

Q&A

Evolutionary geneticist **Harmit Malik** of the Fred Hutchinson Cancer Research Center in Seattle, Washington, has won the 2010 Vilcek Prize for Creative Promise in Biomedical Science for his work on the coevolution of humans and diseases.

How would you describe your early academic years?

I grew up in a family of businesspeople and engineers in India, but I was not that inspired by my early pursuits in chemical engineering at the Indian Institute of Technology in Mumbai. When I turned 18, I began to really think about what I wanted. I started reading author and evolutionary biologist Richard Dawkins and got interested in molecular biology. My chemical-engineering adviser steered me to K. Krishnamurthy Rao, a professor at the institute's new department of biosciences and bioengineering. He changed the course of my career, teaching me during informal afternoon meetings because a timing conflict prevented me from sitting in on his class. Despite my not having done any formal coursework, those meetings helped me to write strong letters of application to graduate programmes in India and abroad.

Why study 'selfish' genes?

In cell biology, the many components of cells seem to work in concert to help the cell survive. But that's not necessarily how it happens. To me, it was really eye-opening to realize that collaboration might be the exception rather than the rule — that a cell is not surviving because of the collaboration, but in spite of it. That seemed a radical concept worthy of study.

What work did the 'creative promise' award recognize?

My colleague Mike Emerman, a molecular virologist at the Fred Hutchinson Cancer Research Center, found that we had a

mutual interest in host-virus interactions. We decided to study 'fossilized' viruses — viral remnants in our genomes. In a fresh approach, we looked for genetic evidence of the evolutionary pressures that these viruses had placed on host genes as a way of inferring what palaeoviruses were capable of. We gained insight into how these genes, which are so important in present-day infections, became battle-hardened by repeated conflicts. We published a series of papers demonstrating how past conflicts shape current interactions.

How does it feel to receive an award for creative promise?

I'd be lying if I said it wasn't a little intimidating. I'm humbled and surprised and quite honoured to have this prize — particularly because it is meant to reward those who take novel approaches. My group really tries to ask questions outside our comfort zone. It is awesome to be recognized and rewarded for that.

How might this award open career doors for you?

The award does provide an endorsement of my abilities. We're often trying to collaborate with scientists in different fields in order to explore a new technique or idea. But there is always an initial pushback, or hesitation, as the potential collaborator tries to confirm that we have something substantial to offer. This type of award may establish some credibility for us with

potential collaborators.

The biggest thing holding people back in science is the constant worry about sustaining a productive lab, and that often leads to hesitancy in developing new interests.

Have you had a career-defining moment?

I was still unclear on how the field would view our work when the first postdoc from my lab started exploring the job market. It was daunting. But when she started getting awards and fantastic job interviews, I was quite relieved. I remember thinking: 'We're training people who will do well. We're not destroying someone's career.'

What is the best advice you've ever been given?

I was once advised to carefully consider potential colleagues and the departmental environment before accepting a new position. You'll eventually consume all the start-up money you get, but your colleagues will be the same. Your success hinges on that scientific atmosphere.

What scientific atmosphere do you try to create in your lab?

The premise of my lab is that everybody works on a different project — which works as long as people talk to and challenge each other. I encourage my students to be very creative in their efforts to push paradigms beyond what we know. To do that, I encourage them to take risks. In exchange, I provide the safety net to make sure it won't hurt their careers. ■

Interview by Virginia Gewin



IN BRIEF

US overseas applicants up

International graduate applications to US institutes rose for the fifth consecutive year in 2010, says the Council of Graduate Schools (CGS) in Washington DC. Its 6 April report, based on 437,000 applications, showed a 7% rise. Those from China rose by 19%, in a fifth year of double-digit increases. Applications fell by 2% from India and were unchanged for South Korea, after plunging by 12% and 9% last year. Applications in life sciences — including medical and nursing school — climbed by 3% after no change in 2009. "Last year may have been a bit of a blip," says Nathan Bell, CGS director of research and policy analysis. Those in physical and Earth sciences soared by 10%.

Science funding boost

The UK government is aiming to recruit researchers in science, technology, engineering and maths (STEM) with a set of new initiatives. Launching later this year, the Newton Scholarships will provide 100 UK and international postgraduates with £25,000 (US\$38,052) to take to the research institution of their choice. And a £270-million Modernisation Fund aims to help UK universities provide 20,000 more places for STEM undergraduates by August. In addition, a £40-million International Space Innovation Centre in Harwell is being set up to serve as a central hub for Britain's £6.5-billion space sector. The centre is expected to create 700 jobs over the next five years.

Industry job cuts plunge

The US pharmaceutical and biotechnology industries shed just 308 jobs in March 2010, compared with the 17,700 jobs lost in the sector in February 2010 and also in March 2009, according to a report by global outplacement firm Challenger, Gray and Christmas of Chicago, Illinois. In the first quarter of 2010, these industries cut 26,165 jobs, just over half of the 48,665 that were slashed in the same period last year, the report found. A total of 61,109 jobs were lost in the sector in 2009. James Pedderson, the company's public-relations director, says that the large number of cuts in February and in 2009 resulted largely from mergers. "Companies have pulled back on downsizing and are starting to stabilize now," he says. But he warns that hiring is not yet on an upswing.