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## Regenerating Science: Stem Cells Back in the Mix

**O**n Monday, March 9, President Obama removed a restriction that has impeded human stem cell research for almost 8 years; researchers receiving federal money will no longer be limited to working with the few stem cell lines that were generated prior to August 9, 2001. Despite the many political and ethical debates this action will undoubtedly precipitate, one thing appears certain—the U.S. will soon witness an upsurge of research in this promising field.

Stem cell research holds the potential to treat a myriad of diseases and can also provide insights into the processes of both human and disease development. As in so many areas of biology, chemistry has been and will continue to be invaluable in the development of this field. For example, culturing stem cells can be particularly onerous, but research published in this journal has already employed chemical techniques to develop new substrates upon which stem cells can grow while remaining undifferentiated (1). Researchers have also experimented with using small molecules to replace the variable blood serum and growth factors that are normally used to culture these cells.

One leader in this field, Sheng Ding at the Scripps Research Institute, has been a pioneer in using screening techniques to identify small molecules that have large effects on stem cells. This work has helped to demonstrate the power of chemistry in controlling cell fate; his laboratory has engaged in efforts to retain stem cells in an undifferentiated state, dedifferentiate cells that have already committed to a particular fate, and even redifferentiate those cells back into different lineages. For the next few months, Dr. Ding will be featured in the Ask the Expert section of the *ACS Chemical Biology* Community Web site (2). Come visit us and get an Expert's take on the latest developments in this exciting field; we hope this feature will encourage more chemists to pursue research in this important area. You can read more about Dr. Ding and his research in the Profile section of this issue (3).

As the area of stem cell research continues to grow, it will be interesting to see how it develops. With so many possibilities, the only thing we know is that chemistry will play a role in determining its fate.

Eric Martens

Managing Editor, *ACS Chemical Biology*

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