

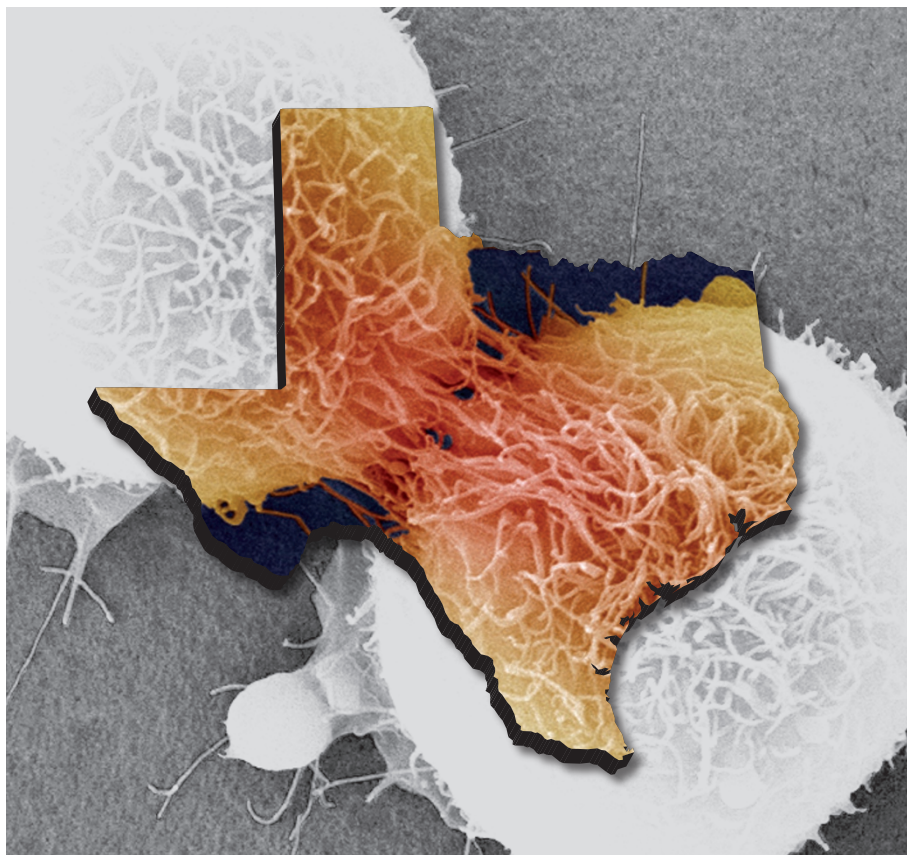
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BIOMEDICAL RESEARCH

Texas potential

If it can weather some controversy, a US\$3-billion cancer-research initiative stands to offer ample opportunities.

BY LAURA BEIL

Until last spring, the Cancer Prevention and Research Institute of Texas (CPRIT), based in Austin, was operating smoothly, awarding more than US\$650 million in grants to scientists such as Daniel Siegwart. In 2011, Siegwart was a postdoc at the Massachusetts Institute of Technology in Cambridge, studying polymer architecture and planning to stay in the northeast, close to his hometown of Pittsburgh. Then he spotted an advert for “exceptional scientists”, placed by the University of Texas Southwestern (UT

Southwestern) Medical Center in Dallas. The campus sought to recruit innovative thinkers as part of the CPRIT’s Scholar in Cancer Research programme. Using CPRIT money, UT Southwestern was seeking an entry-level scientist to investigate the barriers that keep drugs from getting into tumours. Texas seemed a world away, but Siegwart jumped at the opportunity. He has no regrets.

Until then, Siegwart had never heard of the CPRIT, or given any serious thought to the idea of moving south. Texas voters established and funded the CPRIT in 2007 by constitutional amendment, following overwhelming support

and lobbying from patient advocates. The legislation created a cancer-research funding pool second only to that of the National Cancer Institute (NCI) in Bethesda, Maryland: \$3 billion over 10 years. Financed through bonds, the money began to flow in 2009, and since then, the organization has awarded 427 grants that now total about \$755 million.

All has not gone entirely according to plan, however. Earlier this year, the CPRIT’s chief scientific officer, Nobel laureate Alfred Gilman, tendered his resignation, in large part over frustration at the sequence of events that led to the awarding of a \$20-million grant, mostly to the MD Anderson Cancer Center in Houston. The grant was awarded without going through scientific review. That grant has now been withdrawn and will be re-reviewed. CPRIT executive director William Gimson says that the institute’s leadership has “put in place checks and balances” to ensure proper review. “We’re moving forward,” he adds. “Our mission is defeating cancer in the state of Texas.”

But the CPRIT took another hit in October when at least seven reviewers resigned, accusing the initiative of “dishonouring” the system of peer review (see *Nature* **490**, 459–460; 2012). Gilman, now retired, believes an oversight commission should be appointed to determine whether members of the oversight committee violated public trust; if so, they should be removed, he says. And he has called for the board to bring on more cancer expertise. But given these corrections, he remains sanguine about the many opportunities that the CPRIT can offer cancer researchers. It can have “an enormously positive impact”, he says.

POTENTIAL IMPACT

If the CPRIT can weather these peer-review setbacks, those opportunities abound. Since the funding began, more than 200 science positions have been created by these grants, and that number is expected to grow as laboratories and biotech start-ups fill their benches. The sheer size of the fund gives the CPRIT the potential to turn the state into a major centre of cancer research. Anyone wanting to tap into the funding must have an innovative idea and a solid track record. Grants are open to both junior and senior faculty members, but CPRIT officials say that junior faculty members must have sufficient publication history and experience to show that they have the ability to lead a major project.

