

## **The cellular response to altered levels of heme oxygenase**

**Host School/Institute: Bosch Institute, School of Medical Sciences**

**URL:**

<http://www.bosch.org.au/research/Cardiovascular/VascularResearch/people/rstocker.php>

**Project Code: SMS4**

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Description of Project:

Background: Atherosclerosis is the primary cause of cardiovascular disease and is the major cause of death in the western world. It is a progressive disease, where lipids and fibrous elements accumulate in the blood vessels, leading eventually to a reduction in blood supply to vital organs.

Heme oxygenase was identified in 1968 as a protein catalytically degrading heme. However, its role has since expanded and is now also regarded as a protective enzyme against a number of pathologies, including atherosclerosis. Several pharmacological agents used against cardiovascular disease induce heme oxygenase. However, it remains unclear how precisely induction of heme oxygenase protects against diseases like atherosclerosis.

Project description: The aim of the present project is to understand how the cell responds to altered levels of heme oxygenase and link it to its protective effect against atherosclerosis. We will use cells over-expressing or lacking heme oxygenase. We will examine how altered heme oxygenase activity affects the cell with regards to iron homeostasis, viability and oxidative stress using different biochemical and molecular biology methods.

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