# Dissecting dendritic cell sialic acid-mediated interactions in antitumor immunity

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Introduction: The immune system is vital for the antitumor response, as it has the capability to recognize transformed tumor cells and attack them. However, tumor cells can manipulate multiple pathways for their survival, and escape host immunesurveilance. Upregulation of surface molecules to target inhibitory receptors on immune cells such as PD1-PDL1 axis could lead to tumor immune escape. Siglec receptors are also a group of surface molecules, which bind to sialylated glycans (sialoglycans). They are found widely spread on cells of the immune system in mice and humans. Most of these Siglec receptors can also transmit inhibitory signals to inhibit immune cell activation. Previous work in our group showed that human Siglec-9 and its functional paralog mouse Siglec-E can dampen immune responses to tumor cells via inhibition of neutrophils and T cells [1,2].
Methods: We are currently characterizing the expression of Siglec receptors on different subsets of dendritic cells(DCs) in patients and mouse models and study their function.
Results: Using tumor-bearing mouse models, we observed an increase of DCs expressing Siglec-E during tumor progression. This was most pronounced in conventional DC type 2(cDC2s), which is also the dominant DC subset intratumorally. Further studies include functional analysis of genetic mouse models including DC-specific overexpression of human Siglec-9 and conditional deletion of Siglec-E in different cDC subsets. In addition, we are studying the function of inhibitiory Siglec receptors in murine and human DCs by employing Siglec-blocking antibodies.
Conclusion: Our analysis will provide important information on how we can manipulate the sialgoglycan-Siglec pathway to improve antitumor immunity.

References:
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