

tingency agreement that will give him a share of any winnings. Right now, he wants to obtain more information on the profits made by Roizman and the university. The process of legal discovery will begin in a few weeks.

—ELIOT MARSHALL

#### STEM CELL RESEARCH

## NIH Review Outlines 'Enormous Promise'

In a comprehensive review of stem cell research, the National Institutes of Health (NIH) this week laid out its perspective on the promise and unanswered questions of the nascent field. As *Science* went to press, the report, requested by Secretary of Health and Human Services Tommy Thompson, was scheduled to be released at an 18 July Senate hearing.

A preliminary copy of the report obtained by *Science* describes a field that is full of potential but still fairly short on concrete results. It carefully outlines the differences among results in stem cells derived from adults, fetal tissue, or embryos, reviewing both published and unpublished work. But the report does not take a position on whether the federal government should fund work with embryonic stem cells—a question President George W. Bush is still trying to resolve.

Together, all types of stem cells “hold enormous promise for new approaches to tissue and organ repair,” says the report, compiled by the NIH office of public policy under the direction of Lana Skirboll. Offering a dramatic example, the NIH report describes a study, still under review at a scientific journal, suggesting that pluripotent stem cells can restore mobility to the hind limbs of rats paralyzed by a virus. In this work, John Gearhart of Johns Hopkins University in Baltimore, with colleagues Douglas Kerr, Jeffrey Rothstein, and others, used a line of cells that Gearhart originally derived from the gonadal tissue of an aborted fetus. The team injected the cells into the fluid surrounding the spinal cord of rats that had been infected with the so-called Sindbis virus. The virus destroys motor neurons in the rear half of rats’ bodies, damage similar to that caused by amyotrophic lateral sclerosis (ALS). Three months after receiving the injections, many of the 18 treated rats were able to walk, albeit clumsily, the report notes.

This is one of the first examples in which human pluripotent stem cells have partially corrected an animal model of disease. “The data are pretty dramatic,” says Rothstein, who nonetheless cautions that they are still preliminary. Experiments are now under way in a mouse model of ALS that is much

closer to the human form of the disease, he says, but they have not yet produced results.

Evan Snyder of Harvard Medical School in Boston, who has been collaborating with the Johns Hopkins team on related experiments, says the results are encouraging. He suspects that neuroprotective factors produced by the stem cells may be the reason for the recovery rather than new neurons.

Despite the experiment’s promise, NIH is cautious about the potential of stem cell therapy for spinal cord injury, one of the most frequently cited applications. “Complete restoration after severe spinal cord injury ... is probably far in the future, if it can ever be done at all,” the report says. Partial restoration of some functions is “a more achievable goal.”

—GRETCHEN VOGEL

#### YUGOSLAVIA

## Science Goes Begging In Recovery Package

**CAMBRIDGE, U.K.**—The shipment last month of former Yugoslavian President Slobodan Milosevic to The Hague to stand trial as a war criminal has unleashed a flood of Western aid for the shattered country. But high hopes that some of the \$1.28 billion pledged at a 29 June conference in Belgium would nourish good science have, for now, been dashed. Several Yugoslav science initiatives failed to win a slice of the pie, leaving their future uncertain.

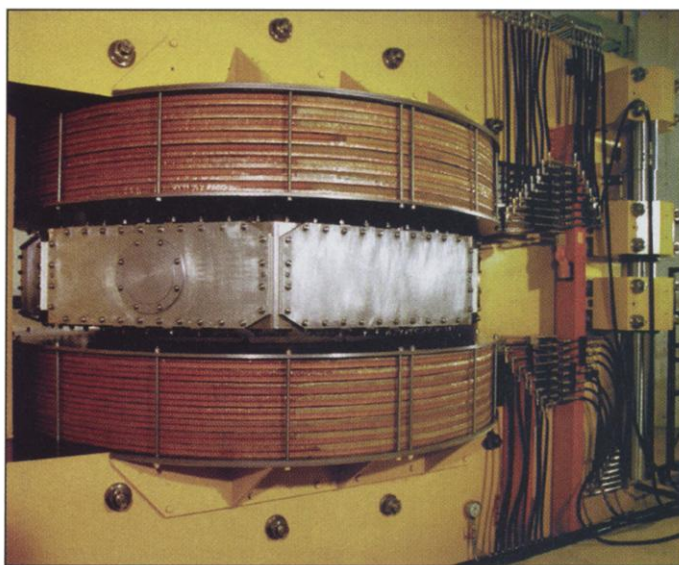
Research has struggled along with the rest of the fragile federation of Serbia and Montenegro since Milosevic was toppled last year (*Science*, 27 October 2000, p. 690). Roughly half of the country’s top scientists are thought to have left the country, and the level of outside support has been disappointing. But there have also been hopeful signs: In February, Science Minister Dragan Domazet won a doubling of his budget, to \$25 million, and he was looking to extend those gains with a slice of the new money.

Instead, more than half the funds from the donors’ conference, run by the European Commission (EC) and the World Bank, were earmarked for such reforms as overhauling the banking industry and tightening

the social safety net. The Serbian government was allowed to dole out much of the rest (Montenegro received roughly 10% of the pot) according to its own priorities. And only one of a dozen projects—upgrading Internet connections—received the go-ahead. “We’re pretty disappointed,” says Domazet. “We’re not getting any financial help for our scientists or labs.”

One of the biggest blows was a failure to secure additional funding for a state-of-the-art cyclotron facility under construction at the Vinča Institute of Nuclear Sciences near Belgrade. Serbia has already spent \$18 million building the TESLA Scientific Center, which would do everything from probing atomic structure to treating cancer patients, and the science ministry had requested \$8 million to finish the job. “We are continuing the fight,” says Vinča’s Nebojsa Neskovic. Officials also hope to find donors to replace obsolete equipment in labs around the country and to create technology parks in Belgrade and Nis.

Although money is scarce, contacts are expanding. Serbia has inked a deal to allow a handful of scientists to work at CERN, the European particle physics laboratory near Geneva. And the EC is poised to make Yugoslav scientists eligible to compete for funds in its flagship Frame-



**On standby.** The TESLA Scientific Center’s attempt to secure \$8 million to finish its cyclotron and related labs has stumbled.

work research program.

Domazet is also given credit for making available funds go farther. In a break with the tradition of spreading a thin budget evenly, a call for research proposals issued last month is designed to funnel money to the best labs. The idea is to force mediocre scientists in the 9000-strong workforce to upgrade their skills, change careers, or retire.

—RICHARD STONE