

Atherosclerosis

At the heart of atherosclerosis

Atherosclerosis is the primary cause of heart disease and stroke. In the United States alone, death arising as a complication of atherosclerosis claims the lives of approximately half a million people each year. This is an enormous figure, and explains the intense research efforts dedicated to finding therapeutic targets to prevent plaque development and to break down existing lesions.

Common risk factors for atherosclerosis include high cholesterol, familial predisposition and high blood pressure. In addition, smoking, obesity, diabetes and sedentary lifestyles all contribute to the increasing prevalence of atherosclerosis. These risk factors may contribute to the initiation of plaque formation by disrupting a number of regulatory and downstream effector pathways, but the complexity of the biological processes underlying atherogenesis is anything but simple.

This *Nature Medicine* special focus on atherosclerosis is a comprehensive and authoritative overview of the field, with newly commissioned reviews and commentaries written by leading experts in the field. We have focused on areas undergoing particularly rapid progress, while attempting to provide a balanced overview of the diverse topics associated with atherosclerosis.

The accompanying website, http://www.nature.com/naturemedicine/special_focus/athero/index.html, also includes a number of exciting features in addition to the printed reviews and commentaries.

Three short animations of various atherosclerotic processes are presented: the genesis of lesions, the mechanisms of action of statins and thrombus formation (animations kindly shared by Peter Libby). The website also features a list of 41 selected research manuscripts from the Nature Publishing Group, which are free to all users for three months. A special section of the site presents over 80 classic atherosclerosis-related research papers from the last century. This annotated section of papers, nominated by 23 experts in the field, begins with the first description by N. Anitschkow in 1913 of how cholesterol can cause atherosclerotic plaques, highlights R. Ross's controversial response to injury hypothesis from 1976 and presents the 1992 papers describing the ApoE-knockout mice, which have changed the face of atherosclerosis research. Although comprehensive, the list is not exhaustive; we apologize for not being able to include all important contributions.

We are pleased to acknowledge the financial support of Astra Zeneca in producing this special focus on atherosclerosis. However, *Nature Medicine* retains sole responsibility for editorial content and peer review.

We hope that you enjoy this special focus, which highlights the diverse and dynamic nature of atherosclerosis-related research. We will continue to plot the biomedical progress in atherosclerosis research in our journal.

Ushma Savla, **Assistant Editor**

1211 Atherogenesis in perspective: hypercholesterolemia and inflammation as partners in crime
Daniel Steinberg

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Christoph J. Binder, Mi-Kyung Chang, Peter X. Shaw, Yury I. Miller, Karsten Hartvigsen, Asheesh Dewan & Joseph L. Witztum

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1235 The macrophage foam cell as a target for therapeutic intervention
Andrew C. Li & Christopher K. Glass

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Joyce J. Repa & David J. Mangelsdorf

1249 Atherosclerosis and vascular proliferation: new perspectives and therapeutic strategies
Victor Dzau, Ruediger Braun-Dullaeus & Daniel Sedding

1257 Stabilization of atherosclerotic plaques: New mechanisms and clinical targets
Peter Libby & Masanori Aikawa

The special focus cover shows an early lesion (top) and a normal vessel wall (bottom) stained with oil red O to demonstrate lipid accumulation in macrophages. Original magnification x125.6. Photos courtesy of Andrew C. Li and Timo Meerloo, University of California, San Diego.