Description

Glycoprotein LEctPROFILE® kit is based on GLYcoDiag technology intended for the determination of interaction profiles of glycoproteins with lectins.

This kit was already used to:

- Identify “glycans signatures” (GLYcoPROFILE);

- Highlight and compare the accessibility of glycans motifs expressed on glycoproteins;

- Analyse the glycosylation level of glycoproteins: either pure, mixed, or contained in biological fluids, or cells and tissues extracts (research of glycobiomarkers);

- Control the glycosylation pattern of recombinant glycoproteins production (glycoform population or batch to batch monitoring).

Applications

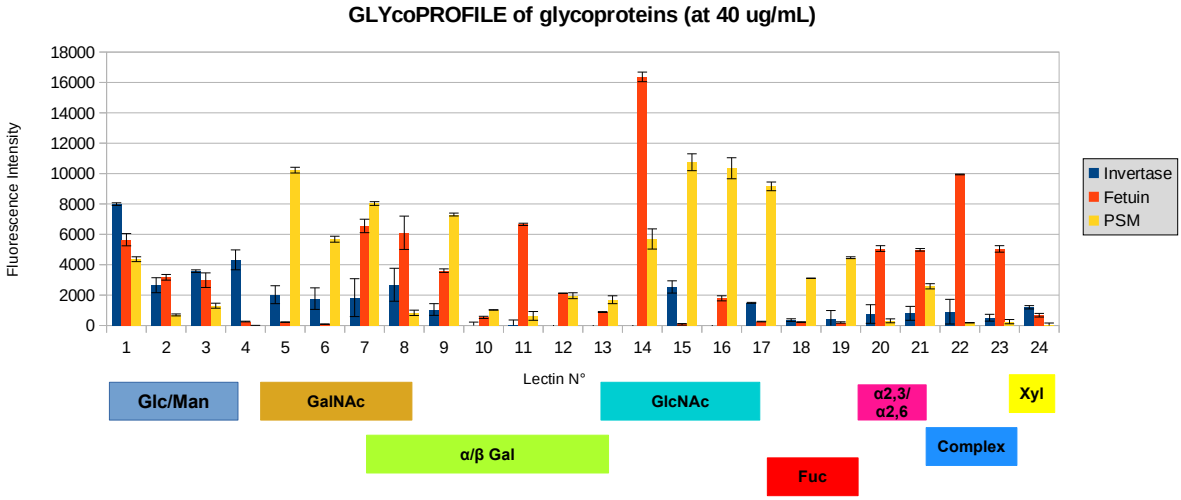
Comparison of glycoproteins glycans signatures

The following glycoproteins: Invertase, Fetuin and Porcin Stomach Mucin (PSM) were studied in GLYcoPROFILE at 40 µg/mL in order to compare their glycans signatures. The glycans motifs present on these macromolecules according to the litterature and their potentials interactions with lectins immobilised on the Glycoprotein LEctPROFILE® plate are summarized in *Table* below.

Glycoprotein	Glycosylation profil according to literature	Potential interaction with following lectins
Fetuin from foetal calf serum (BioRad, Ref :4430-2204)	- N/O glycans mucine-type glycans - complex glycans with NeuAc (α2,6, α2,3)	- ABA : O-glycans - DSA, GSL-II, WGA, STA : Mucine type glycans (GlcNAc) - MAA, SNA : Sialic acid (α2,6, α2,3) - PHA-E, PHA-L : Complex N-glycans
PSM (Sigma Aldrich, Ref M1778)	- Especially GalNAc & GlcNAc O glycans then Gal and Fuc O-glycans in a lesser extend.	- BPA, DBA, WFA : GalNAc - DSA, GSL-II, WGA, STA : GlcNAc - AIA, GSL-Ib4, ABA, PNA, MOA : AIA - LTA, UEA-I : Fuc
Invertase (Sigma Aldrich, Ref I-4504)	- N-glycan with High Mannose	- ConA, LcH, PSA, HHA : Mannose specific lectins

Results

The results obtained with each glycoproteins *(Figure below)* are in accordance with their expected specificities.



Analysis of glycosylation level of glycoproteins contained in biological fluids (example of SARS-CoV-2 detection on Nasopharyngeal samples)

Senicar, M. *et al.*[1]

We studied the potential of LEctPROFILE kit designed specifically to studied the interaction of glycan-lectins interaction in the case of coronavirus (SARS-CoV-2). Indeed, in this study we performed the glycan characterization from 45 crude nasopharyngeal samples (SARS-CoV-2 positives and negatives samples), by direct interactions with lectins through GLYcoPROFILE® technology platform.

The conclusions of this study have enabled:

(1) to show specific differences between SARS-CoV-2 positive and negative samples which are in accordance with bibliographically available data.

(2) to evaluate the sensitivity and specificity of the lectin-based glycoprofiling platform for its use in the research of glycobiomarkers contained in biological fluids of others diseases.

References

1. Senicar, M., Roubinet, B., Daniellou, R., Prazuck T., Landemarre L., *Samples using GLYcoPROFILE® Technology Platform. Diagnostics,* **2022**, *12*, 2860.