

Distinct roles for myosins in 'tuning' cell shape for division

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Mechanical properties of the cell cortex—a thin network of actin filaments under the cell membrane—regulate shape changes during cell division, cell migration and tissue development. Two forms of the molecular motor myosin-II participate in organizing and remodeling the cell cortex.

Dylan Burnette, Ph.D., and colleagues have now demonstrated distinct roles for myosin-IIA and myosin-IIB during cell division. They found that modulation of myosin-II composition in the cortex bound to actin filaments "tunes" contractility to regulate cell shape.

Their results, published April 7 in *Cell Reports*, reveal that myosin-IIA generates cortex tension, while myosin-IIB maintains cortical stability. Maintenance of cortical stability by myosin-IIB safeguards against chromosome mis-segregation and the potential for tumorigenesis during [cell division](#).

This tuning mechanism—using optimal levels of the two forms of myosin-II to regulate the actin cell cortex—likely plays a role in diverse processes during development and disease progression, the authors suggest.

More information: Nilay Taneja et al. Precise Tuning of Cortical Contractility Regulates Cell Shape during Cytokinesis, *Cell Reports* (2020). [DOI: 10.1016/j.celrep.2020.03.041](https://doi.org/10.1016/j.celrep.2020.03.041)

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