

Science ed's missing link: spider silk

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My 6-year-old son's eyes bugged out when I told him a couple months ago about a story I was working on: Scientists at the University of California, San Francisco, are trying to develop [synthetic spider silk](#).

“Is it stronger than steel?” “Does it do THIS?” “Does it do THAT?” “Will it ...?” “Does it ...?”
“Can it ...?”



Here I thought he'd ask if it would put Spider-Man out of business.

Six years is the golden age for scientific wonder and discovery. But somehow that wide-eyed questioning of Everything in the Universe is ripped out of many of us as we grow older, and American students are being left in the microscopic dust.

Consider the Department of Defense's [Young Faculty Award program](#). The 33 scientists who recently won awards of about \$300,000 through the Defense Advanced Research Projects Agency, or DARPA, represent the best of the best of up-and-coming researchers. Their programs — like rational design of nucleic acid drugs to control metabolism and kill pathogens or scanned probe cavity quantum electrodynamics — DARPA says are “game-changing ideas.”

The winners had last names like Zhang, Jarrahi, Chen, Kulkarni, Oganov and Huang. Not a Smith or Jones among them.

Yes, in a way I'm being facetious — I don't know how many of those winners were born in the United States. (The sole Bay Area winner, by the way, was [Aaron Lindenberg, whose Stanford University research is focused on all-optical control of nanoelectronic devices](#).)

But here's the point — and it is one I hear often from biotech leaders and other science-centric sectors of the economy: We're falling behind as a nation in developing and turning out scientists.

As BayBio President Gail Maderis recently told me, only 1 percent of high-school students who go on to higher education pursue the sciences.

At the same time, anti-government sentiment is translated into anti-tax action, ready to slash education budgets to avoid paying a few dollars more in taxes.

Something must give.

There are, however, a lot of folks in the Bay Area working to bridge the gap.

That will be evident tonight as Biotech Partners, a 17-year-old nonprofit in Berkeley, celebrates the work of summer interns from Berkeley High School and Oakland Technical High School with poster presentations, followed by a graduation program.

(The graduation program, but not the poster presentations, is open to the public.)

Last week, Children's Hospital Oakland Research Institute wrapped up its summer student research program, which consisted of 44 high school, undergraduate and graduate students working alongside doctors and scientists.

BayBio is starting a program, called Bio-Community.org, in which it hopes to link the life sciences industry and classrooms. Based on the platform of [National Lab Day](#), teachers sign up on the site to say that they want to take students on a field trip to a lab ... or a researcher to come into the classroom to talk about their job ... or someone to talk about how to [sequence DNA from strawberries](#). Whatever.

(The irony is that while the local biotech industry is connecting to education, California's teachers union is bankrolling an initiative on the November ballot — [Proposition 24](#) — that would wipe out tax changes beneficial to the state's biotech industry.)

BayBio believes it will take \$150,000 to \$200,000 to get [Bio-Community.org](#) off the ground, due mainly to website and other fees. It has raised about \$50,000 so far from individuals but is seeking corporate support.

The program already is capturing excitement from life sciences industry employees: When a display about the project recently went up at South San Francisco-based biotech giant Genentech Inc., Maderis said, "it was mobbed."

That type of enthusiasm needs to translate into answering a 6-year-old's very basic scientific questions and extend up the educational ladder to support a new age of science in the United States.

But are taxpayers — individuals as well as life sciences companies — willing to pay to get there?