

CAREERS

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San Diego hosts a cluster of biotechnology start-ups and medical companies that offer opportunities to researchers brave enough to take the leap.

CALIFORNIA

Safe harbour

San Diego's diverse corporate science portfolio offers opportunities for open-minded scientists hoping to escape stagnation in academia.

BY KAREN KAPLAN

If he were living just about anywhere else, Peter Teriete would be forced to leave a city and a lifestyle he enjoys. Teriete wants to start his own lab after seven years of postdoc positions, but is finding it hard to secure a faculty role at Sanford-Burnham Medical Research Institute in La Jolla, California — part of the greater San Diego area — where he is currently working as a structural biochemistry postdoc. His principal investigator would like to promote him to staff scientist, but is struggling to find funding. And Teriete hits a wall every time he has an interview for an academic research job anywhere else. “They all say, ‘The position is yours if you bring a grant. You’re doing very interesting research, but we have no funding to start you up,’” he says.

Teriete’s academic straits are not unusual. Tight budgets across the United States have forced countless young researchers into tough decisions and professional uncertainty. And like many universities, institutions in San Diego are struggling. Academic hiring is especially problematic for young researchers.

Most scientists would have to cast a wide net, looking for a promising position in another city. But his San Diego location helps Teriete’s situation considerably: the region offers options in several sectors and fields. With a child on the way, Teriete and his fiancée want to remain where they are — and an industry job may be the answer. “I’ve made a mental crossover,” he says. “For a long time, I was set on the academic track, but I’ve become much more open in terms of making the transition into industry.”

San Diego has a strong biotechnology cluster,

in which collaborations make start-ups feasible for the entrepreneurially minded. Venture capital is starting to rebound, and niche research areas such as medical diagnostics are showing strong signs of growth (see ‘Medicine on the move’). In tough economic times, the region is a relative success — and scientists willing and able to take their research strengths to a new field or sector will find opportunities to shine.

FALSE START

Greater San Diego is home to more than 80 research institutes, which collectively bring in about US\$1 billion a year in federal research funding — among them such heavy hitters as the University of California, San Diego (UCSD); Scripps Research Institute, a centre for biomedicine; the Salk Institute for Biological Studies; and Sanford-Burnham, all in La Jolla. But ►

► hiring is slow or nonexistent, and institutions say that taking on junior faculty members without external funding is simply too expensive.

Scripps has only in the past six months been able to hire 14 early-career researchers as part of a \$28-million, five-year grant from Novartis, a pharmaceutical company based in Basel, Switzerland. Under the grant's terms, Scripps appointed scientists working in areas of interest to both itself and Novartis; the company retains the right to license all technology that the researchers produce in their first five years at Scripps. The institute could not have hired without the grant, says James Williamson, a microbiologist and dean of graduate studies at Scripps. "The funding climate has crunched the institutional budget, making it difficult to set aside the necessary start-up package," he says.

The outlook for early-career faculty members is little better at Sanford-Burnham, where young applicants face long odds. The hiring of established, mid-career researchers requires less of a dip into the institution's endowment, as many come with external grants and don't require start-up funds. Postdocs, however, are the focus of ongoing recruiting efforts, says Guy Salvesen, director of scientific training at the institute; he estimates that Sanford-Burnham takes on 10–15 a year.

At UCSD, hiring for state-funded positions has slowed. Again, researchers with extramural funds are the most sought-after recruits, says Kim Barrett, dean of graduate studies. Still, she says, junior-faculty opportunities at UCSD are likely to materialize in the next few years, thanks to a clinical and translational medicine building slated for completion in 2016 and funded in part by a \$37.2-million award last year from the US National Institutes of Health

(NIH). UCSD will probably recruit specialists in biomedical informatics, electronic health-record technology, diagnostic imaging and telemedicine — the use of communications technology to deliver clinical care.

BIOTECH RESILIENCE

Industrial research is better off. The region hosts a few international pharmaceutical companies — including Illumina; Life Technologies in Carlsbad, part of Greater San Diego; Takeda Pharmaceuticals of Osaka, Japan; and Johnson & Johnson of New Brunswick, New Jersey — but nowhere near as many as other US areas, such as Boston, Massachusetts. San Diego's biomedical industry is instead composed mostly of small boutiques and spin-off companies, many of which are too new and small to hire large numbers of researchers.

