Cells LEctPROFILE® kit

Reference : LK04CellsE

Technical Note

GLYcoDIAG
Applied Glycomics

Cells LEctPROFILE® kit (Reference: LK04CellsE)

Description

The Cells LEctPROFILE® kit is based on GLYcoDiag technology intended for the determination of interaction profiles with lectins allowing to identify “glycans signatures” (GLYcoPROFILE) on the surface of cells[1], virus and bacteria. It allows to determine the accessibility of glycan motifs expressed on the cells membranes and evaluate the modification of glycosylation in presence of a product, under stress conditions or during pathology evolution.

The cells LEctPROFILE® kit is an easy tool that was already used for:

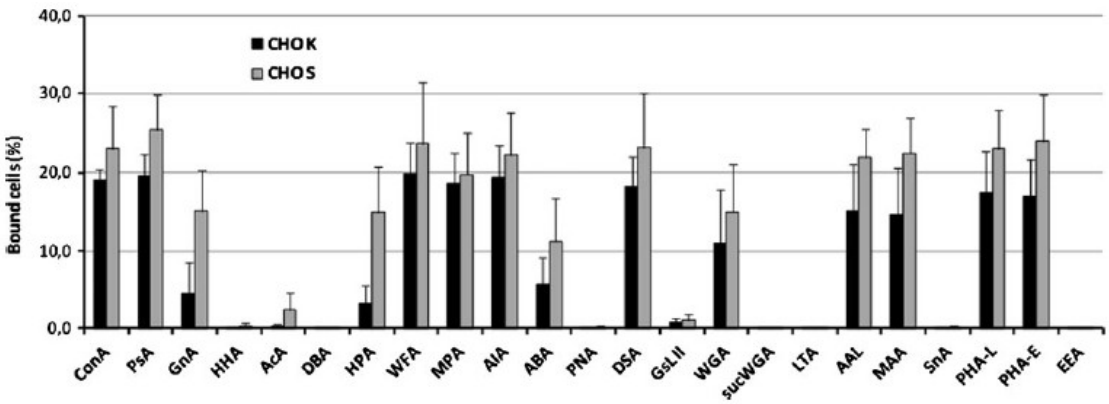
- the research of glyco-biomarkers (*i.e.* Cells LEctPROFILE kits were used to follow the glycosylation pattern during the development of cancer. A relation between the stage of disease development and the patient survival was found to be linked to the expression and/or accessibility of tumor cells glycans)[2-3];
- the study of glycan signatures of cutaneous cells;
- the determination of product effect on cells glycans expression and/or accessibility[4] ;
- or targeting specific cells.

Applications

Definition of cells glyco-signatures (according to cell-type, environment, pathology)

Landemarre, L. *et al*.[1]

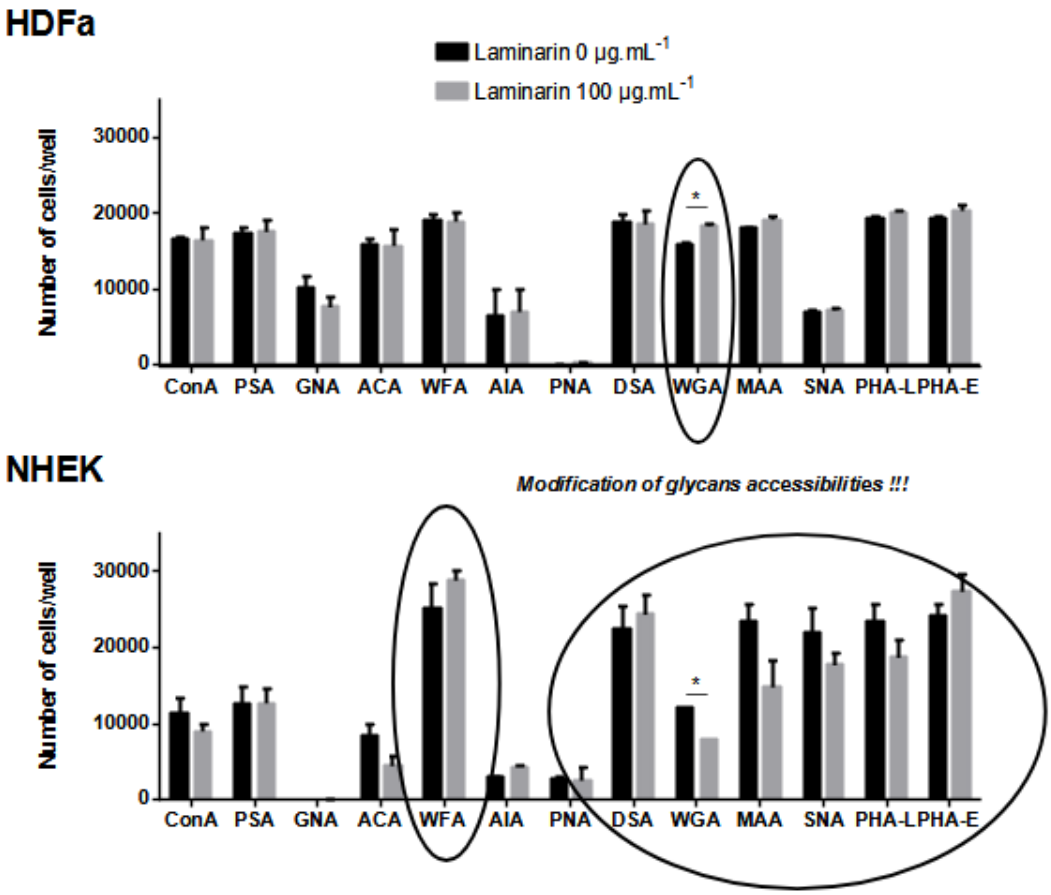
Based on a cell line model (Chinese Hamster Ovary (CHO) cells), we demonstrated that the whole cell surface glycan is specific for a cell type. However, according to the cells growth conditions used, the glycosylation pattern evolved. Indeed, the comparison between the adherent and suspension forms of CHO cells, showed different glycan signatures. Finally, through these glycan differences, the selection of a specific clone is possible.



