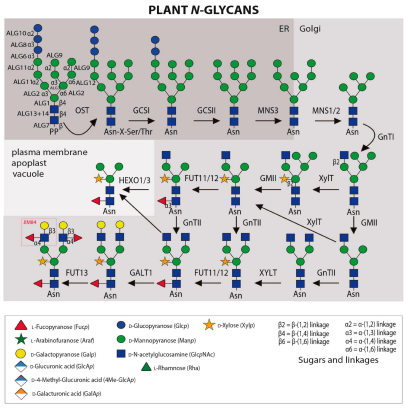
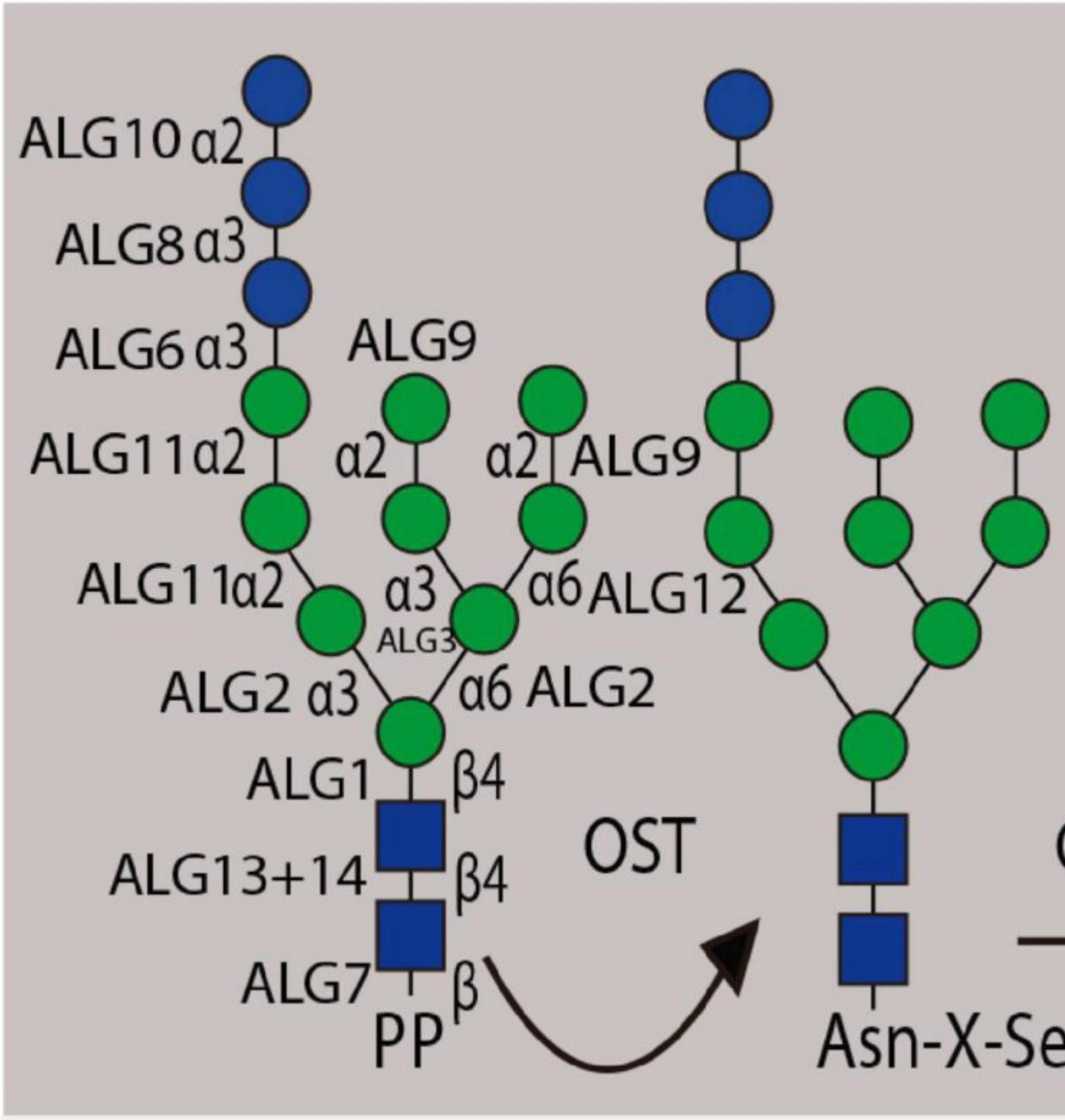


Cracking the Â« Sugar Code Â» : A Snapshot of N- and O-Glycosylation Pathways and Functions in Plants Cells.

Description

Glycosylation is a fundamental co-translational and/or post-translational modification process. An attachment of sugars onto either proteins or lipids can alter their biological function, subcellular location and modulate an organismâ??s development and physiology. While the essential role of N- and O-glycan modifications on mammalian glycoproteins is already well documented, their biological functions in plants is just started to be discovered. This review article presents an update of the most common O- and N-glycan structures present on plant glycoproteins as well as (1) the plant glycosyltransferases (GTs) and glycosyl hydrolases (GHs) responsible for their biosynthesis; (2) a summary of microorganism-derived GHs characterized to cleave specific glycosidic linkages; (3) a summary of the available tools ranging from monoclonal antibodies (mAbs), lectins to chemical probes for the detection of specific sugar moieties within these complex macromolecules; (4) selected examples of N- and O-glycoproteins as well as in their related GTs to illustrate the complexity on their mode of action in plant cell growth and stress responses processes, and finally (5) the presentation of the carbohydrate microarray approach that could revolutionize how unknown plant GTs and GHs are identified and their specificities characterized.


ALG10 α2
ALG8 α3
ALG6 α3
ALG11 α2
ALG11 α2
ALG11 α2
ALG2 α3
ALG1 β4
ALG13+14 β4
ALG7 β
PP
ALG9
α2
α2
ALG9
α3
α6
ALG3
α6 ALG2
ALG12
OST
Asn-X-Se
plasma membrane
apoplast

Category

1. News