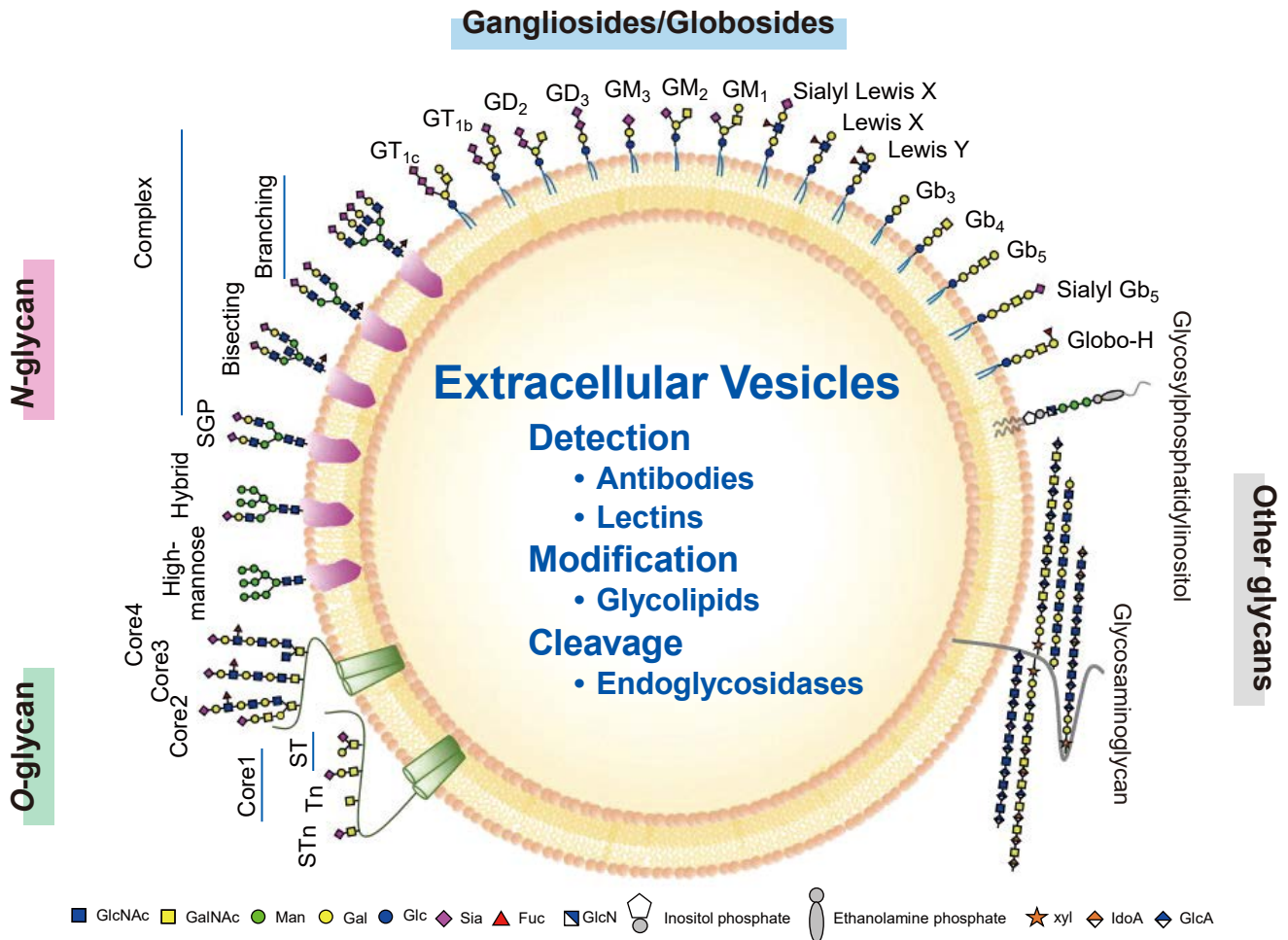


# Extracellular Vesicle (EV) Surface Glycans and Related Reagents



## Extracellular Vesicles and Glycans

Glycans exist not only on the surface of cells, but also on the surface of sEVs (small Extracellular Vesicles: EVs <200 nm in diameter) as glycoproteins or glycolipids.<sup>1)</sup> Importance of glycans on EVs has been shown. For example, glycocalyx on the cancer cell-derived EVs has been reported to involve in organotropic determination in cancer metastases.<sup>2)</sup> Glycans on the EVs have been reported to play important roles in the tuning of EV uptake.<sup>3)</sup>

