

US researchers identify gene involved in pancreatic cancer

Researchers from the University of Michigan Comprehensive Cancer Center have identified a gene that is overexpressed in 90 percent of patients with pancreatic cancer, the most deadly type of cancer.

Expression of the gene, Ataxia Telangiectasia Group D Complementing gene (ATDC), is on average 20 times higher in pancreatic cancer cells than in cells from a normal pancreas. What 's more, the gene appears to make pancreatic cancer cells resistant to current therapies.

'One of the challenges in pancreatic cancer is that it is biologically aggressive and it does not respond well to chemotherapy or radiation. We found that ATDC not only causes the cancer cells to grow faster and be more aggressive, but it also makes the cancer cells particularly resistant to chemotherapy and radiation. By targeting this gene, we may be able to make cancer cells more sensitive to the therapies we already have in hand,' says senior study author Diane Simeone, director of the Multidisciplinary Pancreatic Cancer Clinic at the U-M Comprehensive Cancer Center.

The researchers injected into mice tumour cells expressing ATDC and compared that to a separate group of mice injected with tumor cells in which ATDC was suppressed. In the ATDC-expressing group, tumours grew in all the samples and were significantly larger and starting to metastasize, or spread. In the group in which ATDC was not expressed, only minimal signs of tumour growth were seen after 60 days.

'This particular gene promotes the biologic aggressiveness of the cancer,' says Simeone, who is also Lazar J. Greenfield Professor of Surgery and Molecular and Integrative Physiology at the U-M Medical School.

In addition, the researchers found that ATDC is most highly expressed at the point when pre-cancerous cells become malignant. ATDC was also linked to increased levels of a signaling protein called beta-catenin, which is known to play a key role in cancer development.

Researchers believe ATDC has potential as a target for developing future therapies. It could also help doctors determine when a patient has pancreatic cancer and when it's chronic pancreatitis, a diagnosis that's often difficult to make without surgery. In some cases, this may allow patients to avoid an operation.

ATDC also appears to be involved in other cancer types, including bladder cancer and lung cancer. Researchers are continuing to investigate its role. This research was done in the laboratory. No tests or therapies related to ATDC are available at this time.

Statistics from the American Cancer Society show that a total of 37,680 Americans will be diagnosed with pancreatic cancer this year and 34,290 will die from the disease.

Results of the study appear in the March issue of Cancer Cell.

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