The International Glycoconjugate Organization Awards

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2019 IGO Award Richard Cummings

Dr. Richard Cummings, currently a Professor at Beth Israel Deaconess Medical Center (BIDMC) and Harvard Medical School, is a founder, as well as a director, of Harvard Medical School Center for Glycoscience and a director of the National Center for Functional Glycomics. Additionally, he also holds a position as the Director of the Cancer Glycomics Program within the Cancer Research Institute at BIDMC. Dr. Cummings received his PhD from Johns Hopkins University and after completion, continued his post-doctoral training at Washington University School of Medicine in St. Louis with Dr. Stuart

Kornfeld. In 1992, he began his academic career, becoming a Professor at University of Georgia, where he was also named an Associate Director of the Complex Carbohydrate Research Center. He then continued his career as Ed Miller Endowed Chair in Biochemistry and Molecular Biology at University of Oklahoma Health Sciences Center in Oklahoma City and subsequently as Chair of the Department of Biochemistry at Emory University School of Medicine. Dr. Cummings strived to foster the interactions between glycoscience and medicine, and thus founded Glycomics Center at both Oklahoma and Emory. He then finally moved to Harvard Medical School and the Department of Surgery at BIDMC in 2015. Dr. Cummings' work is focused on the structures and functions of complex carbohydrates and their roles in diverse pathways, such as development, hematopoiesis, hemostasis, cancer, and immune interactions and his wide-ranging publications in glycoscience, including over 300 peer-reviewed articles and 30 patents, has contributed greatly to the area of structure and recognition of glycoconjugates in biological processes and roles of glycoconjugates in diseases. His research has led to new treatments for disease, including inflammatory disorders and cancer, and helped develop global appreciation for glycoscience-based drugs. He, additionally, also co-founded Selexys Pharmaceuticals, Inc., purchased by Novartis in 2016, based on the development of a new antibody to block P-selectin function to treat Sickle Cell Disease and Tetherex Pharmaceuticals, Inc., which recently raised \$50 million to conclude phase II clinical studies on new drugs to block selectin and ligand functions in inflammatory diseases. Dr. Cummings' research has also helped decipher new ways to manipulate cellular genomes and in this regard, he is supporting the Human Glycome Project to sequence the human glycome. His ground-breaking development of glycan arrays, lamprey monoclonal antibodies, and methods to study glycobiology has impacted highly in the field of glycobiology and his endeavor to elevate the recognition of the field through his lectures and speeches to diverse audience is highly revered.

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2019 IGO Young Glycoscientist Award Nichollas Scott

Dr. Nichollas Scott's work has contributed significantly to the field of glycobiology and microbiology, focusing on the structure and biological function of bacterial glycans, and how the identification of bacterial glycosylation can help understand the pathogenesis of disease. Upon the completion of his PhD at the University of Sydney in 2012 where he developed mass spectrometry techniques to study the modifications of bacterial proteins, Dr. Scott took up multiple post-doctoral positions at the University of Alberta, University of British Columbia, and University of Melbourne. Here he developed systematic tools to investigate glycosylation systems in various bacterial glycosylation systems and its relation to infection and virulence. At the University of Alberta, collaboration with Dr. Christine Szymanski led to the publication of the first large-scale analysis of glycan diversity within the *Campylobacter* genus and also discovered an *O*-linked system required for virulence in

Acinetobacter baumannii. Dr. Scott then developed an approach to enrich the unique arginine glycosylation events which are crucial virulence factors for Enteropathogenic *E. coli*. In collaboration, he has also identified an *O*-fucosylation system within *Plasmodium falciparum* required for the infection of mosquitos and vertebrate hosts in addition to a resembling system in the parasite *Toxoplasma gondii*. Dr. Scott now heads his own independent research group at the University of Melbourne, Department of Microbiology and Immunology.

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