

## ON THE TRAIL OF STEM CELLS

While studying at Case as an undergraduate, Paul Tesar conducted research on adult stem cells for three years. Now the Eastlake, Ohio, native is back in the lab, studying embryonic stem cells at England's University of Oxford as part of a prestigious scholarship program that promises to be as world renowned as the Fulbright Scholarship.

Mr. Tesar researched stem cell-based treatment approaches to various diseases before graduating *magna cum laude* with a bachelor's degree in biology in 2003. He is one of only eleven students nationwide selected since 2001 for the Oxford/National Institutes of Health Scholars in Biomedical Research Program. The NIH scholarship, and its

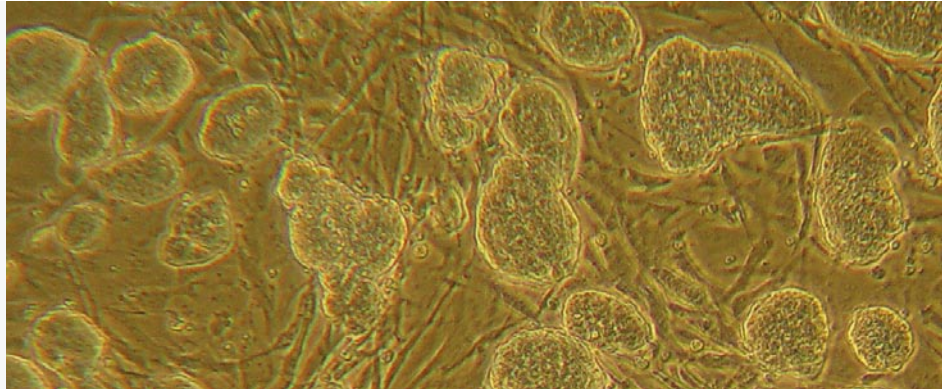
sister program at Cambridge University, offer America's top students the opportunity to study in NIH and international university labs to facilitate interdisciplinary advancements in biomedical research.

As an undergraduate, Mr. Tesar studied adult mesenchymal stem cells from bone marrow side-by-side with Stephen E. Haynesworth, associate professor of biology and associate dean in the College of Arts and Sciences. "The knowledge and training I obtained from working in Dr. Haynesworth's lab led me to think about things in a wider perspective," he says. "I am fascinated with the body's ability to repair itself through populations of stem cells, so I felt that it would be important to study embryology and embryonic stem cells to aid in my understanding."

Mr. Tesar has completed the first year of the three- to four-year program in England that will take him straight from a bachelor's degree to a doctorate. He is working on federally approved lines of embryonic stem cells in mouse models. He also is studying the origin and potential of the cells, particularly as treatments for diseases such as Parkinson's, muscular dystrophy, and cystic fibrosis. Former President George H. W. Bush, citing concerns about the use of fertilized human egg cells in research, sharply curtailed government funding for embryonic stem cell research in 2001.



Forward thinker: Paul Tesar (left page) at the gates of the University of Oxford; a closer look at the embryonic stem cells he's studying (right); and the historic university in England.



“While it is beneficial to have at least some lines to work on, there is an extremely limited chance that those lines could ever be used in humans,” Mr. Tesar says. “There have been significant advancements in deriving embryonic stem cells, and I think these eventually need to be applied to the human system in order to obtain lines that are more likely suitable for human therapy.”

Mr. Tesar is exploring the therapeutic potential of embryonic stem cells, which are able to turn into any cell type in the body, from bone cells to heart cells. He hopes to contribute to the understanding of how to control and harness these cells’ capacity to restore injuries and rectify disorders. “Some people find it controversial, but I think that the potential for therapies is so great that it’s a worthwhile cause to jump into,” he says.

He was heartened by Harvard University’s recent announcement that it plans to launch a new, multimillion-dollar center to grow and study human embryonic stem cells.

“Stem cells may one day be able to cure disorders of every tissue. I feel it is vital for the U.S. to be at the forefront of this race to save lives,” he says, adding that he hopes to advance the field of cell-based tissue engineering in the future through the NIH program. “Harvard’s announcement—and the support of stem cell research by the Reagan family—are positive steps forward for the stem cell community and for medical research as a whole. There are many potential benefits to all forms of stem cell research. We can’t continue to play a ‘wait and see’ game.”

The NIH scholarship may be in its infancy, but Mr. Tesar, who hopes to have his own biomedical research lab some day, says this program has the potential to revolutionize the U.S. graduate education system in the sciences. He’s already experienced firsthand the program’s ability to instill “a global scientific perspective” and build “long-term partnerships between labs in the hope of advancing sciences as a whole.” He continues, “In today’s world of science, it is beneficial to use the expertise of other labs, institutes, and countries to aid in the advancement of your own studies.”

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