Effect of product on glycan expressions and/or accessibilities

Ozanne, H. *et al*.[4]

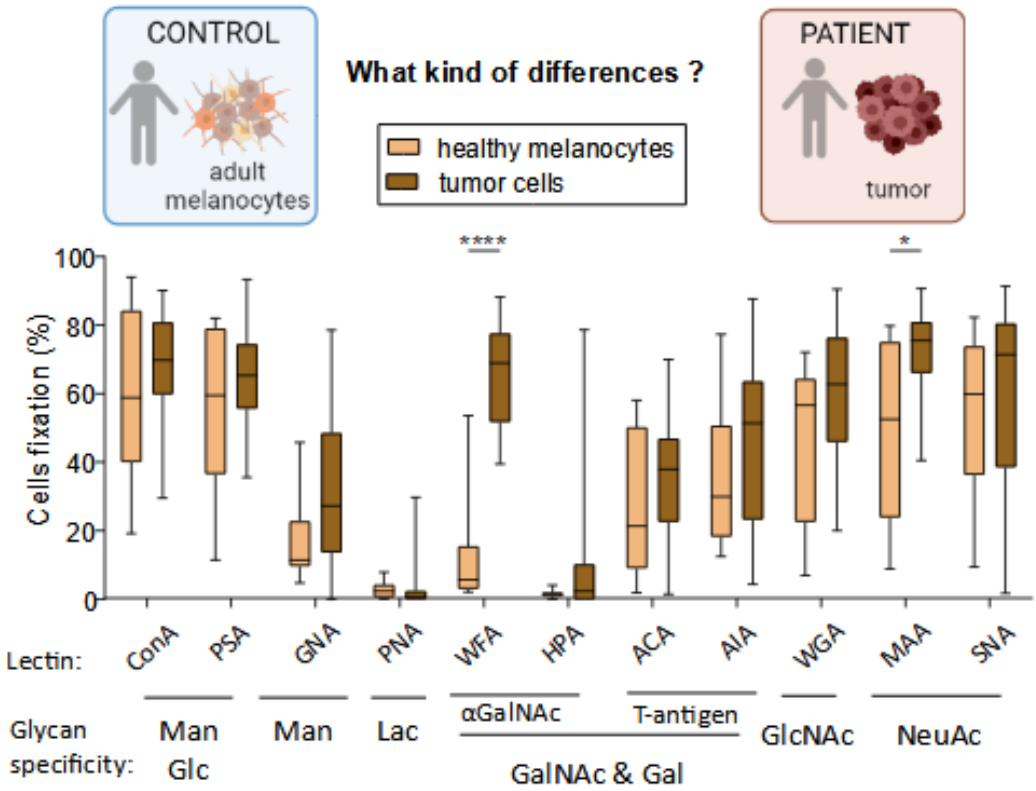
Cells LEctPROFILE® kit was used to evaluate the effect of a β-(1,3)-glucan, called Laminarin, on the modulation of glycan interactions at the surface of normal human adult dermal fibroblasts (HDFa) and normal human epidermal keratinocytes (NHEK). Our results demonstrated that the incubation of cells culture with laminarin (at 100 µg/mL) increases slightly modifications and/or modulation on glycan expressions and/or their accessibilities at the skin cells surfaces (See *Figure* below).



Research of cells glyco-biomarkers

Sosa Cuevas, E., *et al.*[2,3]

Cells LEctPROFILE® kit were used in the context of cancer in order to study the glycosylation profile of tumor cells derived from melanoma patients (n = 24) and compared to the glycosylation pattern of normal human adult melanocytes (n=6). This study has proved that melanoma cells have higher accessibility or expression of N-acetylgalactosamine (GalNAc) motifs and sialic acid glycan structures than healthy melanocytes *(See Figure below)*.



References

1. L. Landemarre, E. Duverger. Lectin glycoprofiling of recombinant therapeutic Interleukin-7. A. Beck (ed.), *Glycosylation Engineering of Biopharmaceuticals: Methods and Protocols, Methods in Molecular Biology*, **2013**, *988*, 221-226.

2. Sosa Cuevas, E., Valladeau-Guilemond, J., Mouret, S., Roubinet, B., de Fraipont, F., Landemarre, L., Charles, J., Bendriss-Vermare N., Chaperot, L., Aspord, C., *Unique CLR expression patterns on circulating and tumor-infiltrating DC subsets correlated with clinical outcome in melanoma patients. Front Immunol,* **2022**, 13:1040600.

3. Sosa Cuevas, E., Roubinet, B., Mouret, S., Thepaut, M., de Fraipont, F., Charles, J., Fieschi, F., Landemarre, L., Chaperot L., Aspord, C. *The malanoma tumor glyco-code impacts human DC's functionality and dictates clinical outcomes*., *Front Immunol*, **2023**, DOI: 10.3389/fimmu.2023.1120434 .

4. Ozanne, H., Toumi, H., Roubinet, B., Landemarre, L., Lespesailles, E., Daniellou, R., Cesaro, A., *Laminarin effects, a β-(1,3)-glucan, on skin cell inflammation and oxydation. Cosmetics*, **2020**, *7*, 66.