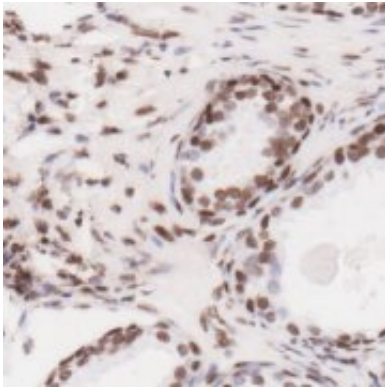


Scientists find key protein that suppresses prostate cancer growth in the laboratory

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Research on proteins leads towards potential new prostate cancer treatments -

(PhysOrg.com) -- Cancer researchers have discovered an important protein, produced naturally inside cells, that appears to suppress the growth of prostate cancer cells in the laboratory. The findings, published tomorrow in the journal *Cancer Research*, offer promising leads for research towards new treatments.

Prostate cancer is the most common cancer among men in the UK, with 37,500 men diagnosed with the disease every year. Many prostate cancers are slow growing, but in some cases the cancer is aggressive and spreads to other parts of the body, such as the bone. These cases are much more likely to be fatal.

In the new study, scientists at Imperial College London found that a protein called FUS inhibits the growth of [prostate cancer](#) cells in the laboratory, and activates pathways that lead to cell suicide.

The researchers also looked for the FUS protein in samples from prostate cancer patients. They found that in patients with high levels of FUS, the cancer was less aggressive and was less likely to spread to the bone. Higher levels of FUS also correlated with longer survival. The results suggest that FUS might be a useful marker that can give doctors an indication of how aggressive a tumour will be.

"At the moment, there's no way to say whether a prostate tumour will kill you or be fairly harmless," said Dr Charlotte Bevan, senior author of the study, from the Department of Surgery and Cancer at Imperial College London. "Current hormonal therapies only work for a limited time, and [chemotherapy](#) is often ineffective against prostate cancer, so there's a real need for new treatments.

"These findings suggest that FUS might be able to suppress tumour growth and stop it from spreading to other parts of the body where it can be deadly. It's early stages yet but if further studies confirm these findings, then FUS might be a promising target for future therapies."

Prostate cancer depends on [male hormones](#) to progress as these hormones stimulate the cancer cells to divide, enabling the tumour to grow. Treatments that reduce hormone levels or stop them from working are initially effective, but eventually the tumour stops responding to this treatment and becomes more aggressive.

Dr Bevan and her team began by exposing [prostate cancer cells](#) to male hormones and looking at how the levels of different proteins changed. They discovered that the hormones made the cells produce less of the FUS [protein](#), and examined further whether FUS might influence cell

growth by inserting extra copies of the gene for FUS into cells grown in culture. They found that making the cells produce more FUS led to a reduction in the number of cancer cells in the dish.

Greg Brooke, first author of the study, from the Department of Surgery and Cancer at Imperial College London said: "Our study suggests that FUS is a crucial link that connects male hormones with cell division. The next step is to investigate whether FUS could be a useful test of how aggressive prostate cancer is. Then we might look for ways to boost FUS levels in patients to see if that would slow tumour growth or improve response to hormone therapy.

"If FUS really is a tumour suppressor, it might also be involved in other cancers, such as breast cancer, which has significant similarities with prostate cancer."

More information: G.N. Brooke et al. "FUS/TLS Is a Novel Mediator of Androgen-Dependent Cell-Cycle Progression and Prostate Cancer Growth" *Cancer Research*, February 2011.

Provided by Imperial College London

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