



AJIT VARKI, MBBS (M.D.)

GLYCANS: THE DARK MATTER OF THE BIOLOGICAL UNIVERSE

MARCH 23, 2017

4:00 P.M.

208 LIGHT HALL



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THE DEPARTMENT OF MEDICINE'S DIVISION OF GERIATRIC MEDICINE
AND DIVISION OF INFECTIOUS DISEASES

Upcoming Discovery Lecture:

ELAINE FUCHS, PH.D.

*Head, Laboratory of Mammalian Cell Biology and Development,
The Rockefeller University*

March 30, 2017

208 Light Hall / 4:00 P.M.

VANDERBILT  UNIVERSITY
MEDICAL CENTER

GLYCANS: THE DARK MATTER OF THE BIOLOGICAL UNIVERSE

Simple and complex glycans are well known to play major metabolic, structural and biophysical roles in biology. Host-microbial interactions involving glycans have also been extensively studied. But these roles do not explain all the complexity and organismal diversity of glycans in nature. Glycans appear ubiquitous to all living cells, are essential to all life forms, and have persisted for >3 billion years of evolution. However, unlike the other major building blocks of life, these fascinating molecules remain the “dark matter of the biological universe” and are not in the mainstream of most research programs. I will first focus on the reasons for this anomaly in the history of biological sciences and the potential solutions, and then give an overview of our own work on sialic acids—which are outer terminal components of most vertebrate cell surface and secreted macromolecules and serve diverse roles in biology, evolution, and disease. Of note, we have discovered multiple differences in sialic acid biology between humans and our closest evolutionary cousins—signatures of events during the last few million years of hominin evolution, that appear relevant to understanding human origins, physiology, aging and disease—including some “uniquely human” aspects .



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DISTINGUISHED PROFESSOR OF MEDICINE AND
CELLULAR & MOLECULAR MEDICINE

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Dr. Varki trained at the Christian Medical College, Vellore, the University of Nebraska, and Washington University in St. Louis and has board certification in Internal Medicine, Hematology, and Oncology. He is a member of the US National Academy of Medicine, the American Academy of Arts and Sciences, the American Society for Clinical Investigation, and the Association of American Physicians. He has served as President of the Society for Glycobiology, Editor-in-Chief of the Journal of Clinical Investigation; and President of the American Society for Clinical Investigation. He is recipient of the top honors in Glycosciences, the Karl Meyer Award, the International Glycoconjugate Award, and Executive Editor of “Essentials of Glycobiology” the primary textbook about the biology of glycans. He was recognized as an “Old Cottonian of Eminence” at the 150th. Anniversary of Bishop Cotton Boy’s School, Bangalore.