

Researchers make progress in understanding breast cancer

17 May 2012

A University of Queensland researcher has discovered nine new genes that drive the development of breast cancer, taking the tally of all genes associated with breast cancer development to 40.

Published recently in *Nature* journal, the study is part of an international initiative to sequence the genomes of a variety of cancers. Professor Sunil Lakhani from the [UQ Centre for Clinical Research](#), along with an international team of breast cancer researchers lead by Professor Michael Stratton ([Sanger Institute](#), UK), examined all the genes in the genomes of 100 cases of breast cancer.

Professor Sunil Lakhani said mutated cancer-causing genes (called driver genes) were different in different cancer samples, indicating that breast cancer is genetically very diverse.

" Understanding the consequences of this diversity will be important in progressing towards more rational treatment," Professor Lakhani said.

" The idea behind the work was to establish ' the landscape' of genetic changes in breast cancer with a view to understanding which genes drive a breast cell to become cancerous."

" Recently, we have begun to appreciate that breast cancer is not one disease but has several different subtypes. However, what the study shows is that the diversity and differences between patients is much greater than appreciated. Although 28 of the 100 cancers had a single driver mutation, some had as many as six. There were 40 different cancer genes implicated in the development of the cancer and in 73 different combinations – almost every cancer is therefore unique."

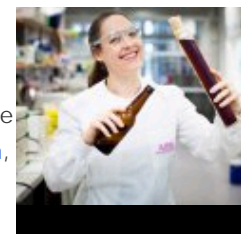
" It is showing us that we will have to use broad information about cancer subtypes (as we do at present in the clinic) and combine it with the unique genomic features of each patients cancer in order to provide individualised treatment plans – which will be a challenge, but hopefully will also improve outcomes by providing new opportunities to target the mutations with specific drugs."

The research was carried out at the [Wellcome Trust Sanger Institute](#), one of the world's leading genome centres, located in the UK.

FAST FACTS:

- Breast cancer is one of the leading causes of cancer death in Australian women
- Researchers have identified nine new genes that drive the development of breast cancer
- This study found that breast cancers are very diverse in their genetic profiles and can be caused by more than 70 different combinations of mutations.

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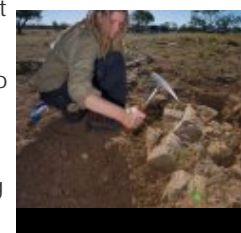
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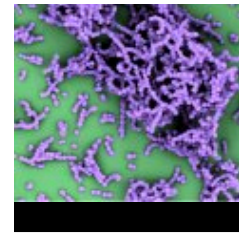
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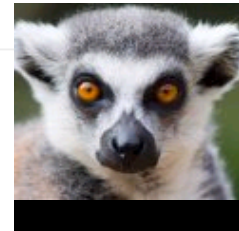


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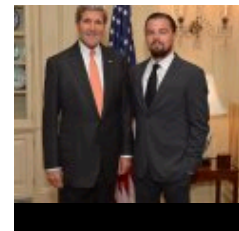
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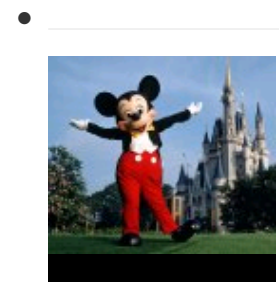
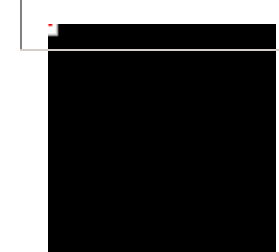


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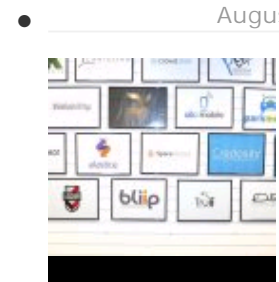


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