

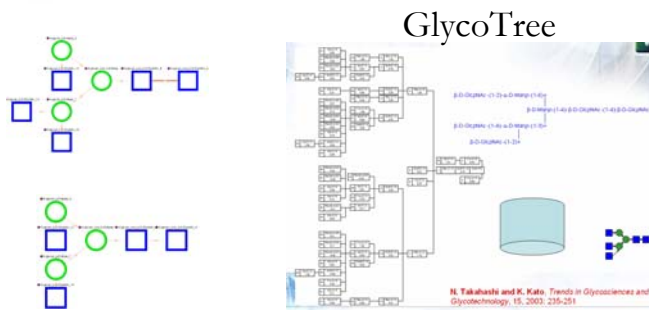


GlycoO – a Focused Glycomics Domain Ontology

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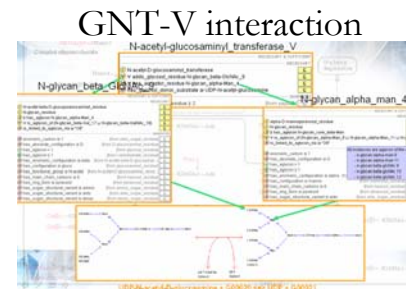
Objective: develop a knowledge representation that models complex carbohydrate structures and the pathways that synthesize them.

Structure



GlycoTree is a hypothetical tree structure that includes most known N-Glycans as sub trees. Individual glycan structures are built in GlycoO by combining residues that belong to these sub trees. Since residues in specific positions are associated with enzyme catalyzed reactions, the presence of specific enzymes can be inferred from the presence of these residues. The Glycan images are generated with OntoVista that dynamically generates glycan layouts in the *Cartoonist*.representation

Pathway representation



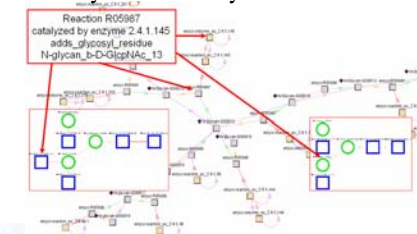
GlycoO representation of the N-Glycan biosynthesis pathway



Pathways do not need to be explicitly defined in GlycoO. The residue-, glycan-, enzyme- and reaction descriptions contain all the knowledge necessary to infer pathways.

Logical restrictions on objects in the ontology model the chemical properties and functions in the corresponding molecules.

GlycoO representation of an enzyme-catalyzed reaction



Glycan biosynthesis is modeled as a graph showing the complex interactions of chemical compounds.