The one non-negotiable requirement for funding is Texas residence, although the ►

► funding kicks in immediately and can be used to pay for the expense of moving. This geographical stipulation has allowed research institutions and businesses in Texas to attract talent that might have otherwise gone — or stayed — elsewhere. For young scientists, the best opportunity might be the scholars programme that drew Siegwart. Some grants even bear the formal name “Recruitment of Rising Stars”. Institutions can identify investigators with particular skills, and then apply to the CPRIT to sweeten an offer with more money. Jim Willson, head of the UT Southwestern’s Simmons Cancer Center in Dallas, calls the scholars programme “one of the jewels of the CPRIT”.

AMPLE OPPORTUNITY

But the CPRIT provides other opportunities for emerging investigators, as new laboratories and programmes staff their labs. Some grants follow traditional lines of research. The largest single award, for \$25 million, established the Clinical Trials Network of Texas, which will link the state’s clinical institutions and oncology practices into a cooperative network to make trials more efficient and accessible. The grant will also establish an annotated library of tissue samples for further research, and is expected to create a total of 10–12 clinical and scientific positions.

About 10% of the money has gone to cancer prevention, including grants for programmes aimed at stopping smoking in high-risk populations. And the University of Texas Medical Branch in Galveston has received \$1.2 million to provide the human papilloma virus vaccine against cervical cancer to hundreds of low-income women who receive care at university clinics.

One thread running through the CPRIT grants has been an emphasis on cross-disciplinary work. As a case in point, Rice University in Houston pulled off a recruitment triple last year, in part using CPRIT money to entice two physicists and a chemist to transfer to Texas from the University of California, San Diego. None of them had been involved in cancer research before, working instead on protein folding and other basic cellular processes. Under the CPRIT rules, cancer-research experience isn’t necessary. “I was interested in working on cancer problems, but I’ve never done that,” says physicist Herbert Levine, who arrived at Rice University this summer. His laboratory plans to investigate the cellular cross-talk within and around malignancies and how gene expression determines whether a tumour lives, dies, retreats or seeds secondary tumours in distant tissues.

He’ll be looking for assistance from young

thinkers willing to venture outside familiar lines of thought. Levine plans to hire up to ten students and postdocs trained in physics and biophysics. “The goal is to find people trained in some of the basic techniques and redirect them based on their interests,” he says. Even if their background has been completely outside medical science, “this might give them new perspectives about cancer”.

New talent is also nurtured by grants



The Simmons Cancer Center in Dallas has benefited from CPRIT funding.

that provide training for pre- and postdocs. Universities can design plans to fit their needs, and then apply to the CPRIT for finance. At the University of Texas Health Science Center in San Antonio, molecular biologist Susan Naylor has received more than \$2 million to bring in five doctoral candidates and eight postdocs each year to work in labs on her campus. Naylor had already formulated a basic training programme. “It just so happens the CPRIT call came when I was trying to fund this,” she says. CPRIT funding then provided the substrate for the NCI to kick in additional support. She doubts whether the programme would have launched so successfully without CPRIT backing.

Naylor encourages these researchers to secure their own funding, separate from that of their mentors, from whatever source they can find. At the end of the two-year programme, she says, “those are the ones who will get hired”.

In the wake of recent criticisms, Gimson

concedes that the CPRIT’s granting system has had problems as a result of tensions between commercial and basic-science priorities.

But there are plenty of initiatives on the commercial side. Whereas the bulk of CPRIT grants support scientific research, 17% of the funding has been used to encourage the commercialization of drugs and technology. These awards can be impressive — five of the six largest single grants have gone to commercialization-focused projects. Another is to Craig Tooman, a former senior executive at Enzon Pharmaceuticals in Piscataway, New Jersey, who is the first person to be funded under the CPRIT’s Entrepreneur in Residence programme. He is charged with setting up an oncology-based company in Texas. Tooman is now searching for ideas to commercialize. He doesn’t care, he says, whether they come from academic scientists or existing companies.

He cites two companies with whom he has had discussions; both are developing cancer drugs but need additional funding and scientists to take these drugs into clinical trials. Tooman hopes that, eventually, CPRIT-aided companies will attract others to the state because of the density of qualified employees.

The CPRIT is also bolstering companies directly. Apollo Endosurgery in Austin has received \$5 million in seed money from the CPRIT to develop surgical tools that can remove flat and hard-to-snare polyps using an endoscope. In February, the company announced an influx of \$47.6 million in venture capital from other sources. “It would have been extremely challenging to raise that money without the CPRIT funding to really validate our concepts,” says chief executive Dennis McWilliams. With the additional money, the company has expanded to around 25 engineers and clinical specialists, and hopes to hire more.

As the CPRIT tries to get past the mass exodus of key reviewers and appoint a new chief scientific officer, the organization’s leaders do not expect an interruption in funding, with the next round of grants still set for review in early 2013. In a statement, Gimson said that the top priorities for a new chief scientific officer will be to “bring in new peer reviewers and to protect the integrity of CPRIT’s peer review process”. Despite the problems, Gilman still sees an upside for talented researchers seeking funds. “Everyone has been very pleased with the recruitment so far,” he says. “I think everyone is committed to that being given priority.” ■

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