counting ability. She found that although counting ability was related to the accuracy of the guesses, even children who could only count to 30 guessed bigger numbers for bigger sets of dots.

“This went against the previous findings,” Barth says. “Children do seem to understand the rough meanings of big number words like 80 or 90 even before they can count that high.”

Ballinger’s study has been accepted for a presentation at a professional meeting. She will present her research at the annual meeting of the Society for Research in Child Development, held in Boston in March. At the same meeting, Barth will present another research project completed with Ballinger and AnjaLi Carrasco '07, Rachel Jacobson '08, and Jessica Tsai '07.

“It’s great to be at a place like Wesleyan where undergrads can get involved with ongoing faculty research,” Ballinger says.

Barth’s Cognitive Development Lab is always looking for new participants. Interested people may visit the lab Web site at www.wesleyan.edu/cdl, call 860/685-3588, or e-mail cdl@wesleyan.edu.

—David Pesci