

Cholesterol unlocks clues to prostate cancer spread

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(Medical Xpress)—The findings could help explain why taking statins – commonly used cholesterol-lowering drugs – is thought to slow the progress of the disease in some cases.

The scientists, from The University of Manchester, made the discovery by combining [prostate cancer cells](#) in the lab with arachidonic acid (AA), an omega-6 fatty acid that has been shown to attract prostate cancer cells to the bone marrow, where it is found naturally in high concentrations.

When the prostate cancer cells were exposed to AA the researchers found that they changed shape, becoming rounder and also sprouting projections that helped them to squeeze through the gaps in the surrounding tissues and become established in the bone marrow.

But the researchers found they were able to stop the cells developing these characteristics by treating them with statins, which disrupt their ability to manufacture cholesterol.

Professor Noel Clarke, who jointly led the study with Dr Mick Brown and Dr Thomas Tawadros at The University of Manchester, said: "Our study shows how naturally occurring fatty acids in the [bone marrow](#) directly interact with the body's system of manufacturing cholesterol to enhance prostate [cancer cells](#)' ability to spread around the body. Understanding this process will provide vital clues as to how drugs like [statins](#) might benefit certain groups of prostate cancer patients who are more at risk of their cancer spreading."

The University of Manchester is part of Manchester Cancer Research Centre a three-way partnership also including Cancer Research UK and The Christie NHS Foundation Trust.

Nell Barrie, senior science information manager at Cancer Research UK, said: "Prostate cancer spreading to the bones is a major challenge for doctors and unfortunately it's very difficult to treat. Altering cholesterol metabolism or blocking the ways in which [prostate cancer](#) cells are able to change their shape, and thereby their ability to spread, could lead to major advances in treating men with aggressive forms of the disease."

"Finding ways to better treat cancer by taking research from the lab to help patients is at the heart of the new Manchester Cancer Research Centre – set to open this autumn."

More information: Brown, M et al 'Arachidonic acid induction of Rho mediated transendothelial migration in prostate cancer' *British Journal of Cancer* [DOI: 10.1038/bjc](https://doi.org/10.1038/bjc.2014.99). 2014.99

Provided by University of Manchester

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