



Media Release

Attention: Medical reporters

Date: 4 September 2006

Heart smart: new drug improves blood flow

A new drug has been shown to improve blood flow in diseased arteries, reducing the risk of high blood pressure and heart attacks, a Monash University study published today reveals.

The finding is a significant development for the Monash team that, in conjunction with Bayer Health Care, hopes to use the drug as part of a revolution in the management of heart disease.

Dr Harald Schmidt, Director of the Centre for Vascular Health and his colleagues at Monash University, Dr Peter Schmidt and Barbara Kemp-Harper, say the next step will be to translate the research so it benefits patients. Clinical trials of the drug have already started for the treatment of acute heart failure.

Dr Schmidt's team and colleagues in Germany and the US have previously shown that oxidative stress - the appearance of free radicals in the walls of arteries - is a key mechanism underlying cardiovascular disease.

"Free radicals contribute to the formation of arterial blockages. What's more, as the number of free radicals increases, they also interfere with the ability of the cells lining arteries to control the contraction and dilation of the arteries," Dr Schmidt says. "The arteries stiffen and get blocked."

When a blockage occurs, the cells lining the arteries produce nitric oxide to signal to the arterial muscles that they need to dilate the artery and allow more blood through. But free radicals destroy a key enzyme that allows the arterial cells to respond in this way, so the signal doesn't get through.

However, the new drug – developed by Bayer HealthCare – reactivates the damaged enzyme.

"Our results show that the drug directly binds to and repairs the damaged enzyme. And as the number of free radicals increases, the drug starts working harder," says Dr Schmidt.

The results have been published in the *Journal of Clinical Investigation* and the September issue of *Nature Reviews/Drug Discovery*.

Dr Schmidt, together with clinical and basic science colleagues, is creating a new research centre at Monash with the aim of challenging orthodox thinking on heart disease and stroke.

"Vascular diseases are the number one cause of death worldwide. Yet we don't know enough about the causes to reliably identify and treat cases, let alone prevent these diseases," he says. "In up to 95 per cent of cases, the root causes of vascular diseases are still unknown. So clinicians have to rely on 'lifestyle' indicators and 'risk factors' such as high blood pressure and high cholesterol.

"However, not all people with high blood pressure or high cholesterol experience heart attack or stroke. At the same time, many people without any apparent risk factors have unexpected heart attacks and strokes. We need a revolution in vascular diagnosis, treatment and prevention. This discovery is an important step along the way."

More information: Penny Fannin, Media Communications, on +61 3 9905 5828 or 0417 125 700.