News Release

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FREE RADICAL CHEMISTRY BIOTECHNOLOGY
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Radical blow for snotty arteries

“Controlling the green stuff in snot could help treat heart disease”, reveal Dr Martin Rees and Professor Michael Davies from the ARC Centre of Excellence for Free Radical Chemistry and Biotechnology.

In an exciting discovery, researchers in the Free Radical Centre at the Heart Research Institute (HRI), University of Sydney and the Queensland University of Technology have found agents that could stop the progression of heart disease by preventing damage by an enzyme also found in snot.

“It might sound disgusting, but the same goop that makes snot green gets dumped in our arteries during heart disease”, comments Rees.

Snot appears green due to the presence of the enzyme, myeloperoxidase. Myeloperoxidase is normally called into action by our immune systems to kill off bacteria. It does this by making the powerful oxidant hypochlorous acid - the main ingredient in household bleach.

“Although hypochlorous acid is a vital component of the body’s defence system against bacteria, it is also highly reactive and can damage tissues when produced in the wrong place, at the wrong time or at excessive levels,” warns Professor Michael Davies from the Free Radical Centre at HRI.

“This has been shown to contribute to a number of diseases such as atherosclerosis, asthma, rheumatoid arthritis and some cancers”, he adds.

“Because of the common occurrence and far reaching medical consequences of these diseases, we wanted to find a safe way of controlling myeloperoxidase”, comments Rees.

The team has developed antioxidant compounds called nitroxides that are very effective at preventing myeloperoxidase from producing hypochlorous acid. There is now considerable hope that the discovery will lead to a new drug to treat heart disease and other inflammatory diseases.

“Nitroxide compounds are very exciting”, says Rees. “Finding drugs that can tame the green goop in arteries is a very important step forward. We think nitroxides have great potential to improve and save the lives of many!”

The group’s work will be published in the upcoming edition of the international scientific journal “Biochemical Journal”.

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