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**The Shear Stress of it All:
How Cells Sense Mechanical Forces**

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KH 239 12:00 to 1:00PM**

Abstract

The ability of cells to respond to hydrodynamic stimuli is ubiquitous amongst all cells and organisms, and likely has its origins in the adaptation of ancient cellular life forms to the hydrodynamic and mechanical forces in the primeval sea. Cellular and tissue responses to mechanical forces have been implicated in a number of physiological and pathological processes. In this talk the primary focus will be on the development of atherosclerosis in the arterial circulation. The importance of the dynamics of blood flow will be discussed in the context of the cellular ability to sense mechanical forces, that is mechanochemical transduction. While many biochemical transduction pathways have been characterized, the primary mechanoreceptor(s) remain(s) unknown. It is our hypothesis that hydrodynamic shear interacts with the cell plasma membrane, leading to a decrease in membrane microviscosity. Mechanochemical transduction is proposed to occur when membrane-associated signaling proteins are activated by the increase in intramolecular mobility. These fundamental studies have implications in the study of other disease processes as well.

ALL INTERESTED PERSONS ARE INVITED.