

CAREERS

AFTER THE PHD How PhD graduates move through and plan careers **p.570**

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For PhD holders who wish to move beyond the laboratory, an MBA might be essential.

EDUCATION

Degrees of success

An MBA can unlock progress to the higher ranks of a company — and many firms are willing to pay for one.

BY CHRIS WOOLSTON

Life-science PhD graduates who wish to leave academia often find rewarding careers in the laboratories of biotechnology and pharmaceutical companies. But some find that the lab isn't enough. Researchers who choose to move beyond the bench to the upper levels of the company often decide to add three more letters to their CV: MBA.

Investing time and money in another degree may seem an unappealing prospect for many PhD holders, but that's the reality of the competitive job market: sometimes you have to go beyond the usual training to get the job. An MBA (master of business administration) can open up career possibilities for a biotechnology or drug-development researcher and help them to stand out from the crowd. Those who decide to take the plunge face key questions:

how and when to pursue an MBA (see 'When to go for an MBA'), and where to go from there. Many who have travelled this path say that the extra effort to get the degree has paid off by taking their career to the next level.

An MBA can help industrial researchers to move to a higher position and earn more. Jane Rhodes, now a manager for new high-tech initiatives at Biogen, a biotechnology company in Cambridge, Massachusetts, had spent ten years at the company working on drugs for neurological disorders such as Parkinson's and Alzheimer's disease. She felt hemmed in by the lab, but she realized that she didn't have the business or management skills to move up the company ladder. "I came through the British education system, which is very focused," she says. "I wanted to learn more about the business side of biotech."

To fill that gap, Rhodes embarked on a two-year MBA programme at Babson College in Wellesley, Massachusetts. Specifically designed for mid-career professionals, the programme took up to 30 hours a week, a big commitment for a researcher who already had a full-time job and a family. The programme would have cost her about US\$75,000, but Biogen paid the bulk of the tuition bill, a sign of how much the company values the degree and the person.

Rhodes used her MBA to get her job at Biogen overseeing new company initiatives, a position that would have been off-limits without the extra training in the business side of science. "I can now move to multiple different positions across the company," she says. "The combination of PhD and MBA is very valuable." She enjoys thinking beyond the confines of research — and that's only one benefit of her revitalized career. "Without an MBA," she says, "I don't know if my salary would be anywhere close to what it is now."

An MBA could give industrial researchers the insight they need to help turn a business around. Looking back, Oréda Boussadia wishes that she'd had that insight in addition to her research skills. She was one of only a few people in the world who knew how to create a certain type of transgenic mouse, thanks to her PhD and postdoctoral training in France and Germany. But she knew nothing about turning mice into profits, which was a problem at the small French biotech company that she joined after her postdoc. "We had very good results, but we had trouble making sales," she says. The company failed within a year, forcing Boussadia to quickly ponder her next step. "I really wanted to continue in biotech, but I had to refine ►

ALUMNI

Post-PhD careers

Most former postdocs from the University of California, San Francisco (UCSF), continue to work in the scientific research enterprise, according to an analysis published earlier this month (E. A. Silva *et al.* *PLoS Biol.* **14**, e1002458; 2016). The study tracked 1,431 people who left postdoc positions at the university between 2000 and 2013 and had worked in labs supported by the US National Institute of Health's T32 funding scheme. Of the 899 postdoc alumni who did not also have a medical degree and who took jobs in the United States, 81% went on to work in research or teaching, with 336 of those in faculty or faculty-like positions. Another 12% of this cohort work in positions such as policy, communication, regulation, administration and business development.

Around one-quarter of the tracked postdoc alumni went on to work in other nations, and just over half of those gained faculty positions in research or teaching. UCSF postdoc alumni with both an MD and a PhD were also more likely to work in faculty positions than in non-faculty positions, either in or outside the United States.

Employment outcomes also varied by the UCSF labs in which the postdocs worked, although the authors caution that the numbers were too small to be conclusive. Of 49 UCSF faculty members that each served as a mentor for at least 10 postdocs, rates for alumni moving on into faculty positions ranged from a low of 9% to a high of 93%, with a median of 43%.

A paucity of data about where PhD graduates work after their training is often cited as a hindrance to designing more effective employment training programmes. The study authors suggest that institution-based research is necessary to produce data that are sufficiently fine-grained to be useful.

