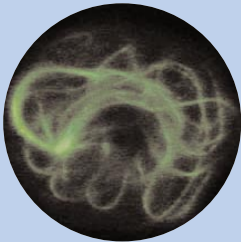
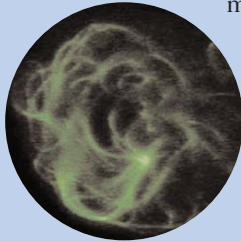


## Biology in pictures

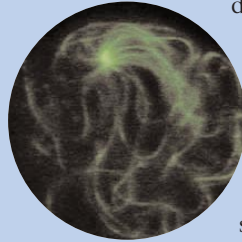
### Keep the motor running



The swirling movements of the centrosome and microtubules in a live *Dictyostelium* cell are shown in this sequence of images. These were taken over the course of about five minutes using  $\alpha$ -tubulin tagged with a green fluorescent protein. The movements are more frenetic than usual because the cell is a mutant that over-expresses the



anchored dyneins that transiently engage the microtubule array. In normal cells this activity would reinforce the radial array and maintain the central position of the centrosome, as cells crawl and change shape. In cells like the mutant one shown here, most of the cortical dynein activity seems to have been 'turned off'; a few remaining active dyneins could pull on a microtubule and move the array, much like pulling on a single strand of a mop head in a

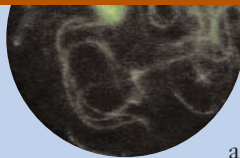


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roles in eukaryotes, including moving organelles and anchoring microtubules to the cell cortex. In

*Dictyostelium*, interphase microtubules can be uncoupled from the cortex by the overexpression of dynein motor-domain fragments. This causes the entire microtubule array to become motile in the cytoplasm; the centrosome circulates along the cell periphery, followed by loose, wavy bundles of microtubules.

The mechanism for this motility may involve cortically



the central location of the centrosome, and a small region on the motor domain may serve as an on/off switch.

See the online version of this article for a video of the movements. For details see Koonce M.P., *et al*, *EMBO J* 1999, **18**:6786-6792.

Images provided by Michael Koonce, Wadsworth Center, Albany, New York 12201, USA, and Ralph Neujahr, Max Planck Institut für Biochemie, Martinsried, Germany.

