A glimpse at the rings that make cell division possible

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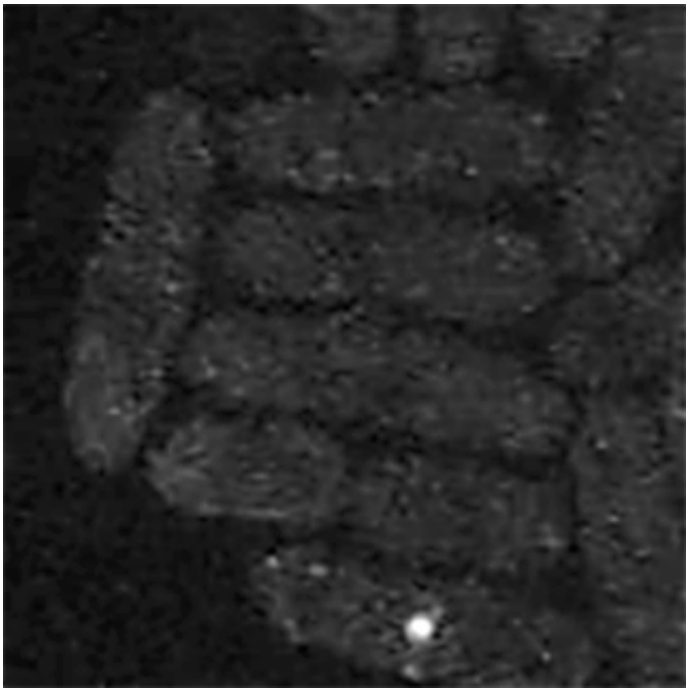

Forming like a blown smoke ring does, a "contractile ring" similar to a tiny muscle pinches yeast cells in two. The division of cells makes life possible, but the actual mechanics of this fundamental process have proved difficult to pin down.

Researchers at Yale and Columbia universities recently shed light on this mystery by accumulating enough information to simulate the formation

and constriction of contractile rings on a computer.

In the accompanying movie, a time series of micrographs show the formation and constriction of contractile rings in four rod-shaped yeast cells. One of the contractile ring proteins is shown in white. Clusters of the protein accumulate around the middle of each cell and then condense into a ring that constricts to pinch the cell in two.

Thomas Pollard, Sterling Professor of Molecular, Cellular, and *Developmental Biology* at Yale, and his colleagues discuss the process in recent studies published in *Developmental Cell* and *Cell Reports*.

More information: Matthew R. Stachowiak, Caroline Laplante, Harvey F. Chin, Boris Guirao, Erdem Karatekin, Thomas D. Pollard, Ben O'Shaughnessy, "Mechanism of Cytokinetic Contractile Ring Constriction in Fission Yeast" *Developmental Cell*, Volume 29, Issue 5, 9 June 2014, Pages 547-561, ISSN 1534-5807, dx.doi.org/10.1016/j.devcel.2014.04.021.

Rajesh Arasada, Thomas D. Pollard, "Contractile Ring Stability in S. pombe Depends on F-BAR Protein Cdc15p and Bgs1p Transport from the Golgi Complex," *Cell Reports*, Available online 21 August 2014, ISSN 2211-1247, dx.doi.org/10.1016/j.celrep.2014.07.048.

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