A separate study in *Science* finds that around 40% of US PhD graduates in chemistry, physics or the life sciences think that there is a severe lack of information about non-research careers (H. Sauermann and M. Roach *Science* **352**, 663–664; 2016). The study examined responses from nearly 6,000 US PhD students across 39 institutions, and found that those who said that they had thought at length about their future careers were less likely to decide to do a postdoc. Evidence that postdocs are likely to be default or 'holding pattern' positions points to a need for better career-planning services for graduate students, the authors say. ■

PERFECT TIMING

When to go for an MBA

Timing matters for junior researchers who see an MBA in their future. Although you don't need a PhD to enrol in a programme, many scientists have found that it pays to finish their research training first. "Having a PhD makes it easier to get accepted into an MBA programme," says Jane Rhodes, a director of new initiatives at biotech firm Biogen in Cambridge, Massachusetts. "And non-PhDs who get an MBA have been less successful."

Linh Gilles, director of admissions for the Carlson School of Management at the University of Minnesota in Minneapolis, confirms that applicants to the school's MBA course who already have PhDs are

more likely to be accepted. Recruiting more PhD scientists to the school is a priority, she says. "Students with a research background have that analytical component," she explains. "It allows them to hit the ground running that much more quickly."

Rhodes says that PhD holders who are interested in an MBA should get some industry experience first. "I wouldn't recommend doing it straight out of an academic postdoc," she says. "You have to have some sort of business context." And, as was true for her, scientists who already work in industry might be able to get their employer to pay for some or all of the tuition. **C.W.**

► my management skills," she says. "I knew how to design a research project, not how to develop a company."

Boussadia jump-started her career by enrolling in the MBA programme at the Institut Français de Gestion in Nantes, France. Like other MBA schemes, it focused on the practical aspects of business: product development, market analysis, pricing and return on investment, using real-life examples as learning tools. Degree in hand, she soon got a job managing the production and sales of transgenic mice at a branch of Charles River Laboratories in Lyon, France. After holding that job for five years, she is now the European head of business development and strategy for EpiVax, a biotech company in Lyon. She's happy with the course of her career. "I enjoyed research, but it wasn't enough," she says. "I wanted to be a decision maker."

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NEW HORIZONS

Armed with an MBA, many can leave the lab without leaving science. As a postdoc, Kyle Rasbach investigated potential therapies for muscular dystrophy at the Dana-Farber Cancer Institute in Boston, Massachusetts. But thanks to the MBA that he'd pursued along with his PhD, he was snapped up after his postdoc for a job studying investment opportunities at investment management firm T. Rowe Price in Baltimore, Maryland. Much of his remit involves evaluating the research taking place at drug companies, from the giants of the business to small start-ups. His lab background helps him to spot blockbuster drugs in the making. "Sixty to seventy per

cent of my job is science-based," he says. "You can't do this job and be excellent at it without a PhD or an MD."

That's also true for Moritz Fischer, director of international marketing for Fresenius Medical Care in Hessen, Germany. After earning his medical degree at the Ludwig Maximilian University of Munich in Germany, he realized that he did not want a career as a physician or clinician. He took a job at Fresenius as a lower-level marketing manager, but soon recognized that he could go much further with advanced business skills. So he pursued an MBA at Danube University Krems in Austria. The company covered his tuition, which he estimates would have cost him at least €20,000 (\$22,500). It was a reasonable investment for the company, he says, because he has made money for them. "They were able to capitalize on my training," he says.

Success stories of researchers with MBAs in biotech and drug development have caught the attention of early-career researchers who are still plotting their careers. Jeffrey Zahratka, a postdoc at the Cleveland Clinic in Ohio, says that he could see himself working at a biotech firm, perhaps one that makes implantable devices to treat neurological disorders. "I could act as a go-between for the research side and the business side," he says. He still has to weigh up the pros and cons of another degree, but he thinks that he could bring a lot of value to a company. "People with a research background have a lot of tenacity," he says. "They are battle-tested."

If he decides to go down the MBA route, he won't be alone. But for now, PhD-MBA remains a relatively rare combination — that factor alone can help a person to stand out and move forward. It's a matter of degree. ■

Chris Woolston is a freelance writer in Billings, Montana.