GLYCOMICS PROFILING

Glycomics Analysis by Mass Spectrometry

INTRODUCTION OF GLYCANS

Glycomics is the study of glycans that focuses on the the structure and function of carbohydrates. Glycoform distributions at the cellular, tissue, organ and organism levels are also studied. Three aspects of glycomics are usually explored, including structural characterization of glycans, research of glycan-protein interactions, and the study of *in vitro* and *in vivo* systems for the determination of the function of specific glycans.
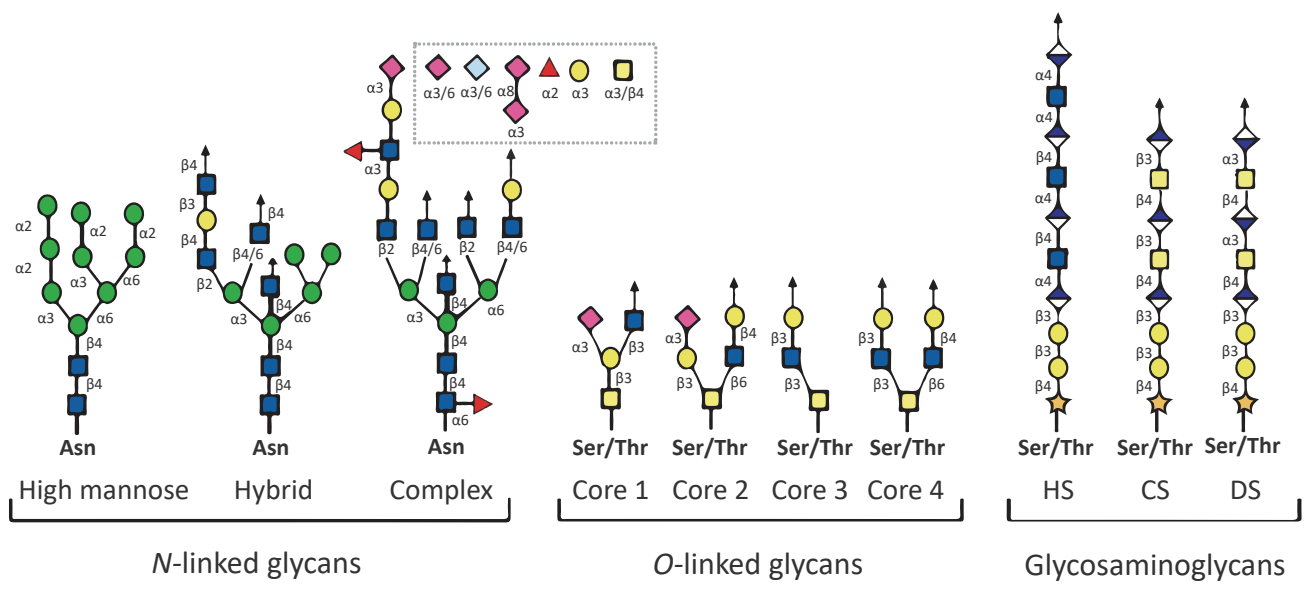
01 | Glycans Classfication

Linear

The majority of the linear sugars are glycosaminoglycans (GAGs) that consist of repeating disaccharide units.
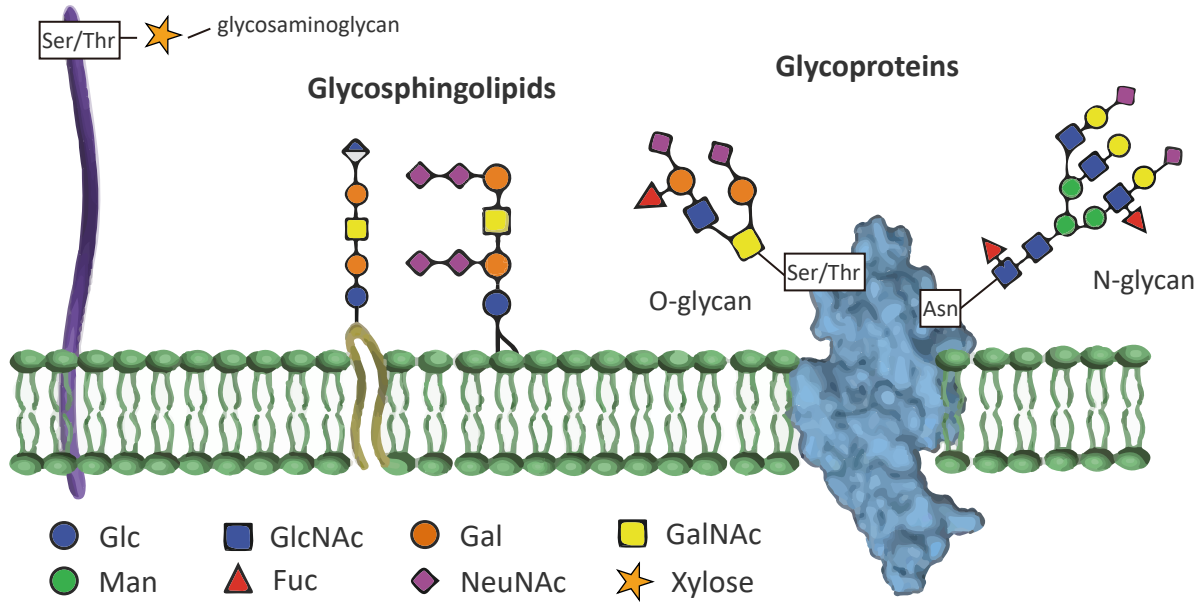The units are 0-linked to a core protein, forming a proteoglycan aggregate.

