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Professor's work is a family affair

Jacqueline Couillard - *For The Daily*

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Door decorations outside of Professor of Chemistry George Barany's office speak volumes about his values.



His children's drawings add color to the ivory wall on the right. Black-and-white clippings of his wife, also a chemist, and her achievements, appear near the center of the door. Cartoon strips dot the empty spaces.

Like in his life, humor, science and family mesh on Barany's office door. Balancing family, research and teaching can be tough, but colleagues say Barany is a model of that balance.

Since both he and his wife, Barbara, are familiar with the science culture, they spoofed it when it came time for marriage.

She wrote a "request for proposal." He wrote back a 10-page marriage proposal with aims, significance, preliminary studies and methods sections.

"It was the most nerve-wracking proposal I ever wrote," said George Barany, who has had dozens of research project proposals funded.

Barany, who turned 42 on Wednesday, has been with the University's chemistry department since age 25.

"He's the only person I've ever met who went directly from high school to graduate school, and to do that from high school to Rockefeller (University) is a whole other league entirely," said Professor Gary Gray of the School of Chemistry, both a friend and a colleague of Barany's.

Barany joined the University faculty in 1980 after three years of post-doctoral work. He entered his first undergraduate class as a professor at the University.

This success ties back into Barany's family life.

Both his parents were scientists. He did his first experiment in their lab long before he graduated from a New York City high school at age 16. He finished his first scientific paper when he was 17.

Francis Barany, his younger brother and a faculty member at Cornell Medical School, also started researching at a young age.

"I think it is really important that, when people first express an interest in research, they should have an opportunity to get started," said Barany.

Now Barany's children occasionally come into his lab. His son, Michael Barany, 10, did a science project on amino acids last year in his dad's lab.

"When you look at (Barany's) whole family, what you see through and through is academic," said Gray.

His academic life is important, but he schedules work around family activities.

Sometimes he reads a manuscript or term paper during downtime before or after his kids' athletic events, Barany said. He also plans his work day around family.

"I've gotten into the habit of starting really early in the morning so that a few evenings a week I can be home for dinner and bed-time stories," Barany said.

Students seem to have a special place in Barany's life just as his family and science do.

"My students and post-docs are also like a family," said Barany.

His students share in the Barany family triumphs. One graduate student mentioned that Barany's daughter, Deborah, just won the speed skating championship for her age group.

The students also share Barany's humor. Angela James, an undergraduate working on her honors senior thesis in Barany's lab, said she got to know him by sending him jokes over e-mail when she had a class with him.

Now Barany is her adviser.

"He is interested in where I'm going and what I'm doing ... He's always looking out for options for me,"

said James.

And Barany's students share in his scientific success as he shared in his Nobel-laureate mentor's success. It's almost generational.

Barany studied under Professor Bruce Merrifield at Rockefeller University and shared in developing and furthering a technique for chemists to carry out experimental reactions without losing their products.

In this technique, called solid-phase synthesis, products attach to and grow on handles inside porous, sand-grain-sized Styrofoam beads.

Barany's earliest research at the University furthered this technique when members of his lab developed a better bead from a material called PEG-PS.

Solid-phase synthesis is a comparatively fast and easy way to build fragile, biologically important molecules without damaging them, Barany said.

The material made in his lab and other processes developed there make solid-phase synthesis even better for chemists and have made Barany a leader in his field.

Until recently, Barany has used his methods almost exclusively on a class of molecules called peptides. Barany's work has focused on insulin, enkephalin, oxytocin and other useful peptides and proteins. Enkephalin is a natural painkiller, and oxytocin is a hormone important in childbirth.

"I would refer to George as the world's leading expert in the area of peptide chemistry," Gray said.

Barany's reputation has spread. He was asked to chair an international symposium on peptide chemistry to be held in 1999 at the University.

"More recently ... he's expanding into a lot of new and exciting directions including work with RNA and DNA and also high-tech chip technologies," said Assistant Professor of Chemistry Karin Musier-Forsyth.

Musier-Forsyth collaborated with Barany on making a new reagent to modify RNA and DNA backbones.

This reagent has potential applications in creating therapeutic drugs that might, as an example, help treat HIV, the virus which causes AIDS, in the future.

"So far none of these drugs have been made using the reagent developed in our collaboration, but we hope that they will because our methods are potentially more efficient and more cost-effective," said Musier-Forsyth.

The acronym for the reagent Barany and Musier-Forsyth chemically developed from a group of similar reagents is EDITH. Whenever presenting information on this project, Barany shows a picture of a girl he knew in kindergarten named Edith.

The second of two papers on the reagent came out this fall, and Musier-Forsyth, Barany and some of their students have a patent pending on EDITH.

Barany is also researching a cancer detection project in collaboration with his brother, Francis, from Cornell Medical School. The project involves using very tiny chips that contain DNA probes.

The main goal of the project is to be able to pre-diagnose cancer by detecting mutations often found with certain cancers, said Yvonne Angell, who is working with Barany on that as well as two other projects.

"I was excited about the cutting-edge research that George does, so I came to do my post-doc here," said Angell, who has a government fellowship.

Chris Gross, a doctoral candidate in Barany's lab, said that Barany's research on PEG-PS saved his job at a small biotech company before he even knew who Barany was.

When Gross decided to study under Barany, he had read many of Barany's papers.

"After reading his papers, I was under the impression (that) this must be the most organized man in the universe," Gross said.

But Gross said seeing Barany's office changed that impression.

Barany set his priorities on science and family. Office organization sometimes gets shortchanged. No one's perfect.



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