

Researchers prove key cancer theory

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Mayo Clinic researchers have proven the longstanding theory that changes in the number of whole chromosomes -- called aneuploidy -- can cause cancer by eliminating tumor suppressor genes. Their findings, which appear in the current issue of the journal *Cancer Cell* along with an independent commentary on the discovery, end a major controversy in the field of cancer research as to whether aneuploidy is a cause or a consequence of cancer.

Virtually all human cancers have an abnormal number of chromosomes. Therefore, it has been long suspected that gene mutations which promote erroneous chromosome separation during cell division are to blame for [tumor development](#). However, because of experimental limitations this was difficult to prove.

"By using a combination of new and established mouse models for human cancer, we were able to prove that aneuploidy causes cancer and elucidate the mechanism by which it does so," explains Jan van Deursen, Ph.D., Mayo Clinic cancer biologist and senior author.

These findings explain how chromosomal errors can cause cancer. They prove the role of aneuploidy in the elimination of genes that suppress [tumor formation](#).

"Now that we understand the mechanism by which aneuploidy causes cancer, it will be easier for other researchers to build on this knowledge — and target new drugs accordingly," says Dr. van Deursen.

Source: Mayo Clinic ([news](#) : [web](#))

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