

## THE J. DAVID GLADSTONE INSTITUTES

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## GLADSTONE INSTITUTE OF CARDIOVASCULAR DISEASE NEWS

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### **GLADSTONE INSTITUTES' CONKLIN LAB ASSISTS WITH EXPLORATORIUM STEM CELL EXHIBIT**

Members of the Gladstone Institutes' Conklin lab and Embryonic Stem Cell Lab provided living cells and helped train museum staff members for the development and launch of a current Exploratorium exhibit featuring live mouse embryonic stem cells.

The interactive exhibit opened to the public on July 1 and continues through January 8, 2006. Located in the Exploratorium's high-resolution Microscope Imaging Station, it is designed to show stem cells at different stages of differentiation, from their uniform, pluripotent state (that is, possessing the potential to become many different types of cells) to those that have become more specialized.

Present in embryos, stem cells have a feature that makes them unlike any others: they can simultaneously make identical copies of themselves and make differentiated—or specialized—cells, such as cardiac myocytes. At the exhibit, visitors view the development of cardiac myocytes, the cells that form the heart. Thus they can witness the transition of stem cells from their undifferentiated state to pulsating, beating heart cells.

At Gladstone, a team from the lab of Bruce Conklin, associate investigator, Gladstone Institute of Cardiovascular Disease, supplied the original stem cells being grown for the exhibit and trained museum staff members on techniques to activate the cells into their differentiated cardiac myocyte state. It was Conklin's discussions with the Exploratorium staff over the last year that helped spark the idea for this prototype exhibit.

"Stem cells offer a window into the earliest stages of every organism's development, even humans," explains Conklin, an associate professor of medicine and cellular and molecular pharmacology at UCSF. "They hold the promise of new knowledge and treatments for a variety of human diseases. It's been very rewarding developing an exhibit of this kind designed to educate the general public about stem cell research."

Adds Charles Carlson, the Exploratorium's head of life sciences, "Every single cluster of stem cells has a different contraction rate—its own little rhythm. It's kind of a miracle of life when you can see these cells growing and differentiating before your very eyes. Gladstone scientists have provided key advice on all aspects of our stem cell program by speaking to our staff and our board, as well as the public."

The Exploratorium's Microscope Imaging Station provides visitors the ability to image living stem cell specimens, as well as control the instruments themselves. Visitors see the view through the

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microscopes on high-resolution video monitors. With these instruments, they can select among various specimens, move over them, and change the magnification and focus.

The display, the first-ever exhibit allowing the public to view living embryonic stem cells with an advanced microscope, is open Fridays through Sundays, 10 a.m.-5 p.m. Carlson estimates that more than 20,000 visitors will view the exhibit and its companion media pieces this year.

Gladstone announced today that the California Institute of Regenerative Medicine has approved a grant of \$2.4 million over three years for stem cell-related training of postdoctoral fellows. Scholars who are recruited through this grant in the coming months will be encouraged to become involved with both the stem cell exhibit and with development of a collaborative educational program on stem cells at the Exploratorium.

“We look forward to expanding our relationship with Gladstone scientists to help train CIRM scholars and to help expand the public’s understanding of all aspects of regenerative medicine,” says Carlson.

The Exploratorium is dedicated to providing educational programs and materials essential for public understanding of emerging areas of biomedical science and human health. For further details, visit [www.exploratorium.edu](http://www.exploratorium.edu).

Seed funding for the Exploratorium exhibit was provided by the BayGenomics project of the National Heart Lung and Blood Institute ([baygenomics.ucsf.edu](http://baygenomics.ucsf.edu)).

The UCSF-affiliated J. David Gladstone Institutes is an independent, nonprofit biomedical research institution committed to containing and combating some of today’s most devastating illnesses, including cardiovascular disease, HIV/AIDS and neurological disorders. Among other studies, the Conklin lab explores how intracellular biochemical signals control tissues such as the heart and brain. The Embryonic Stem Cell Lab, which Conklin heads, specializes in the inactivation of mouse genes in embryonic stem cells. For further information, visit [www.gladstone.ucsf.edu](http://www.gladstone.ucsf.edu).

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