

# Genotype influences muscle performance

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Elite endurance athletes commonly have mutations that result in the loss of the protein  $\alpha$ -actinin-3, which is a major component of fast-twitch muscle fibers. Loss of  $\alpha$ -actinin-3 is associated with reduced power, increased endurance capacity, and enhanced response to endurance training.

In this issue of the *Journal of Clinical Investigation*, Kathryn North and colleagues at the Murdoch Children's Research Institute report that the loss of  $\alpha$ -actinin-3 in fast-twitch muscle fibers, results in compensation by  $\alpha$ -actinin-2. The presence of  $\alpha$ -actinin-2 in fast-twitch muscle contributed to reprogramming these muscles through increased calcineurin signaling.

This study provides insight into how mutations in the gene encoding  $\alpha$ -actinin-3 promote skeletal muscle adaptations that are advantageous to elite endurance athletes

**More information:** ACTN3 genotype influences muscle performance through the regulation of calcineurin signaling, *J Clin Invest*. DOI: [10.1172/JCI67691](https://doi.org/10.1172/JCI67691)

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