

# Researchers uncover secrets of internal cell fine-tuning

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New research from scientists at the University of Kent has shown for the first time how the structures inside cells are regulated – a breakthrough that could have a major impact on cancer therapy development.

A team from Kent's School of Biosciences uncovered the mechanism whereby the physical properties of the internal structures within [cells](#) – known as actin [filaments](#) – are 'fine-tuned' to undertake different functions.

While some of these actin filaments appear to completely stable, providing a framework for the cell, others are more dynamic, allowing the cell to respond rapidly to changes in its environment.

The researchers - PhD students Matthew Johnson and Daniel East, who were led by Dr Daniel Mulvihill - used yeast cells to mimic those in humans. They utilised a novel biology 'trick' to switch the location of molecules which bind to, and stabilise, the actin polymer and modulate the movement of molecular motors.

In this way, they uncovered the mechanism which determines the functional characteristics of [actin filaments](#) in all cells and orchestrates cellular activity. It is expected the breakthrough could have a major impact on the development of therapies for a variety of diseases, including cancer.

The research, titled Formins Determine the Functional Properties of

Actin Filaments in Yeast, by Matthew Johnson, Daniel A. East and Daniel Mulvihill, is published in the current issue of the journal *Current Biology*.

**More information:** *Current Biology*. [DOI: 10.1016/j.cub.2014.05.034](https://doi.org/10.1016/j.cub.2014.05.034)

Provided by University of Kent

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