

MOUSE MODELS OF ATHEROSCLEROSIS

Nobuyo Maeda*Department of Pathology and Laboratory Medicine, University of North Carolina, Chapel Hill, NC, USA*

Cardiovascular and cerebrovascular diseases resulting from atherosclerosis account for a large proportion of morbidity and mortality in advanced societies. The genetic makeup of an individual is clearly important in the etiology of these diseases, and molecular approaches based on human population and family studies have successfully identified various factors associated with atherosclerosis and with hypertension. However, the genetic heterogeneity of humans makes it difficult to dissect the roles of individual genetic factors and to determine fundamental cause

and effect relationships. In addition, environmental factors which significantly influence the development of these diseases are difficult to control in humans. For these reasons, genetically modified mice that we have generated via gene targeting in embryonic stem cells have been particularly useful for studying the roles of genetic components in complex genetic diseases. These animals allow us not only to study the phenotypes resulting from specific changes in single genes *in vivo*, but also to detect synergistic or antagonistic interactions of mutations by combining genetic changes in a single animal.