Unlocking science's secrets

Einstein College's Irish professors research cancer, genetic diseases

By Peter McDermott
pmcdermott@irishecho.com

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From left: Dr. Michael Keogh (who is from Athlone, Co. Westmeath), Dr. Hayley McDaed (Strabane, Co. Tyrone), Dr. Paraic Kenny (Templemore, Co. Tipperary) and Dr. John Greally (Galway city) are all faculty members and researchers at the Albert Einstein College of Medicine of Yeshiva University.

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money when you start,” Keogh said about faculty positions. “And they give you an opportunity to set up a lab and fund it for three years.”

“They do a lot of due diligence before they offer you the job,” he added. “They want to know you are ready for the next step, because before this you were operating under somebody else’s protection.”

Finding the gene

Keogh said that students usually press ahead with their plans in spite of his words of warning. “They’ve more imagination than me about fallback careers,” he said.

Some former postdoctoral students go into patent law, while others find research work with drug companies. A few study to be medical doctors.

John Greally, who directs the Einstein Center of Epigenomics, took the path in the opposite direction: he was a practicing physician before becoming a researcher. After graduating in medicine from NUI Galway in 1988 (he later got his doctorate there in 1999) he did a residency at Children's Hospital of Pittsburgh for Pediatrics and then went to Yale University in 1993 for subspecialty training in clinical genetics.

Greally said it became frustrating treating children with genetic conditions. Medicine, though, was on the threshold of something big. “There was this great promise that the human genome project was going to revolutionize what we were doing,” he said.

“We’re standing in this completely new era. The technologies are there — we just need to do the experiments,” said Greally, who is an associate professor in two Einstein departments, Genetics and Medicine.

His science specialty is epigenetics, the study of how genes get switched on and off. He explained that a cell may need a gene to switch on for it to function properly — in order to produce protein for example — and the failure to do so can be as bad as a mutation.

“We are now realizing that this freezing of the gene in the off-position and equally inappropriately in the on-position, when that’s not the way it should be, that these things underly human diseases,” he said.

Greally reflected for a moment on the pace of change he has seen in science. “It used to be that we’d say we don’t know what’s going to happen in five years; now we say we don’t know what’s going to happen in three years,” he said.

“The information is coming in at a much faster rate that it ever used to.”

“We’re getting insights almost at a rate that we can’t handle,” he said, adding that scientists now need computer programming skills to do their jobs.

Staff members, though, don’t sit alone in front of the computers all day. “People are very interactive. Everyone talks to each other and discusses ideas. Doors are always open,” he said. “It makes it a very pleasant atmosphere in which to work.”

McDaid described Einstein as an intellectual hub. “People are very warm and there’s such wisdom here,” she said. “They want to see people succeed. In some places the competitive streak can impede progress. At Einstein, the competitive streak is there, but it’s there to foster collaboration.”

She had spent all in her undergraduate and postgraduate career at Queen’s and the move a decade ago to a different type of institution and a different country represented a dramatic change for her.

“I don’t think you settle down until the first six months or a year,” McDaid said. “I was culturally extremely naïve. I’d never even met a Jewish person until I came to Einstein.”

She was never far from people from her homeland, however.

“There’s been a great history of Irish people working at Einstein and it’s continuing today,” Greally said. He cited in particular George Orr, a Northern Ireland native who was a faculty member for 25 years until his death in 2005. “He left a huge mark on this place,” he said.

“There are trainees from all parts of Ireland,” said Greally, including two who are working with him.

He regards that presence as part of the great Bronx Irish story that includes Gaelic Park and Katonah Avenue.

Greally and his wife, Geraldine McGinty, who is also a medical doctor with advanced degrees, are regular visitors to their native Galway.

McDaid, like the other Irish professors at Einstein, keeps in close contact with home. “There’s just the three of us here,” she said about her 6-year-old daughter and her husband, a former construction worker who went back to college to study to be a nuclear medicine technician.

“I’m really lucky to have a very supportive husband, and that’s necessary if you’re a woman and have this career,” she said.

Dr. John Greally pictured in the lab with colleague Dr. Bernice Morrow, director of Einstein’s division of translational genetics.