

Study sheds new light on the growth of bladder cancer

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Credit: Curtin University

New Curtin University-led research has discovered that using drugs to target a pathway in the body that causes cancerous cells to spread aggressively may help to reduce the severity of bladder cancer.

The research, published in *Nature Communications*, aimed to understand the function of two naturally occurring proteins called [hepatocyte growth factor](#) (HGF) and c-Met that are produced in [bladder cancer](#) patients and are associated with poor prognosis, cancer invasion and spreading.

Lead Australian author Associate Professor Pieter Eichhorn, from the Curtin Health Innovation Research Institute (CHIRI) and the School of Pharmacy and Biomedical Sciences at Curtin University, said bladder cancer was one of the most common causes of cancer-related deaths worldwide and one of the most expensive to treat.

"Approximately 25 percent of bladder cancer initially presents as [muscle-invasive bladder cancer](#), which is when the [cancer cells](#) have spread beyond the inner lining of the bladder and into the muscle layer. Treatment of muscle-invasive bladder cancer remains a major clinical challenge, as the only treatment is the removal of the entire bladder with or without chemotherapy," Associate Professor Eichhorn said.

"In mouse models, our team discovered that the HGF and c-Met proteins stimulate a pathway that leads to the release of cancer cells to the blood vessels and the lymphatic system, potentially resulting in the spreading of the primary tumor to other parts of the body.

"We found that by utilizing drugs that inhibit the pathway, it can completely block bladder cancer cells from spreading to surrounding tissues."

Associate Professor Eichhorn said the findings have potentially significant implications for the future treatment of patients with early stage bladder cancer, but clinical trials are needed to see if this is also effective in human patients.

"Bladder cancer continues to impact thousands of Australians each year,

so it is critical to conduct high-quality research that may help target this disease and offer future hope for those who have been impacted," Associate Professor Eichhorn said.

More information: Wen Jing Sim et al. c-Met activation leads to the establishment of a TGF β -receptor regulatory network in bladder cancer progression, *Nature Communications* (2019). [DOI: 10.1038/s41467-019-12241-2](https://doi.org/10.1038/s41467-019-12241-2)

Provided by Curtin University

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