

New cancer gene discovered

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A new cancer gene has been discovered by a research group at the Sahlgrenska Academy at the University of Gothenburg, Sweden. The gene causes an insidious form of glandular cancer usually in the head and neck and in women also in the breast. The discovery could lead to quicker and better diagnosis and more effective treatment.

The study is published today in the prestigious scientific journal *Proceedings of the National Academy of Sciences (PNAS)*.

The cancer caused by this new [cancer gene](#) is called adenoid cystic [carcinoma](#) and is a slow-growing but deadly form of cancer. The research group can now show that the gene is found in 100% of these tumours, which means that a genetic test can easily be used to make a correct diagnosis.

"Now that we know what the cancer is down to, we can also develop new and more effective treatments for this often highly malignant and insidious form of cancer," says professor Göran Stenman, who heads the research group at the Lundberg Laboratory for Cancer Research at the Sahlgrenska Academy. "One possibility might be to develop a drug that quite simply turns off this gene."

The newly discovered cancer gene is what is known as a fusion gene, created when two healthy genes join together as a result of a chromosome change.

"Previously it was thought that fusion genes pretty much only caused

[leukaemia](#), but our group can now show that this type of cancer gene is also common in glandular cancer," says Stenman.

One of the two genes that form the fusion gene is known as MYB. Among other things, this gene controls cell growth and makes sure that the body gets rid of cells that are no longer needed. It has long been known to be a highly potent cancer gene in animals, but for a long time there was no evidence of the gene being involved in the development of tumours in humans.

"We suggested back in 1986 that the MYB gene might be involved in this form of cancer, but it's only recently that we've had access to the tools needed to prove it," says Stenman.

The research group has also looked at the mechanism behind the transformation of the normal MYB gene into a cancer gene. Genes can be compared to blueprints for proteins. Carefully controlled regulating systems then determine when and how much of each protein is formed. One such regulating system, discovered recently, is microRNA, which can turn genes on and off. When this cancer gene forms, this important control system is put out of action, leading to activation of the gene and massive overproduction of an abnormal MYB protein with carcinogenic properties.

"This is an important discovery, because it's a new mechanism which I think will turn out to be quite common in a variety of human cancers," says Stenman.

More information: [Proceedings of the National Academy of Sciences \(PNAS\)](#) , Recurrent fusion of the MYB and NFIB transcription factor genes in carcinomas of the breast and head and neck; Marta Persson, Ywonne Andrén, Joachim Mark, Hugo M. Horlings, Fredrik Persson, Göran Stenman

Source: University of Gothenburg ([news](#) : [web](#))

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