

EMBRYONIC STEM CELLS

Australian Agreement Allows New Lines

SYDNEY—Australian researchers are relieved that it's not worse, although many wish it were better. Last week federal, state, and territory leaders attempted to resolve a raucous national debate over the use of human embryonic stem (ES) cells by agreeing to allow some research to continue under a strict regulatory regime.

The proposed legislation, to be introduced in June, would not only allow scientists to work with ES cell lines that have already been established but would also permit them to derive new cell lines from surplus in vitro fertilization (IVF) embryos created be-



Half-full glass. Monash University's Alan Trounson (left) and Martin Pera say that the new agreement permits derivation of new ES cell lines.

fore 5 April that would otherwise be destroyed. The rules would, however, prohibit all forms of cloning, including so-called therapeutic cloning: the transplantation of a nucleus from an adult cell into an ES cell to generate cells for tissue engineering. The technique, which is still a long way off, holds the promise of producing tissue that is genetically matched to a patient. An ethics committee would be established to review protocols, and the National Health and Medical Research Council will report within 12 months on the adequacy of the supply and distribution of embryos. The provisions on IVF embryos would expire after 3 years.

The new rules are more flexible than the conditions imposed on federally funded U.S. researchers, who can use ES cells only from cell lines created before 9 August 2001 (*Science*, 17 August 2001, p. 1242). Australian researchers estimate that some 70,000 frozen embryos are potentially available, although the agreement says that donors must give their permission before the embryos can be used. "This is very good news for researchers who are working to cure diseases and save lives," says Bob Carr, the premier of New South Wales and an out-

spoken supporter of research involving ES cells. "It means that research can go ahead with a minimum of inhibitions."

The legislation would reconcile what until now has been a patchwork of state and territory rules. "Getting a national consensus is terrific," comments John White of the Australian Academy of Science. "But let's take the next step to enable [therapeutic cloning] to follow." It's also a compromise between research advocates, who wanted greater freedom, and conservative politicians and religious leaders, who sought a ban on all embryo research. An "Open Letter" on 2 April from 80 prominent critics in Melbourne's newspaper *The Age*, for example, branded therapeutic cloning as "the manufacture of a new race of laboratory humans." In September 2001, a parliamentary committee recom-

mended a delay in drawing up any rules, but in the following months its chair, Minister of Ageing Kevin Andrews, led a campaign to stop all such research (*Science*, 1 March, p. 1619).

Martin Pera of Monash University's Centre for Early Human Development says that the new agreement allows him and his colleagues to keep their Melbourne lab intact (*Science*, 8 March, p. 1818). "We'll be able to derive new cell lines to support research elsewhere and also in Australia," he says. Steve Bracks, premier of Victoria state, where Monash is located, calls the agreement "a victory for common sense."

Others are less sanguine. Paul Simmons, who works with adult stem cells at the Peter MacCallum Cancer Institute in Melbourne, says that Australian scientists and clinicians will be "disadvantaged" compared to groups in nations such as the United Kingdom and China that allow work on ES cells for developing new therapies. "We'll be put out of the game for a period of time," he says. "How do you compete?"

—LEIGH DAYTON

Leigh Dayton writes from Sydney.

ASTRONOMY

If It Quarks Like a Star, It Must Be ... Strange?

Astronomers may have discovered two of the strangest objects in the universe. Observations by the orbiting Chandra X-ray Observatory imply that stars named RXJ1856 and 3C58 are too small to be familiar neutron stars but might instead be a more exotic breed composed of degenerate quark matter. If so, the two would be the first credible examples of so-called strange stars, presenting theorists with a chance to pin down some of

couraged by this move but that their work isn't finished.

"This is a big deal, but it doesn't solve the problem fully," says Claude Canizares, an astrophysicist at the Massachusetts Institute of Technology (MIT). Researchers say that the new rules are fuzzy about collaborative work abroad, don't address cooperative efforts with industry, and will lead to discrimination against graduate students from outside Europe and Japan.

The regulations followed a series of scandals in the late 1990s involving the alleged transfer of sensitive U.S. satellite technology to China (*Science*, 24 March 2000, p. 2138). In response, the State Department and agencies that fund academic research tightened oversight of research satellite efforts. Canadians became the only non-U.S. researchers allowed to work on such projects without U.S. government approval, and exports to even friendly nations required licensing. Outraged U.S. researchers complained that the rules hindered the contributions of foreign-born graduate students and non-U.S. universities.

Under the new rules, students or scientists from Canada, Europe, Japan, and a few other U.S. allies may participate in most satellite projects without licenses. But some scientists say that the change, although welcome, could divide students into those from friendly nations and those considered untrustworthy. "Any university worth its salt will not do this," says Eugene Skolnikoff, an MIT political scientist who has closely monitored the regulations.

The new rules also will allow shipments of nonsensitive technology to a friendly nation without a license. But it's not clear whether the government will hold U.S. researchers responsible for blocking access by citizens of countries not considered U.S. allies. "There's just no way to control the other end," says Canizares. Skolnikoff adds, "It's simply unworkable." Universities are still puzzled about how to manage their increasing collaboration with industry, which comes under related but different rules.

With export-control officials worried that unfriendly countries will still try to get their hands on sensors or radiation-hardened components, further loosening of the rules seems unlikely. "[The rules] will make life easier for universities, even if they don't give them 100% of what they want," says one Administration official. At the same time, thankful researchers don't want to complain too loudly about not having all their wishes for fewer restrictions granted. The Administration, they note, has made a strong and public first step. Says Skolnikoff: "This tells the bureaucracy that this is important."

—ANDREW LAWLER