

Natural gases a therapy for heart disease?

June 29 2011

Research carried out by scientists from the Peninsula Medical School at the University of Exeter and the National University of Singapore has analysed the complex 'cross talk' between hydrogen sulphide (H_2S) and nitric oxide (NO), both gasses that occur naturally in the body, and found that the interaction may offer potential strategies in the management of heart failure.

The research is published in the leading international journal *Antioxidants and Redox Signaling*.

Both gases interact naturally with each other within the body and the balance between the two and other [chemical compounds](#) has influence on health. The research team found that by modulating how H_2S and NO interact, a positive affect was produced for heart health.

The two gases were found to interact together to form a thiol-sensitive compound (linked to the sulphur in H_2S) which produces inotropic (muscular contraction) and lusitropic (muscular relaxation) effects in the heart. This crosstalk suggests that there is the potential to produce a molecule that may be of benefit to the heart and which could be the basis of a new drug therapy based on elements that occur naturally in the body.

The study also offers a new perspective on gaseous neurotransmitters, in which the function of cells is influenced by the interaction of the two gases.

Prof. Matt Whiteman, joint author from the Peninsula Medical School, commented: "Our findings are potentially very exciting and offer a novel insight into understanding how and why the heart fails. This could lead to new treatment and management strategies of [heart failure](#), such as molecules which release H₂S. By altering the ratio of H₂S and NO, two naturally occurring physiological gases in the heart and perhaps the rest of the cardiovascular system, we have the potential to manipulate heart and [vascular function](#). There is huge potential in the continued development of H₂S delivery systems either through pharmacological means or through [dietary intervention](#)."

Provided by The Peninsula College of Medicine and Dentistry

Citation: Natural gases a therapy for heart disease? (2011, June 29) retrieved 9 April 2024 from <https://medicalxpress.com/news/2011-06-natural-gases-therapy-heart-disease.html>

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