

## Adult Cells Still the Better Option for Therapeutic Research

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For years, ethical issues have plagued the development of embryonic stem-cell research in America (cf. Bush, 2001). Despite its slight potential for therapeutic benefits in the distant future, embryonic stem-cell research has been shown to be unethical because it necessitates killing people (see Thompson and Harrub, 2001; cf. Gibson, 2007; Colley, 2007b). Scientists also have known for several years that **adult stem-cell research has yielded greater results than embryonic stem-cell research** (see Harrub and Thompson, 2004; Saunders and Prentice, 2006; “Stem Cell Research: Facts...,” 2001; Miller, 2007). Unlike embryonic stem cells, however, adult stem cells are only partially pluripotent, “capable of forming several cell types—principally blood, muscle, and nerve cells. It has been possible to recognize, select, and develop them to the point that they form mature cell types with the help of growth factors and regulating proteins” (Lillge, 2001; cf. “Stem Cell Basics,” 2006). In 2007, researchers determined that adult stem cells may be **transformed** into “blank slates that should be able to turn into any of the 220 cell types of the human body, be it heart, brain, blood or bone” (Kolata, 2007). This method allows for the development of truly pluripotent cells without resorting to “therapeutic” cloning or the destruction of embryos (see Kolata). Stem cells from adults may offer hope of developing therapies for patients suffering from diseases such as diabetes, Parkinson’s, and Alzheimer’s (see Takahashi, et al., 2007; cf. McIlroy, 2007; Colley, 2007a).

Not only have scientists changed adult stem cells into “iPS,” or pluripotent cells that carry the same possibilities for regenerative medicine as do embryonic stem cells (see Vogel and Holden, 2007), but now scientists have “transformed one type of fully developed adult cell directly into another inside a living animal” (Stein, 2008). Harvard biologists have “pinpointed three crucial molecular switches that, when flipped, completely convert a common [adult] cell in the pancreas into the more precious insulin-producing ones that diabetics need to survive” (Stein, bracketed item added; cf. Zhou, et al., 2007). This raises the possibility that “patients suffering from not only diabetes but also heart disease, strokes and many other ailments could eventually have some of their cells reprogrammed to cure their afflictions without the need for drugs, transplants or other therapies” (Stein). Zhou and colleagues discussed their research, in *Nature*:

Here...we identify a specific combination of three transcription factors (Ngn3 (also known

as Neurog3) Pdx1 and Maf) that reprograms differentiated pancreatic exocrine cells in adult mice into cells that closely resemble  $\beta$ -cells. **The induced  $\beta$ -cells are indistinguishable from endogenous islet  $\beta$ -cells in size, shape and ultrastructure. They express genes essential for  $\beta$ -cell function and can ameliorate hyperglycaemia** by remodelling [sic] local vasculature and secreting insulin. This study provides an example of cellular reprogramming using defined factors in an adult organ and suggests a general paradigm for directing cell reprogramming without reversion to a pluripotent stem cell state (2008, parenthetical items in orig., emp. added).

Researchers in the field of regenerative medicine have grand dreams of using **adult** cells to replace conventional surgery with a sort of genetic substitution (see Stein, 2008).

Those of us at Apologetics Press continue to pray that the Creator’s view of the matter will be paramount in the minds of those who push our society to new limits of biological inquiry. Embryonic stem-cell research is unscriptural and unethical. The scientific community is making it increasingly clear that embryonic stem-cell research is also unnecessary.

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## IN THE NEWS

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*I Know that the God of the Bible Does Not Exist*

#### Affirm: Dan Barker

Co-president, Freedom from Religion Foundation  
Former charismatic preacher turned atheist  
Frequent debater (over 64 formal debates)  
Author of *Losing Faith in Faith* and *Godless*

#### Deny: Kyle Butt

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University of South Carolina  
Columbia, South Carolina  
Russell House Ballroom

February 12, 2009  
7:00 p.m.

