Data Sheet (Cat.No.TMPY-01291)

TargetMol

B4GALT1 Protein, Human, Recombinant (His)

General Information

Synonyms:	B4GAL-T1;CDG2D;GT1;UDP-Gal:betaGlcNAc beta 1,4- galactosyltransferase, polypeptide 1; GGTB2;GTB;UDP-Gal:βGlcNAc β 1,4- galactosyltransferase, polypeptide 1;β4Gal-T1; beta4Gal-T1
Protein Construction:	A DNA sequence encoding the human B4GALT1 extracellular domain (NP_001488.2) (Gly 44-Ser 398) was fused with a polyhistidine tag at the N-terminus. Predicted N terminal: His
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P15291-1
Molecular Weight:	41.5 kDa (predicted); 45-55 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	B4GALT1 treated IgG1 Fc showed a significantly higher proportion of galactosylated component (G2 component) compared with the untreated sample (78.27% vs 9.34%). Data is provided by Anthony lab, Massachusetts General Hospital/Havard Medical School.
Purity:	≥ 92 % as determined by SDS-PAGE. ≥ 90 % as determined by SEC-HPLC.
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Beta1,4-Galactosyltransferase-I (B4GALT1), one of seven beta1,4-galactosyltransferases, is an enzyme commonly found in the trans-Golgi complex that adds galactose to oligosaccharides. They have an N-terminal hydrophobic

signal sequence that directs the protein to the Golgi apparatus and which then remains uncleaved to function as a transmembrane anchor. By sequence similarity, the beta4GalTs form four groups: beta4GalT1 and beta4GalT2, beta4GalT3 and beta4GalT4, beta4GalT5 and beta4GalT6, and beta4GalT7. B4GALT1 gene directs production of B4GALT1 protein using either of two transcription start sites. The product of the smaller transcript serves the traditional biosynthetic role in the Golgi. This form also complexes with α-lactalbumin, a mammary-specific protein, to form lactose synthase. In addition to a biosynthetic role, the protein translated from the longer transcript appears on the plasma membranes of some cells where it serves as a signalling receptor in cell-matrix interactions such as sperm-egg binding.

Reference

Hennet T. (2002) The galactosyltransferase family. Cellular and Molecular Life Sciences. 59(7): 1081-95.
Landers EA, et al. (2009) Porcine 1, 4-Galactosyltransferase-I Sequence and Expression. Reproduction in Domestic Animals. 44(2): 228-34.
Amado M, et al. (2000) Identification and characterization of large galactosyltransferase gene families: galactosyltransferases for all functions. Biochim Biophys Acta. 1473 (1): 35-53.

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