

Antibodies cut heart attack risk

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Antibodies could protect against heart attacks, according to a study by researchers from Imperial College London.

The researchers, funded by the British Heart Foundation, studied patients with [high blood pressure](#), of whom 87 had developed [coronary heart disease](#). They also studied a further 143 patients who had their heart arteries extensively studied using cutting edge techniques.

The team found patients who suffered a heart attack had much lower levels of an antibody called IgM anti MDA-LDL. Furthermore, the studies also revealed that patients with unstable fatty plaques in their arteries—which can break off and trigger a heart attack, also had lower levels of the antibody.

The findings, published in the journal *EBiomedicine*, also revealed patients who had the highest levels of the antibody were well protected from developing dangerous plaques in their arteries—with around a 70% less chance of developing heart disease over nearly five years.

The research team, who collaborated with scientists from Lund University in Sweden and Thoraxcenter in Holland, say not only could this finding help doctors more precisely identify patients at risk of heart attack, it also raises the possibility of using therapies that improve the immune system—such as vaccines—to reduce the risk of a heart attack.

The researchers don't yet know why some people have higher levels of this specific antibody. Although, it may be that some people inherit these protective [antibodies](#), others may have produced them in response to common bacterial infections in childhood.

Atherosclerosis is the build-up of fatty plaques in the walls of the arteries that lead to the brain or heart. If an atherosclerotic plaque ruptures, a deadly blood clot can form and block the blood supply to the heart or brain, causing either a heart attack or stroke. Each year in the UK over 100,000 people die after suffering from these events.

Better treatments

Lead researcher Dr. Ramzi Khamis, consultant cardiologist and BHF Clinical Research Fellow at the National Heart and Lung Institute, Imperial College London, said: "We are one step closer to figuring out

how the immune system protects from dangerous heart attacks. We hope that our research will help us find patients at the highest risk, as well as help us to develop therapies that target the immune system, which seems to play an important part in preventing heart attacks."

Dr. Noel Faherty, Senior Research Advisor at the British Heart Foundation, which funded the research, said: "Each year in the UK over 100,000 people die from a heart attack or stroke that has been caused by rupture of a fatty deposit, called a [plaque](#), on the inside of an artery. By discovering which patients have plaques that are more likely to rupture and why we can save thousands of lives.

"We already know that our immune system takes part of the blame in causing these fatty deposits to form and rupture. But the whole story of how our immune system is involved in [heart](#) and circulatory diseases is a lot more complex. More research is needed, but in the future, we might be able use new drugs to tweak the immune system in different ways to prevent people having a [heart attack](#) or stroke."

More information: Victor J. van den Berg et al. TEMPORARY REMOVAL: IgM anti-malondialdehyde low density lipoprotein antibody levels indicate coronary heart disease and necrotic core characteristics in the Nordic Diltiazem (NORDIL) study and the Integrated Imaging and Biomarker Study 3 (IBIS-3), *EBioMedicine* (2018). [DOI: 10.1016/j.ebiom.2018.08.023](#)

Provided by Imperial College London

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