GNOme – Glycan Naming and Subsumption Ontology

~ A GlyGen Project ~

http://gnome.glyomics.org/

Wenjin Zhang and Nathan Edwards

Clinical and Translational Glycoscience Research Center, Georgetown

Introduction

GlyTouCan provides **stable glycan accessions**

...at *any* level of characterization

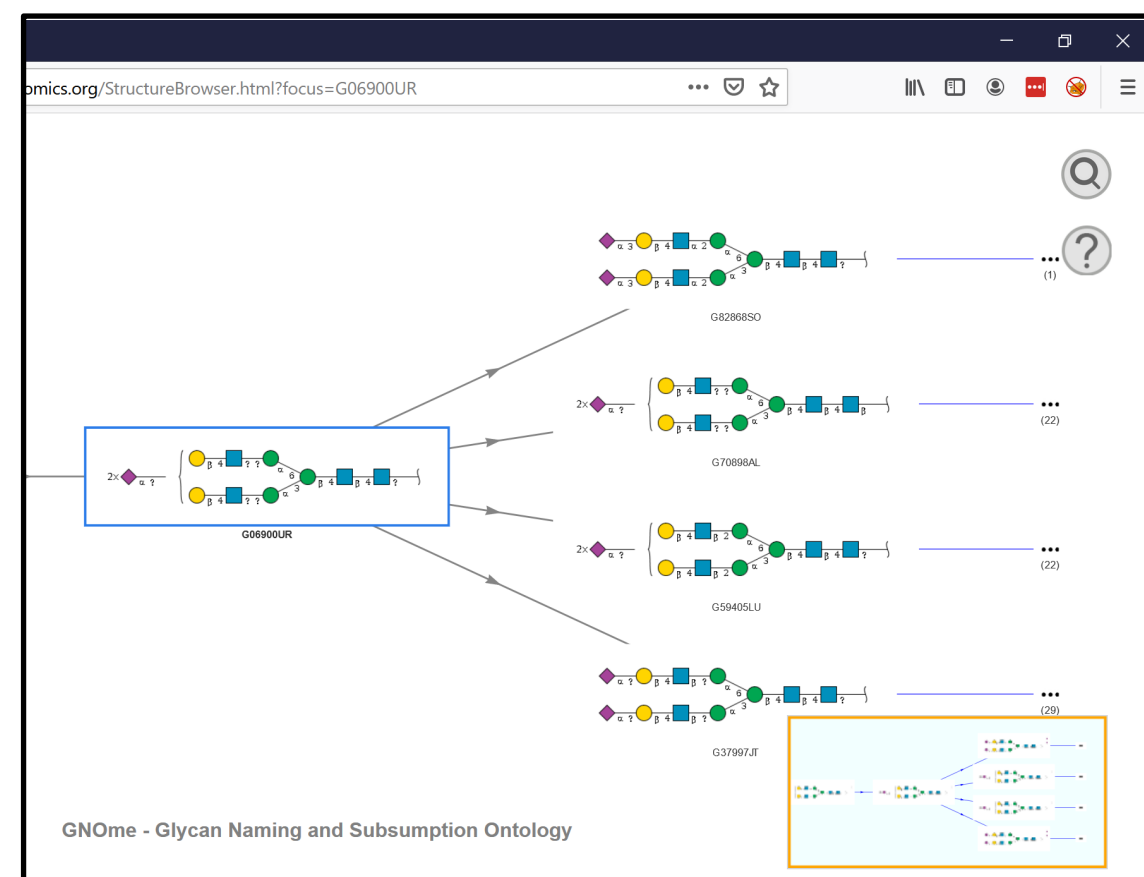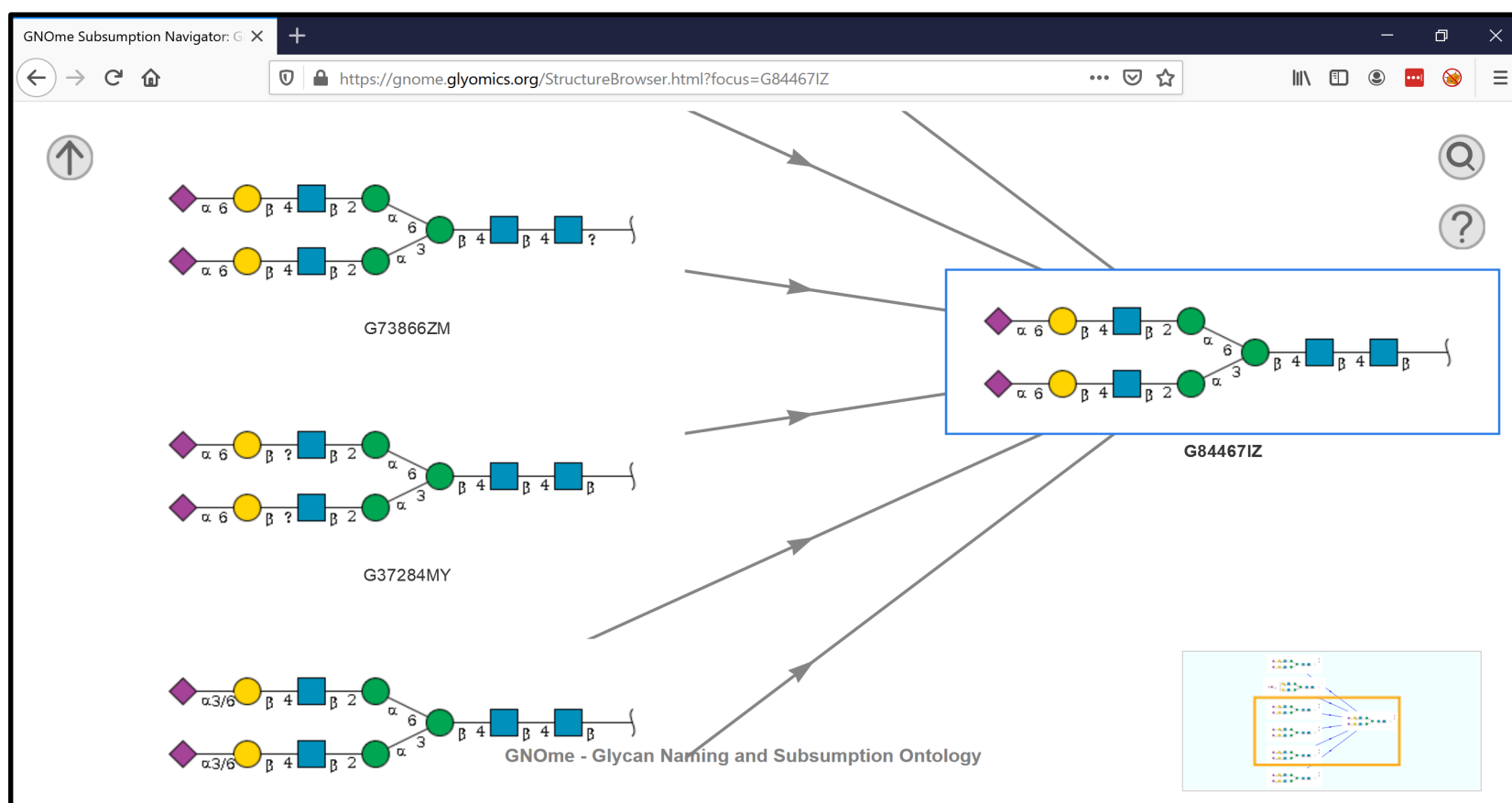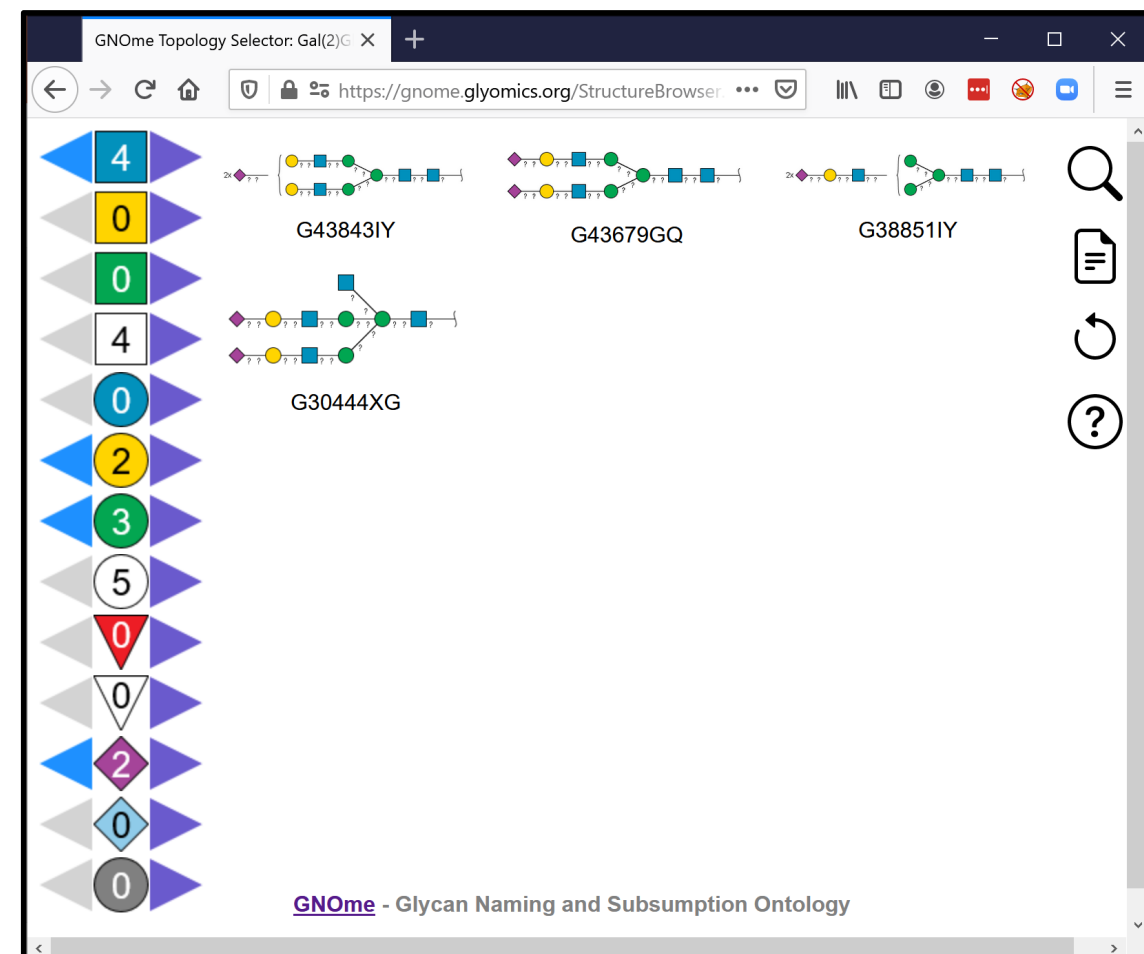**GNOme** organizes the stable accessions:

...for **interactive browsing** by subsumption

...for **automated subsumption reasoning**

...for **text-based lookup**

...with **well-defined characterization levels**

Integrated with **GlyGen** as **Related Glycans**

GNOme – Glycan Naming and Subsumption Ontology
http://gnome.glyomics.org/

Glycan Lookup & Semantic Names

- Lookup glycans by accession or **semantic names** ("Find" 🔍)
  - **Byonic format compositions**:
    - HexNAc(4)Hex(5)dHex(1)NeuAc(2)
  - Short form: H5N3FS2
- The applet supports **deep linking** by GlyTouCan accession, semantic name, or monosaccharide composition
  - ?focus=G62109NW; ?HexNAc=5&Hex=4
- Explore **monosaccharide compositions too**

GNOme – Glycan Naming and Subsumption Ontology
http://gnome.glyomics.org/
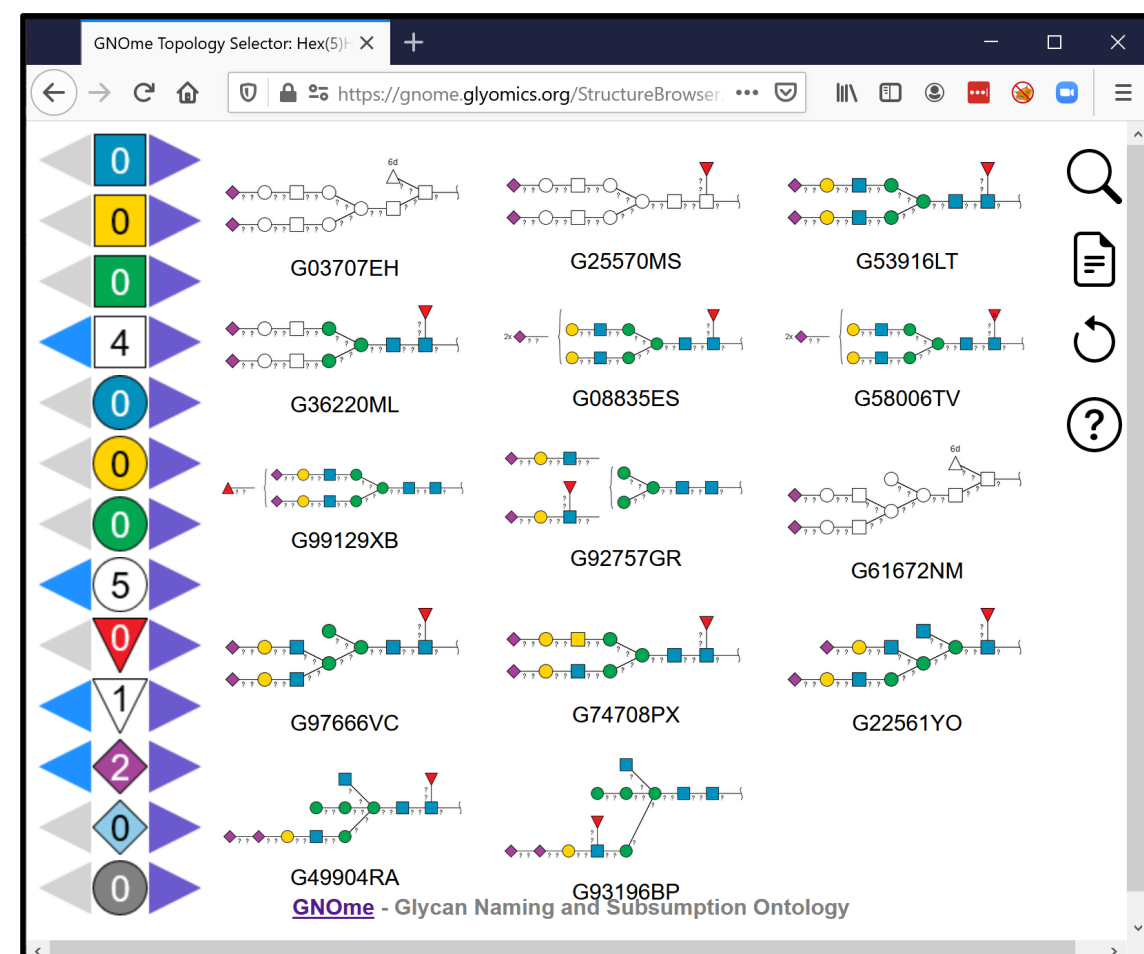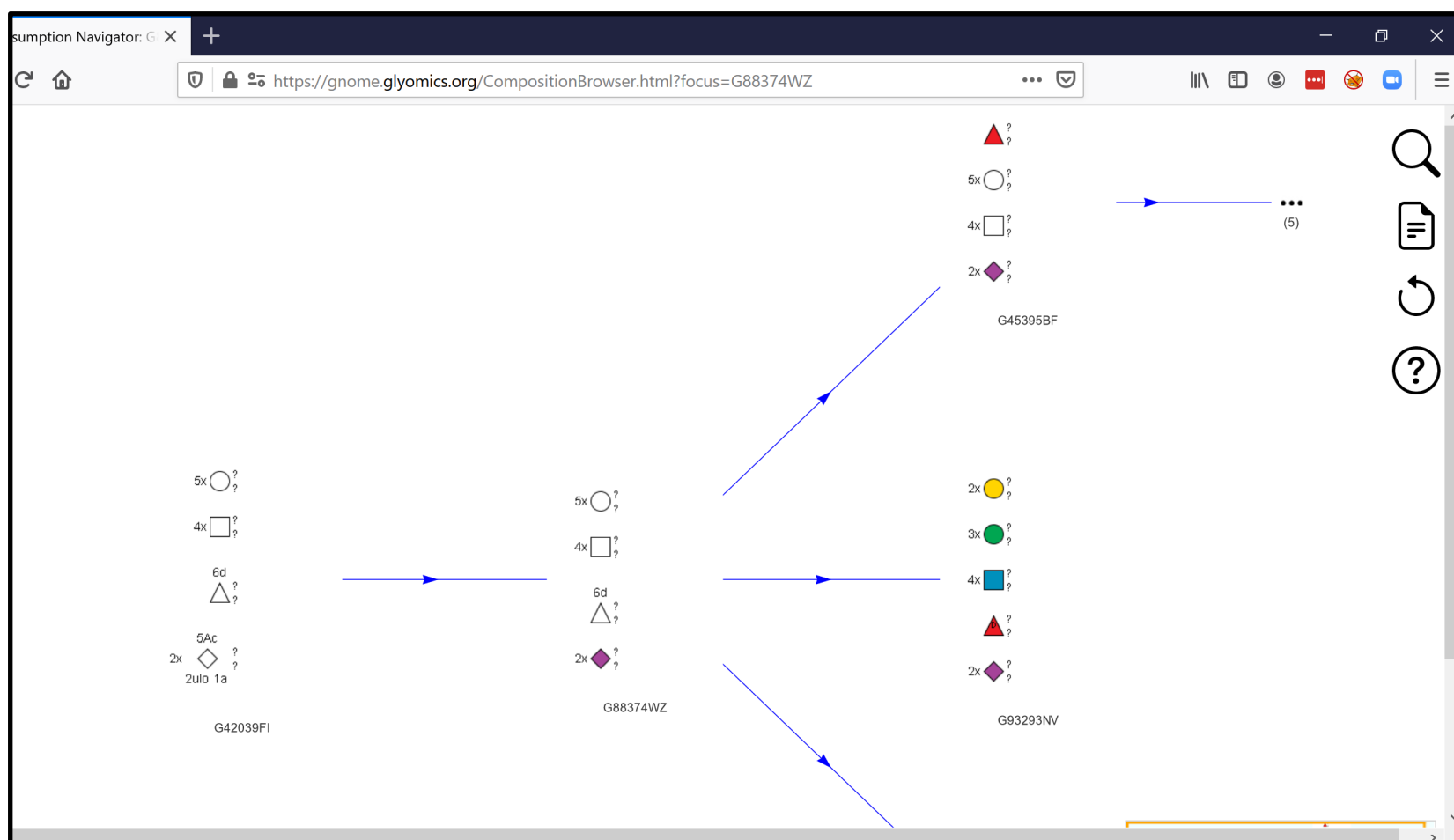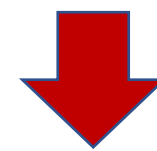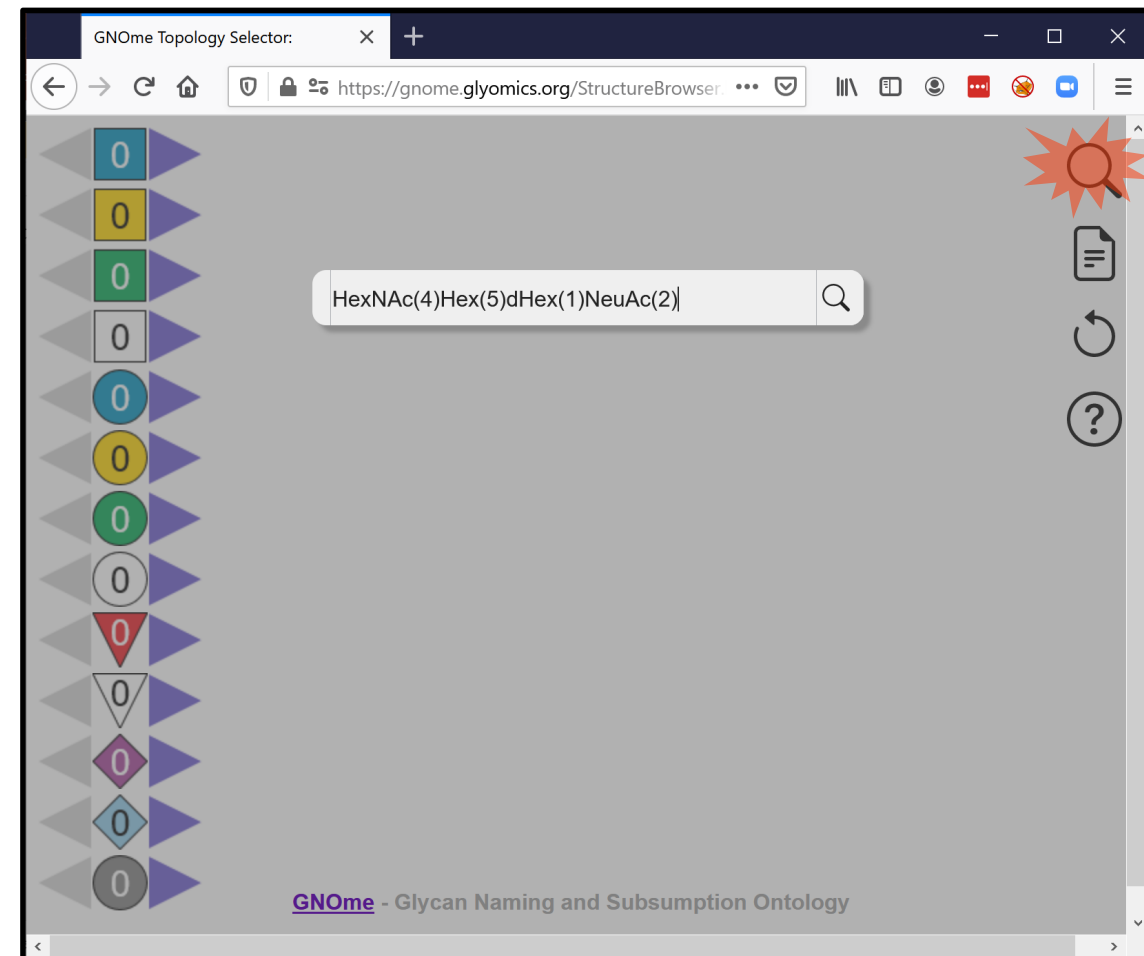
On-Demand Alignment

- Align **novel glycans** using GlycoCT or WURCS sequence ("Align" 🗎)
- Subsumption webservice computes alignment against GlyTouCan glycans
  - **https://subsumption.glyomics.org/**
  - Query directly, or run docker locally.
  - Interactive applet uses this webservice.
- **Focus on known glycan**, if registered
  - **Otherwise, create node** + related glycans
- Also used by **Glycan Image Extractor**
  - **https://extractor.glyomics.org/**