Description

Galectins are a family of lectins, which are characterized by an affinity for β-galactoside containing oligosaccharides ([-3Galβ1-4GlcNAcβ1-]n or poly-N-acetyl lactosamine sequences containing three to four repeating units, regardless of the presence of a terminal β-galactose residue). Until now, It is the only chimera galectin found in vertebrate. Galectin-3 occurs mainly in the cytosol, but can also transverse membranes reaching the nucleus and mitochondria. Once in the extracellular space, galectin-3 can interact with numerous binding partners, mostly poly lactosamine-rich molecules in the extracellular matrix (ECM) or on the cell surface, and plays key roles in the extracellular modulation of tumor progression. There are multiple lines of evidence pointing to the relevance of galectin-3 in malignant cell transformation, tumor growth, apoptosis inhibition, angiogenesis, cell adhesion, cell mobility and cell invasion.

Applications

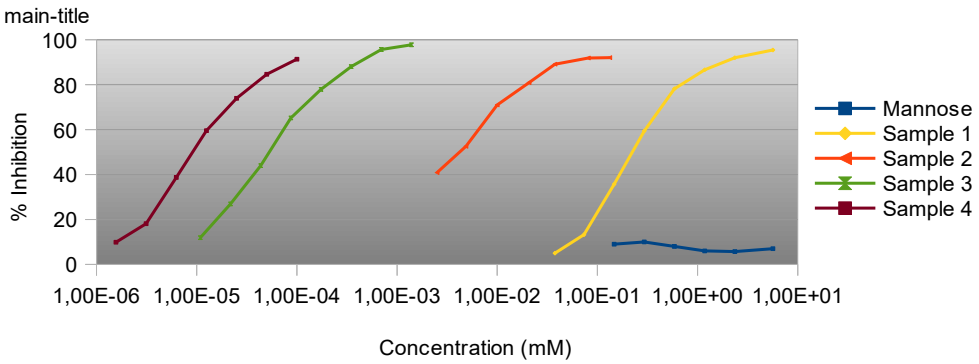
Screening of Galectin-3 Inhibitors

Ayona, D. *et al.*[1]

Tropheryma whipplei, is an actinobacterium that causes different infections in humans. The glycoprofile of *T.whipplei* shows interactions with human β-galactoside-binding lectins (such as Galectin-3 (Gal-3)). Gal-3 is highly expressed by macrophages as receptors for bacterial glycans promoting infection by enhancing bacterial cell entry. Galectin-3 LEctPROFILE kit can be used for the research of drugs that interfer with galectin–glycan during cells/microorganism interactions for the treatment of microbial infections.

Didak, B. *et al.*[2]

The screening of galectin-3 inhibitors was performed with Galectin-3 LEctPROFILE kit and has enabled to clearly identify two potential candidates (Samples 3 &4) *(See Figures below).*



References

1. Ayona, D., Madariaga Zarza S., Landemarre, L., Roubinet, B., Decloquement, P., Raoult, D., Fournier, P.-E., Desnues, B. *Human galectin-1 and galectin-3 promote Tropheryma whipplei infection, Gut Microbes*, **2021**, *13*, 1-15.

2. B. Didak, A. Decout, F. Fieschi and L. Landemarre (2016). *Lectin array ; Applications for galectins studies. EMBO Workshop.* November 27th to December 1st, **2016** in Mandelieu-la-Napoule, France.