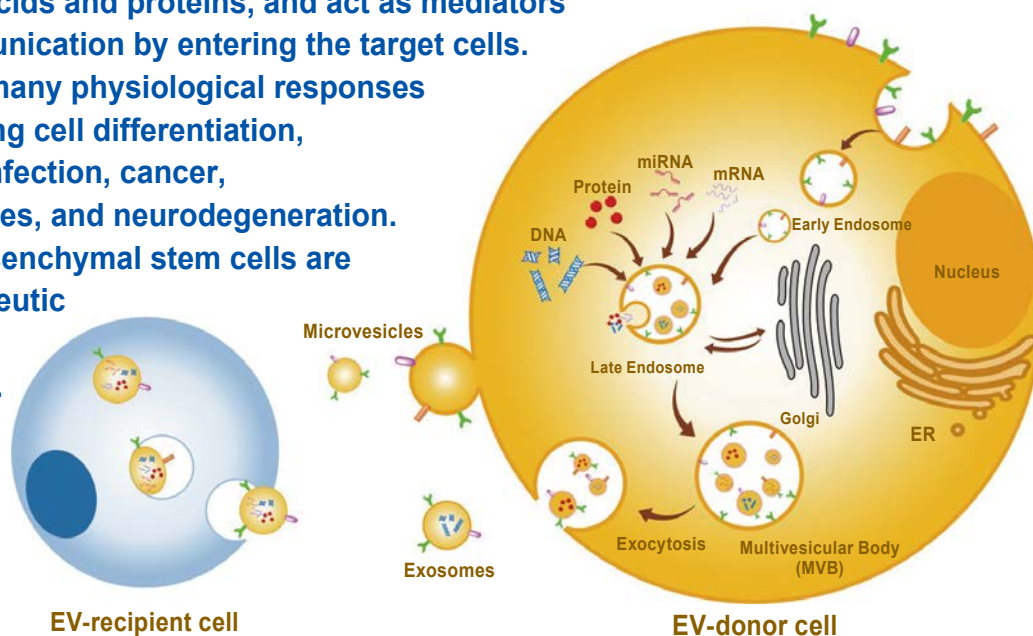
TCI has many products related to glycans expressed on the EVs.

Extracellular Vesicles (EVs) are small vesicles composed of a lipid bilayer which are secreted from various cells under physiological and pathological conditions, and which can be found in body fluids and cell culture supernatants. EVs include subtypes such as exosomes and microvesicles.

EVs contain nucleic acids and proteins, and act as mediators of intercellular communication by entering the target cells.

They are involved in many physiological responses and diseases, including cell differentiation, immune responses, infection, cancer, cardiovascular diseases, and neurodegeneration.

EVs derived from mesenchymal stem cells are known to have therapeutic potential, with several clinical trials ongoing. EV applications in drug delivery platforms have also been developed.<sup>4,5)</sup>



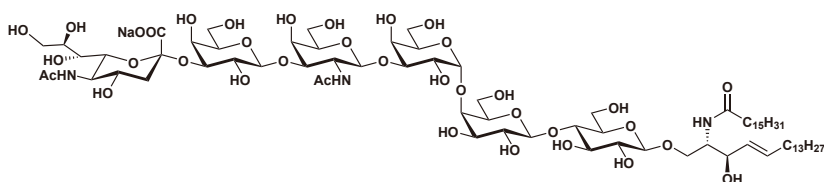
## Anti-Glycolipid Antibodies

Anti-glycolipid antibodies can specifically recognize glycolipids.

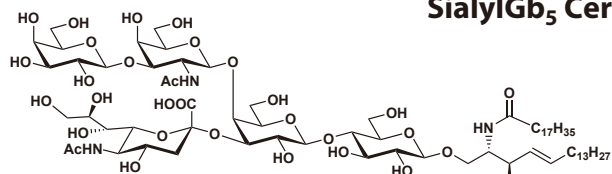
These antibodies can be used for immunohistochemistry, cell-staining, flow cytometry, ELISA, TLC-immunostaining and other methods.

