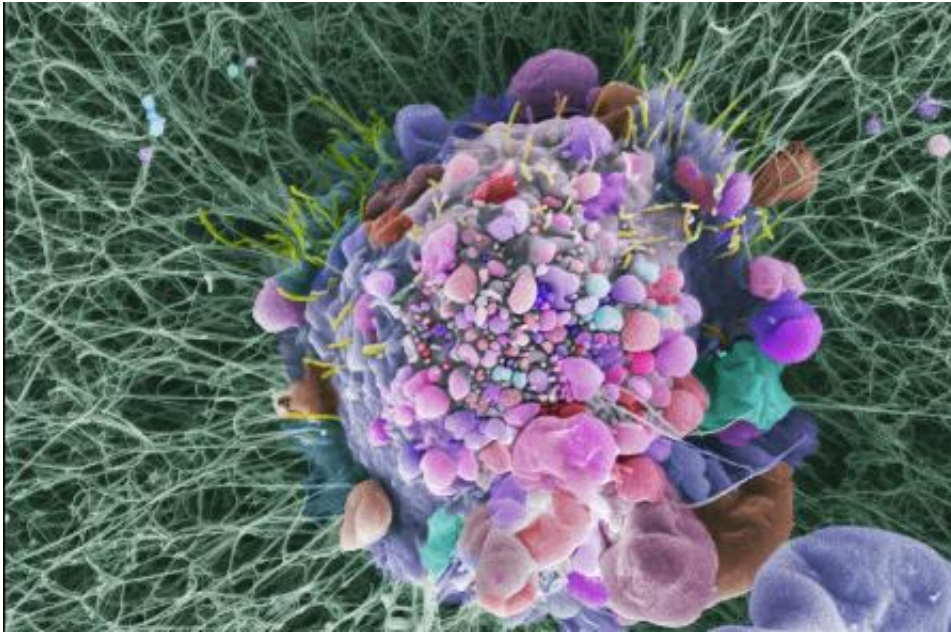


# Do aging cells become cancer?

November 25 2013

---



Cancers that occur in later life could be down to the way our cells age, according to a paper published in *Nature Cell Biology*.

Scientists based at the Cancer Research UK Beatson Institute, Glasgow, have found that some cancers may not be wholly down to genetic damage but could be caused by older cells bypassing the switch that tells them to stop growing.

Studying [human cells](#) growing in the lab, the team discovered that cells

nearing the end of their lifecycle start to have less control over the process of chemically tagging DNA, known as methylation. They also saw similar patterns of this chemical tagging in [cancer cells](#).

Ageing cells usually go through a process called senescence, where they stop multiplying and enter a 'sleeping' state. The researchers think that chemical tagging changes could contribute to cells becoming cancerous, if they are able to somehow bypass the normal senescence process and 'wake up' again.

Methylation plays an important role in telling cells how to behave by putting 'labels' on genes, controlling when they are switched on or off.

Professor Peter Adams, a Cancer Research UK scientist and one of the study authors, said: "While ageing is the biggest single risk factor for most cancers, we have a very poor understanding as to why this is. In this study we have shown that ageing cells differ greatly in their behaviour from [normal cells](#). We know that the mechanisms that cause a cell to stop growing when something goes wrong or it gets too old is a sure fire way of stopping tumours developing.

"But the similarity between the behaviour of ageing cells and their cancerous counterparts suggests that if older cells somehow manage to cheat death, they have the potential to become cancers.

"Our work could help to explain why our risk of [cancer](#) increases, as we get older and all our cells and tissues get older too."

Dr Kat Arney, Cancer Research UK's science communications manager, said: "We're only just beginning to understand how the complex machinery involved in our cells can sometimes lead to cancers. This study adds further evidence to the idea that as our [cells](#) age, they become more susceptible to becoming cancerous.

"Understanding the fundamental processes involved in cancer is vital for developing new insights into treating and preventing this disease, bringing forward the day when all cancers are cured."

**More information:** Cruickshanks HA et al. "Senescent cells harbour features of the cancer epigenome," 2013. *Nature Cell Biology*. [DOI: 10.1038/ncb287](https://doi.org/10.1038/ncb287)

Provided by Cancer Research UK

Citation: Do aging cells become cancer? (2013, November 25) retrieved 25 April 2024 from <https://medicalxpress.com/news/2013-11-aging-cells-cancer.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.