

group with another.  
 "Some are unstable. Some do bizarre things. One line keeps developing chromosomal abnormalities, spontaneously, no matter what anyone does. You can't tell if that is in the nature of embryonic stem cells, or is something about these cell lines in particular," Snyder said.

Snyder heads a fledgling private stem-cell consortium in Southern California. The idea is to create a cooperative scientific infrastructure, including networks of labs sharing stem-cell lines and other materials, to fill the gap created by the NIH restrictions. But even the architects of this approach acknowledge it's inadequate because of the need to segregate labs by

community is being left at the White House to loosen restrictions on stem cell research, Battey noted that's hardly the only source of strong feelings on the issue.

"There are pressures from many, many constituencies on the policymakers," he said, adding that he has been privy to no discussions with White House officials hinting of any relaxation in the rules governing the NIH.

Whatever the merits of the scientific arguments, the ballot campaign in California promises to be strongly colored by the emotion of religious critics of stem-cell research on one side versus family members of people with incurable diseases on the other.

"For me, it's life and death," said

## SCIENCE DIGEST



UC Berkeley

### Hydraulics power metal exoskeleton

Move over Bionic Man and make room for BLEEX — the Berkeley Lower Extremities Exoskeleton, with strap-on robotic legs designed to turn an ordinary human into a super strider.

It is intended to help people like soldiers or firefighters carry heavy loads for long distances.

"The design of this exoskeleton really benefits from human intellect and the strength of the machine," says Homayoon Kazerooni, who directs the Robotics and Human Engineering Laboratory at UC Berkeley.

The exoskeleton consists of a pair of mechanical metal leg braces that include a power unit and a backpack-like frame. The braces are attached to a modified pair of

Army boots and are also connected, although less rigidly, to the user's legs.

More than 40 sensors and hydraulic mechanisms function like a human nervous system, constantly calculating how to distribute the weight being borne and create a minimal load for the wearer.

"There is no joystick, no keyboard, no push button to drive the device," says Kazerooni, a professor of mechanical engineering. "The pilot becomes an integral part of the exoskeleton."

In lab experiments, says Kazerooni, testers have walked around in the 100-pound exoskeleton plus a 70-pound backpack and felt as if they were carrying just 5 pounds.

Associated Press

### Web sites advise consumers on fish

Two environmental groups launched Web sites last week to offer advice to consumers on how to avoid contaminants in fish.

The Web site of the Sea Turtle Restoration Project, a Marin County group, calculates the safety levels for any of 50 fish varieties that have been tested by the U.S. Food and Drug Administration. The Web site is at [www.seaturtles.org/gotmercury.htm](http://www.seaturtles.org/gotmercury.htm).

The Web site of Environmental Defense at [www.environmental-defense.org/go/seafood](http://www.environmental-defense.org/go/seafood) gives helpful links to other sites, such as the FDA, the EPA, the National Marine Fisheries Service and other environmental groups.

— Jane Kay



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