राष्ट्रीय प्रतिरक्षाविज्ञान संस्थान

National Institute of Immunology

GRADUATE STUDENT SEMINAR

EFFECT OF INHIBITION OF *O*-GLYCOSYLATION ON TUMOR GROWTH IN A MOUSE MELANOMA MODEL

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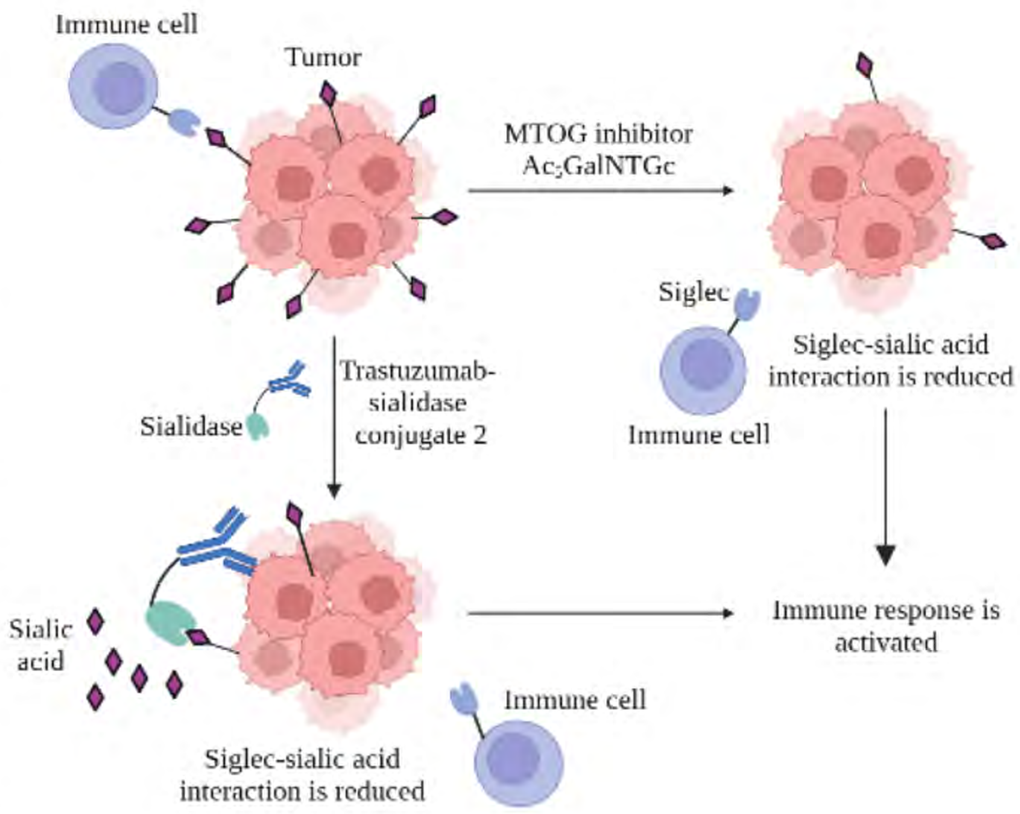
LABORATORY OF CHEMICAL GLYCOBIOLOGY

Cancerous tissues are covered with mucins and mucin-domain glycoproteins, rich in sialoglycans, which act as a protective barrier against clearance by immune cells and drugs. Sialoglycan-siglecs (sialic acid binding immunoglobulin-like lectins) interaction axis provides an immunosuppressive environment, similar to PD-1/PD-L1. Recent studies have shown that antibody-enzyme conjugates (AEC), like Trastuzumab-neuraminidase, enhance tumor clearance by releasing the sialoglycan-siglec immune checkpoint.



This presentation will discuss our results on the evaluation of the effect of hypo-sialylation induced by Ac_5GalNTGc, an efficient inhibitor of *O*-glycosylation, in a mouse melanoma model.

06 JULY 2023, 4.00 PM

GP TALWAR AUDITORIUM, NII

राष्ट्रीय प्रतिरक्षाविज्ञान संस्थान

National Institute of Immunology

GRADUATE STUDENT SEMINAR

UNDERSTANDING THE BASIC COMPONENTS OF THE TYPE VII SECRETION SYSTEM OF MYCOBACTERIUM TUBERCULOSIS: PROGRESS SO FAR

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Mycobacterium tuberculosis is the causative agent of human tuberculosis that infects around two million people worldwide. It can cause infection by evading the host's immune response. A key factor in *M. tuberculosis* that contributes to sustaining infection is the presence of the Type VII secretion system which includes the ESX-1 secretion system. Various activities have been ascribed to ESX-1 substrates like ESAT-6 and CFP-10. Along with these, there are four additional substrates known as EspB, EspA, EspC, and EspR. EspB is under the transcriptional control of EspR and is being cleaved at its C terminus by a protease bound to the membrane. Mycosin1 (MycP1) is the putative serine protease that has been reported to cleave EspB. MycP1 has not been extensively studied but is likely involved for ESX-1 secretion. It localizes to the cell membrane. It has been speculated that MycP1 has got a dual role in ESX-1 secretion. The purpose of our study is the determination of specific levels of interaction between MycP1 and EspB, its downstream substrate through the means of biophysical and biochemical studies. The study involves purification of both of the enzyme and its substrate and then using each of these specific proteins in conducting downstream experiments. Biophysical studies included the determination of the fluorescence intensity of both the protein and its substrate in equimolar amounts. A change of fluorescence intensity was observed when both the enzyme and the substrate were taken together. An enzymatic assay was also undertaken using both the enzyme and its substrate where each of them were mixed in equimolar amounts and incubated at 37°C and at each of the time points the samples were run on an SDS-PAGE gel. Cleavage of the substrate with increasing time by the enzyme only reveals the specificity of the enzyme for the substrate.

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