

# Embryonic education

Now that the US federal funding ban on human embryonic stem cells is lifted, scientists must engage the public's concerns about embryo research.

When US President Barack Obama lifted the funding ban for research on human embryonic stem cells earlier this month, he did not mention the Dickey–Wicker amendment — legislation that forbids the use of federal funds for research that destroys or creates embryos. It was a missed opportunity to begin a necessary conversation.

Because of this law, worthy projects will still be barred from federal funding despite Obama's action. Stanford University, for example, collaborates with fertility clinics that work with couples who have their embryos screened for genetic diseases. If pre-implantation embryos are identified with genetic mutations, the prospective parents can donate them to the research project, allowing stem-cell lines to be derived from them. This way, embryos unsuitable for implantation would become cell lines for studying diseases afflicting the donors' families. Although the programme has California state funding, this does not cover the costs of deriving lines from all the embryos donated, which in turn restricts the research.

In force since 1996, the Dickey–Wicker amendment badly needs updating to fit the current research reality, if not outright repeal. But because it affects fewer researchers than did the funding restrictions on stem-cell research, scientists who spent hours in public outreach trying to overturn the stem-cell ban may well want to return to their labs, leaving this lower-profile law's implications unquestioned.

Such attitudes are understandable, but wrong. Both the Dickey–Wicker amendment and the new guidelines on human embryonic stem-cell research being drawn up by the National Institutes of Health merit an intense national conversation. In particular, that dialogue should thoroughly explore attitudes towards studying different types of embryos — not just those left over from fertility procedures, but also those that might be specially created for research.

The United Kingdom set a good example. More than 25 years ago, the government began supporting a series of public dialogues about what sorts of embryo research would be deemed acceptable. This helped breed a trust and openness between the general public and

the scientific communities that has permitted the scope of allowable research to expand over time.

In the United States, scientists should likewise highlight the restrictions they have already imposed on themselves — especially their use of ethical oversight committees, which bring together scientists, members of the local community and ethical expertise to ensure that research falls within established guidelines and has scientific merit. Scientists should also describe how they balance the status of human embryos with the potential benefits of research. And they should listen carefully to non-scientists' objections, hopes and concerns.

A key requirement for productive dialogue is a common frame of reference. Here, the word 'embryo' is a stumbling block. This term refers to everything from a newly fertilized single-celled egg to millions of cells organized into eyelids, ears, genitals and limbs. Yet the latter form, which is present some eight weeks after fertilization, is not only ethically unacceptable for research but also far too old to yield embryonic stem cells.

Multiple sets of widely accepted guidelines from, for example, the US National Academies, the International Society for Stem Cell Research and Britain's Warnock Report agree that the first sign that cells for the future body are starting to specialize — the glimmer of a structure known as the primitive streak at about 14 days after an egg begins to divide — marks the end of when any laboratory research on human embryos should be considered. To discuss this responsibly, scientists should insist on precision, specifying an embryo's developmental state in terms of its age, for example, or the number of cells.

In the United Kingdom, a broad consensus on stem-cell research began with long, ongoing consultations with the public. That discussion — using the appropriate language — must now begin in earnest in the United States. ■

**“Scientists should describe how they balance the status of human embryos with the potential benefits of research.”**

## A cut too far

UK researchers are rightly outraged at one funding council's decision to exclude certain applicants.

For around 250 British scientists, April's post will bring a particularly personal letter of rejection. The Engineering and Physical Sciences Research Council (EPSRC), a national research-funding body, has decided to stop serially unsuccessful applicants from submitting any more grant proposals for a year (see page 391).

No other funding body, whether in the United Kingdom, the rest

of Europe or the United States has attempted to formally exclude scientists in this way. The anger triggered by the move tells a cautionary tale: the policy is misguided, however urgently the EPSRC needs to relieve its overburdened peer-review system.

In truth, the research council is caught in a vicious circle. Its budget for grants shrank this year as government funding increases were swallowed up to pay for the full economic costs of research. Yet the applications keep flooding in. The result is that only one in every four or five applications is currently being funded; in some disciplines, such as chemistry, success rates have dropped to 15%. In the hope of getting at least some support, researchers feel compelled to submit more and more applications for small, short-term grants,