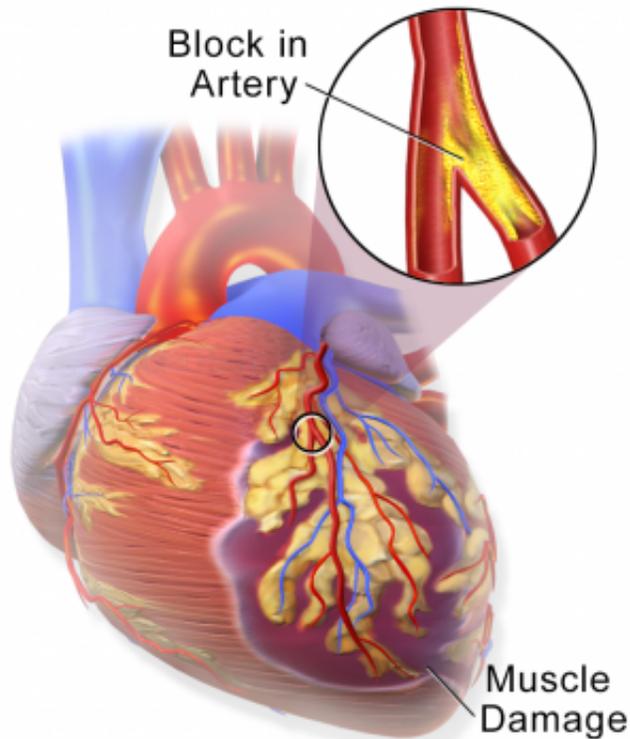


Could a protein be linked to heart attacks?

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Heart Attack

Myocardial Infarction or Heart Attack. Credit: Blausen Medical Communications/Wikipedia/CC-A 3.0

A team of researchers at the University of Ottawa Heart Institute, led by Dr. Alexandre Stewart, have uncovered an intriguing link between heart attacks and a protein that is of great interest to drug companies for its impact on cholesterol.

The team found that levels of the protein PCSK9 were elevated in the blood of [patients](#) having an acute [heart attack](#), but not in those who never had a heart attack or who had recovered from one previously. The results were replicated in two separate groups of patients, all of whom have coronary artery disease but were not taking a [cholesterol](#)-lowering statin drug.

Published in the journal *PLOS One*, the findings point to an important question: "Are PCSK9 levels elevated shortly before you get a heart attack?" asks Dr. Stewart, principal investigator in the Ruddy Canadian Cardiovascular Genetics Centre at the Ottawa Heart Institute. "If levels only go up after, that would suggest a side effect of the heart attack. But if they go up before, that suggests it might trigger the event, or make it worse."

The Heart Institute researchers first identified the PCSK9 link to heart attacks using blood samples from patients enrolled in the Ottawa Heart Genomics Study. They then confirmed these results in a group of patients from Emory University in Atlanta, Georgia. Again, they found elevated PCSK9 levels in samples taken from patients at the time of [acute heart attack](#), but not in samples taken from patients with a history of heart attack or from those with [coronary artery disease](#) who never had a heart attack.

The medical community and pharmaceutical companies are already highly interested in PCSK9 for its effects on LDL cholesterol. PCSK9 increases levels of LDL cholesterol in the bloodstream by reducing the ability of liver cells to remove and destroy it. Research indicates that blocking the effects of PCSK9 may offer a new way to substantially lower LDL cholesterol.

Several pharmaceutical companies have invested heavily in drugs to block PCSK9. The potential market is estimated to be in the billions of

dollars because they lower cholesterol in a manner that is independent of the widely-prescribed statin drugs. In industry-sponsored clinical trials, these new drugs are looking to be effective in reducing LDL cholesterol levels. The link of PCSK9 to the event of a heart attack provides important new information about this protein that has seen such heavy investment.

More information: *PLOS One*, www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0106294

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