

Preventing heart attacks by targeting the immune system

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(PhysOrg.com) -- More than 300 people die of a heart attack each day and research has shown there is a peak in heart attacks on Christmas Day and New Year's Day due perhaps to rich meals, alcohol and stress.

A new British Heart Foundation (BHF) grant of £715,000 hopes to find out if harmful sub-types of [immune cells](#) cause more heart attacks.

The research led by Andrew Newby, British Heart Foundation Professor of Vascular Cell Biology, in the Bristol Heart Institute (BHI) at the University of Bristol, will investigate the precise reasons why [arteries](#) accumulate these harmful immune cells.

Researchers have known for more than 20 years that a reaction by a patient's own immune system against the artery wall can trigger a [heart attack](#). For example heart attacks are more frequent in the winter when common infections are at their peak.

Immune cells are abundant in the arteries of patients who have had a heart attack and in people at high risk of one. So far diagnostic tests and drug treatments based on this knowledge have proved only marginally effective.

Work undertaken by BHF Professor Newby and his team at the BHI provides a possible explanation for the limited effect of current treatments and opens up new hope for finding better approaches. Professor Newby has shown that the arteries of patients with heart

disease appear to contain both harmful and helpful immune cells. Current treatments reduce the activity of both types of cells, which probably limits their effectiveness.

The new research hopes to develop and evaluate treatments that target harmful immune cells adverse effects, while preserving the activity of the helpful subtypes.

Professor Newby, commenting on the grant award, said: “This research could point to new ways to protect [fatty deposits](#) from becoming unstable by selectively modifying the harmful immune cells whilst preserving their helpful activity. Such a discovery will help pave the way for new treatments to prevent heart attacks, which could save thousands of lives each year.”

Professor Newby’s work, which is also supported by other British Heart Foundation grants and by the National Health Service, National Institute of Health Research, involves collaboration with other UK experts and with scientists in France, Sweden and the Netherlands. This Europe-wide effort using conventional drugs and new immunisation strategies aims to lower the immune response in the arteries of patients with [heart disease](#) and thereby reduce the risk of heart attacks.

Provided by University of Bristol

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