

Active Recombinant Human B4GALT1 Protein (Y285L, Gly44-Ser398), N-6×His tagged

Cat. No. B4GALT1-716H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant Human B4GalT1 Protein (Y285L, Gly44-Ser398), with an N-terminal 6-His tag was expressed in Mouse myeloma cell line.
Species	Human
Source	NS0
ProteinLength	(Y285L, Gly44-Ser398)
Description	This gene is one of seven beta-1, 4-galactosyltransferase (beta4GalT) genes. They encode type II membrane-bound glycoproteins that appear to have exclusive specificity for the donor substrate UDP-galactose; all transfer galactose in a beta1, 4 linkage to similar acceptor sugars: GlcNAc, Glc, and Xyl. Each beta4GalT has a distinct function in the biosynthesis of different glycoconjugates and saccharide structures. As type II membrane proteins, 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. This gene is unique among the beta4GalT genes because it encodes an enzyme that participates both in glycoconjugate and lactose biosynthesis. For the first activity, the enzyme adds galactose to N-acetylglucosamine residues that are either monosaccharides or the nonreducing ends of glycoprotein carbohydrate chains. The second activity is

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restricted to lactating mammary tissues where the enzyme forms a heterodimer with alpha-lactalbumin to catalyze $\text{UDP-galactose} + \text{D-glucose} \rightleftharpoons \text{UDP} + \text{lactose}$. The two enzymatic forms result from alternate transcription initiation sites and post-translational processing. Two transcripts, which differ only at the 5' end, with approximate lengths of 4.1 kb and 3.9 kb encode the same protein. The longer transcript encodes the type II membrane-bound, trans-Golgi resident protein involved in glycoconjugate biosynthesis. The shorter transcript encodes a protein which is cleaved to form the soluble lactose synthase.

Bio-activity	Measured by its ability to transfer N-Acetyl-D-galactosamine from UDP-GalNAc to N-Acetyl-D-glucosamine. The specific activity is > 2, 000 pmol/min/μg
Molecular Mass	Predicted Molecular Mass: 40 kDa SDS-PAGE: 45-60 kDa, reducing conditions
N-terminal Sequence Analysis	His
Endotoxin	< 1.0 EU/μg of the protein by the LAL method.
Purity	> 95 % by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie Blue Staining.
Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. 6 months from date of receipt, -20 to -70 centigrade as supplied. 3 months, -20 to -70 centigrade under sterile conditions after opening.
Storage Buffer	Supplied as a 0.2 μm filtered solution in Tris, NaCl and TCEP.
Shipping	The product is shipped with polar packs.

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GENE INFORMATION

Gene Name	B4GALT1 beta-1, 4-galactosyltransferase 1 [Homo sapiens (human)]
Official Symbol	B4GALT1
Synonyms	B4GALT1; beta-1, 4-galactosyltransferase 1; GT1; GTB; CDG2D; GGTB2; CLDLFIB; B4GAL-T1; beta4Gal-T1; beta-1, 4-galactosyltransferase 1; N-acetyllactosamine synthase; UDP-Gal:beta-GlcNAc beta-1, 4-galactosyltransferase 1; UDP-Gal:betaGlcNAc beta 1, 4- galactosyltransferase, polypeptide 1; UDP-galactose:beta-N-acetylglucosamine beta-1, 4-galactosyltransferase 1; beta-1, 4-GalTase 1; beta-N-acetylglucosaminyl-glycolipid beta-1, 4-galactosyltransferase; beta-N-acetylglucosaminylglycopeptide beta-1, 4-galactosyltransferase; glycoprotein-4-beta-galactosyltransferase 2; lactose synthase A protein; nal synthase; neolactotriaosylceramide beta-1, 4-galactosyltransferase; EC 2.4.1.22; EC 2.4.1.275; EC 2.4.1.38; EC 2.4.1.90
Gene ID	2683
mRNA Refseq	NM_001497
Protein Refseq	NP_001488
MIM	137060
UniProt ID	P15291

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