Exploring Sialic Acids

Ajit Varki

Founder and Co-Director, UCSD/Salk Center for Academic Research ad Training in Anthropogeny (CARTA) Distinguished Professor, Medicine and Cellular & Molecular Medicine Founding Co-Director, Glycobiology and Training Center

CURRENT RESEARCH

Complex sugars found in all vertebrate cells could hold clues addressing aspects of what makes us human, in health and disease

Glycans are complex sugars found in all living cells, yet remain largely unknown due to their complexity, earning them the title, "the dark matter of the biological universe." An important subset of vertebrate glycans are the sialic acids. Relatively little is concretely known about these molecules, yet they are widespread. They offer clues to combating disease and contain valuable information about the course of human evolution. Dr. Ajit Varki, co-director of the Center for Academic Research and Training in Anthropogeny (CARTA) at the University of California, San Diego, is one of a few researchers worldwide studying these mysterious sugars. It is known by the uniqueness of several features of sialic acid biology that humans underwent exclusive changes during their evolution. Studying sialic acids is uncovering steps of human evolution and revealing at what points on our evolutionary tree modern humans diverged from our ancestors and became the species we are today. This research is also arming us in the fight against diseases by providing insight into how uniquely-human diseases affect us. Sialic acids remain largely unexplored, yet evidence tells us they could be hiding valuable and revolutionary information. Beyond his biological research Varki offers a suggestion in his book, "Denial" that there is more to human evolution than just biological change, and that perhaps what makes us human is our understanding of each others' minds, which in turn lead to realization of our impending demise and our need to ignore that reality, with the corollary benefit of optimism and risk-taking abilities.

All cells that make up all living things in nature are covered with a dense and complex array of sugar chains, or...

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AFFILIATION

University of California, San Diego

EDUCATION

- M.B.B.S. (US M.D. equivalent) in Medicine, 1975 , Christian Medical College, Vellore, University of Madras, India
- Fellow, in Hermatology-Oncology, 1982 , Washington University, St. Louis

AWARDS

- Charles Fumito Taketa Memorial Seminar University of Wisconsin, 2014
- Research Award in Medical Sciences - Medical Research Ranbaxy Science Foundation, 2007
- International Glycoconjugate Organization (IGO) Award International Symposium on Glycoconjugates (GLYCO XIX), 2007
- Distinguished Keynote Speaker American Society for Human Genetics, 2006
- Keynote Speaker, GCRC 35th Anniversary Celebrations Mayo Clinic, 2005
- and 1 more...

RESEARCH AREAS

Life Science, Diagnostics, Metabolic / Diabetes

FUNDING REQUEST

Your contributions will help Dr. Varki further explores the projects discussed, for which there is little public funding. Glycans are the "dark matter of the biological universe," and their complexity and difficulty hinder many who consider researching them. Dr. Varki is one of the few scientists who have recently began studying these sugars. He has a deep knowledge of these sugars, (particularly sialic acids), which promise to uncover valuable insight into disease and human evolution.