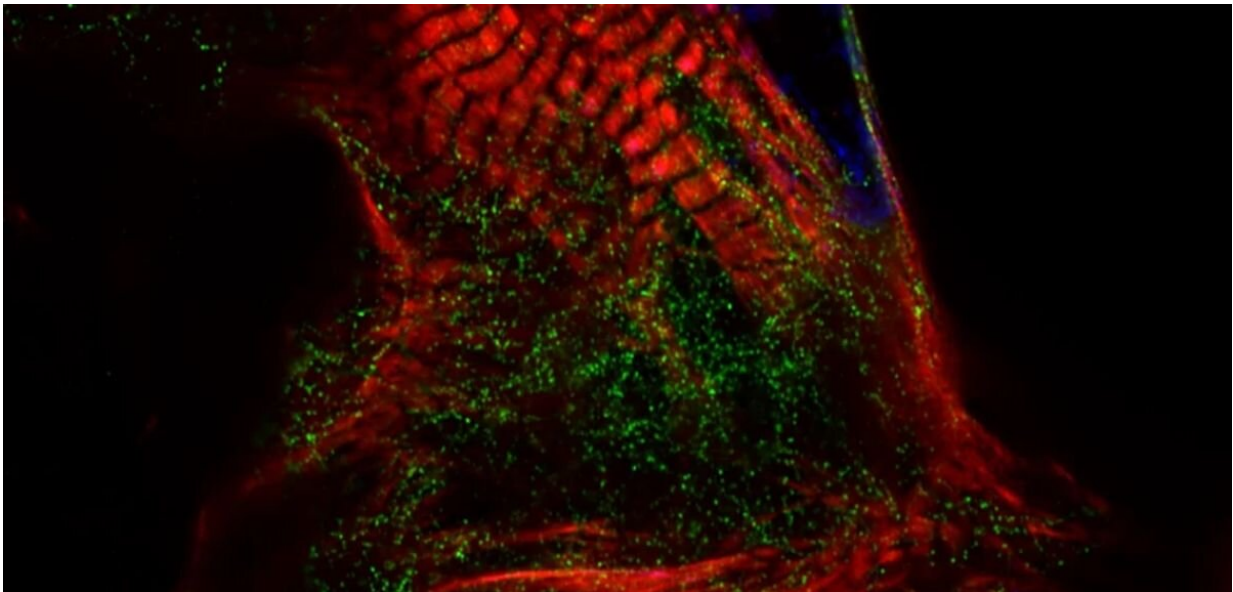


New blood test could save lives of heart attack victims

February 1 2023



NPY receptors (in green) on human iPS cardiomyocytes. Credit: Ms. Carla Handford, Dr. Kun Liu, Dr. Dan Li

Researchers from the Herring group in Oxford's Department of Physiology, Anatomy and Genetics have developed a blood test that measures stress hormone levels after heart attacks. The test—costing just £10—could ensure patients receive timely life-saving treatment.

Cardiovascular disease is the main cause of death in the U.K. One of the most common ways in which that manifests is through heart attacks.

Clinicians treat around 100,000 [patients](#) with very large heart attacks using an emergency procedure called primary percutaneous coronary intervention (PCI). While some of these patients do very well, around a third do not, and some 25,000 people die from heart attacks each year.

New research from Herring lab researchers shows that routine testing for the stress hormone Neuropeptide Y (NPY) in the hours after a [heart attack](#) has the potential to save thousands of lives.

Lead researcher Associate Professor Neil Herring said, "Our previous research has shown that NPY is raised during a heart attack and local levels within the heart correlate with how well it recovers. What this new study adds is that high NPY levels, even when measured through a standard [blood test](#) from a vein, predict which patients go on to develop heart failure or die. This provides extremely useful information for doctors and we hope that developing drugs that target the receptors NPY acts on may really be game changing for this cohort of patients and the blood test could help spot those patients who may need it right from the start."

In the new study, published in the *Journal of the American Heart Association*, researchers investigated the levels of NPY in the blood of 163 heart attack patients who had undergone emergency treatment to open up a blocked blood vessel. NPY, once released into the heart, causes its smallest blood vessels to narrow. Researchers found that two days after a heart attack, the smallest blood vessels in the heart remained narrowed in patients with the highest NPY levels. MRI scans carried out six months later found that such patients had more scarring in their hearts, which were thus unable to pump blood efficiently.

NPY levels were measured in standard blood samples taken from the veins of patients when they underwent their PCI treatment. Researchers found that those patients with the highest NPY levels sustained more

heart and lung damage, and their hearts were significantly more likely fail irrespective of other risk factors over the subsequent six years. During the follow-ups, 34 patients died or suffered heart failure. The team concluded that routine tests in the hours after a heart attack could ensure patients at greatest risk were spotted sooner, and prioritized for treatment.

Professor Herring said, "This study identifies a 'cut off' value for the blood test which helps identify those patients that do badly after their large heart attack. Ideally, further studies should then test this cut off level in a different group of patients to ensure that it is robust in predicting heart failure and death. However, if successful, then it could be offered to all patients with large heart attacks undergoing emergency treatment.

"We're confident that, in time, this stress hormone will become an effective target for future treatments to reduce the life-limiting effects of a heart attack."

The study, "Neuropeptide-Y Levels in ST-Segment–Elevation Myocardial Infarction: Relationship With Coronary Microvascular Function, Heart Failure, and Mortality," is published in the *Journal of the American Heart Association*.

More information: Thomas Gibbs et al, Neuropeptide-Y Levels in ST-Segment–Elevation Myocardial Infarction: Relationship With Coronary Microvascular Function, Heart Failure, and Mortality, *Journal of the American Heart Association* (2022). [DOI: 10.1161/JAHA.121.024850](https://doi.org/10.1161/JAHA.121.024850)

Provided by University of Oxford

Citation: New blood test could save lives of heart attack victims (2023, February 1) retrieved 26 June 2024 from <https://medicalxpress.com/news/2023-02-blood-heart-victims.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.