

Scientists find a switch which may make prostate cancer spread

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Scientists from the University of Leuven in Belgium have found a switch associated with prostate cancers spreading or forming metastases (secondary tumors). The researchers caution that this work is still at an

early stage, and needs further investigation to see if it applies to all prostate cancers. Up to 15% of patients have high-risk prostate cancers, potentially leading to significantly increased mortality over time. The work is presented at the virtual European Association of Urology congress.

The researchers worked with a group of 44 patients who had high-risk [prostate cancer](#). Twenty-five of the patients were cured after treatment, but 19 went on to develop [metastatic prostate cancer](#). The scientists then compared differences in the number of copies of DNA segments in the two groups. They found that those patients who went on to develop metastatic disease had many more copies of the AZIN1 gene, indicating that it was associated with a more aggressive disease.

To test this, the team changed the activity of the AZIN1 gene, found on chromosome 8, in both cell cultures and a mouse model. They found that reducing the expression of the gene resulted in reduced metastases.

Lead researcher Dr. Lisa Moris of the Molecular Endocrinology Laboratory, Leuven, Belgium, said, "We were able to show that the regulation of the AZIN1 gene is closely associated with the risk of the tumor spreading. We need to do a lot more research on AZIN1 to see if the relation with metastases is generally applicable to prostate cancers; there are many different types and causes of prostate cancer, so this finding is still a long way from any clinical application. What we can say is that this finding applies to the patients we tested, who were followed up over a period of 10 years, as well as our mouse and in-vitro models. There are also some initial findings that this gene may have an effect in other cancers. We are currently looking at what exactly this gene does to see if we can find a way of regulating it in real-life cancers. This is still a long way from any clinical application, but opening a way to controlling whether tumors risk spread would be a significant step toward controlling prostate cancer."

The EAU's adjunct secretary general responsible for Science, Professor Arnulf Stenzl (Tübingen, Germany), who was not involved in conducting the study, said, "More than 10 years ago, the influence of Antizyme Inhibitor 1 as a small protein for cell transformation and promotion of tumor growth was discovered. Recently, a role in the progression and metastasis of a variety of tumors including breast, colorectal, lung and gastric cancer has been suggested. Some of this interest has arisen because of the role of AZIN1 in the methylation of HPV warts and a possible connection to HPV-associated malignancies. The study by Moris et al. looks like a promising clue for those prostate cancers which are aggressive and metastasizing. At a time when more than 80% of all newly diagnosed prostate cancers are diagnosed in a localized stage, and the value of any treatment may be arguable in some patients, studies like this are important. They may clarify which patients will benefit from immediate and directed treatment, and which will benefit from active surveillance. The results of this study may also give us a clue for targeting AZIN1 to prevent metastasis."

Prostate cancer is the most common male cancer, with around 400,000 new cases every year in Europe, with 76,000 deaths in the EU. In the UK, there are over 46,000 new cases of prostate cancer every year, leading to more than 11,000 deaths. Germany has 14,434 annual deaths, France 9,041, Italy 7,523. More than 1 million European men undergo prostate [cancer](#) biopsies every year.

Provided by European Association of Urology

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