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## **Probiotics and Atherosclerosis**

Yee Kwan Chan<sup>1</sup>, Pirkka Kirjavainen<sup>2</sup>, YanChen<sup>1</sup> and Hani El-Nezami<sup>1,2</sup> <sup>1</sup>University of Hong Kong, China <sup>2</sup>University of Eastern Finland, Finland

A therosclerosis is the major cause of cardiovascular diseases, which are the top ten leading causes of death worldwide. Atherosclerotic plaque development initiates from the inflamed endothelium under atherogenic environment – chronic low grade inflammation, hypercholesterolemia, endotoxemia, etc. The principal initial cause of such inflammation is yet to be defined – with accumulative evidence that microbial stimulants like LPS and PGN that can activate TLRs and NFkB signaling might be a plausible origin. The GIT is suggested to be the major site for absorption and translocation of such stimulants, gut microbiota has been associated with systemic inflammation and being essential in generating atherogenic substances. Since probiotics have potential systemic anti-inflammatory properties and fortify gut barrier to reduce bacterial translocation, we evaluated whether probiotics can help reduce atherogenesis by feeding the disease model, ApoE-/- mice with high fat diet alone, with Tel (1 or 5 mg/ kg/day, positive controls) or with probiotics (VSL#3 / LGG), or the combination of which for 12 weeks. All treatments reduced lesion size significantly; some treatments reduced plasma endotoxin, cholesterol and various proinflammatory biomarkers. The gut microbiota of selected groups were profiled using 454 pyrosequencing, which showed that probiotics, telmisartan conferred a more diverse microbiota with the relative abundance of >30 bacterial families significantly different from the group with high fat diet alone. Probiotics has the potential in improving atherogenesis by its anti-inflammatory effects and gut microbiota modulation; thus may be used as a cheap and non-invasive alternative that brings significant health benefits.

## Biography

El-Nezami is an Associate Professor of Food Toxicology at the School of Biological Sciences, University of Hong Kong. After Dr El-Nezami obtained his PhD in Applied and Nutritional Toxicology from RMIT-University (Melbourne, Australia), he moved to the University of Kuopio (Finland) where he established a research programme investigating dietary approaches using probiotic bacteria to counteract the health hazards associated with exposure to food toxins. In recognition of his research excellence Dr El-Nezami was awarded the prestigious Academy of Finland Fellowship (2005-2010). Dr El-Nezami holds an adjunct Professor post at the University of Eastern Finland (Finland).

elnezami@hku.hk