as knowledge of biology and diseases of the central nervous system. In addition, skills in molecular biology and protein chemistry are highly valued. "We'd prefer someone with a PhD or someone with a master's or bachelor's degree who has at least seven years of industry experience," she says.

Goater agrees that industry experience is prized but says that most of the candidates with AAV experience tend to come from academia, not industry. As recently as five years ago, he says, gene-therapy companies were focusing on other viruses and much of the work on AAVs was being done at universities. People interested in working in the gene-therapy field should therefore gain experience with this up-and-coming vector, he advises.

Perhaps the biggest boost to the field came in 2012 when the European Medicines Agency approved Glybera (alipogene tiparvovec) for the treatment of lipoprotein lipase (LPL) deficiency in patients with severe or recurring pancreatitis. Glybera uses an AAV to deliver a working copy of the LPL gene to muscle cells. It joins Gendicine, a recombinant adenovirus approved in China in 2003 for head-and-neck squamous-cell carcinoma, as the only gene therapies to obtain regulatory approval thus far.

"The approval of Glybera dramatically changed the landscape in the field of gene therapy," says Jörn Aldag, chief executive of UniQure, Glybera's developer in Amsterdam. "It's the first time that both pharma companies and investors recognized that gene therapy is here to stay."

Aldag hopes to obtain US Food and Drug Administration approval for Glybera by 2017. UniQure also has therapies for diseases such as haemophilia and Parkinson's disease in clinical trials. The company has grown from 45 employees in 2012 to 140 employees, and expects to add 50 more to its workforce by the end of the year, Aldag says.

Although opportunities seem to be on the rise, some are likely to remain cautious — what is to prevent the bubble from bursting again? Levine cites an information-technology concept known as the Gartner Hype Cycle. "Whenever there's a new technology, it goes from a peak of inflated expectations, to a trough of disillusionment, to a slope of enlightenment, and a plateau of productivity," he says. "Gene therapy is now in the enlightenment stage."

Levine says that the current period of growth is different from that in the 1990s because of the accumulated clinical experience. "Thousands of people have now been treated with gene therapy," he says. "And we have much better tools, techniques and equipment than we had back then." ■

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TURNING POINT
Ashvin Vishwanath

Ashvin Vishwanath, a condensed-matter physicist at the University of California, Berkeley, received a Guggenheim fellowship in April for his exceptional scholarship. It will allow him to spend several months trying to fabricate the exotic states of matter that result from interactions between quantum particles. He describes how reaching out to colleagues in other fields transformed his career.

Why choose a career in physics?
Growing up in India, I realized that it was not common to pursue a pure-science career. I did my master's at the Indian Institute of Technology Kanpur, where 90% of students were engineers. My choice of condensed-matter physics was also unusual — my peers were more attracted to particle physics or string theory. I wanted to be able to conduct experiments to test my theories.

How did you approach your PhD?
I did my PhD at Princeton University in New Jersey on high-temperature superconductors — specifically, how their structure differs from that of regular superconductors. The electrons look like a pair of dumb-bells rather than a pair of circles as in other types of superconductors. My thesis explored the consequences that arise from this pattern. No single one of my PhD papers was spectacularly received, but my colleagues noticed that I was doing a lot of work independently — framing problems and finding solutions on my own as well as working with my adviser and other postdocs. I got a number of postdoc offers.

How did you choose which postdoc to accept?
I made my decision on the basis of potential collaborators, because I felt I would do better science working with someone that I could discuss and generate ideas with. During my PhD, I noticed a paper by Senthil Todadri, a condensed-matter physicist at the Massachusetts Institute of Technology (MIT) in Cambridge. I e-mailed him with some questions, and we launched a collaboration on superconductivity. We got to know each other scientifically and, ultimately, I accepted a postdoc at MIT so that we could continue our work — I had the right instinct for what was important for a longer-term perspective.

What did you work on?
We studied the properties of phase transitions and showed that a seemingly implausible phase transition in superconductors became plausible at the quantum level. The e-mail that led to this collaboration and to this breakthrough finding was therefore a turning point for me.

Did you jump at the opportunity to apply for tenure-track jobs?
No. A few universities encouraged me to do so, but I wanted to spend as long as I could as a postdoc — I didn't think I had a discovery that was significant enough to give me the momentum necessary to start a successful lab. Eventually I landed a job at the University of California, Berkeley, which let me delay my start by a year to get more time as a postdoc. It was during that year that Senthil and I, along with other collaborators, discovered a new phase transition in a magnet, which is a relevant starting point for work in high-temperature superconductors. Had I rushed into a faculty position, I would have missed one of the most productive times of my career. When I'm making career decisions, focusing on the science has always worked best for me. Ten years on, I keep returning to the research questions I asked during my postdoc.

What will you do with the fellowship?
My group proposes the existence of states of matter that have properties that currently exist only in theory. These states obey the laws of nature, but I want to see if we can realize them in a material or synthetic system made of atomic gases. For example, I want to find a system that is a three-dimensional analogue of graphene.

Could this fellowship be a turning point?
Yes. If we can eventually make these materials, it would be huge. That's the dream of every theoretical physicist — to one day bring together a beautiful theory and the experiments to prove it. ■

INTERVIEW BY VIRGINIA GEWIN