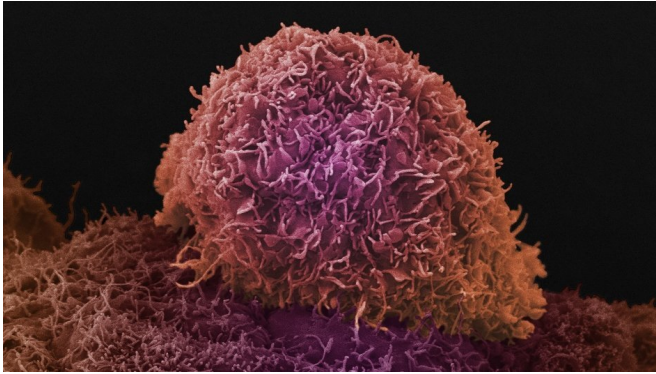


New type of treatment could reawaken immune response against prostate cancer

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A single prostate cancer cell. Credit: [Anne Weston](#), Francis Crick Institute, CC BY-NC

Targeting a molecule on the surface of immune cells could offer an exciting new way to treat prostate cancer by reawakening the immune response against it.

A team at The Institute of Cancer Research, London, and The Royal Marsden NHS Foundation Trust, found that patients whose [immune cells](#) within tumors displayed a molecule called CD38 on their surface lived less long than those without.

The researchers found that the CD38 protein molecule seems to suppress the [immune response](#) and is a sign that [prostate cancer](#) is successfully hiding from the immune system.

Targeting CD38

Their study suggests that therapies which target CD38—such as the multiple myeloma drug daratumumab—could hold promise against prostate [cancer](#) too, by reawakening the anti-cancer immune response.

As a result of the new findings, researchers at The Institute of Cancer Research (ICR) and The Royal

Marsden are now running clinical trials to test out if targeting this CD38 pathway in people with prostate cancer can benefit them.

They also believe that testing for CD38 could pick out patients with a poor prognosis and could help assess the likelihood that they will respond to certain treatments.

The study is published in the journal *European Urology* and was funded by Prostate Cancer UK, Movember, Prostate Cancer Foundation, Cancer Research UK and Sanofi-Aventis.

The researchers studied prostate tumor samples to find out how often CD38 was present on different immune [cells](#), whether its presence had influenced how quickly their cancer progressed and whether it made their cancer more likely to evolve and develop resistance to treatment.

Linked to worse survival outcomes

The team found that having a higher density of immune cells displaying CD38 was linked to worse survival outcomes for people with prostate cancer. A density of more than 1.5 of CD38 immune cells per mm² in these biopsies from advanced prostate cancer was associated with a more than doubled risk of dying.

Researchers also found that there was an increase in the density of immune cells displaying CD38 in tumors as prostate cancer progressed to become resistant to hormone therapy.

They showed that CD38 is mainly present on specific types of immune cells known as B-cells, which are responsible for producing various molecules which turn the level of the immune response up and down.

Supporting the 'anti-cancer' immune response

Some immune cells can move from the blood into tumors to help recognize cancer cells as abnormal and destroy them—supporting the body's 'anti-cancer' immune response. However, researchers found that immune B-cells displaying CD38 on their surface may stop anti-cancer T-cells from functioning, suppressing the anti-cancer immune response and increasing the chances that the disease will progress.

Researchers think that CD38 levels could therefore identify patients who could benefit from treatments that target this molecule's function.

Clinical trials are now under way to translate these findings and reactivate the anti-cancer immune response in prostate cancer.

Fighting cancer's cloaking strategy

Study leader Professor Johann de Bono, Professor of Experimental Cancer Medicine at The Institute of Cancer Research, London, and Consultant Medical Oncologist at The Royal Marsden NHS Foundation Trust, said:

"We believe that CD38 on the surface of immune cells is acting to dampen down the immune response. We have shown that the presence of this protein on immune cells within prostate tumors is a sign of worse survival outcomes and exhausted anti-cancer immune responses. It is now clear that CD38 has a role in prostate cancer's growth and spread—suggesting that targeting it with drugs, which already exist and are used in other cancers, could be a promising new approach to treatment.

"Our findings suggest that we can target immune cells displaying CD38 proteins on their surface to reawaken the immune system and fight cancer's 'cloaking' strategy. I'm already leading a clinical trial in this area, which is a first in prostate cancer."

Professor Paul Workman, chief executive of the Institute of Cancer Research, London, said:

"As cancers develop, they often evolve the ability to evade the immune system so they can keep growing and spreading without being attacked. This new study suggests that in prostate cancer, tumors

can suppress the [immune system](#) via the CD38 molecule on the surface of immune cells. The findings are exciting and open up a whole new potential approach to treating [prostate](#) cancer using immunotherapy—an approach that is now being tested in [clinical trials](#) which have the potential to show real benefit for patients."

More information: Christina Guo et al. CD38 in Advanced Prostate Cancers, *European Urology* (2021). [DOI: 10.1016/j.eururo.2021.01.017](https://doi.org/10.1016/j.eururo.2021.01.017)

Provided by Institute of Cancer Research

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