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Nutraceuticals as preventative and therapeutic agents in atherosclerosis

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Atherosclerosis, an inflammatory disorder of the vasculature and the underlying cause of myocardial infarction and cerebrovascular accident, is responsible for more global deaths compared to any other disease. Although a slight reduction in morbidity and mortality from this disease has been achieved recently because of pharmaceutical intervention and lifestyle changes, this is expected to change in the future due to global increase in obesity and diabetes. Current pharmaceutical therapies against atherosclerosis are associated with a marked residual risk for cardiovascular disease together with other issues such as side effects and patient-dependent efficacy. In addition, many pharmaceutical agents have recently proved disappointing at the clinical level (e.g. agonists of peroxisome proliferator-activated receptors, inhibitors against cholesterol ester transfer protein and phospholipase A_2). It is therefore important to develop alternative therapies for the prevention and/or treatment of atherosclerosis. Interest in nutraceuticals as preventative/therapeutic agents in atherosclerosis has recently increased considerably and therefore necessitates anin-depth understanding of their actions together with the underlying mechanisms. We have recently investigated the effects of several nutraceuticals, including hydroxytyrosol and dihomo-gamma-linolenic acid, on several key monocyte/macrophage processes associated with atherosclerosis (e.g. monocytic migration, macrophage polarization, foam cell formation, activation of inflammasome and production of reactive oxygen species). These will be presented in the context of current therapies and those that are being developed.

Biography

Dipak P Ramji received his BSc (Hons.) degree (Biochemistry) and his PhD from University of Leeds. This was followed by Post-doctoral research at the EMBL (Heidelberg) and IRBM (Rome) with fellowships from the Royal Society and the EU. He joined Cardiff University in 1992 and is currently a Reader at Cardiff School of Biosciences. His research is focused on the impact of the immune and inflammatory responses on atherosclerosis with emphasis on the action of cytokines on macrophages. He has published over 80 peer-reviewed papers, reviews and book chapters. He is an Editorial Board Member of 16 international journals.

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