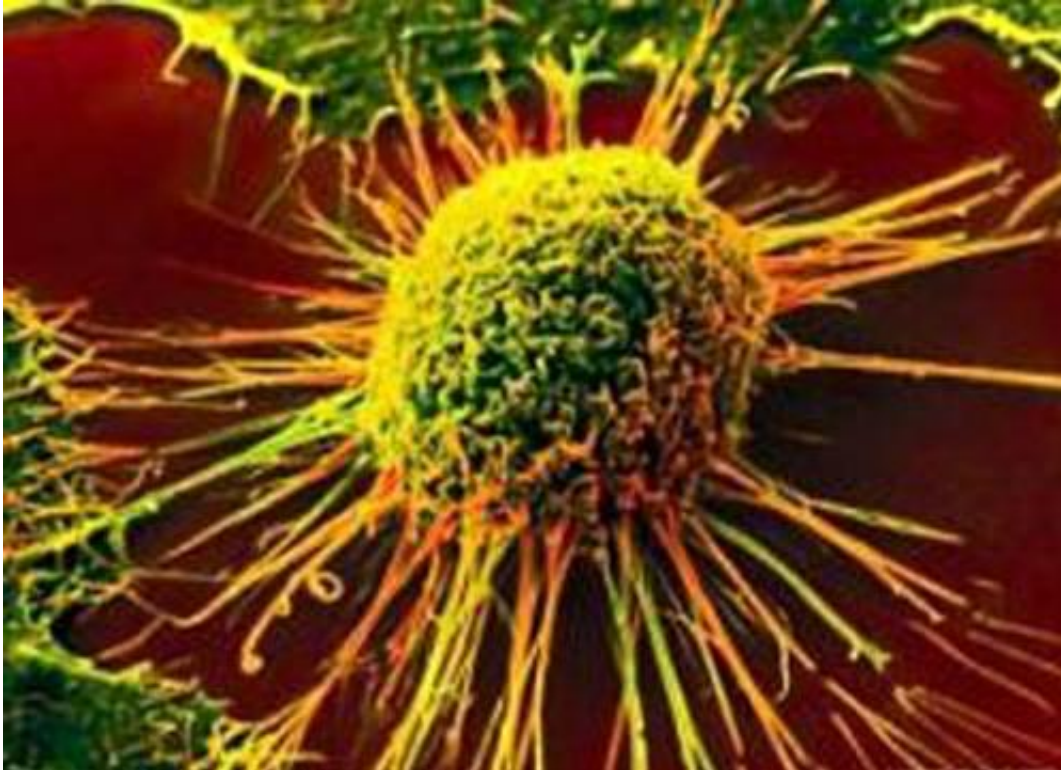


# Laws of nature predict cancer evolution

January 18 2016

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Cancers evolve over time in patterns governed by the same natural laws that drive physical and chemical processes as diverse as the flow of rivers or the brightness of stars, a new study reports.

Researchers believe that in the future, they could predict how a cancer will grow and develop by applying natural laws to single genetic snapshots taken from a cancer.

The intriguing research raises the possibility that doctors could take clinical decisions on how an individual patient's cancer will change, and what treatments should be used, by applying mathematical formulas to tumour biopsies.

Scientists at The Institute of Cancer Research, London, and Queen Mary University of London (QMUL), used a wealth of data - generated from more than 900 tumours of 14 different types - to show that many cancers evolve in particular patterns that can be predicted.

The study, published in *Nature Genetics* today, was funded by a donation to The Institute of Cancer Research by Chris Rokos and by organisations including the Wellcome Trust, Cancer Research UK and the Medical Research Council.

Many cancer types, such as bowel, stomach and some lung cancers, closely followed a path set out by a theoretical model describing the accumulation and spread of [genetic mutations](#) during a single rapid expansion.

The model, created by the research team, predicted that in many tumours, all important [cancer](#) genes are already present at the beginning of [tumour growth](#), and new mutations inside the tumour are essentially 'passengers', with no additional effect.

The team showed that these passenger mutations would accumulate following a so-called 1/

**More information:** Identification of neutral tumor evolution across cancer types, *Nature Genetics*, [DOI: 10.1038/ng.3489](https://doi.org/10.1038/ng.3489)

Provided by Institute of Cancer Research

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