TIFR Centre for Interdisciplinary Sciences
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Colloquium

Cholesterol in Biology and Medicine: History, Myths, and Excitement

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Cholesterol, a major constituent of eukaryotic membranes, is characterized with a unique chemical structure and is responsible for a variety of functions in the cellular context. Cholesterol is implicated in a major way in the organization and dynamics of cellular membranes. A number of important membrane proteins, including G-protein coupled receptors (GPCRs), require membrane cholesterol for their function. Interestingly, although cholesterol was discovered in 1815, its biosynthetic pathway was worked out only in the 1960's by Konrad Bloch for which he was awarded the Nobel Prize. Konrad Bloch speculated that the cholesterol biosynthetic pathway parallels the evolution of cholesterol. According to the Bloch hypothesis, cholesterol precursors should have properties that gradually support cellular function of higher organisms better as they progress along the pathway toward cholesterol. The Bloch hypothesis has been validated by the Smith-Lemli-Opitz Syndrome (SLOS) that results due to defective cholesterol biosynthesis in humans. I will focus on the role of membrane cholesterol in the organization and function of G protein-coupled receptors (GPCRs) and its implications in health and disease. Interestingly, cholesterol has been associated with the entry of a number of pathogens into host cells. I will highlight this aspect of cholesterol in disease processes with an emphasis on diseases in the Indian context. In addition, I will point out certain myths associated with cholesterol.

Wednesday, Feb 10th 2016

4:00 PM (Tea/Coffee at 3:45 PM)

Seminar Hall, TCIS