



Amro Hamdoun
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In order to advance their sea urchin genome research, Amro Hamdoun and his team of graduate students require a series of high-tech tools:



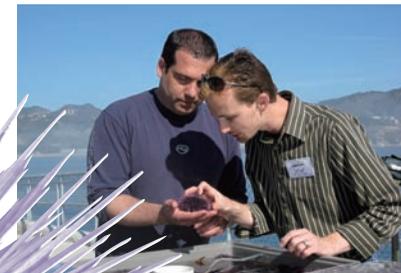
WISH LIST

In toto imaging workstation **\$40,000**
Image analysis hardware and software for processing analysis of cell movements in high-density optical imaging datasets.

Stereo fluorescence microscope **\$30,000**
This microscope is needed for rapidly screening the effects of genetic manipulations on large numbers of sea urchin embryos.

Nanostring probe set **\$30,000**
Nanostring is a high throughput digital gene expression profiling technology that allows simultaneous analysis of the expression of up to 1,000 genes. Hamdoun's science team hopes to bring this technology to bear on understanding the temporal patterns of defense gene expression. Funds are needed for construction and analysis of a sea urchin probe set.

Securing donations to support Scripps students remains an ongoing priority.



SEA URCHIN DEFENSES – HOW EMBRYOS SURVIVE UNDER STRESS

How do sea urchins defend themselves?

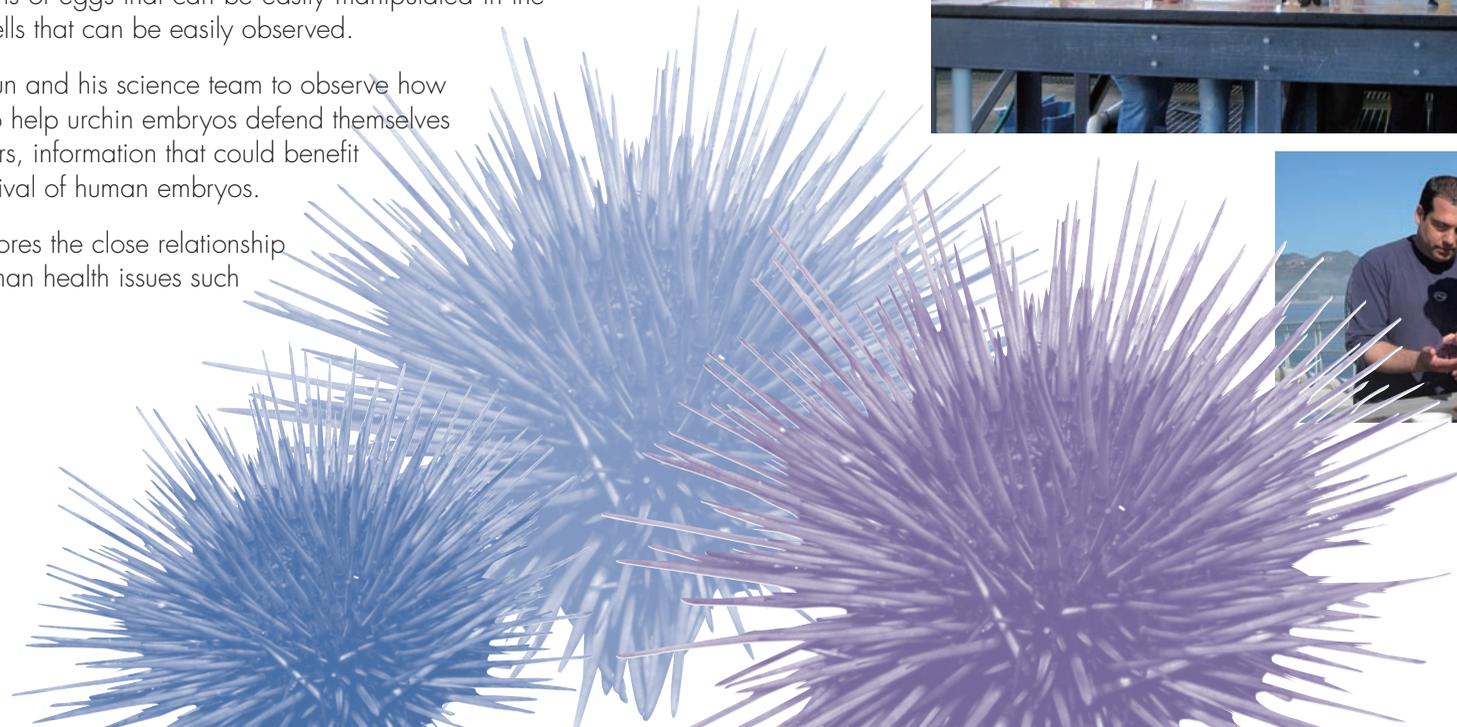
What can their cellular behaviors teach us about human health?

Extensive research on the most basic biology of marine organisms can lead to better understanding of health in the human body. In an effort to learn more about defense mechanisms in cells and embryos, **Amro Hamdoun**, Scripps assistant professor of biology, studies sea urchin cells and embryos, which are closely related to those of humans.

Sea urchins make excellent lab specimens because these production powerhouses generate millions of eggs that can be easily manipulated in the laboratory and have large cells that can be easily observed.

This research allows Hamdoun and his science team to observe how proteins change and move to help urchin embryos defend themselves against environmental stressors, information that could benefit our understanding of the survival of human embryos.

Hamdoun's research underscores the close relationship between the oceans and human health issues such as aging and disease.



SEA URCHIN WATCH

Joseph Campanale, a Scripps graduate student with Amro Hamdoun, is currently leading the Hamdoun laboratory's effort to use optical imaging technologies to describe changes in cellular physiology of embryo stem cells in sea urchins. Joseph has had a long-standing interest in the effects of environmental stress on development. Prior to joining the Hamdoun lab he completed his Master's degree at California Polytechnic, San Luis Obispo, and conducted groundbreaking research on the effects of ultraviolet radiation on cellular proteins.