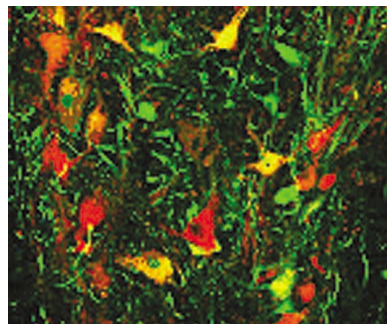


## In The News Stem Cell Shakes

Can cell reproduction help provide a new “magic bullet” in medicine? Can making unfertilized egg cells divide as if they were fertilized be a way of generating stem cells without the use of embryos? What are stem cells, and how can they be used to treat disease?

Stem cells are clusters of cells found within an embryo when it is merely a hollow ball called a blastocyst. Scientists are learning how to stimulate stem cells to develop into a variety of cell types that may be used to treat diseases and conditions such as Parkinson’s disease, Alzheimer’s disease, Type I diabetes, certain types of arthritis, some forms of blindness, and damage from strokes, spinal cord injuries, and burns. Ping Wu, Richard Coggeshall, and their research teams at the University of Texas Medical Branch at Galveston, Texas, have successfully induced human stem cells to develop into neurons (shown in photo) when implanted in the brains and spinal cords of rats. You can view the video news story, “Stem Cell Shakes,” which describes Wu and Coggeshall’s work in more detail, by visiting the *In The News* section of this text’s companion Web site at [www.wiley.com/college/alters](http://www.wiley.com/college/alters).



Although the use of stem cells to treat human disease holds much promise, there is heated controversy surrounding the research on and the use of tissue from human embryos. Most agree that tissue obtained from a miscarriage is acceptable to use for these purposes. However, if a problem within the developing embryo caused the miscarriage, the tissue may be unusable. The controversy focuses on tissue derived from elective abortions.

Opponents of harvesting embryonic stem cells worry that the use of such tissue to treat human disease will en-

courage abortion. For example, a woman who wants to help treat her father’s Parkinson’s disease might conceive and then abort an embryo to use its tissue. Opponents also contend that economic pressures may be imposed on abortion clinics to obtain and sell embryonic tissue. And some worry that doctors, families, or economic need could pressure women to become “embryo factories.”

Proponents of stem cell research point to the need to heal the sick and argue that stem cells represent a highly promising means of treating a variety of diseases and conditions. They think that aborted embryonic tissues should be used for such purposes rather than being buried or discarded, and they suggest that ethical guidelines can be established to prevent any abuse of the tissue. They also point out that human embryos created in the course of fertility treatment and donated by couples for research can be used as a source of stem cells.

Researcher Kent Vrana and his team at Wake Forest University Baptist Medical Center have been researching a way to solve the embryo “problem.” They have successfully stimulated eggs to divide to the blastocyst stage without being fertilized. Is this a solution?

*Write your immediate reaction to this information about the issue of stem cell research: first, summarize the issue in a sentence or two; then, suggest how you think this issue could be or should be resolved. You will have an opportunity to reflect on your responses and gather more information on this issue in the In The News feature at the end of this chapter. In this chapter, you will learn more about cell reproduction.*

