

Glycan Recognition of Self and non-Self

Glycans of glycoproteins are prominently displayed on the surface of all cells. They comprise a diverse set of glycan structures that can be recognized by glycan binding proteins that mediate cell surface biology. Many microbes use glycans to recognize and attach to host cells prior to infection. Glycan binding proteins on immune cells recognize glycans on microbes (non-self) and glycans on other 'self' cell to stimulate or suppress immune cell functions. Sialic acids are terminal sugars on the glycans of many glycoproteins. They are used by influenza virus as receptors for attachment to airway epithelial cells and are recognized by immune cell receptors called 'Siglecs' to help suppress immune reactions to self. As an approach to treat allergies and other immune cell disorders we use a nanoparticle-based platform to regulate immune cell responses.