nature biotechnology

Yes we can as well

If biotech is to remain a wellspring of innovation, industry and academia need to do more to cultivate the next generation of entrepreneurial minds.

Last month, US president-elect Barack Obama swept to power. In doing so, perhaps the most significant electoral statistic was that he captured 66% of voters between the ages of 18 and 29. More than any other demographic group, under-thirties are characterized by their openness to new ideas, their passion and time for pursuing goals, and their lack of respect for existing barriers or preconceptions. And yet the academic and corporate institutions of biotech—a sector that prides itself on promoting innovation and fresh ideas—devotes scant time, money and resources to foster ties with young students and scientists.

The biotech industry was founded by a generation of molecular biologists and risk-taking venture investors (remember them?) who presumed to challenge the pharmaceutical and agrochemical industries and change the world. That they transcended the barriers between academia and industry and produced the first replacement biologic products and recombinant crops within a decade was a triumph of youth over experience.

In the wake of these breakthroughs in the 1980s, many academic institutions set up teaching programs to capture the rapid advances being made in recombinant technology. Most of the programs, however, largely ignored the mysteries of commercialization.

The absence of information on creating and running a biotech venture was one of the reasons that *Nature Biotechnology* launched its *Bioentrepreneur* supplements ten years ago (http://www.nature.com/bioent/). By publishing articles from experts with hands-on experience of the process of starting up a biotech venture, *Bioentrepreneur* aimed (and still aims) to capture and distribute knowledge that exists otherwise only as oral history or legend. Give a man a fish and he eats for a day; teach a man to fish and he can start his own fishing business. Even today, however, too few university courses provide advice on the practical challenges of setting up a venture. Bioentrepreneurial content hardly raises a blip on the radar of most university syllabi.

There are some notable exceptions, of course, exceptions that indicate exactly the sort of initiative that could be taken more widely. One is the *Idea to IPO* course run by Charles Craik at the University of California, San Francisco, Center for Bioentrepreneurship. In New York, the Academy of Sciences has also been active in providing networking and event opportunities for local student groups interested in life science entrepreneurship. Elsewhere, graduate and postgraduate students are mobilizing to form biotech groups of their own. Boston boasts the Harvard biotech club and MIT's Entrepreneurship Center. In Europe, the European Federation of Biotechnology (Barcelona, Spain) has supported the creation of the Young European Biotech Network (YEBN), a group that today links up over 2,000 graduate or postgraduate student members from 14 different European countries with an interest in biotech politics, funding and careers.

Finding ways of engaging young people in the process of biotech startup creation is not just the right thing to do, it is crucial for the sector's health.

This is because tapping into the best and brightest young minds will provide the industry with many of the innovations demanded by today's challenges. To recruit the most talented personnel, the biotech industry must find ways of providing careers and opportunities that are attractive to young people.

The young are also 'wired'. They are engines of Facebook and MySpace social networking sites. As such they can be powerful advocates for biotech, counterbalancing the naysayers.

And, most importantly, they provide a fresh and perhaps more far-reaching perspective on biotech issues. This was much in evidence at the EuroBIO 2008 meeting in Paris in October, where around 30 members of YEBN and the New York Academy of Sciences participated vigorously and constructively in the debates. The level of intellectual honesty that they brought to the table was refreshing and quite frankly is missing from many other industry events. The biotech incantation so often these days tends to be negative: can't commercialize my invention; can't get enough money; can't get approval or reimbursement. Can't get the people to take the science seriously. Obama's "Yes we can" and the unfettered energy of young biotechnologists at EuroBiO 2008 provide a striking contrast.

But more can and should be done. Certainly, the major industry associations, such as the Biotechnology Industry Organization (BIO) and EuropaBio, should coordinate more closely with organizations like the National Collegiate Inventors & Innovators Alliance (http://www.nciia.org/) and the YEBN that are actively involved in seeding and nurturing groups of young people interested in biotech issues.

BIO could expand its involvement in awards and competitions that encourage young investigators. The BioGENEius challenge is a worthwhile competition for high school students that BIO hosts at its annual meeting for the Biotechnology Institute (http://www.biotechinstitute.org/). But it could also get involved in business plan competitions that bring together young MBAs and researchers, contests similar to MIT's 100K competition.

And industry organizations could certainly justify action in recruitment initiatives. They could encourage mentoring programs, internships and jobs fairs for college graduates. And companies could make sure that their young biotech researchers get away from the lab from time to time—to proselytize, motivate and promote the benefits or joys of working in biotech.

The technical and scientific media also have a role. *Nature Biotechnology*, for its part, intends to facilitate connections between young people and experts by hosting meet-and-greet events at which members of student biotech clubs can exchange ideas and network with *Bioentrepreneur* authors. This is an entirely self-serving commitment: we recognize the value of the 'can do' spirit. That spirit, more than anything, has been and will continue to be the secret of biotech's enduring power for innovation and change.