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July 16, 2010

Philip E. Bourne
Editor-in-Chief
PLoS Computational Biology

Dear Dr. Bourne,

Please find attached our manuscript entitled, *Axial and Radial Forces of Cross-bridges Depend on Lattice Spacing*. In it, we address the importance of the lever arm mechanism to the generation of forces in both the axial and radial directions as contractile filament lattice spacing varies. Through the use of cross-bridge models composed of multiple springs, both linear and torsional, we explicitly predict both axial and radial forces generated as lattice spacing varies. Additionally, we find that changes in lattice spacing affected the cross-bridge's step size.

To our knowledge, this is the first analytical treatment of the kinetics and mechanics of a cross-bridge composed of multiple springs which is thus capable of investigating the role of lattice spacing in force generation. Our results are of particular relevance to researchers considering working with spatially explicit models such as those previously described in PLoS Computational Biology (Tanner et al. (2007) and Campbell (2009)).

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Sincerely,

C David Williams