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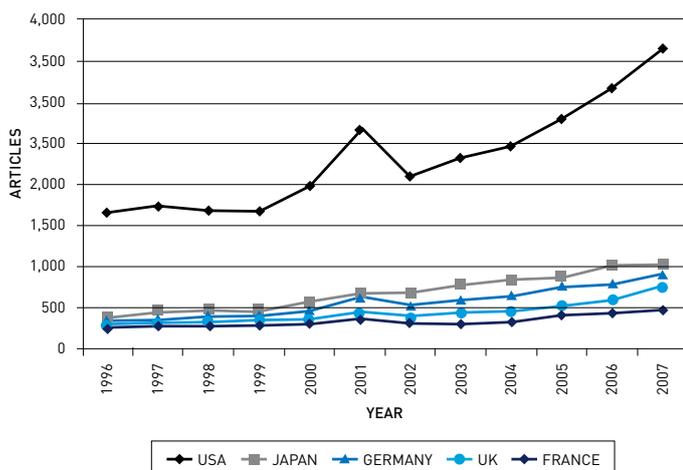
Country trends



What's leading the curve: research or policy?

SARAH COUFFIGNAL-SZYMCAK

Stem cells are characterized by the ability to renew themselves and differentiate into a diverse range of specialized cell types. Therefore, stem cell research opens the possibility of new technologies with great therapeutic potential for many medical conditions. The two main types of mammalian stem cells are adult stem cells, which are found in adult tissues, and embryonic stem cells, which are isolated from the inner cell mass of early embryos. The latter are at the center of a moral and ethical debate on research involving the creation, use and destruction of human embryonic stem cells.



Stem cell research in the USA, Japan, Germany, the UK and France may be affected by national policy.

Stem cell research is an exciting but controversial field and has been the subject of intense debate in recent years. Despite the controversy, the field has sustained a strong growth over the past decade (~11%). National policies on stem cell research have been evolving with the debate and influencing research outputs, as can be seen in the following overview of the most prolific countries during the past decade.

France: ranked 5

Since the 1994 bioethics laws, embryo research has in principle been forbidden in France. However, these laws are evaluated every five years and the bioethic law of August 6, 2004, allowed research with a therapeutic aim and under extremely controlled conditions to be carried out. Research is only permitted on embryos created as a by-product of IVF and only with the par-

ents' agreement that the superfluous embryos can be used for research purposes. Taking into account the fact that research manuscripts can take up to a year to appear in a journal, this relaxing of the law may be reflected in a slight increase in the number of articles on this subject published by French authors in 2005. The law is due to be re-examined at the end of the year, so the future of stem cell research in France is still uncertain.

UK: ranked 4

The UK has a well-established system for regulating the creation and use of embryos: the Human Fertilisation and Embryology Act (HFEA) of 1990. This act allows the creation and use of embryos for research, provided that the research is for one of five specified purposes and has been granted a license by the HFEA. The UK Stem Cell Initiative, launched in March 2005, aims at defining a 10-year vision for UK stem cell research and coordinating its public and private funding. This initiative matches a modest increase in the number of articles published by UK authors in the following years.

Germany: ranked 3

Any creation of human stem cells that also involves the use of embryos is prohibited in Germany by the Embryo Protection Law of January 1, 1991. However, this law does not cover the importation of stem cell lines produced in other countries from human embryos and their use in Germany for the purposes of research. In response, the Bundestag adopted the Stem Cell Law on July 1, 2002. In principle, this law prohibits the importation and use of human embryonic stem cells except for research under exceptional conditions. Germany's peak in output in 2001 could be interpreted as an advanced reaction to the impending 2002 Stem Cell Law. In May 2007, the Stem Cell Law was discussed by the German Parliament, the Bundestag's, Committee on Education, Research and Appraisal of the Consequences of Technology, a fact that could suggest a need for reform.

Japan: ranked 2

Since June 6, 2001, the law on Human Cloning Techniques and Other Similar Techniques has been enforced in Japan. This law specifically bans reproductive cloning and recommends the elaboration of national guidelines for the creation of "Specified Embryos" for research purposes. On July 23, 2004, Japan's Council for Science and Technology Policy, the Japanese government's highest science and technology policy body, approved the final report of its Bioethics Expert Panel on human embryo and stem cell research. The report recommended allowing the creation of human embryos for stem cell research. Japan's relatively steady increase in output could reflect the absence of any drastic new legislation in recent years.

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USA: ranked 1

On August 9, 2001, President George Bush allowed the funding of stem cell research through taxpayer financing, but only with strict limits. The USA's peak in output in 2001 could correspond to an accelerated publication of publicly funded research at the time of President Bush's restrictive statement; surprisingly, commentary on the legislation is scarce in the scientific literature of the time. The House of Representatives passed a bill on May 24, 2005, to expand federal financing for embryonic stem cell research, defying a veto threat from then President Bush. On March 9, 2009, President Barack Obama issued Executive Order 13505, Removing Barriers to Responsible Scientific Research Involving Human Stem Cells, revoking President Bush's statement of August 9, 2001, as well as its supplemental executive order of June 20, 2007, and opens the door to new horizons for the future of stem cell research in the US. The continued upswing in research outputs on stem cells may reflect the fact that many researchers have sought non-federal funding for their research or diversified their research efforts into permissible techniques for acquiring human stem cells. Recently, two leading bioethicists have even argued that Bush's restrictive policy may have inadvertently pushed stem cell research, and thinking about the underlying ethical dilemmas, much further forward. (1)

Open future

As the debate on stem cell research evolves, national policies follow: advances in the field raise new ethical issues, entailing an evolution of the controversy, and a resulting need for new regulations. The ethics of stem cell research are still controversial and, despite a recent tendency towards an increase in legislative permissiveness, the future of this exciting field of research is still to be written.

Reference:

(1) 'Benefits of the stem cell ban', New Scientist, available at: www.the-scientist.com/news/display/55752
(registration, which is free, is required to read this article)