Selectin Biosciences Inc.

α(1-3, 4) Fucosidase

α (1-3, 4) Fucosidase (α-L-fucoside fucohydrolase, EC 3.2.1.51) cleaves branched non-reducing terminal fucose, linked α(1-3) or α(1-4) to the N-acetylglucosamine of terminal Gal-GlcNAc disaccharide structures. The presence of sialic acid (but not fucose) linked to the galactose will block cleavage. Substrates for α1-3,4) Fucosidase are shown in Figure 1.

α(1-3, 4) Fucosidase is useful for:

Fucose linkage determination

Deglycosylating glycoproteins with Lewis structures

α(1-3,4) Fucosidase is isolated from *Xanthamonas*

Product code: GE 70

Specifications

Activity: ≥ 2 U/mg, ≥ 0.5 U/mL

Storage: Store at 4°C. Do not freeze

Formulation: The enzyme is provided as a sterile-filtered solution in 20 mM Tris-HCl, 25 mM NaCl pH 7.5.

Stability: Stable at least 12 months when stored properly. Several days exposure to ambient temperatures will not reduce activity.

Product Description

Molecular weight: 55,000 Daltons

Purity: Each lot of α(1-3, 4) Fucosidase is tested for contaminating activities by incubating the enzyme for 24 hours at 37°C with the appropriate substrates; the detection limit of this assay is 5 μU/mL (IUB). A passing lot will have no detectable activity.

For the protease assay, 10 μg of denatured BSA is incubated for 24 hours with 2 μL of enzyme. Analysis of the BSA band after SDS-PAGE should show no evidence of degradation.

Contaminant	Substrate
β-N-acetylglucosaminidase	p-nitrophenyl-β-D-N-acetylglucosaminide
α/β-Galactosidase	p-nitrophenyl-α/β-D -galactopyranoside
Neuraminidase	Methylumbelliferyl-α-D-N-acetylneuraminic acid
α(1-2) Fucosidase	4-methylumbelliferyl-2-0-(α-L-fucopyranosyl)-β-D-galactopyranoside
α/β-Mannosidase	p-nitrophenyl-α/β-D -mannopyranoside
β-Xylosidase	4-methylumbelliferyl-7-β-D-xylopyranoside

Specificity: Non-reducing terminal branched fucose when linked α(1-3) or α(1-4) to GlcNAc of a Gal-GlcNAc disaccharide structure. The presence of sialic acid (but not fucose) linked to the galactose will block cleavage.

Assay

One unit of α(1-3, 4) Fucosidase is defined as the amount of enzyme required to produce 1 μmole of fucose from Lewis X trisaccharide, 4-methylumbelliferyl glycoside in 1 minute at 37°C, pH 5.0. Lewis X trisaccharide is Gal β(1-4)[Fuc α(1-3)]GlcNAc.

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Reagents

- 5X Reaction buffer 5.0 – 250 mM sodium phosphate, pH 5.0

Suggestions for Use

Procedure for De-fucosylation

1. Add up to 1 nM of oligosaccharide to a tube.
2. Add de-ionized water to a total of 15 µL.
3. Add 4 µL 5X Reaction Buffer 5.0.
4. Add 1 µL α(1-3, 4) Fucosidase.
5. Incubate 1 hour at 37°C.

Selectin Biosciences Inc warrants that the above product conforms to the specifications described herein. Should the product fail for reasons other than through misuse Selectin Biosciences Inc. will, at its option, replace free of charge or refund the purchase price. This warranty is exclusive and Selectin Biosciences Inc. makes no other warrants, expressed or implied, including any implied conditions or warranties of merchantability or fitness for any particular purpose. Selectin Biosciences Inc. shall not be liable for any incidental, consequential or contingent damages.

This product is intended for in vitro research only.

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Figure 1 - Fucose residues cleaved by α(1-3,4) Fucosidase (shown in bold)
Man - Mannose; Gal - Galactose; Fuc - Fucose; GlcNAc - N-acetylglucosamine;
NeuAc - N-acetylneuraminic Acid (Sialic Acid); R - Residue

Gal β(1-4) GlcNAc-R
Fuc α(1-3)

Fuc α(1-2) Gal β(1-4) GlcNAc-R
Fuc α(1-3)

Gal β(1-4) Glc
Fuc α(1-3)

Gal β(1-3) GlcNAc-R
Fuc α(1-4)

Fuc α(1-2) Gal β(1-3) GlcNAc-R

Fuc α(1-3) GlcNAc-R

NeuAc α(2-3) Gal β(1-4) GlcNAc-R
Fuc α(1-3)

Man α(1-6)
Man β(1-4) GlcNAc β(1-4)GlcNAc
Man α(1-3)
Fuc α(1-3)