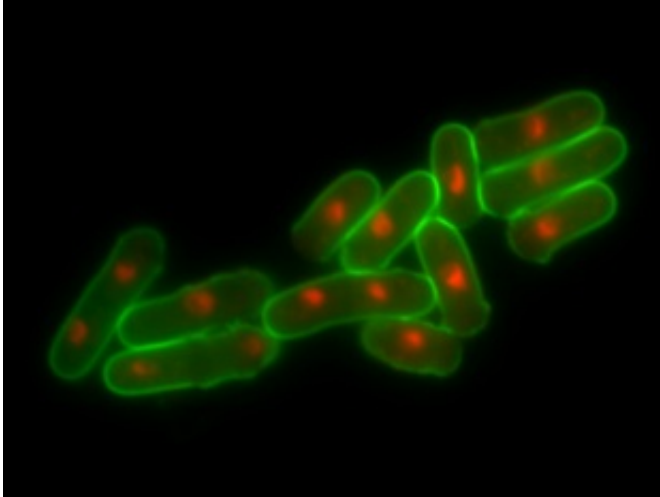


# Unlocking secrets of cell reproduction

May 23 2013

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Magnified yeast cells. Credit: Cancer Research UK

Research published in *Open Biology* today identifies, for the first time, nearly all the genes required for reproduction of a cell in a living organism.

Scientists from Cancer Research UK studied a set of [mutant strains](#) of yeast in each of which a single gene had been deleted. Each strain was examined to see if cell reproduction or [cell shape](#) was changed and in this way all the genes involved in these processes were identified.

The researchers visually screened 4843 yeast mutants, each with a different gene deleted, to observe the effects on [cell reproduction](#) and formation. The genes investigated comprise 95.7% of total protein

encoding genes. A total of 513 genes were identified as being required for cell cycle progression, 276 of which have not been previously described as cell cycle genes. Deletions of a further 333 genes lead to specific alterations in cell shape and another 524 genes result in generally misshapen cells. Their results describe a near genome-wide set of genes required for the cell cycle and cell shape.

Dr Julie Sharp, Cancer Research UK's senior science information manager, said: "For the first time our researchers have created a complete picture of the genes that control cell growth and behaviour in [yeast cells](#), which could reveal more about how cancer starts and develops and highlight new ways to tackle the disease.

"Research like this will be central to the work at the [Francis Crick Institute](#), a new super- laboratory in London headed by Professor Sir Paul Nurse [co-author of this paper], where scientists will tackle major diseases such as cancer using the very latest technologies."

**More information:** Hayles, J. et al. A genome-wide resource of cell cycle and cell shape genes of fission yeast, *Open Biology*.  
[dx.doi.org/10.1098/rsob.130053](https://doi.org/10.1098/rsob.130053)

Provided by The Royal Society

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