SWEDISH RESEARCH

New Stem Cell Fund Raises Hackles

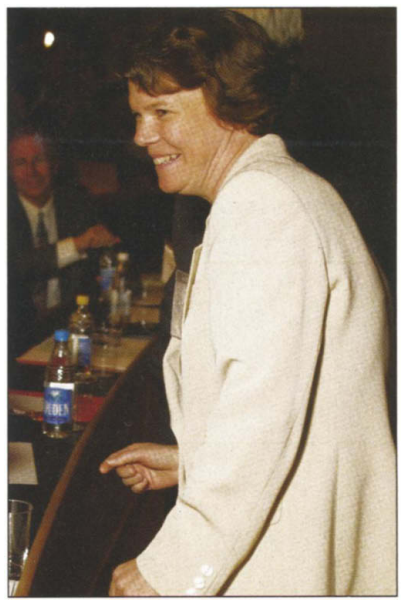
A tidy sum of money gift-wrapped for stem cell research has sparked recriminations and soul-searching in Sweden, a country at the vanguard of the hot young field. Several prominent scientists have charged that a new 75 million Swedish kronor ($8.1 million) stem cell fund has subverted the country's rigorous peer-review process by awarding large amounts of money to teams with sparse track records that have jumped on the stem cell bandwagon. If the winners "had applied [for grants] in a broader competition, the results would have been very different," asserts Helena Edlund, a developmental biologist at the University of Umeå, who resigned in protest last week from the Swedish Research Council's (SRC's) medical advisory board.

The controversy has triggered a broader debate about the wisdom of focusing scarce funds on narrow—some say trendy—areas of science. "A country such as Sweden should be careful [that it doesn't] waste its limited resources for basic research funding," says Jan Lundberg, head of global research for the drug giant AstraZeneca, based in Södertälje. "It's very important that grants are given to the most strategic areas of research and not flooded into areas that happen to be hot at the moment." The new stem cell program might seem minuscule by U.S. standards—indeed, much of its funding comes from abroad—but after a decade of stagnation for Sweden's research budget, critics argue, every award counts. Grantees contacted by *Science* defend their projects but welcome a wider discussion, one that should resonate in many small nations with vibrant scientific communities.

Widely regarded as a stem cell pacesetter, Sweden is home to 25 of the 64 embryonic stem cell lines that U.S. President George W. Bush approved for research in August 2001, although all but two of the Swedish lines remain deep-frozen and untested (*Science*, 9 August, p. 923). In the field of adult stem cell plasticity, Jonas Frisén and his colleagues at the Karolinska Institute in Stockholm have found that stem cells from the brain may be capable of becoming many different cell types. And Anders Björklund and Olle Lindvall of Lund University are pioneers in fetal cell transplants, a basis for possible stem cell therapies for Parkinson's disease.

Last fall, a report by the Boston Consulting Group advised a coalition of research foundations to capitalize on these head starts and funnel more funding into the stem cell field. That message pleased Swedish politicians, who were well aware of the field's potential. The Bush announcement "triggered enormous hype here in Sweden," says Thomas Edlund, a developmental neuroscientist at the University of Umeå and Helena Edlund's husband. "Suddenly everyone was saying we should go for it. This should be the future in Sweden."

That aura attracted the Juvenile Diabetes Research Foundation (JDRF). Last winter the charity, based in New York City, offered roughly $1 million a year for 5 years to SRC for stem cell research. JDRF hopes such work will lead to stem cells that can turn into pancreatic cells for transplantation. It required SRC to match the gift with $434,000 a year of its own funding. (The Swedish Diabetes Association chipped in another $100,000 a year.)



Caught in a firestorm. SRC biomedical chief Harriet Wallberg-Henriksson defends the stem cell grants, pointing out that they consume a tiny fraction of the council's budget.

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Coordinated by SRC, the new stem cell fund issued a call for proposals in March, then put the submissions through a review by five international stem cell experts who ranked the top proposals and recommended funding levels. Last month, the fund announced the winners of its first 11 awards, worth a total of $4.8 million over 3 years. The two largest grants involve research networks among several institutions: one on somatic stem cell plasticity, the other on characterizing the frozen embryonic stem cell lines and deriving new ones.

Thomas Edlund contends that many of the teams that won grants—either as individuals or as part of networks—would not have fared as well if their grant proposals had had to go up against proposals from other fields, as is the case for most funds distributed by SRC. He sent an open e-mail to colleagues across Sweden on 9 September complaining about the program and its results. The fund has "created a system that can give out huge grants to groups that don't have publications in the field," he told *Science*, pointing to the network that plans to characterize as-yet-untested embryonic stem cell lines. Echoing that view, Christer Betsholtz, a molecular biologist at Göteborg University, who collaborated on one funded project, says that "too much freedom" was given to the fund's select review committee. "My opinion is that they didn't do a very good job," he says.

SRC officials defend the review and the agency's decision to accept earmarked funds. Harriet Wallberg-Henriksson, secretary-general of SRC's medicine division, says she has no complaints about the review panel's work. She also points out that the stem cell funds are a tiny fraction—about 1%—of SRC's biomedical research budget and were taken from a $2.3 million pot set aside for bioscience and biotechnology.

But even supporters of the stem cell program, and a few of the grantees, welcome the broader debate. "There's a danger that research is becoming like fashions that change every year," says Patrik Brundin of Lund University, who received $150,000 over 3 years to study the plasticity of neural stem cells. Money poured into trendy fields, he says, can lure scientists away from worthy, but less flashy, research. In that respect, SRC's stem cell fund is not the only program making waves. The Swedish Strategic Fund's selection process for six "networks of excellence" awarded in June has come under attack for supporting "trendy" fields. Two networks involve stem cell–related research.

Scientists on both sides of the debate agree that a dose of reality is prudent for a young field with uncertain prospects. Brundin notes that fields such as gene therapy and xenotransplantation drew loads of attention and funding early on. When they ran into difficulties, he says, "the balloon popped" and they quickly faded.

Likewise, some observers contend, it could be hazardous for a small country such as Sweden to shower money on stem cell research. "Giving overwhelming support to this highly speculative research area is risky," Lundberg says. Because the grantees can now attract the country's top postdocs and students, "it will have long-term consequences for the future of science in Sweden," he says. "Do we want to be seen as *the* stem cell country of the world? I think we don't." Others hope the new fund is making a wise wager that will keep Sweden at the table of one of the hottest games in town.

—GRETCHEN VOGEL