Design and synthesis of saccharide-based molecular tools to probe DLODP and LOST orphan activities

Patricia BUSCA - 19 Avril 2024

Free oligosaccharides (fOS) have been shown to be proinflammatory (fOSp) and contribute to certain rare inherited inflammatory diseases. These fOS can be generated during protein *N*-glycosylation and two key players are likely to be involved in their production and/or regulation: Dolichol-Linked Oligosaccharide Diphosphatase (DLODP) in the endoplasmic reticulum, and Lysosomal Oligosaccharide Transporter (LOST) in the lysosome. While these activities were characterized at the biochemical level, the corresponding genes are still unknown.[1,2]

In order to study, isolate and identify DLODP and LOST associated proteins, affinity-based probes were designed and synthesized.[3-6] These saccharide-based molecular tools are bearing one or two tags such as biotin, a photoreactive group and/or a fluorophore in order to visualize and/or purify the targeted proteins.

---

[1] A. Massarweh, M. Bosco, S. Iatmanen-Harbi, C. Tessier, N. Auberger, P. Busca, I. Chantret, C. Gravier-Pelletier, S. E. H. Moore**J. Lipid. Res.* **2016**, *57*, 1029-1042.

[2] A. Massarweh, M. Bosco, S. Iatmanen-Harbi, C. Tessier, L. Amana, P. Busca, I. Chantret, C. Gravier-Pelletier, S. E. H. Moore**J. Lipid. Res.* **2016**, *57*, 1477-1491.

[3] M. Bosco, P. Busca, A. Massarweh, S. Iatmanen-Harbi, I. Chantret, S. E. H. Moore, A. Bouhss, C. Gravier-Pelletier* *Eur. J. Med. Chem.* **2017**, *125*, 952-964.

[4] A. Massarweh, M. Bosco, I. Chantret, T. Léger, L. Jamal, D. I. Roper, C. G. Dowson, P. Busca, A. Bouhss, C. Gravier-Pelletier, S. E. H. Moore* *Molecules* **2019**, *24*, 2135.

[5] M. Bosco, S-J. Paik, T. Léger, P. Busca, S. E. H. Moore, C. Gravier-Pelletier* *Molecules* **2020**, ***25***, 4969.

[6] Y. Bouzidi, M. Bosco, H. Gao, S. Pradeau, L. Matheron, I. Chantret, P. Busca, S. Fort, C. Gravier-Pelletier, S.E.H. Moore* *Glycobiology* **2023** cwad099