

It is known that skeletal muscle has the remarkable capacity to adapt and regenerate in response to injury and physiological stressors. However, the molecular mechanisms governing these processes are less well-defined. Since adult skeletal muscle is terminally differentiated, these capabilities are attributed, at least in part, to the resident stem cell population, termed satellite cells. To better understand satellite cell biology, it is important to determine factors that regulate their function. Previous studies demonstrate that, Xin, a muscle-specific, cytoskeletal adapter protein, is highly upregulated at the mRNA level early after muscle injury and localized to areas consistent with satellite cells. In this study, we demonstrate that Xin protein colocalizes with the activated satellite cell marker, MyoD, at the periphery of myofibers early in the regenerative process, and then later within myofibers, until muscle regeneration is achieved. To elucidate the role of Xin in satellite cells and skeletal muscle repair, we utilized adenoviral mediated Xin-shRNA to knockdown Xin expression in vivo, which resulted in a significant impairment in muscle regeneration as a result of reduced satellite cell activation. These findings that Xin as an integral protein in satellite cell activation and highlight its importance in the skeletal muscle repair process.

Reference: Nissar AA, Zemanek B, Labatia R, Atkinson DJ, van der Ven PF, Fürst DO, **Hawke TJ**. [Skeletal muscle regeneration is delayed by reduction in Xin expression: consequence of impaired satellite cell activation?](#) Am J Physiol Cell Physiol. 2012 Jan;302(1):C220-7.

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