November 1997 *Monthly Labour Review*, produced by the US Bureau of Labour Statistics, predicts that by 2006 the number of IT-related positions will more than double to 2.5 million in the United States.

As Simpson points out, there is a need for IT aptitude everywhere, not only in finance, consultancy, general business, and software or hardware companies, but also in pharmaceuticals, biotechnology and bioinformatics. The application of information systems technologies to all areas of industry means that there is a varied range of IT responsibilities available within organizations.

Although 'information technology' is a very broad term — covering any application of computing — IT positions tend to fall into two loose categories: programming roles, involving code writing, systems development and modelling; and operations roles, involving the installation, running and administration of systems, controlling the distribution of information, and managing teams and projects. Outside these responsibilities lie opportunities revolving around IT developments, such as content management, and marketing.

The juiciest salaries are being paid by the finance industry to dedicated specialists, generally from hard computing backgrounds, who are able to write and implement customized modelling systems. But, as Sverre Jarp, a senior systems coordinator at the European Laboratory for Particle Physics, CERN, points out, scientific research is becoming so sophisticated that scientists are evolving into IT all-rounders. They have the added bonus of being able to work well in teams and having good self-management skills. "Because particle physicists, for example, need to be highly specialized programmers, they are being poached by banks and consultancies where their modelling skills and backgrounds are in great demand," says Jarp.

Shell, Sun Microsystems, AOL and Andersen Consulting are interested in IT-specialized scientists, but they all place value on retraining the high-achieving, personable scientist with good general IT exposure and problem-solving, decision-making and communication skills. Reflecting this, the recruitment consultancy Michael Page in London says that team-working scientists with such backgrounds could fill the parallel demand for IT-related project managers.

With the current array of willing targets for your job applications, it is worth contemplating where your computer experience may be in demand, and how you could enhance it. Use the Internet to learn about the industry and build your experience; keep an eye on key job websites (such as www.topjobs.com, www.nature.com and www.nextwave.org) and relevant company home pages, mapping your experience to their needs and looking at where you might need to develop new skills. The Internet holds a wealth of self-tutoring information on everything from website preparation to more complicated coding and hardware updates — a little tuning of the search engine is all you need to find it.

Courses, such as Imperial College's MSc in computing science, are being developed to help scientists become IT-competent, but don't be afraid to take smaller steps. A science background is an excellent entry to the fringes of IT in many organizations, where training is offered. This approach will offer you the perspective needed to choose a preferred layer of the industry. □

*James Porteous is web production editor at* Nature.
*e-mail: j.porteous@nature.com*

# Banking on biotech

**Diane Gershon**

In the realm of biotechnology finance, people are everything. Biotech analysts are the people responsible for making rational buy-sell decisions on a company's stock — information that is channelled to institutional buyers who depend on analysts to place a 'value' on a company's research and product portfolio in terms of a market opportunity.

According to Stelios Papadopoulos, managing director and head of the health sciences investment banking division at Paine Webber in New York, there are about 60 biotech analysts on Wall Street in 40 or so firms. Two-thirds of them have PhDs or MDs, and the rest have Masters in Business Administration (MBA) or similar backgrounds. That's a big difference from 15 years ago, he says, when it was just "the few of us [competing] against an unfriendly system" that had little appreciation of this nascent industry and the need for analysts to cover it.

Despite the increase, Papadopoulos says that in some ways it is more difficult to enter the business now. Competition is intense as there are "so many more scientists sensitized to the opportunities on Wall Street".

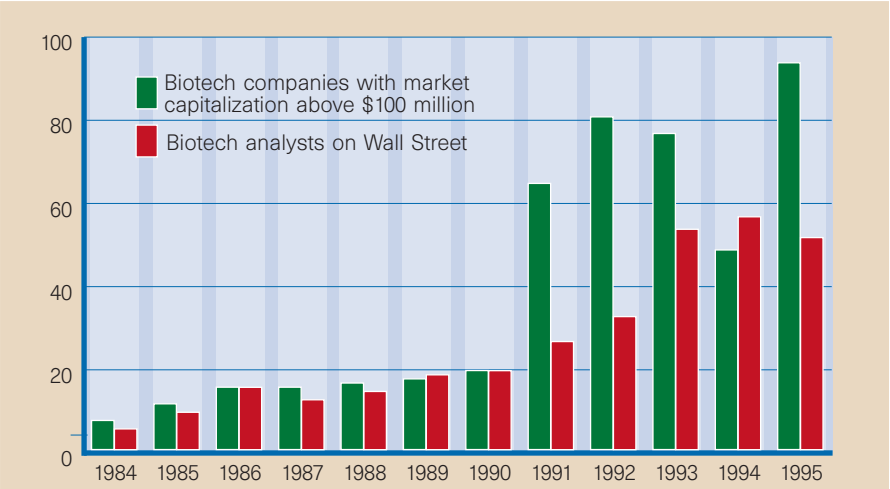
Papadopoulos got his PhD from New York University Medical Center in 1980. Around that time he was contemplating a career on Wall Street — a move that would allow him to marry his interest in science with business and, at the same time, offer considerably better earnings than the academic life. He was spurred on to pursue this goal after reading about Genentech's successful initial public offering of shares and promptly signed up to study for an MBA at business school by night while continuing with research by day.

In 1985, he finally landed a job as the first biotechnology analyst to be employed by securities firm Donaldson, Lufkin & Jenrette. He is now one of the most respected investment bankers in his field (investment bankers raise the large sums of cash needed to fuel this capital-intensive industry).

Papadopoulos says that what firms are looking for when they hire analysts is "intangibles — a certain sense that the person is capable of dealing with the complexity, the fuzziness, the ambiguous nature of Wall Street, and succeeding".

Although the science in biotech companies can be engaging, Papadopoulos says analysts must never lose sight of the fact that they are being paid to pick winners and, in doing so, to make money for other people. So many of the attributes that go to make a good analyst may not come easy to most scientists, who, like the athlete specializing in the 100-metre dash, are trained to focus narrowly on a specific area of science, says Papadopoulos. "By comparison, a job on Wall Street is the decathlon. You don't have to be outstanding at everything but you have to be fairly good at many different things."

So if you are personable, open, engaging, quick on your feet, able to change course mid-stream, and can learn to operate on the basis of scarce data, assessing risk and making decisions quickly, then a career as a biotech analyst may be for you. Energy and commitment are important factors as well: some analysts work 12- to 14-hour days and spend much time on the road. □




PAINE WEBBER