

# Researchers identify cell-changing gene that can cause cancer

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Dr. Jennifer Corcoran, researcher and assistant professor in the departments of Microbiology & Immunology and Surgery. Credit: Allison Gerrard

Researchers at Dalhousie Medical School have discovered that a gene found in a common herpes virus plays a key role in the development of several AIDS-related cancers – including a form of skin cancer known as Kaposi's sarcoma.

The study was recently published in *PLoS Pathogens*, the leading journal in the field of infectious pathologies, which include virus-induced

malignancies.

"We're looking at how [viral genes](#), such as those found in herpesvirus-8, contribute to the development of cancer," says Dr. Jennifer Corcoran, assistant professor in the departments of Microbiology & Immunology and Surgery.

Herpesvirus-8 targets cells that line the surface of blood and lymphatic vessels. Using one of its genes, Kaposin B, the virus reprograms these cells. It gives the cells instructions to grow, form new vessels, and inflame surrounding tissues. These changes in the cells can lead to cancer.

"We've found that inside the cell, Kaposin B targets a control switch that's normally only activated when the cell senses a threat, and then quickly turned off when the threat is averted," explains Dr. Corcoran. "Kaposin B appears to jam this switch in the 'on' position, causing dramatic and sustained changes in cell behaviour."

It's estimated that 15 to 20 per cent of cancers are caused by viruses. Dr. Corcoran's discovery points to potential new treatments for these cancers; some may even be able to be prevented.

"The research is telling us that Kaposin B is a very unique kind of viral cancer-causing gene, very different than others we have studied before," says Dr. Corcoran. "Understanding how this gene works has already revealed some opportunities for using drugs to reverse its effects. And if we target the Kaposin B protein – or use molecules that target and limit the changes Kaposin B causes to the blood and lymphatic system – we could potentially limit [cancer development](#)."

Inflammation has long been associated with the growth of cancer. The Dalhousie research team is hoping its work on the Kaposin B study will

lead to better understanding of that link, too.

"By looking at the function of Kaposin B, we are also learning new molecular details about the relationship between inflammation and [cancer](#)," says Dr. Corcoran. "Our findings may ultimately have implications for the treatment of other cancers that have a strong inflammatory component."

**More information:** "Viral Activation of MK2-hsp27-p115RhoGEF-RhoA Signaling Axis Causes Cytoskeletal Rearrangements, P-body Disruption and ARE-mRNA Stabilization." *PLoS Pathog* 11(1): e1004597. [DOI: 10.1371/journal.ppat.1004597](https://doi.org/10.1371/journal.ppat.1004597)

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