Branched glycans are present as N-linked and O-linked glycosylation on glycoproteins or on glycolipids.
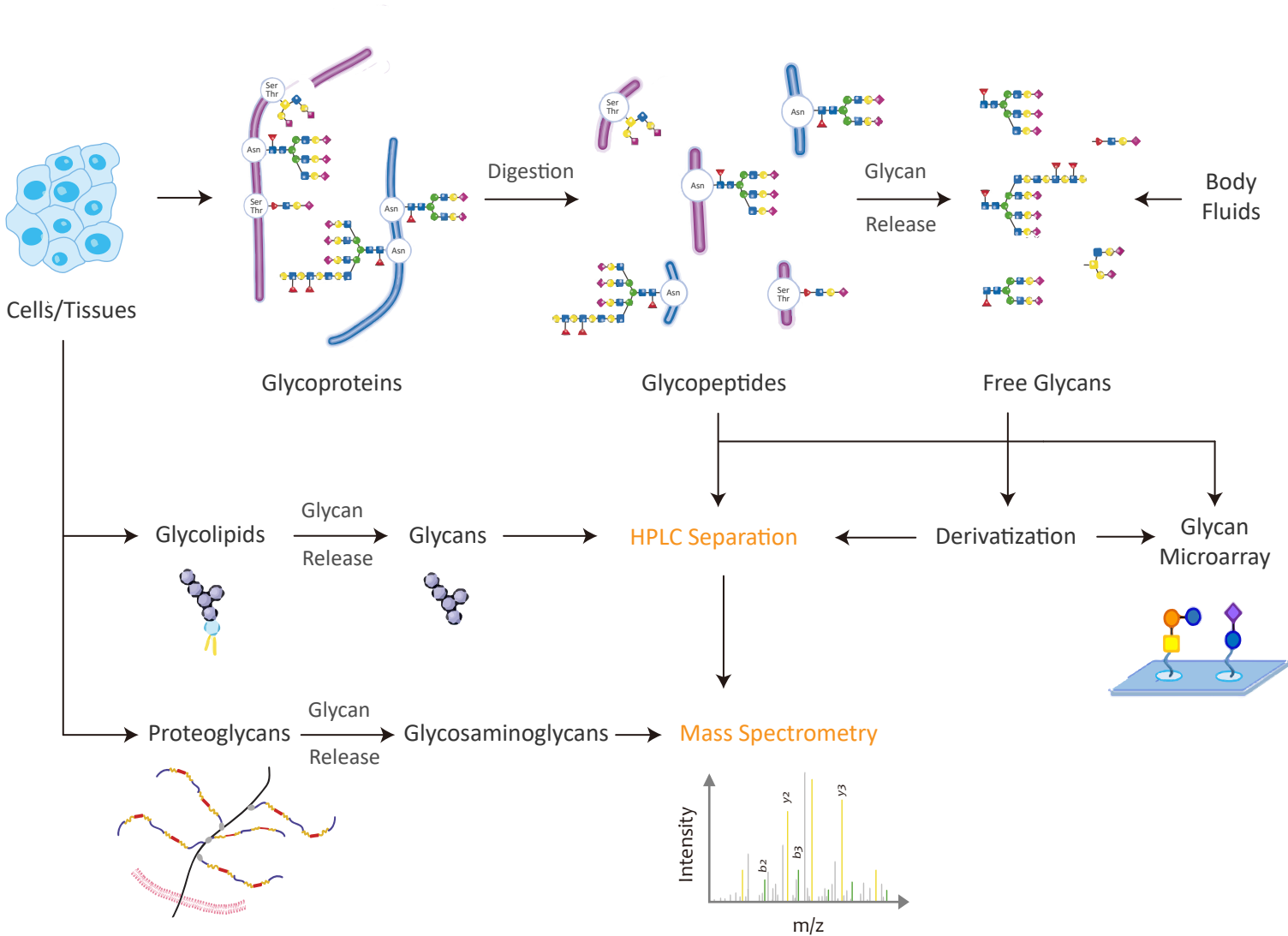
Branched

N-linked glycans: High mannose, Hybrid, Complex (Asn)
O-linked glycans: Core 1, Core 2, Core 3, Core 4 (Ser/Thr)
Glycosaminoglycans: HS, CS, DS (Ser/Thr)

(Figure reference to Hyun J Y. et al., 2017)

02 | Major Classes of Glycans

Proteoglycans — Ser/Thr — glycosaminoglycan
Glycosphingolipids
Glycoproteins — O-glycan (Ser/Thr), N-glycan (Asn)

- ● Glc
- ● Man
- ■ GlcNAc
- ▲ Fuc
- ● Gal
- ◆ NeuNAc
- ▨ GalNAc
- ✦ Xylose

GENERAL GLYCOMICS STRATEGIES

Cells/Tissues → Glycoproteins → Digestion → Glycopeptides → Glycan Release → Free Glycans ← Body Fluids

Glycolipids → Glycan Release → Glycans → HPLC Separation ← Derivatization → Glycan Microarray

Proteoglycans → Glycan Release → Glycosaminoglycans → Mass Spectrometry

SERVICES AND ADVANTAGES

01 | What We Provide

- N-Glycan / O-Glycan Profiling
- N-Glycosylation / O-Glycosylation Site Occupation Analysis
- N-Glycan / O-Glycan Linkage Analysis
- Structural Characterization of Glycans
- Glycopeptides Analysis
- Glycans Microarray Assay
- Poysaccharide Analysis
- Peptidoglycan Structure Analysis

02 | Advantages

- Technology Platform:
  MALDI-TOF MS
  UPLC-FLD/MS
  HPAEC-PAD
  Microarray
  NMR spectroscopy
- High Sensitivity and Specificity
- Stability and Consistency
- Best After-sale Service

CP Creative Proteomics