<b>Anti-GM<sub>1</sub> Monoclonal Antibody</b>	0.1mg/vial <a href="#">[A2505]</a>
<b>Anti-GM<sub>2</sub> Monoclonal Antibody</b>	0.1mg/vial <a href="#">[A2576]</a>
<b>Anti-GM<sub>3</sub> Monoclonal Antibody</b>	0.1mg/vial <a href="#">[A2582]</a>
<b>Anti-GD<sub>1a</sub> Monoclonal Antibody</b>	0.1mg/vial <a href="#">[A2507]</a>
<b>Anti-GD<sub>1b</sub> Monoclonal Antibody</b>	0.1mg/vial <a href="#">[A2508]</a>
<b>Anti-GD<sub>2</sub> Monoclonal Antibody</b>	0.1mg/vial <a href="#">[A3338]</a>
<b>Anti-GD<sub>3</sub> Monoclonal Antibody</b>	0.1mg/vial <a href="#">[A2580]</a>
<b>Anti-GT<sub>1a</sub> Monoclonal Antibody</b>	0.1mg/vial <a href="#">[A2702]</a>
<b>Anti-GT<sub>1b</sub> Monoclonal Antibody</b>	0.1mg/vial <a href="#">[A2732]</a>
<b>Anti-GQ<sub>1b</sub> Monoclonal Antibody</b>	0.1mg/vial <a href="#">[A2662]</a>
<b>Anti-GalNAc-GD<sub>1a</sub> Monoclonal Antibody</b>	0.1mg/vial <a href="#">[A2701]</a>
<b>Anti-Gb<sub>3</sub> Monoclonal Antibody</b>	0.1mg/vial <a href="#">[A2506]</a>
<b>Anti-Gb<sub>3</sub> Monoclonal Antibody Biotin Conjugate</b>	0.1mg/vial <a href="#">[A2822]</a>
<b>Anti-SGPG (HNK-1) Monoclonal Antibody</b>	0.1mg/vial <a href="#">[A2706]</a>

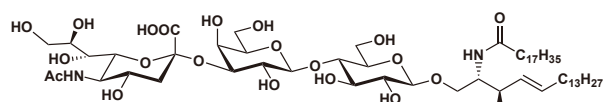
## Glycolipid-related Glycans



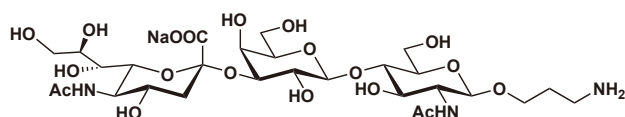
**SialylGb<sub>5</sub> Ceramide (= SSEA-4) [G0593]**



**Ganglioside GM<sub>1</sub> [G0483]**



**Ganglioside GM<sub>3</sub> [G0489]**



**Neu5Acα(2-3)Galβ(1-4)GlcNAc-β-propylamine [N1267]**

## Glycolipids

<b>α-Galactosylceramide</b>	1mg [G0509]
<b>Gb<sub>4</sub> Ceramide</b>	1mg / 5mg [G0580]
<b>Gb<sub>5</sub> Ceramide (= SSEA-3)</b>	1mg / 5mg [G0592]
<b>Globo-H Ceramide</b>	1mg / 5mg [G0589]
<b>SialylGb<sub>5</sub> Ceramide (= SSEA-4)</b>	1mg / 5mg [G0593]
<b>Ganglioside GM<sub>1</sub></b>	Contact Us [G0483]
<b>Ganglioside GM<sub>3</sub></b>	Contact Us [G0489]
<b>Ganglioside GM<sub>3</sub> (phyto-type)</b>	Contact Us [G0422]
<b>Ganglioside GM<sub>3</sub>(Neu5Gc) (phyto-type)</b>	Contact Us [G0510]
<b>Sialyl Neolactotetraosylceramide (= Sialyl nLc<sub>4</sub>Cer)</b>	Contact Us [S0910]

## Oligosaccharides

<b>Neu5Acα(2-6)Gal-β-propylamine</b>	5mg [N1147]
<b>Neu5Acα(2-6)Galβ(1-4)GlcNAc-β-ethylamine</b>	5mg [N0950]
<b>Neu5Acα(2-3)Gal-β-propylazide</b>	5mg [N1249]
<b>Neu5Acα(2-3)Gal-β-propylamine</b>	5mg [N1146]
<b>Neu5Acα(2-3)Galβ(1-4)Glc-β-propylamine</b>	5mg [N1258]
<b>Neu5Acα(2-3)Galβ(1-4)GlcNAc-β-propylamine</b>	5mg [N1267]