Still, between 2009 and 2010, the cluster — which includes some 600 small drug-makers, medical-device companies, lab-supply firms and medical-diagnostics manufacturers — added jobs, in contrast to the industry's performance almost everywhere else in the state, says a report published in February by the California Healthcare Institute in La Jolla and the London-based professional-services firm PricewaterhouseCoopers. About 140 contract-research organizations are also headquartered in San Diego. Venture-capital investment in the cluster, predictably, slowed in 2008 as the recession raged, but started to recover in 2009 and 2010, according to an

online report by PricewaterhouseCoopers.

But as in other US cities, the venture capital available often remains insufficient to sustain a fledgling company. Sridhar Prasad, a structural biologist who launched drug-screening start-up CalAsia Pharmaceuticals in September 2009, still holds out hope that new-found capital will find its way to his business, but is pursuing other avenues. So far, Prasad — who was laid off from his group-leader position at another local biotech in January 2009, just before the company went belly-up, and who now employs three researchers besides himself — has been keeping his fledgling company afloat with grants from the Michael J. Fox Foundation in New York, and is awaiting the outcome of several NIH grant applications. In mid-April, he will apply for another, larger NIH grant. Meanwhile, he says, he will carry on — and keep scouting around for either an investor to infuse capital or a larger company that wants to buy up his business.

Despite the risks, start-ups look more attractive than academia to many. Anjali Timmer and her husband, John, decided to head straight to industry after their postdocs at UCSD.

"My principal investigator was trying to get me to pursue a tenure-track position, but I didn't want to," says Anjali Timmer. She knew that getting a faculty position would have been nearly impossible, so instead she applied to several local biotech firms, and got offers from two. She shortened her postdoc from three years to two to accept a job as a microbiologist at Tanabe Research Laboratories in La Jolla, and hasn't looked back. She enjoys studying biological therapeutics for inflammatory diseases. "This is a once-in-a-lifetime opportunity, to work at a start-up that has a rich parent," she says, referring to the biotech's acquisition by Mitsubishi Tanabe Pharma of Osaka last year. She also likes the good pay, which started at \$82,000 a year.

John Timmer, a molecular pathologist, accepted a position at start-up biotech Inhibrx last June. He also interrupted his postdoc to take the job, for which he was recruited by a former lab colleague from his days as a PhD student. John Timmer likes working in a company with just five colleagues, where everyone does everything — from assays to antibody development. "It's been really exciting," he says.

Ultimately, entrepreneurialism is the driving force behind the San Diego region's scientific success, say Lynn Reaser, chief economist at the Fermanian Business & Economic Institute at Point Loma Nazarene University in San Diego, and Mary Walshok, an industrial sociologist at UCSD. The area offers satisfying work for early-career researchers who can become entrepreneurs themselves, like Prasad; embrace the risk of working at a start-up, like the Timmers; or step into an emerging area such as telemedicine. "There are opportunities outside the traditional circles for highly trained scientists," says Walshok. ■

Karen Kaplan is assistant editor for *Careers*.

OPPORTUNITIES

Medicine on the move

The San Diego region is well known for its biotechnology sector, but the area's best near-term opportunities could be in niche fields such as medical diagnostics and wireless health — the use of mobile devices such as smart phones and wearable sensors to facilitate quick, convenient transmission of health data. Mary Walshok, an industrial sociologist at the University of California, San Diego, who investigates the economic forces that affect job trends, says that the city's cluster of companies and institutions already hosts 1,100 information-technology companies, with 50 specializing in wireless health. Interdisciplinary skills in medicine, bioinformatics and information technology are key. "Maybe it's not where the traditional PhD wants to go, but it's where a lot of the opportunities are going to be — the interface between physiological systems

and devices," says Walshok.

Companies will continue to need researchers who can design wireless systems and interpret, analyse and manage the colossal streams of data that they will generate on everything from blood pressure to medication dosage, says Don Casey, chief executive of the West Wireless Health Institute in San Diego, a private non-profit research organization established in 2009. He predicts major growth in the bioinformatics and biodata analysis fields. "San Diego is a great place to do all this because there's already a huge amount of telecommunications infrastructure and a legacy of medical infrastructure," says Casey. "The young industry needs people well skilled in understanding how to examine large quantities of medical data and turn that into usable information." **K.K.**