Molecular details of α2–3-sialylated O-GalNAc glycan recognition by SLBR-N of *Streptococcus gordonii*

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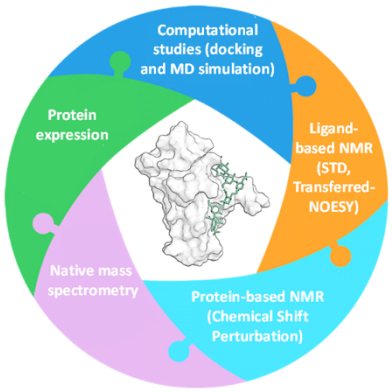
Siglec-like adhesins are streptococcal lectins associated with bloodstream infections and the progression of infective endocarditis (IE) [1]. Indeed, when Gram-positive bacteria such as *staphylococci*, *streptococci, enterococci* enter into the bloodstream, the adherence to and colonization of damaged cardiac valves is mediated by surface adhesins that interact with host proteins located on the valve surface. Among these, serine-rich repeat glycoproteins (SRRPs) recognize the terminal epitopes of O-GalNAc glycans on human salivary mucins and the glycoproteins of platelets have a major impact on pathogenesis [2,3]. Siglec-like adhesin SLBR-N has been recently considered as tool for identifying and enrich breast cancer stem cells (CSCs), due to its ability to recognize α2–3-linked sialic acid-containing glycans, such as disialyl core 2 O-glycans exposed on the tumor cell surface [4]. In the perspective of developing potential mimetics hindering IE progression and infections as well as understanding the potential implications of CSCs diagnosis, prognosis, and treatment, I am here reporting a comprehensive study of the molecular and biophysical interaction, recognition and binding process between SLBR-N and host O-glycans. A combination of multidisciplinary and complementary methods, including NMR spectroscopy (both ligand- and protein-based techniques), Native Mass spectrometry and computational approaches (as Docking studies and Molecular Dynamic simulations) provided the 3D features of the complexes, determining the preferred epitopes recognized by SLBR-N [5-7].



Schematic representation of the multidisciplinary approach to study the molecular interaction between Siglec-like adhesin SLBR-N and O-glycans.

Bibliographic references:

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