

TURNING POINT

Angela Belcher

MIT Biomolecular materials researcher Angela Belcher looks to nature for inspiration; her observations have helped her to devise materials for clean fuels and efficient batteries. In June, Belcher, of the Massachusetts Institute of Technology (MIT) in Cambridge, was named the recipient of a US\$500,000 Lemelson-MIT Prize honouring mid-career scientists who make an impact on society.

You had an unusual undergraduate path. How did it influence your career?

I did my bachelor's degree in creative studies, which allowed me to design my own major at the University of California, Santa Barbara (UCSB). It was one of the best decisions I ever made. I could take risks, and it allowed me to put different topics together. I worked in plant molecular biology, physics and chemistry labs and did ecology research. Later, as a doctoral student, I worked with a physicist, a molecular biologist and an inorganic chemist. It was like a playground for multidisciplinary science.

How did you explore your multidisciplinary interests after graduating?

I isolated proteins involved in growing abalone shell and became fascinated that a soluble protein made by an animal could generate this material. I wanted to apply these concepts to electronics, but I didn't have the background. I did a postdoc with Evelyn Hu, then head of an electrical-engineering lab at UCSB. It was life-changing because I was able to start developing an interface between biological materials, genetics and semiconductor materials.

How did you find your feet in academia?

I explored multiple opportunities: I applied for industry jobs and a postdoc fellowship in entrepreneurship. I also started applying for faculty positions for practice, and got an offer at the University of Texas at Austin. I took the job and started working on selecting evolving organisms, such as viruses, to assemble new materials. My grant applications were not well received — until the first paper out of my lab was in *Nature* (S. R. Whaley *et al.* *Nature* **405**, 665–668; 2000), showing it could work. That led to the patents and the venture capital to start my first company, Cambrios Technologies in Sunnyvale, California, which develops electronic materials for touch screens.

You were recruited by two MIT departments jointly. Do you recommend that approach?

I don't advise people to pursue dual appointments as young faculty, because you have



commitments in both. It worked out well for me because it fit my research needs and teaching interests, and I had great faculty support. But I suggest that young people choose one department to join and be affiliated with others. That said, a couple of years ago I added a third faculty-level commitment, at the David H. Koch Institute for Integrative Cancer Research at MIT. I was worried that I would not have enough to contribute, but that has not been the case. I discuss topics with a mixture of engineers and cancer biologists.

How has being at MIT helped to foster your entrepreneurial goals?

I have had a lot of mentorship from faculty members to learn how to develop a product, and I have started a second company, Siluria Technologies in San Francisco, California, focused on converting methane to liquid transportation fuel. I tell young faculty members that to find a good academic home, they should decide what they want in terms of lab size, entrepreneurship and lifestyle, and should see if people at the institutions they are interested in are accomplishing those things.

What are the parallels between forming a company and nurturing a productive lab?

Both are founded on ideas. You just have to translate those ideas for a different purpose in business. The hard part is figuring out how to run a business, which scientists do not get much training in. Getting that on-the-job training — for example, learning how to interact with customers — is a humbling experience. One parallel is that hiring really smart people is key. I hire people who are passionate, smart and creative, and aren't afraid to admit they don't know everything. ■

INTERVIEW BY VIRGINIA GEWIN

MEDIA

Results kept quiet

Many scientists are wary of discussing unpublished results with journalists, suggests a meta-analysis of survey data (H. P. Peters *Proc. Natl Acad. Sci. USA* <http://doi.org/nhz>; 2013). Hans Peter Peters, a social scientist at the Jülich Research Centre in Germany, examined published and unpublished data that he and his colleagues collected in surveys of US neuroscientists and German scientists. A little more than half of US and German neuroscientists, and 44% of German scientists across all fields, agreed that acceptance of a paper by a journal is threatened if the findings have already been revealed in the mass media. Peters notes that most scientists make a sharp distinction between how they communicate among themselves and how they talk to the media and the public.

FUNDING

NSF to support forensics

The US National Science Foundation (NSF) is seeking proposals for basic research in forensic science, in an effort to improve rigour and standards. The move is partly a result of a 2009 US National Research Council report that called for the NSF to support forensics research, and for scientists and medical officers in the field to be certified, says Mark Weiss, division director for behavioural and cognitive science at the NSF in Arlington, Virginia. "If you've got an idea, we want to hear about it," says Weiss, who adds that forensics research is considered a national and legislative priority. He encourages interested researchers to contact programme directors in any relevant NSF directorate.

ADVOCACY

Postdoc representative

The US National Postdoctoral Association (NPA) in Washington DC has appointed a new executive director. Belinda Huang, a consultant and former administrator at the University of Pennsylvania in Philadelphia, says that she will reach out to lawmakers and to firms in biomedicine and other fields to boost the NPA's visibility and to promote the postdoc's role in US research. She will also build fund-raising efforts and apply for more grants. Huang succeeds Cathee Johnson Phillips, who had been NPA executive director since 2008 and had led many initiatives, including a call for increases to postdoc stipends.