tribute cells, while other countries may move faster (see next story). A year ago January, a lawyer for the Department of Health and Human Services ruled that stem cells derived from embryos were not themselves embryos; therefore, the National Institutes of Health (NIH) could fund research on the cell lines without contravening a ban Congress imposed on embryo research (*Science*, 22 January 1999, p. 465). Draft guidelines, now under review, would allow NIH-funded researchers to work on stem cell lines derived by private organizations, such as WiCell, as long as the derivation met certain ethical conditions.

On 31 January, NIH announced that it was extending the comment period on these guidelines for 3 weeks, until 22 February. NIH has already received thousands of letters, both pro and con, says Lana Skirboll, associate director for science policy. Although NIH has not tallied the responses, opposition has been significant. Skirboll says NIH now expects to issue the final guidelines no sooner than early summer.

Debate also continues on Capitol Hill. Senators Arlen Specter (R–PA) and Tom Harkin (D–IA) have introduced a bill that would allow NIH to fund both the derivation and use of stem cell lines. A Senate hearing on the bill is scheduled for 22 February, and House committees are planning hearings as well. All of this will likely keep federally funded U.S. researchers from placing orders with WiCell anytime soon.

–GRETCHEN VOGEL

STEM CELLS

Report Would Open Up Research in Japan

TOKYO—Japanese researchers are cheering last week's release of a report to the government that endorses the use of human stem cells in research—work that until now has been on hold. The draft report outlines a process for both publicly and privately funded scientists to follow in deriving and working with stem cells. "It's a very important step forward," says Shinichi Nishikawa, a professor of molecular genetics at Kyoto University's School of Medicine.

The report was drafted by a special subcommittee of the bioethics committee of the Council for Science and Technology, the nation's highest science policy body. In giving the green light for research using embryonic stem cells, the subcommittee cites the potential for "very important results for the advancement of medicine, science, and technology." Human stem cells, which theoretically can develop into any of the body's cells, may ultimately provide laboratory-grown replacement organs and treatments for diseases such as Parkinson's and Alzheimer's. Biologists are keen to use them as well to explore basic developmental processes. But the subcommittee said that research on human stem cells and related material must be strictly regulated.

Under the report's proposals, stem cells could be created only from embryos left over from fertility treatments and only after donors granted their informed consent. Donor privacy would be strictly protected, and the stem cells could not be used to clone humans or be combined with animal embryos. Each research center using or deriving stem cells would have to create an institutional review board, which would approve all work and maintain detailed records. The board, made up of lawyers, ethicists, and scientists, would in turn report to a higher government body.

These recommendations differ in two major ways from guidelines proposed in December by the U.S. National Institutes of Health (NIH) (see previous story). The Japanese rules allow government funding for both the derivation and use of stem cells. The NIH guidelines, in contrast, prohibit the use of public funds for the derivation of human embryonic stem cells. And whereas NIH's proposed rules apply only to NIH-funded work, the Japanese proposals address activity in the private sector as well, suggesting that the creation and distribution of embryonic stem cells be done on a not-for-profit basis. Payments to embryo donors would not be allowed, and fees for acquiring stem cells would cover only reasonable costs for their preparation and distribution. These differences would likely make academic labs the focus of stem cell creation in Japan, while for-profit companies take the lead in the United States.

One gray area involves the role of the institutional review committees. The report recommends that they have broad discretionary powers to decide whether a project is ethically appropriate and if the researcher has the necessary expertise. The report does not set standards for making these judgments, however, and Kyoto University's Nishikawa, a member of the subcommittee, says that the review boards' role is likely to remain cloudy until they are up and running. Nishikawa also believes that some aspects of the proposed procedures "may require some reconsideration." He notes that privacy rules might need to be revised, for example, if researchers and regulators require additional information on the donors before approving the use of stem cells for certain medical applications.

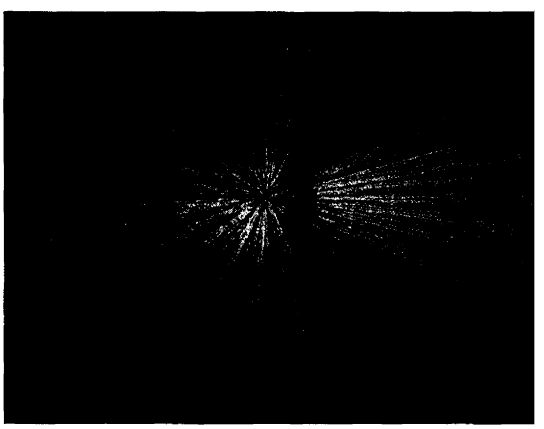
The draft is now open for a month of public comment before it goes to the Science and Technology Agency and the Ministry of Education (Monbusho), which are expected to draw up final guidelines by April. Meanwhile, some research centers have already set up review boards, and scientists are eager to take the next step. "This report means we will be able to extend this work to human stem cells," says Takashi Yokota, a professor at the University of Tokyo's Institute of Medical Science who has been using mouse cells to study basic stem cell mechanisms. He hopes for a chance to begin that work this spring.

–DENNIS NORMILE

HIGH-ENERGY PHYSICS

CERN Stakes Claim on New State of Matter

Not since the big bang has matter been in such a state. For a few microseconds after the birth of the universe, quarks and gluons roamed free in a blazing hot jumble of matter known as a quark-gluon plasma. As the plasma cooled, the quarks and gluons condensed into more familiar particles and disappeared. On Thursday, scientists at CERN, the particle physics laboratory near Geneva, were expected to announce—gingerly—"compelling evidence" of a new state of matter that might be quark-gluon plasma reborn—unless, that is, it's something else.



CREDIT: CERN

Hot lead. Colliding Pb nuclei disintegrate in a spray of high-energy particles.

The announcement marks the close of a 6-year chapter in high-energy physics. Since 1994, CERN physicists have been using the Super Proton Synchrotron (SPS), a 6-kilometer circle of magnets, to smash lead atoms together at enormous speeds and with energies as large as 3.5 TeV (trillion electron volts). The scientists hoped the colliding nuclei would become so hot and so dense that their protons and neutrons would reverse cosmic history, melting back into a soup of component quarks and gluons.

Now, however, CERN's instruments are about to lose their cutting-edge status. In May, a new accelerator known as the Relativistic Heavy Ion Collider (RHIC), up to five times as powerful as SPS, will come online at Brookhaven National Laboratory in Upton, New York. "The big thrust is going from CERN to Brookhaven," says