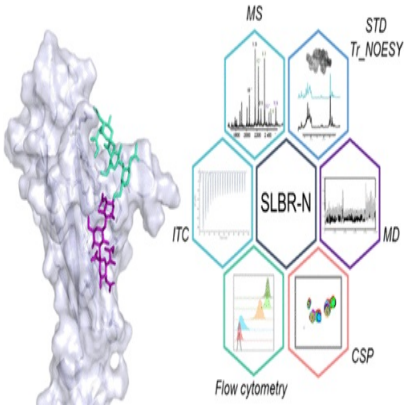
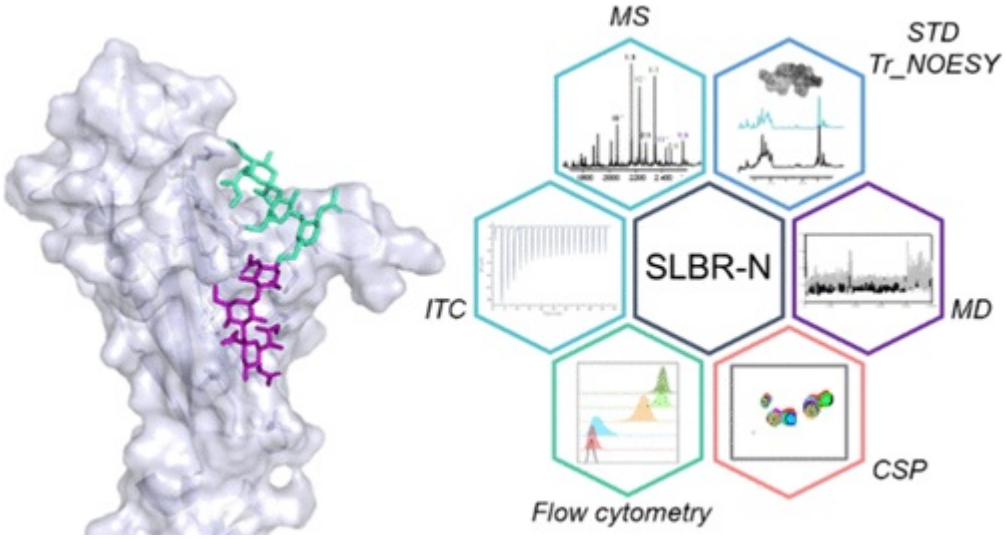


Molecular Insights into Oâ??Linked Sialoglycans Recognitionâ?¦

Description

Streptococcus gordonii is a Gram-positive bacterial species that typically colonizes the human oral cavity, but can also cause local or systemic diseases. Serine-rich repeat (SRR) glycoproteins exposed on the *S. gordonii* bacterial surface bind to sialylated glycans on human salivary, plasma, and platelet glycoproteins, which may contribute to oral colonization as well as endocardial infections. Despite a conserved overall domain organization of SRR adhesins, the Siglec-like binding regions (SLBRs) are highly variable, affecting the recognition of a wide range of sialoglycans. SLBR-N from the SRR glycoprotein of *S. gordonii* UB10712 possesses the remarkable ability to recognize complex core 2 *O*-glycans.



The authors employed a multidisciplinary approach to investigate the ligand specificity and binding preferences of SLBR-N when interacting with mono- and disialylated core 2 *O*-glycans. They determined how SLBR-N preferentially binds branched *Î*±2,3-disialylated core 2 *O*-glycans: a selected conformation of the 3â?²SLn branch is accommodated into the main binding site, driving the sTa branch

to further interact with the protein. At the same time, SLBR-N assumes an open conformation of the CD loop of the glycan-binding pocket, allowing one to accommodate the entire complex core 2 *O*-glycan. These findings establish the basis for the generation of novel tools for the detection of specific complex *O*-glycan structures and pave the way for the design and development of potential therapeutics against streptococcal infections./

Siglec-Like SLBR**â??**N (SLBRUB10712) of *Streptococcus gordonii*

Category

1. News