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Team Tracks Cell That May Repair Skeletal Muscle Damage

Mouse study confirms stem cells surrounding fibers can repopulate and help heal injury

WEDNESDAY, Sept. 17 (HealthDay News) -- A single cell can repopulate damaged skeletal muscle in mice, says a Stanford University School of Medicine study that's the first to confirm that muscle stem cells can be found in so-called satellite cells encircling muscle fibers.

Being able to identify and isolate such muscle stem cells in humans may prove important in the treatment of disorders such as muscular dystrophy, muscle injury, or muscle wasting due to aging, disuse or disease, according to the study authors.

For this study, the Stanford researchers developed a method of making certain satellite cells glow in order to track them in living mice. The results showed stem cell-like behavior.

The findings were published online Sept. 17 in the journal *Nature*.

"We were able to show at the single-cell level that these cells are true, multipotent stem cells. They fit the classic definition: They can both self-renew and give rise to specialized progeny," study senior author Helen Blau, a professor of pharmacology and director of the Baxter Laboratory of Genetic Pharmacology, said in a Stanford news release.

"We are thrilled with the results," added study first author Alessandra Sacco, senior research scientist in Blau's laboratory. "It's been known that these satellite cells are crucial for the regeneration of muscle tissue, but this is the first demonstration of self-renewal of a single cell."

The researchers now plan to identify similar muscle stem cells in humans.