The Hard Cell

By ANDREA GERLIN | LONDON Tuesday, Sep. 26, 2006

Roger Johnson first realized his heart was failing during a vacation in Spain five years ago, when his lungs filled with fluid and he struggled to breathe. The 57-year-old general practitioner swiftly flew home to Manchester, England, underwent a triple bypass, had a pacemaker installed and began taking a veritable **pharmacopoeia** of heart drugs. Today, he can't walk more than a half-mile or work long in his garden. Unless he becomes eligible to join a transplant waiting list, modern medicine can do little more for him. Now 62 and retired, he's taking part in a stem-cell clinical trial at the London Chest Hospital. "If it works, it's probably the only treatment for somebody like myself," he says.

EUROPE'S NEW FRONTIERS

other stories

In the hospital's cardiac catheterization laboratory, cardiologist Anthony Mathur uses a probe to map the electrical activity in Johnson's heart. Mathur finds 75% of it damaged, the consequence of earlier undetected heart attacks. Then he takes 10 **syringes** filled with either blood serum containing stem cells from Johnson's own bone marrow or just blood serum — as part of the experiment, neither patient nor doctor knows which — and injects them directly into Johnson's heart through a catheter threaded into the main artery in his left thigh.

Mathur hopes the $5.5 million, four-year study will help clarify whether stem cells from a patient's own bone marrow can repair a failing heart. There's much at stake in the outcome, and not just for the 300 chronic-heart-failure patients the trial will study or the two in 1,000 people who are diagnosed with the condition in developed countries every year and face a 37% risk of dying in the first year. The London trial is among the first large-scale efforts to determine whether stem cells — building blocks of the body that have the potential to become new cell types — will someday provide cures for **debilitating** diseases and disorders, including Alzheimer's disease and arthritis. No single study is expected to establish that definitively, but Mathur's is an important step in a multipronged approach encompassing basic science research and clinical trials, including work on human embryonic stem cells.

Europe has become an increasingly important base for that cutting-edge research, particularly as American and Asian efforts endure setbacks. The Bush Administration's limit on the use of federal money for human **embryonic** stem-cell research in the U.S. since 2001 has reduced funding and deterred some scientists from undertaking the controversial work. A report in Nature Biotechnology in April found a widening gap in the rate at which U.S. and non-U.S. research teams have published articles about human embryonic

Top Stories on Time.com
- After a Violent Day in Pakistan, Zardari Backs Down
- While the Giants Reel, Many Small Banks Are Thriving
- Hard Times Send 'Economoms' Back to the Job Market
- Is Online News Twittering Itself to Death?
- Army Robots: Will Humans Still Be in Control?

Most Popular » Full List »

Most Read
1. Wal-Mart vs. Target: No Contest in the Recession
2. Hard Times Send 'Economoms' Back to the Job Market
3. While the Giants Reel, Many Small Banks Are Thriving
4. Why Would a Governor Spurn Stimulus Money?
5. Can Marijuana Help Rescue California's Economy?
6. Eating Your Veggies: Not As Good For You?
7. Is KenKen the Next Sudoku?
8. An American Pastime: Smoking Pot
9. Cities Once Immune Now Suffering in Recession
10. Despite U.S. Efforts, Tension Mounts in Pakistan

Most Emailed
1. The Move to Digital Medical Records Begins in Tampa
2. When the Super-Rich Go Green, They Do It Big
3. Wal-Mart vs. Target: No Contest in the Recession
4. While the Giants Reel, Many Small Banks Are Thriving
5. Detroit's Beautiful, Horrible Decline - Photo Essays - TIME
6. 3. The New Calvinism - 10 Ideas Changing the World Right Now - TIME
7. Hard Times Send 'Economoms' Back to the Job Market
8. Eating Your Veggies: Not As Good For You?
9. Is KenKen the Next Sudoku?
10. SAT in the Recession: Test-Prep Prices Drop

Video More Videos »

Today in Pictures »

Browse All Photos »

Quotes of the Day » GET & SHARE

"Since the financial crisis happened I have had no foreign business at all."

LIU DEQUAN, a Chinese lamp manufacturer, on refitting his product

stem-cell research in scientific journals since 2002, and concluded that the U.S. was "falling behind in the international race to make fundamental discoveries" in the field. Asian efforts are well funded, but haven't escaped difficulties either. South Korean veterinary scientist Woo Suk Hwang, who cloned the first dog and claimed to have cloned the first human embryo, was discredited late last year after he confessed to falsifying many of his results.

Liberal laws and renewed funding, meanwhile, are pushing Europe toward the front of the field. The UK Stem Cell Foundation, a private charity, is raising $185 million for research in Britain, and the British government will match up to $18.5 million a year for 10 years. After loosening **restrictions** on human embryonic stem-cell research in 2004, Spain invested j150 million in a 32,000-sq-m research center in Valencia. The European Union has given a total of j11.9 million to 13 stem-cell research centers in eight countries over four years, and, in July, authorized an additional but unspecified sum from its j54.5 billion research budget for 2007-2013. That in turn has prompted municipal authorities in places like London and North Rhine Westphalia, Germany, to recruit managers to coordinate stem-cell research and development so their economies can benefit from potential breakthroughs in the estimated $56 billion market for stem-cell biology and applications. "Almost every major city is trying to set up stem-cell work," says Una Chen, head of the Stem Cell Therapy Program at the University of Giessen in Germany. "It's a boom."

So, for example, scientists in Sweden are studying how stem cells might be used to treat Parkinson's disease. A Belgian team is investigating whether they might be used to treat diabetes. Some researchers expect therapies for these diseases will require embryonic stem cells because of their **potential** to grow into all types of tissue, but many labs work with both cell types. "We're not sure where the breakthroughs will come," says David Macauley, chief executive of the UK Stem Cell Foundation. "Everybody expects it will come from embryonic stem cells, but the majority of stuff we are seeing is in the adult stem-cell camp."

1 | 2 Next »

Connect to this TIME Story

1 Interact with this story

Facebook

Email

for the Chinese market after foreign demands collapsed

More Quotes »

CNN Headlines

- Shoe-thrower fans unite online
- Space shuttle Discovery launches
- Police keep public aware via Twitter

Inside Time.com


Video: The Challenge on the Ground in Afghanistan


Photos: Branding for Wombats


Eurovision in Russia: Politics and Pop Music


Is KenKen the Next Sudoku?