

Iodide as a potential therapeutic in atherosclerosis

Background

Cardiovascular disease affects millions of people worldwide, with atherosclerosis being one of the leading causes of death. Atherosclerosis is characterised by chronic inflammation and formation of a fatty plaque, or lesion. During the progression of the disease, extensive damage is caused to proteins within the plaque and surrounding arterial wall. Large scale clinical studies support targeting these inflammatory processes as an effective therapy for the disease. There is a great need for cost-effective therapies that work in-tandem with current standard of care (e.g. lipid-lowering statins).

Our recent work has shown that iodide is effective in reducing protein damage caused by the inflammatory-enzyme myeloperoxidase (MPO) and may represent a cheap, effective therapy in reducing the complications of atherosclerosis.¹

The project

This work aims to determine whether iodide can reduce inflammation-induced damage in animal models of atherosclerosis and inflammatory disease. We will assess the impact of iodide supplementation on disease by inspecting both traditional parameters (such as atherosclerotic lesion size and composition) and a detailed assessment of the biochemical, proteomic and metabolomic changes that occur during atherosclerotic plaque development.

Results from this study may validate iodide as a cheap therapy for reducing the impacts of inflammatory disease, with rapid translation to the clinic due to the accessibility and established safety of iodide supplementation. Ultimately, these experiments may redefine attitudes to iodide and reveal novel biological impacts.

The team

You will become a member of the internationally and culturally-diverse Protein Oxidation group on floor 12.6 at the Panum Institute.

The candidate

You are interested in interdisciplinary science and exploring the molecular mechanisms behind disease. You are enthusiastic, curious and willing to learn. You are willing to work with animals and will be required to take the course in Laboratory Animal Science.

We will guide you in developing new skills in state-of-the-art techniques such as mass spectrometry (LC-MS), biochemical assays, design/execution of animal model experiments, and the proper handling/processing of biological samples. We aim to provide you with the skills to become an independent scientist and develop your scientific career.

Contact

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¹ Gamon L. F., Dieterich S., Ignasiak M. T., Schrameyer V., Davies M. J. **Iodide modulates protein damage induced by the inflammation-associated heme enzyme myeloperoxidase** *Redox Biology*, 2020, 28, 101331. [DOI: [10.1016/j.redox.2019.101331](https://doi.org/10.1016/j.redox.2019.101331)]