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New biomarkers of cancer vaccine research

Jeffrey C. Gildersleeve

National Cancer Institute, USA

Cancer vaccines have significant potential as therapeutics to treat cancer, but they typically only provide a clinical benefit in a subset of patients. To optimize the clinical use of cancer vaccines and to better understand the factors that affect clinical responses, there have major efforts to identify predictive biomarkers (markers that could be used to select patients that are likely to have a positive response) and biomarkers of efficacy (markers that could be used to determine if a patient being treated with a cancer vaccine is having a positive response to the treatment). Current biomarker research has focused a variety of factors, such as T cell responses, circulating tumor cells, and cytokine production. One area that has been largely understudied is immune responses to glycans. Cancer cells undergo major changes in carbohydrate expression during the onset and progression of the disease, and aberrantly expressed glycans can serve as important targets for natural immune surveillance and/or for immune responses induced by vaccines. Our group has developed a carbohydrate microarray or "glycan array" which enables us to profile immune responses to a wide range of carbohydrate antigens in a high-throughput fashion. This presentation will focus on the development of the glycan array and its application to the identification of new biomarkers for cancer vaccine research.

Biography

Jeff Gildersleeve completed his Ph.D. at Princeton University in 1999 and carried out postdoctoral studies at The Scripps Research Institute from 1999-2003. He is currently an Investigator at the National Cancer Institute in the Chemical Biology Laboratory. His research focuses on the development of glycan array technology and its application to cancer biomarker research. He has published 32 papers and has served as a reviewer for numerous scientific journals and granting agencies. In 2006 he received the NCI Director's Innovation Award and in 2010 was selected by the Editors of Molecular BioSystems as an "Emerging Investigator".