## References

- 1) X. He *et al.*, *Glycoconj. J.* **2022**, *39*, 197.
- 2) R. Koide *et al.*, *Biomaterials* **2022**, *280*, 121314.
- 3) C. Williams *et al.*, *Sci. Rep.* **2019**, *9*, 11920.
- 4) R. Kalluri, V. S. LeBleu, *Science* **2020**, *367*, 6478.
- 5) I. K. Herrmann *et al.*, *Nat. Nanotechnol.* **2021**, *16*, 748.

# Extracellular Vesicle (EV) Surface Glycans and Related Reagents

## Lectin-Biotin Conjugates

Lectins are highly specific carbohydrate-binding proteins of non-immune origin. Because of their ability to bind to cell surface glycoproteins and glycolipids, lectins could agglutinate cells; they could also reversibly associate polysaccharides and glycoproteins in solution.

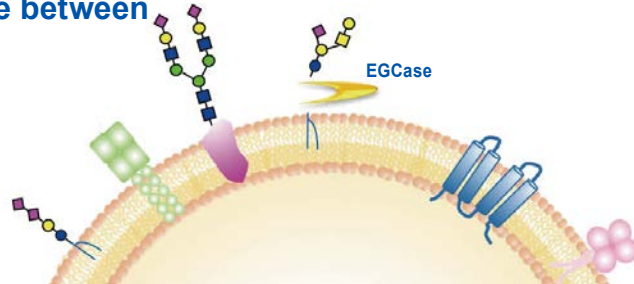
Lectins have long been known in the field of glycoscience as tools for the detection and analysis of functional oligosaccharides. Recombinant lectins show better stability compared to natural lectins. TCI offers not only recombinant lectins, but also chemically modified lectins including several types of biotinylated lectin for the detection of glycoconjugates.

<b>rPSL1a-Biotin [for Sia <math>\alpha</math>(2-6)Gal]</b>	1 mL/vial [R0230]
<b>rLSL-N-Biotin [for Gal <math>\beta</math>(1-4)GlcNAc, poly LacNAc]</b>	1 mL/vial [R0231]
<b>rMOA-Biotin [for Gal <math>\alpha</math>(1-3)Gal]</b>	1 mL/vial [R0232]
<b>rSRL-Biotin [for GlcNAc <math>\beta</math>(1-2)Man, Gal <math>\beta</math>(1-3)GalNAc]</b>	1 mL/vial [R0233]
<b>rGRFT-Biotin [for Man <math>\alpha</math>(1-2)Man]</b>	1 mL/vial [R0234]
<b>AOL-Biotin Conjugate</b>	1 mL/vial [A2659]

## Endoglycosidases

**Endoglycoceramidase (EGCase)** is a glycolipid-specific hydrolase that cleaves the glycosidic linkage between oligosaccharide and ceramide of various glycosphingolipids (GSLs).

Recombinant EGCase (rEGCase) is activated under a detergent-dependent condition. On the other hand, Activator II is capable of inducing activity of EGCases without any detergent reagents. By the use of Activator II, GSLs on cell surfaces of living cells could be hydrolyzed without cell disruption caused by detergent.



<b>rEGCase I</b>	300 munits/vial [R0240]
<b>rEGCase I assisted by Activator II</b>	300 munits/vial [R0241]
<b>rEGCase II</b>	100 munits/vial [R0242]
<b>rEGCase II assisted by Activator II</b>	100 munits/vial [R0243]
<b>Endo-M (= endo-<math>\beta</math>-N-Acetylglucosaminidase)</b>	100 munits/vial [A1651]
<b>Glycosynthase (= Endo-M-N175Q)</b>	100 munits/vial [G0365]
<b>Endo-M-W251N</b>	500 munits/vial [E1339]
<b>endo-<math>\alpha</math>-N-Acetylgalactosaminidase (= Endo-<math>\alpha</math>)</b>	100 munits/vial [A1844]
<b>Keratanase II</b>	1.0 units/vial [K0069]

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