Cardiovascular Diseases & Diagnosis

8th Edition of International Conference on Clinical and Medical Oncology| March 24-25, 2022 | Amsterdam, Netherlands

ISSN number: 2329-9517
Volume 14 | ISSUE 3

Atherosclerosis: Challenges, current therapies and the potential of nutraceuticals in the prevention and treatment of the disease

Abstract (600 word limits)

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Atherosclerosis, an inflammatory disorder of medium and large arteries and the underlying cause of myocardial infarction and cerebrovascular accidents, is responsible for more global deaths than any other disease. Although reduction in mortality from atherosclerosis and its complications has been achieved recently by lifestyle changes and pharmaceutical intervention, this is expected to reverse in the future because of global increase in risk factors such as hypercholesterolemia, obesity and diabetes. Current pharmaceutical therapies against atherosclerosis are associated with substantial residual risk for cardiovascular disease together with other issues such as side effects. In addition, pharmaceutical agents against many promising targets have proved disappointing at the clinical level. It is therefore essential that the molecular basis of atherosclerosis is fully understood, and new therapeutic/preventative agents or targets are identified and validated.

The major focus of research in my laboratory is to understand the molecular mechanisms underlying the impact of inflammation and factors involved in orchestrating the inflammatory response (e.g., cytokines) on atherosclerosis with emphasis on macrophages, which are involved in all stages of the disease, together with the actions of preventative/therapeutic agents. Our research has provided novel insights into the mechanisms underlying the actions of cytokines and nutraceuticals. This presentation will discuss the molecular basis of atherosclerosis and opportunities for drug discovery, current therapies against the disease and their limitations, emerging therapies targeting lipid metabolism and the inflammatory response, new challenges and the potential of nutraceuticals as preventative and therapeutic agents.

Biography (200 word limit)

Dipak Ramji is Professor of Cardiovascular Science at the School of Biosciences in Cardiff University. He is also Deputy Head of the Biomedicine Division and Postgraduate Division Lead for Biomedicine in the School of Biosciences. He received his BSc (Hons) degree (Biochemistry) and his PhD (Molecular Biology) from the University of Leeds. This was followed by post-doctoral research at the European Molecular Biology Laboratory (Heidelberg) and the Istituto di Ricerche di Biologia Molecolare P. Angeletti (Rome) with fellowships from the Royal Society and the EU. His current research is focused on understanding how natural products regulate cellular processes in heart disease with the goal of attaining deeper mechanistic insight and identifying preventative/therapeutic agents. He

has published over 150 research articles (h index 39 and i10 index 73 with over 7500 citations). He is an Editorial Board member of 16 international journals; regular organising committee member, speaker and track/session chair at international conferences on heart disease; involved in grant evaluation for over 20 organisations; and supervised over 25 PhD students.

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