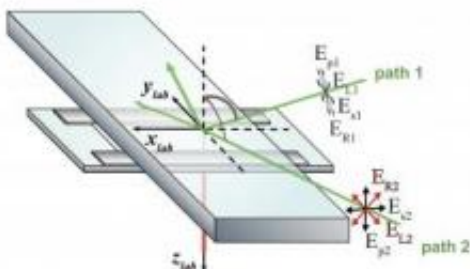


# Detailed picture of how myoV 'walks' along actin tracks

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A study in the *Journal of General Physiology* provides a 3-D picture of how class V myosins "walk" along their actin track. Lewis et al. calculate the movements of an individual myosin V stepping on actin. Credit: Lewis, J.H., et al. 2012. *J. Gen. Physiol.* doi:10.1085/jgp.201110715.

A new study in the *Journal of General Physiology* uses state-of-the-art fluorescence microscopy to provide a striking 3-D picture of how class V myosins (myoV) "walk" along their actin track.

The myosin superfamily of mechanoenzymes, more commonly referred to as molecular motors, play an important role in [muscle contraction](#) and other basic cellular processes. MyoV, one of the most highly studied molecular motors, has the ability to travel [long distances](#) by taking multiple hand-over-hand steps without falling off their actin tracks. This makes the motor extremely well suited for intracellular cargo transport

along the actin cytoskeleton. However, the complexity of the intracellular actin highway presents a physical challenge to transport, and it is therefore important to understand the structural components of myoV that allow it to maneuver so adeptly through the actin meshwork.

Using single-molecule [fluorescence microscopy](#), Yale Goldman and colleagues, from the University of Pennsylvania School of Medicine, now provide highly refined real-time imagery of myoV molecules walking step by step along single [actin filaments](#) adhered to a glass [microscope slide](#). Among the novel advances are characterization of the normal stepping across 13 actin monomers and the not-infrequent "misstepping" across 11 monomers that causes the myoV to rotate along the filaments.

"Clearly, Mother Nature has designed an efficient system for cargo delivery by tuning the myoV structure to match the track upon which it travels," says David Warshaw, from the University of Vermont, in a commentary accompanying the article. Goldman and his team provide insights that help to "fully appreciate the full repertoire of myoV's transport capacity," Warshaw adds.

**More information:** Lewis, J.H., et al. 2012. J. Gen. Physiol. [doi:10.1085/jgp.201110715](https://doi.org/10.1085/jgp.201110715)

Warshaw, D.M. 2012. J. Gen. Physiol. [doi:10.1085/jgp.201210769](https://doi.org/10.1085/jgp.201210769)

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