

## Cells that refuse to self-destruct become cancerous

When a cell's chromosomes lose their ends, it usually self-destructs to stem genetic damage. If it doesn't it becomes cancerous.

The new study of fruit flies by University of Utah biologists is the first to show in animals that losing just one telomere - end of a chromosome - can lead to many abnormalities in a cell's chromosomes, which are strands of DNA that carry genes.

'The essential point is that loss of a single telomere may be a primary event that puts a cell on the road to cancer,' said Kent Golic, a biology professor biology at Utah and co-author of the study.

Fruit flies have four pairs of chromosomes. Humans have 23 pairs. Each chromosome has two ends, called telomeres, which often are compared with the plastic tips of shoe laces, according to a Utah University release. The findings will be published online this week in *Genetics*.

When those tips are lost or broken, the shoelace frays. Previous research has shown that ageing and cancer often are associated with loss or shortening of telomeres.

To protect an organism against cancer, most cells with broken or missing telomeres undergo 'apoptosis', also known as cell suicide. But Golic and Simon Titen, a postdoctoral fellow in biology, found how fruit fly cells with a missing telomere sometimes avoid suicide and instead continue to divide and develop early characteristics of cancer.

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