



THE  
RIPPLE  
EFFECT

Anne Cheung '99 (MS)

BY KATE SILVER | PHOTOGRAPHY KATHLEEN DOOHER



In 2005 Anne (Zichittella) Cheung was losing sleep. Anne Rapin, a close friend, had just returned from Cameroon, where she'd taught science to upper-level students as a Peace Corps volunteer. Rapin had brought home some unsettling stories from the West African country. For Cheung, one stuck out.

"She'd said something in her classroom one day about how girls can do anything that boys can do," Cheung recalls. "And one of the girls in her class actually said, 'No, you're wrong, Madam, we can't.'"

Rapin explained that in Cameroon girls are far less likely to get an education than boys because they're often thought to have less potential. Also, they're frequently married off at a young age and, therefore, they stop going to school, teachers sometimes approach girls for sex in exchange for good grades, and girls are kicked out of school if they become pregnant.

Cheung couldn't stop thinking about it. As a senior associate scientist with the biopharmaceutical company Biogen, she was acutely aware of how education and opportunity had shaped her life. So had helping people. Through her volunteer work and her job she's helped discover new treatments for neurodegenerative diseases, such as Alzheimer's.

The more she learned about the disparities facing girls in Cameroon, the more Cheung felt

compelled to do something. After talking with Peace Corps volunteers working in that country, she and Rapin decided start a scholarship program for girls there. With a recruiting bonus from work, Cheung was able to pay for a year of schooling for 17 students, at about \$75 each. Soon after, she and Rapin launched a nonprofit, A2Empowerment (A2 is for the two Annes), to continue the program. To date, they've funded more than 980 scholarships.

#### IMPACT

The first thing you should know about Anne Cheung is that she's humble. She'd much rather talk about other people—and about doing things for other people—than discuss herself. That quality helps make her "an inspiration to almost everyone who knows her," Rapin says.

Cheung grew up in a family of educators. Her mother, who returned to school to become a high school chemistry teacher [and who went on to earn a PhD at age 50], would often bring 5-year-old Anne to the lab to look through microscopes. Cheung says she was the best role model a girl could ask for. Her father, a grammar school teacher, would take her on nature walks and science museum outings. Because their parents hadn't had the benefit of a college degree, she says her own parents were



*Cheung in her Biogen lab in Cambridge.*

especially passionate about the value of education. With education, they taught her, life could be better; doors could open. "I think that's been a theme throughout all the extra work I've done," she says.

From the moment she first peered through those microscopes, Cheung was drawn to science; a job fair in high school solidified her path. She talked with a biochemist from Roswell Park Cancer Institute who told her about a cancer patient who was given a poor prognosis. When the biochemist tested the tumor, he found that the cancer wasn't life threatening, after all.

"He excitedly described how awesome it was to be able to give such wonderful news to that patient, and how it helped in other ways," says Cheung. "That conversation had a huge impact on me." She'd seen family members battle diseases like Alzheimer's and cancer, and she felt helpless watching them suffer. Now, she'd discovered a way that she could make a difference. Science meant hope.

After completing her BS in molecular biology at SUNY Fredonia, Cheung came to WPI to earn an MS in biochemistry. A teaching assistantship covered her tuition and provided a stipend

for living expenses. "It was such a gift to have that opportunity," she says. She went on to become a research assistant in the lab of José Argüello, where she, studied the form and function relationship between enzymes and cells.

That lab was the setting for two life-changing moments. It's where she first became interested in the structure/function relationship of proteins and intrigued by the possibility of using that knowledge to target proteins associated with disease. It's also where she met an undergraduate named Man Ching Cheung, who she'd go on to marry.

She says she picked up a lot of new technical skills in the Argüello

lab, though the most important takeaway was learning to think like a scientist: being inquisitive, studying background information to make informed choices, and then solving problems as they arise. "Being able to adapt and not be afraid of change would be the most important thing I learned in his lab," she says.

After they graduated, Anne and Man Ching moved to Boston, where she accepted a job with Biogen. Working in the protein biochemistry group, she took on the challenge of producing and characterizing several complex recombinant proteins. Paul Weinreb, director of Biologics

Drug Discovery, says Cheung's education made her a great fit. "Anne's training and education at WPI spanned a wide range of scientific areas—from molecular biology to cell biology to biochemistry—and her work in Professor Argüello's lab gave her a skill set that she could apply to nearly any biochemical system," he says. "Most important, she learned how to design and troubleshoot experiments; she developed the types of problem-solving skills that are fundamental to being a successful scientist."

Sixteen years later, she's still in Biogen's biochemistry department, as part of a team developing

an antibody that targets one of the misfolded proteins associated with Alzheimer's. If it's successful, it could help slow the progression of the disease. She's also worked on projects aimed at slowing the progression of certain types of breast cancer, and is developing a diagnostic test for a latent virus that can cause severe debilitation or death in patients with suppressed immune systems.

#### PHILANTHROPY

Cheung takes a measured approach to her projects, knowing that testing can take years, and that a high percentage of research won't ultimately lead to a commercial product since so many things can go wrong along the way. At Biogen, she's found that the success rate for drugs entering Phase I clinical trials is about 10 percent.

That, in part, drove her to find new areas where she could make a difference—as a volunteer. "I got into science because I wanted to help people—and it seemed so interesting, and I had that push from my mom," she says. But once she began working in the field, she says, "it seemed not as hands-on as I wanted, so I found new avenues."

Cheung is a frequent presence at the Biogen Community Lab, where she teaches school kids about science and mentors them on their science fair projects. In her early days at Biogen, she got involved with the Big Sister Association of