US science foundation gets the go-ahead for more centres

Washington. An independent assessment has given the National Science Foundation (NSF) the green light to support a new round of Science and Technology Centres (STCs) based at universities. But the NSF should pay more attention to the choice of directors for the centres, the report says.

The study, by a panel of the Committee on Science, Engineering and Public Policy (COSEPUP) chaired by William Brinkman of Bell Laboratories, found that the 24 existing STCs were doing "world-class research" and that the NSF is "getting a good return" on the \$60 million it spends each year on them.

The centres, which were initiated in 1987 by the administration of President Ronald Reagan, initially drew criticism from university scientists who thought that the money that was available could be spent more wisely through NSF's normal means of providing peer-reviewed grants to individual researchers.

The existing centres, which range in their fields of interest from the Southern California Earthquake Centre at the University of Southern California to the Center for Molecular Biotechnology at the University of Washington, Seattle, were set up as pilots in 1989 and 1991. Their NSF funding is due to end after 11 years.

The COSEPUP verdict makes it likely that the NSF will decide to fund new centres when the old ones expire. David Schindel of the NSF's Office of Science and Technology Infrastructure, which oversees the centres, said that if this happened, people from the established centres would be free to compete to host them, if they have new ideas. "The assumption is that any organisation can produce a proposal — but not just to renew existing centres," he says.

COSEPUP found that, where problems had arisen with the centres, they could be attributed to the administrative capabilities of their directors. It calls on the NSF to "place greater weight" on that person's abilities in any future selection process.

It also found that some centres had placed too much emphasis on education initiatives, especially outreach to high schools, sometimes at the expense of research. "Research and the undergraduate and graduate education linked to it should be paramount" for the centres, the report says.

The NSF will bring proposals for a new competition to its governing board, the National Science Board, in time for its November meeting, Schindel adds. Other advice, including that of a special advisory committee chaired by Carl Lineberger of the University of Colorado, will also be taken into account, he says. Colin Macilwain

Drugs institute gives grant for cocaine vaccine

Boston. The development of a treatment for cocaine addiction is now a "top priority" for the US National Institute on Drug Abuse (NIDA), according to Alan Leshner, its director.

The institute last week announced a \$700,000 grant to ImmuLogic Pharmaceutical Corporation, a biotechnology company based in Waltham, Massachusetts, to complete animal testing of a vaccine to treat cocaine addiction, and to devise plans for human testing of the compound next year.

No medicine is currently available to treat addiction to cocaine, says Leshner, although there are an estimated 2 million heavy users of the drug. Counselling, psychotherapy and

develop a vaccine to treat nicotine addiction.

David Self, a neuropsychopharmacologist at Yale University School of Medicine, believes the strategy used by ImmuLogic, as well as by investigators at the Scripps Research Institute (Carrera *et al. Nature* 378, 727–730; 1995), is a "valid approach".

Yet it has a few shortcomings, he says. "It may be possible to overcome the antibody effect by taking more cocaine or by choosing another drug of abuse like methamphetamine or opiates." The vaccine, he adds, would not treat the "core symptomatology" of drug addiction — the intense drug cravings that often lead to relapse. Such cravings are thought to be caused by neurobiological adaptations that occur in the brain in response to chronic drug exposure.

Fox maintains that experiments will be done to find out how readily someone can overcome the vaccine through higher doses, but concedes that people can always switch to another drug. "This approach is not likely to be effective unless patients have some level of motivation," she says. "The good news is that motivation can be encouraged from the outside through counselling."

Another advantage, she points out, is that the antibody approach should be compatible with other experimental drug therapies aimed at blocking dopamine receptors, believed to be the molecular target of cocaine in the brain.

"We'll never have a single approach that works for all people," Leshner says. "Some people will respond better to a drug that targets the underlying mechanism of addiction, while others may do better with a drug specifically aimed at blocking cocaine's effects." In the absence of any available treatments for cocaine today, he says, "we should pursue a variety of strategies, provided the methods are based on sound science".

Steve Nadis

self-help groups are the only options available at the moment. About 400,000 people seek medical assistance or treatment each year, but half of those who have successfully withdrawn from the drug later relapse.

The vaccine to be tested is a cocaine derivative coupled to a carrier protein, which is predicted to elicit an immune response for months after being injected. If a vaccinated person were to take cocaine, antibodies would attach to the cocaine molecules and inhibit their passage into the brain, thereby blocking the psychostimulatory effects of the drug. ImmuLogic's studies in rats show that vaccine-induced antibodies really do limit access of cocaine to the brain. Moreover, rats injected with cocaine-specific antibodies fail to be stimulated by cocaine, and reduce their self-administration of the drug accordingly.

"The medication won't affect drug craving directly, because so long as cocaine is not in the system, these antibodies won't do anything," explains Barbara Fox, an immunologist and vice-president and director of the drug abuse programme at ImmuLogic. "But the treatment will make cocaine less gratifying and could keep a recovering addict from going on a full-scale binge." The company plans to use the same approach to

German staff ruling

Munich. Germany's federal constitutional court last week confirmed the right of universities to employ postgraduate and post-doctoral scientists on short-term contracts. The court has taken more than a decade to resolve the case. It was brought in 1985 by trade unions, which had argued that all academic staff should be on lifelong contracts.

Almost 200,000 young researchers are now employed on short-term contracts at German universities, which, with science associations, reacted to the long-awaited decision with relief. If short-term contracts were inadmissible, they say, a few scientists of a single generation could block all university research positions for 20 years. **Q. S.**