Dairy By-product Derived Cardioprotective Lipids

Background: Atherosclerosis is a chronic inflammatory disorder, characterised by the accumulation of plaque on the walls of the arteries. Rupture of this plaque often results in life threatening clinical complications such as heart attack and stroke, which currently are the two leading causes of global mortality. Dietary guidelines usually condemn the consumption of whole fat dairy products due to their saturated fat content and this ingredient's association with cholesterol and cardiovascular diseases, such as atherosclerosis. This viewpoint however, is dated and controversial as much data is emerging on the cardiometabolic benefits of polar lipids found in dairy products which are often abundant in whole fat dairy products.

Aims: The aim of this research project is to investigate the anti-inflammatory and antioxidant activity of polar lipids extracted from buttermilk on inflamed human immune, blood vessel and cardiac tissue cell lines.

Future Research Plan: Currently, we have started culture of the THP-1 human leukaemia monocyte cell line and plan to begin with these cells to investigate the anti-inflammatory and antioxidant activity of the extracts. We then aim to carry out the same investigations in endothelial and smooth muscle cell lines.

Proposed Significance to The Field of Research: While extensive research has been carried out on the blood-lipid lowering effects of bovine milk polar lipids less work has been carried out on their anti-inflammatory and antioxidant activity and to the best of our knowledge, all *in vitro* data published is based on animal cell lines.