

HEALTH FOR LIFE UNLOCKING YOUR GENETIC SECRETS

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WILL BUSH LISTEN?

AS ADVICE
ON IRAQ FLOWS IN,
THE PRESIDENT
MUST DECIDE
WHAT'S NEXT.
BEHIND THE
BATTLE BETWEEN
THE REALISTS
AND THE
TRUE BELIEVER-
IN-CHIEF.

Iraq Study
Group co-chairs
James Baker &
Lee Hamilton



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BUILDING BLOCK: Rendering of some embryonic stem cells

thought of as science fiction—the domain of animal labs and the distant future—stem-cell therapies are becoming a scientific fact.

Burt alone has now treated patients with lupus, rheumatoid arthritis and a host of other immune disorders. He's just written up the results of a stem-cell trial for type 1 diabetes. Three years after treatment, some patients now have normal blood sugar and don't take insulin. Burt also plans trials for two diseases in which "nothing else really seems to work": Lou Gehrig's disease and a rare type of autism involving the immune system. He will treat his first autism patient in January.

Next year may also bring hope for patients with cancer and heart disease. The FDA has fast-tracked a stem-cell therapy for leukemia patients; it could reach the market in late 2007. And an approach that has helped many congestive heart failure patients abroad is also making inroads in America. Amit Patel, at the University of Pittsburgh, has injected 10 patients' own stem cells into their hearts in the

United States and consulted on 2,000 similar operations worldwide. The stem cells ease the burden on the heart, largely by forming new blood vessels. They don't, however, create new heart muscle. To make that happen, scientists may need to use embryonic stem cells.

Some already have. Doctors with private funding have quietly been experimenting with cells grown from fetal material. Geron, a California biotech company, has used the technique to prevent heart failure in mice; it will petition the FDA for a human trial next year. Before that, the company hopes to start the first major American trial of embryo-derived stem cells as a treatment for spinal-cord injuries. By the time that trial starts, docs will also have results from the only use of embryonic stem cells in humans thus far. In November, doctors in Oregon injected them into a child with a rare, fatal neurodegenerative disorder called Batten disease. That's only one patient—but if those stem cells cure the disease and multiply, their uses are sure to as well. ■

Stem Cells Are Where It's At

Despite setbacks and controversy, promising research is underway.

BY MARY CARMICHAEL

SEVENTEEN YEARS AGO, RICHARD Burt, an immunologist at Northwestern University, had a crazy idea. What if he could press the "restart" button on his patients, destroying their faulty immune systems and building them new ones? The regeneration process would be hard, but he'd heard about something called stem-cell research that might help. It took eight years to get FDA approval. "When we did that first patient," he says, "you could have cut the atmosphere with a knife."

Today Burt has treated 170 patients with stem cells, and increasingly, others are following his lead. There are now more than 1,000 stem-cell therapies in early human trials around the world. The vast majority use cells from patients' own bone marrow, but doctors are also using cells from healthy adults, and last month saw the first patient treated with embryonic cells, which have triggered much debate in the United States. After years of being

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