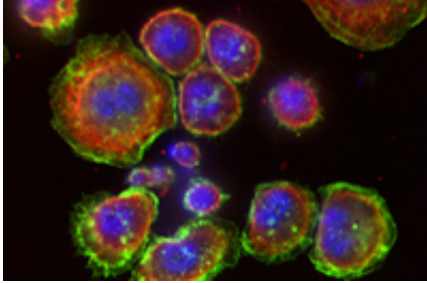


# Shape-shifting cells help skin cancer spread

10 June 2013



(Medical Xpress)—Scientists have discovered genes that control shape changes in melanoma skin cancer cells, allowing them to wriggle free and spread around the body, according to new research published in *Nature Cell Biology*.

The research, funded by Cancer Research UK, the Wellcome Trust and the National Institutes of Health, could pave the way for scientists to develop drugs for malignant skin melanoma – the deadliest form of skin cancer that kills around 2,200 people every year in the UK.

Scientists at The Institute of Cancer Research, London (ICR) and The Methodist Research Institute in Houston first identified a set of genes in [fruit flies](#) and in [human cells](#) in the lab which regulate the shape of [melanoma cells](#). They then watched the cancer cells [changing shape](#) as they switched these genes off.

Melanoma cells can adopt different shapes to squeeze their way between healthy cells and spread through the body. The cells become rounded to travel through the bloodstream or invade [soft tissues](#) such as the brain. But they assume an elongated shape to travel through harder tissues like bone.

Importantly, melanoma cells can switch between rounded and elongated shapes, allowing single cells to invade multiple tissue types and accelerate

the spread of the disease.

Dr Chris Bakal, study author and Wellcome Trust research fellow at The ICR, said: "The ability to change shape allows melanoma cells to invade lots of different tissues throughout the body, particularly the liver, lungs and brain. We knew these cells were shape-shifters but we didn't know what controlled these changes.

"This research arms us with new information about how they change shape and provides a new set of targets for the development of drugs for melanoma skin cancer."

Dr Julie Sharp, senior science information manager at Cancer Research UK, said: "This lab research gives us a better grasp of the way [cancer cells](#) behave in the body. By mimicking how cells move and spread, our researchers are learning more about melanoma skin cancer and bringing us closer to beating it.

"Melanoma is the most deadly form of skin cancer because it spreads easily. This makes it harder to treat and is why early diagnosis is so important – to detect the disease before it has spread to other areas."

**More information:** Zheng, Y. et al. A Screen for Morphological Complexity Identifies Regulators of Switch-like Transitions between Discrete Cell Shapes. *Nature Cell Biology* (2013) [DOI: 10.1038/ncb2764](https://doi.org/10.1038/ncb2764)

Provided by Cancer Research UK

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