The stem cell controversy

Renewing the stuff of life: Stem cells, ethics, and public policy

Cynthia B Cohen

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Reviewed by Clive N Svendsen

In *Renewing the Stuff of Life*, Cynthia Cohen lays out the complex issues surrounding the generation of embryonic stem (ES) cells from human embryos. Her goal is to establish a framework for regulating ES cell research in the United States.

The book is written in an easy, flowing style with many references and footnotes that will keep the lay reader, trained scientist and medical doctor turning the pages. Although stem cell aficionados will skip lightly through the basic descriptions of stem cell biology, they should slow down in the sections on the moral significance of the human embryo in both secular and religious thought. This is clearly where Cohen comes alive in the narrative, drawing on her philosophy training to put forward her well-structured arguments. I particularly appreciated how she was able to move rapidly through the different religious views regarding the point at which life begins without getting bogged down in any one area. The resulting overview was refreshing and provided a firm knowledge base for moving to the next set of ethical issues, those relating to the production of human-animal chimeras—what is acceptable in society with regards to generating such animals? What experiments are required to move the field forward? What are the restrictions that should be placed on the researcher? These issues are discussed in detail, but with an eye on the big picture.

Cohen next takes the reader on a trip around the world to look at how the ‘stuff of life’ is used and legislated in three different countries: the UK, Germany and Japan. These are good choices, as each country has divergent ideas on how to regulate this field of research. The UK is at one end of the spectrum, having the most liberal stance and, under government supervision, allowing the derivation of new lines from embryos. Germany is at the other end, banning the creation of new lines entirely, while ironically allowing the importation of established lines from other countries.

Cohen then discusses US policies regulating the derivation of human ES cells from embryos. These policies come across as a disorganized chimera (pun intended) of those found in the rest of the world. If you have government funding, you are only allowed to use ‘presidential’ lines approved by the National Institutes of Health. But if you have

nongovernmental funding, there are no formal laws or regulations. Add into the mix a complex dispute over the validity of current patents on human ES cells, driven largely by the fact that commercialization of this field may lead to huge new markets in regenerative medicine, and you have the ‘Wild West of stem cells’. Although the National Academy of Sciences is setting down guidelines for ES cell research, most scientists agree that the US needs more formal federal oversight to maintain consistency across academia, industry and individual state lines.

In a book on a topic this broad, it is easy to find problems. The first may be that Cohen is clearly on the side of the rational scientist. Anyone morally opposed to using embryos for research will no doubt label this book as propaganda for embryo destruction. However, balance certainly is a theme of each chapter. Cohen puts forward a strong moral argument as to why deriving cells from living human embryos demands some level of ‘respect’ for the embryo and should not be done frivolously. The process requires strict adherence to a 14-day growth rule to avoid proceeding too far through development and thus needs careful oversight by responsible scientists. The second problem is that ES cell research is such a rapidly changing field that keeping up to date will be impossible. For example, since the book was written, the UK has approved experiments in which human nuclei will be placed into cow eggs to test the cloning efficiency of this procedure and to generate human-cow cloned embryos for research purposes. In addition, a number of groups have now expressed ‘stem cell’ genes in adult mouse skin cells and have forced them back in time to behave just like ES cells, perhaps negating the need for embryos in the future (this has not yet been shown to work for human cells). But providing up-to-date stem cell news is not the mission here. In fact, Cohen anticipated both of these developments, and their ethical and practical implications are discussed in detail and are put into a clear moral and scientific perspective in the book. Although Cohen cannot predict all of the new challenges that may arise over the coming years, most of the ones that I could think of were addressed. As such, this book will help the general public, politicians and scientists alike judge any new studies in a better informed way.

But the final legacy of this book may lie in the last few chapters. Fixed laws that would directly govern this rapidly changing field of research would clearly be too rigid to allow for progress. Instead, Cohen thinks there is an urgent need for a federally approved National Stem Cell Research Review Panel that could provide government oversight of this field. She boldly puts this idea forward in clear terms, suggesting various types of models. The members of the panel should include people from many different walks of life, thus representing the rich diversity of American values and culture. They should be able to discuss the latest ideas on moving the research forward within an ethical framework. As Cohen points out, this model is not new in America. The Recombinant DNA Advisory Committee, set up in 1979, was instrumental in preventing a complete ban on DNA research by providing oversight of this field. The result? An explosion in genomics, the sequencing of the entire human genome, and a revolution in molecular medicine. Let’s hope that 30 years from now, a similar revolution in stem cell and regenerative medicine occurs in America. This may depend upon the right people taking note of Cohen’s well-thought-out ideas.

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