sor cells to form new neocortical cells.

The researchers tracked the development of these neurons by giving the mice a tracer chemical called 5-bromodeoxyuridine (BrdU). BrdU is incorporated into newly synthesized DNA and thus labels cells that are dividing. The team then examined the BrdU-labeled cells in the neocortex for the presence of other markers that would indicate their developmental stage. These analyses revealed that the neocortices of animals given the apoptosis-inducing chemical contained new neurons in all developmental stages, ranging from those that were just born and were migrating up from the subventricular zone (detected by the presence of a protein called Doublecortin) to those that were fully mature (marked by the presence of the NeuN protein).

Other results indicated that the newly born neurons make functional connections. The damaged neocortical neurons originally sent their long axons into the thalamus of the brain. When the team injected the thalamus with a dye that's transported backward from the axon ends up to the nerve cell bodies, they found that the axons of the BrdU-labeled neurons picked up the dye. This finding suggests that the new neurons were making the same connections as those they had replaced. "We have evidence that by inducing apoptosis, we reactivated a program of developmental gene expression that was in place when the mice were embryos," says Macklis.

Next, the researchers would like to identify the genes that control the neurons' development—a task that "will take the field many years," Macklis cautions. But if it can be done, it might be possible to design drugs that reactivate the program in people who have suffered brain damage. Gould adds, "If we could figure out what the obstacles [to neuronal regeneration] are and how to overcome them, we might be able to get the brain to heal itself."

–ELIZABETH NORTON LASLEY

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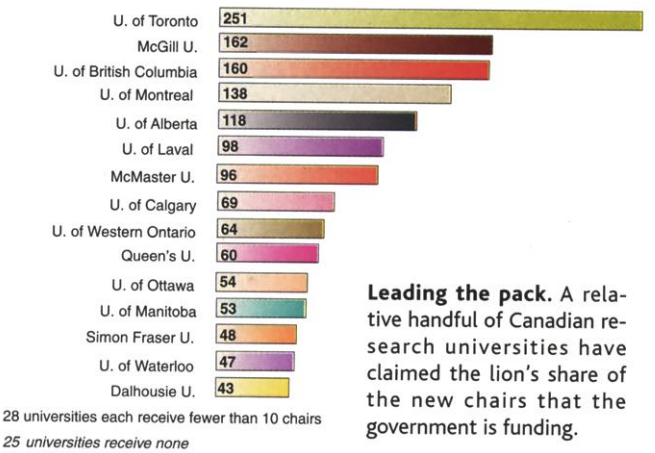
CANADIAN UNIVERSITIES

# Funding of 2000 Slots Sets Off Musical Chairs

**EDMONTON, ALBERTA**—Jack Lightstone was thrilled last fall when the government announced a $605 million program to help Canadian universities attract and retain the best scientific talent (*Science*, 22 October 1999, p. 651). As provost and vice president of research at Concordia University in Montreal, Lightstone has spent the past 5 years building up the school's research capacity, and the government's promise to pay for 2000 new faculty positions across Canada over the next 3 years seemed like a godsend.

This month the government fleshed out the details of its Research Chairs Program, awarding slots to 57 universities, including 21 to Concordia. But Lightstone is decidedly cooler these days toward the pending federal help. He's learned that at least six Concordia faculty members have already received "preoffers" of employment from other universities dangling the new chairs as bait. Those offers, say Lightstone and other university administrators, threaten to turn a program intended to stem a supposed brain drain to U.S. institutions into a game of musical chairs, forcing Lightstone and his colleagues to run faster simply to stay in place.




**Leading the pack.** A relative handful of Canadian research universities have claimed the lion's share of the new chairs that the government is funding.

Four months before it goes into effect, the chairs program has ignited a furor within Canadian academe. Benefiting from an allocation system based on a university's success in obtaining federal grants over the past 3 years, 15 large, research-intensive universities have received 70% of the 2000 slots. Leading the pack is the University of Toronto, whose 251 positions represent 8% of the total (see graph), whereas 28 of the 57 participating schools are getting fewer than 10 chairs, and about two dozen universities have been shut out entirely. The pot is supposed to be divided 45:35:20 among the natural, life, and social and behavioral sciences, although universities are free to decide the balance among individual disciplines and to create multidisciplinary posts.

The chairs come in two sizes: $135,000 a year for established scientists, and $67,000 for rising stars. They are good for 5 years, with the senior awards renewable indefinitely and the junior slots good for a second term. Universities can use the money not just for salaries but also for travel, new equipment, and hiring students and postdoctoral fellows. In addition, the Canadian Foundation for Innovation (*Science*, 28 February 1997, p. 1256) announced last week that it will add $84,000 to the funds for each research chair to cover the institution's overhead costs.

In anticipation of the 1 September kickoff, the research-intensive universities have begun aggressively shopping for prospective candidates. Smaller universities say that has left them fending off talent raids. Short of a gentleman's agreement to eschew such raids, Lightstone says that the government should require all chairs to be advertised and filled through a competitive process. "Then you won't have one institution handing someone a chair on a silver platter, saying: 'Come work for me.'"

Other administrators worry that the game of musical chairs will ratchet up overall costs by giving sought-after faculty members the leverage to push for higher salaries or better working conditions. "[In itself] that may not be bad," says Michael Owen, vice president of research at Ryerson Polytechnic University in Toronto, which has received six chairs. "But some of the more senior and midcareer faculty members may feel somewhat slighted if they aren't seen as promising." Rene Durocher, head of the chairs program, says such fears are unwarranted and that the program actually will give smaller universities the means to retain star researchers. "They are being alarmist," he says. "If they lose some good people, they can now recruit some other people."

Speaking with Durocher last month at a University of Alberta forum here sponsored by the Humanities and Social Sciences Federation of Canada, university administrators fretted that playing musical chairs will simply strengthen research-intensive universities and make it more difficult for have-not institutions to compete for research grants. They also see it fueling a trend toward a handful of megadepartments in certain disciplines.

Again, Durocher dismisses that concern. Although he admits that universities must make "tough decisions in what fields they want to develop, with whom," he says that's preferable to having the government call the shots: "That would be micromanagement of universities." The flexibility universities have to spend the money means that there will be "no losers," he adds. And although established researchers may initially claim most of the positions, he predicts that ultimately the program will meet its intended goal of combating the brain drain by "helping Canada to retain its best researchers and to attract new superresearchers."

–WAYNE KONDRO

Wayne Kondro writes from Ottawa.