This week in therapeutics

Indication	Target/marker/ pathway	Summary	Licensing status	Publication and contact information
Musculoskeletal disease				
Musculoskeletal disease	p38 mitogen-activated protein kinase (p38 MAPK; MAPK14)	<p><i>In vitro</i> and mouse studies suggest partial inhibition of p38 MAPK signaling could help regenerate muscle in aged patients. In skeletal muscle stem cells from aged mice, self-renewal capacity was decreased and signaling through the p38 MAPK α-isoform and β-isoform was increased compared with what was seen in muscle stem cells from young mice. Muscle stem cells from aged mice cultured on soft hydrogels with a p38 MAPK α-isoform and β-isoform inhibitor had greater self-renewal capacity than cells cultured on hydrogels alone. In aged mice with muscle injury, transplantation of aged muscle stem cells treated with the p38 MAPK inhibitor and expanded with the culture system restored muscle strength to normal levels. Next steps include applying the approach to human muscle regeneration.</p> <p>At least seven companies have p38 MAPK inhibitors in Phase II testing or earlier for various indications including cancer and pain.</p> <p>SciBX 7(11); doi:10.1038/scibx.2014.317 Published online March 20, 2014</p>	<p>For findings in first study, patent application filed; available for licensing</p> <p>For findings in second study, patent and licensing status unavailable</p>	<p>Cosgrove, B.D. <i>et al. Nat. Med.</i>; published online Feb. 16, 2014; doi:10.1038/nm.3464 Contact: Helen M. Blau, Stanford University School of Medicine, Stanford, Calif. e-mail: hblau@stanford.edu Contact: Penney M. Gilbert, University of Toronto, Toronto, Ontario, Canada e-mail: penney.gilbert@utoronto.ca</p> <p>Bernet, J.D. <i>et al. Nat. Med.</i>; published online Feb. 16, 2014; doi:10.1038/nm.3465 Contact: Bradley B. Olwin, University of Colorado at Boulder, Boulder, Colo. e-mail: bradley.olwin@colorado.edu</p>