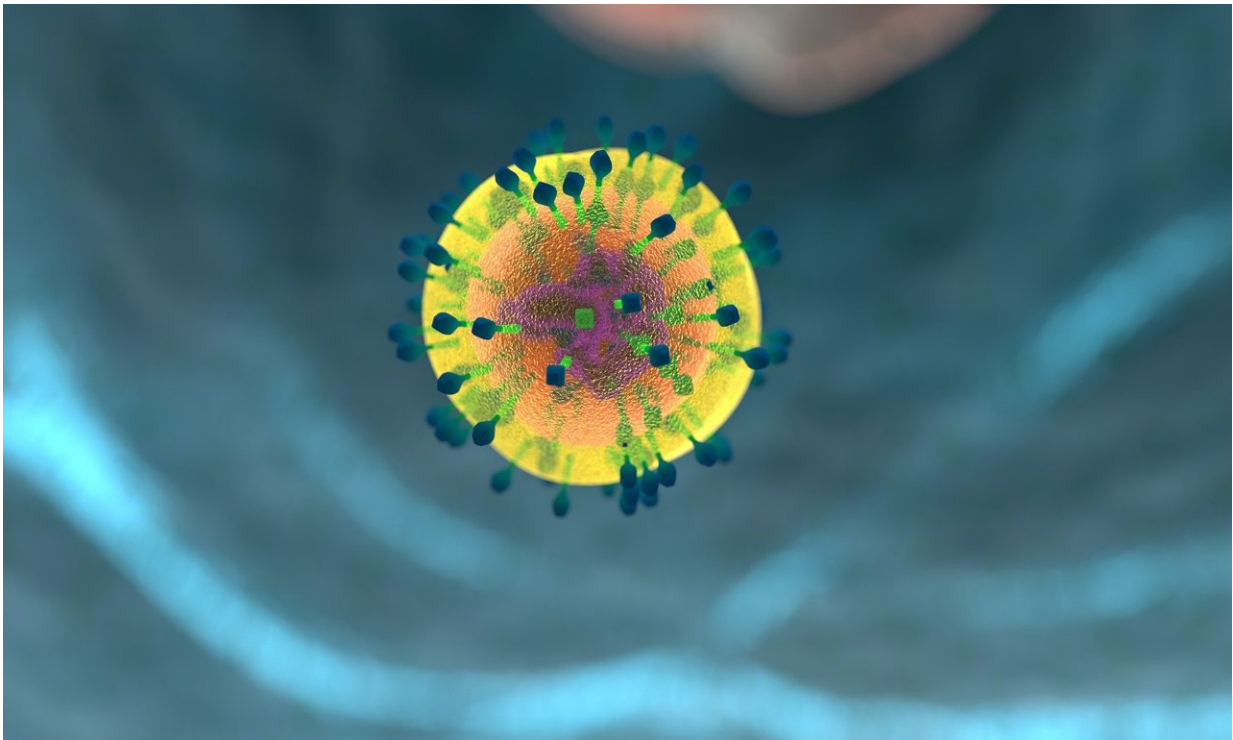


# New model explains how our immune system sometimes helps cancer spread

December 17 2019, by Katie Willis

---



Credit: CC0 Public Domain

Mathematicians at the University of Alberta have developed a model that explains how the immune system interacts with cancer—and in some cases, may help cancer spread to other areas of the body.

"Past research has shown that sometimes, the immune system has the

opposite effect of what we might expect," said Thomas Hillen, a [mathematical biologist](#) at the U of A and member of the Cancer Research Institute of Northern Alberta.

"There are many different mechanisms through which this can happen," explained Adam Rhodes, a Ph.D. student studying under Hillen's supervision and lead author on the study.

"In general, the tumor tricks the immune system into thinking that it is part of a healthy body system. The immune system can help provide [blood supply](#) and growth factors to the tumor. It can fend off other [immune cells](#) from damaging the [cancer](#), allowing it to spread."

The pair analyzed hundreds of studies on many types of cancer, then developed a [mathematical model](#) that can explain the mechanisms through which the [immune system](#) can support metastasis—and give insight into how to prevent and treat the disease.

"For example, our research suggests that inflammation and injury can contribute to cancer metastasis," noted Rhodes. "So it is justified to study the effect of anti-inflammatory treatments on metastasis."

Although the research team does not work directly with patients, they said their work could add valuable insight and information into clinical practice.

"Mathematics is the only way to combine the vast number of studies done on cancer into one cohesive framework," said Hillen.

"This model applies to many different kinds of cancer—from prostate cancer to breast cancer to lung cancer. Without a tool for analyzing all these data from studying myriad types of cancer, it is difficult to move forward."

The study, "A Mathematical Model for the Immune-Mediated Theory of Metastasis," was published in the *Journal of Theoretical Biology*.

**More information:** Adam Rhodes et al. A Mathematical Model for the Immune-Mediated Theory of Metastasis, (2019). [DOI: 10.1101/565531](https://doi.org/10.1101/565531)

Provided by University of Alberta

Citation: New model explains how our immune system sometimes helps cancer spread (2019, December 17) retrieved 25 April 2024 from <https://medicalxpress.com/news/2019-12-immune-cancer.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.