{ EMPLOYEE PROFILE }

Efforts to beef up ranks of scientists

Shortages highlight need to train and retain researchers and professionals

PENNY McLEOD

SKILLS shortages in Australia's science sector are critical in some areas, and are expected to worsen as the nation's research workforce dwindles and the best science candidates seek work overseas.

There are 1600 job vacancies for geoscientists alone, with 600 of those based in Western Australia, and shortages across most other areas, according to industry commentators.

Some employers are offering more flexible work conditions, such as part-time and temporary roles, in a bid to fill vacancies.

A shortfall of science professionals was predicted five years ago in the federal government's first audit of science, engineering and technology skills in Australia.

The report highlighted several factors that have contributed to skills shortages. These include a tight labour market and strong growth in demand for science, technology and engineering skills driven by growth in the resources sector, defence needs and infrastructure development.

Youth attitudes to science study and careers, declining enrolments and completions in science disciplines, a lacklustre research culture and an ageing research workforce have also been cited as contributing factors.

"There are shortages across all industries," says Paul O'Brien, director of science recruitment services company Kelly Scientific Resources Australia.

"There is strong demand for analytical chemists and around quality assurance and control, particularly in the manufacturing space ... And in geoscience, there were 1600 advertised roles last week, and of those 600 were in Western Australia."

Science researchers are likewise in demand, industry group Science and Technology Australia's chief executive Anna-Maria Arabia says.

"We will be running out of science researchers within the next decade," she says.

"We have a disproportionate number of people who are approaching retirement age, and we have a high level of competition internationally in terms of attracting higher research degree students. In the US, a researcher would get much more than a salary, they would get an entire lab."

There are roles for scientists in research, mining, biotechnology, manufacturing, pharmaceuticals, food and beverages, and chemicals, as well as in the environment, agriculture, construction, education and finance sectors.

Research organisations with public funding, such as CSIRO, universities and medical research groups, and the biotechnology industry are among the largest employers of scientists.

"We have about 3000 members and they are scratching around for good quality employees," AusBiotech chief executive Anna Lavelle says. "They need highly trained and skilled people to work in their offices, often in ancillary functions. It's not just scientists they are looking for, but people with a good understanding of science, with a basic science degree."

Australia's biotechnology industry employs about 35,000 people and was recently ranked the fifth best biotechnology sector in the world by an American science journal, she says.

A key challenge for the science sector is to keep its best research graduates in Australia.

An annual science competition run by AusBiotech and global research-based pharmaceutical and healthcare company GlaxoSmithKline aims to do just that.

"Biotechnology is a global technology and people with talent can get employment in pretty much any place in the world," Lavelle says. "We need to recognise our talent and help them to stay in Australia."

The competition's six state winners will be invited to compete for the national title at the AusBiotech2011 Conference in Adelaide on October 16-19, and the winner will get $7000 to attend an international conference.

Natasha Rogers, who won the award last year, says it is "imperative that the best and brightest researchers remain in science in order for Australia to remain internationally competitive, and to train and inspire future generations of scientists".

Rogers has a medical degree from the University of Adelaide and a PhD in immunology. She's now a postdoctoral fellow at the University of Pittsburgh.

"The resources and infrastructure now available to me are astounding, and I am surrounded by researchers who are the leaders in their field. It's very much like having moved to the Hollywood of science," Rogers says.

She believes a key issue in Australia is the precarious nature of research funding, which affects job security.

"Continued cuts in grant funding make being a scientist increasingly difficult, and may mean Australian science is less likely to be at the forefront of groundbreaking research," she says.

A recent government report, *Research Skills for an Innovative Future*, addresses some of these concerns about the nation's research workforce and outlines strategies to combat them. It recognises Australia's research workforce capacity is important because it underpins our research and innovation capabilities, and is vital to the future of a knowledge-based economy.

Additional government funding has therefore been pledged to support quality research and increase the research workforce.

Private employers are likewise thinking strategically and developing new strategies to ensure they attract and retain the best candidates. Kelly Scientific's O'Brien says many businesses are responding to an increase in demand for flexible working conditions by offering more part-time and temporary roles.

A recent survey by Kelly Scientific of organisations that employ scientists showed 32 per cent employ 10 per cent or more of their team on a temporary or contract basis, and 19 per cent of the surveyed organisations plan to increase the number of temporary and contract staff this year.

"Australia has an ageing population that needs to work longer, and a younger generation that believes in working to live, [so] employees are increasingly demanding temporary and contract positions that meet their current circumstances," O'Brien says.

ROBINSON INSTITUTE

Natasha Rogers is a postdoctoral fellow at the University of Pittsburgh

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>
> ANNA LAVELLE
> AUSBIOTECH CHIEF EXECUTIVE

STAR STUDENT

The joy of scientific discovery

MEDICAL scientist Natasha Rogers is emphatic about what she does.

"Discovering not only why but how something happens at a cellular level can be very exciting," she says. "On a broader scale, there is the possibility that a discovery can lead to a treatment that may be useful to human health.

"Part of the fun of science resonates with the most basic of emotions — the adrenalin rush. It's that time when you see the results of an experiment and you have to say "wow!" — and then you have to say "how?".

Rogers was the national winner of the 2010 AusBiotech-GSK Student Excellence Awards for her research into facilitating organ cell protection following kidney transplants. The medical graduate completed a PhD in immunology last February and has since moved with her family to Pittsburgh, Pennsylvania, to undertake postdoctoral research on a CJ Martin fellowship from the National Health and Medical Research Council of Australia.

She hopes to learn about cutting-edge experimental methods, which would strengthen her technical expertise and theoretical ability. She also hopes to be involved in international collaborations, and to demonstrate research independence and originality.

"In the long-term I would like to [have a positive impact] on patient care through new therapeutic options," she says.

Rogers believes it is "essential to instil in students how exciting and fun science can be, and the opportunities it can provide".

"My parents are both scientists and some of my earliest memories are of visiting my father's laboratory — the smells, benches covered with equipment and solutions, empty bottles of champagne on a shelf, which marked significant discoveries — and I think this has stayed with me," she says.

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