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## In the news

### BUILDING MUSCLE

Stem-cell research is a highly promising area of science offering potential for new methods of treating many serious diseases. In the field of muscle regeneration, we are now a step closer to this goal.

In a report published in *Cell*, the group of Amy Wagers (Joslin Diabetes Center, Harvard University, USA) analysed the stem cell and regenerative properties of skeletal muscle precursors (SMPs), a subset of satellite cells (which have a role in muscle growth and repair) that are responsible for forming muscle. “Our work shows proof-of-concept that purified muscle stem cells can be used in therapy,” said Wagers (*Cell* press release, 10 July 2008).

Mice that lack dystrophin (*mdx* mice) are a model for Duchenne muscular dystrophy (DMD), the most prevalent form of MD. When engrafted into the muscle of *mdx* mice, purified SMPs contributed to up to 94 percent of muscle fibres, restoring dystrophin expression and significantly improving muscle structure and contractile function. In addition to their contributions to mature muscle, transplanted SMPs also reseed the satellite cell niche — the *in vivo* stem-cell microenvironment — and are maintained there such that they can be recruited to participate in future rounds of muscle regeneration following injury.

“These data provide direct evidence that prospectively isolatable, lineage-specific skeletal muscle stem cells provide a robust source of muscle replacement cells and are a viable therapeutic option for the treatment of muscle degenerative disorders,” said Wagers (*Cell* press release, 10 July 2008).

Wagers and colleagues are now working on isolating stem cells from human muscle that are equivalent to those in the mouse. Further work is also required to address possible complications in the delivery of stem-cell therapy in humans.

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