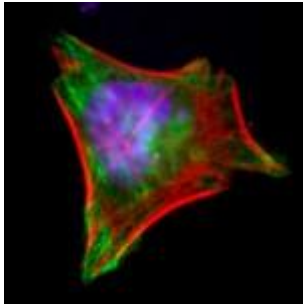


Pregnancy Induces Activation of Aged Dormant Muscle Progenitor Cells



Aging is associated with a decline in cell and tissue regenerative capacity due to changes in growth factors, accumulated DNA damage, and a reduced response of the progenitor cells. However, mice studies have demonstrated that aged muscle successfully regenerates when grafted into a young host, and vice versa; young muscle does not regenerate properly when grafted into an aged host.

The present study published in *Aging Cell Journal* tested the effect of pregnancy on muscle regeneration in aged mice. During pregnancy the mother and fetus share blood systems, therefore this study was designed to investigate if gestation can affect the declining capacity of muscle regeneration in old mice. Studying three groups: young (2-3 months), aged (10 months) and old (>18 months), the findings demonstrate five days after injury, muscle regeneration in both young and aged pregnant mice was significantly improved when compared to non-pregnant mice and this muscle regenerative efficacy lasted up to two months after pregnancy.

The experimental evaluation was by immunostaining injured muscle for eMHC, a marker of regenerating muscle tissue. The study also tested the effect of a pseudopregnancy – alteration of the maternal pituitary and ovarian hormones to mimic an actual pregnancy – and found that regeneration was enhanced in

aged pseudopregnant mice. This therefore attributes regeneration to maternally derived factors and not the fetus. The team of researchers indicates this effect is probably not due to a single common pathway but rather specific mechanisms. Based on these findings, identification of maternally derived factors that enhance muscle regeneration could have significant therapeutic implications on aged individuals.

[Michaeli, T. et al. 2015. The rejuvenating effect of pregnancy on muscle regeneration. *Anatomical Society*.](#)