

Lab Notes

ACADEMY OPENS STUDENTS' EYES TO SCIENCE

When Grace Gallegos graduated from Chicago's Young Women's Leadership Charter School (YWLCS), she applied to work in the emergency room at Saint Anthony Hospital on Chicago's West Side. The employers asked if she had any clinical experience. She admitted that she had not worked with patients, but Gallegos had participated in the two-year Oncofertility Saturday Academy, an outreach of the Feinberg School of Medicine's Institute for Women's Health Research.

"That experience led to my landing this job," said Gallegos, now an emergency medical technician who is studying at Malcolm X College to become a nurse and paramedic.

For several Saturdays in late winter each year, the academy, one of four offered by Feinberg's Women's Health Science Program for High School Girls and Beyond (WHSP), brings 32 YWLCS juniors and seniors to the Evanston and Chicago campuses to introduce them to the basic science, clinical applications and career options of oncofertility. The new scientific discipline provides fertility preservation options for patients who must undergo potentially fertility-threatening treatment for cancer.

The students start with basic science during junior year and then move into the clinical component. The juniors, for example, perform in vitro fertilization with a sea urchin and a frog. The seniors' experience includes breast and pelvic exams on simulation models from the Northwestern Center for Advanced Surgical Education.

The academy welcomed its first class in 2007 after Feinberg School of Medicine professor and Oncofertility Consortium director Teresa Woodruff (G89) met several students from YWLCS when she gave a presentation at the Economic Club of Chicago. Looking to "catalyze" the girls' interest in science, Woodruff reached out to a biology teacher at YWLCS to develop a partnership with the charter school.

"This program provides the extra experience you need to get into top schools and really focus your interests," Woodruff said. "It provides a spark for these young minds."

For the past three years, every YWLCS senior who participated in OSA went on to college. In fact, there are now 53 WHSP alumnae who have made the transition to college.

"I'm teaching a population that's made up almost entirely of minority students, and they're all female," said YWLCS science teacher Melissa Proctor Resh (WCAS99). "This program gets more minority girls into the sciences. That's a huge impact."

Women's Health Science Program plans to expand its high school-university partnership and offer enrollment in its four academies at three other schools in the Chicago area.



Oncofertility Saturday Academy participant Brenda Ramirez



NAVAJO NATION LEARNS WHAT'S IN THE WATER

About 1,000 abandoned uranium mines have contaminated well water for the 25,000-square-mile Navajo Nation, which covers parts of Arizona, Utah and New Mexico. During the late 1990s and early 2000s the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers collected data from springs and wells about water contamination, but the information rarely made it back to the nearby property owners. Since 2003 Franz Geiger, associate professor of physical chemistry, and a team of Northwestern undergraduates have worked with Groundswell Educational Films to build an educational website to document the contamination. The website, navajowater.org, offers interactive maps and accessible data to inform Navajo communities about the hazards in their well water.

CREATING NEURONS LOST TO ALZHEIMER'S

Christopher Bissonette (G10) remembers his grandfather suffering from Alzheimer's. "That drove me to become a scientist," he recalled. The former Northwestern doctoral student spent the past six years working with Jack Kessler, neurology department chair at the Feinberg School of Medicine to transform a human embryonic stem cell into a critical type of neuron that dies early in Alzheimer's disease and is a major cause of memory loss. While the development of these neurons is not a treatment for Alzheimer's, it is a first step. The ability to grow a limitless supply of the human neurons will enable a wave of drug testing for Alzheimer's disease, allow researchers to study why the neurons die and could potentially lead to transplanting the new neurons into people with Alzheimer's.

NEW WEAPON IN BATTLE AGAINST BOWEL DISEASE

A genetically modified version of the probiotic found in yogurt and cheese appears to be an effective therapy for inflammatory bowel diseases such as Crohn's disease and ulcerative colitis. Northwestern researchers fed the modified probiotic to mice with two different forms of colitis. After 13 days of treatment the probiotic strain nearly eliminated colon inflammation in mice and halted progression of the disease by 95 percent. Crohn's disease and ulcerative colitis affect more than 1 million people in the United States, and there is no known cure. Lead investigator Mansour Mohamadzadeh and researchers at the Robert H. Lurie Comprehensive Cancer Center of Northwestern University are also studying the effect of the modified probiotic on colon cancer.