

Pancreatic cancer: Major breakthrough in our understanding of the mechanisms of the disease

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Pancreatic cancer carries a very bleak prognosis for patients. However, a recent breakthrough by two research teams, including one at the Hôpital Maisonneuve-Rosemont (CIUSSS-EST, Montreal) and University of Montreal, has opened the door to a better understanding of the molecular mechanisms that cause this cancer to develop.

This biomedical research conducted jointly by the groups of Dr. Frédérick Antoine Mallette (Université de Montréal / Centre de Recherche HMR) and Dr. Stéphane Richard (McGill University / Lady Davis Institute for Medical Research) and that was published in *Cell Reports* has shown that pancreatic tumours often lose the ability to express a small ribonucleic acid molecule called miR-137. This molecule induces a defence mechanism called [cellular senescence](#), which keeps cancer cells in check. The loss of miR-137 works in conjunction with various mutations frequently observed in pancreatic tumours to trigger [uncontrolled cell growth](#) and then cancer.

"It is essential that we better understand the mechanisms that lead to the loss of miR-137 expression. Once we do, we can create therapeutic strategies to treat and prevent pancreatic cancer," said Dr. Frédérick Antoine Mallette.

This joint research study by doctoral student Mathieu Neault has also demonstrated that restoring normal miR-137 levels in pancreatic cancer

cells has a protective effect, as doing so induces senescence and stops the cells from spreading.

A relentless cancer

In 2015, approximately 4800 people received a diagnosis of pancreatic cancer, and nearly 4600 Canadians succumbed to this terrifying disease. Although this cancer is the 12th highest in terms of incidence, it is 4th highest in cancer-related mortality. Survival rates for [pancreatic cancer](#) haven't improved in the past 40 years. This is why we urgently need to clarify the mechanisms of this cancer to find new therapeutic avenues that will change these grim statistics.

More information: Mathieu Neault et al. miR-137 Modulates a Tumor Suppressor Network-Inducing Senescence in Pancreatic Cancer Cells, *Cell Reports* (2016). [DOI: 10.1016/j.celrep.2016.01.068](https://doi.org/10.1016/j.celrep.2016.01.068)

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