TECHNICAL NOTES

SERVA Glycosidases

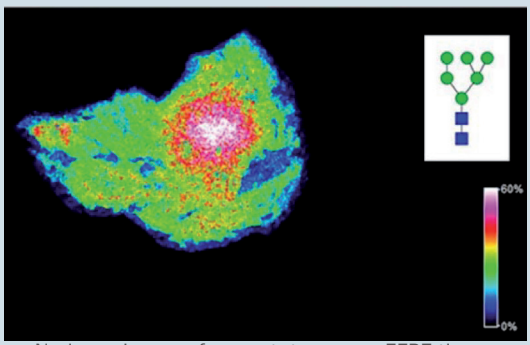
SERVA
serving scientists

Highly Sensitive Analysis of Glycan Chains

Glycosidases are important tools for the characterization of glycoproteins and glycan structures by MALDI Mass Spectrometry Imaging, to monitor protein trafficking, for identification of disease biomarkers and for the development of therapeutic antibodies for correlation of structural and functional protein analysis data. Endoglycosidases like PNGase F, Endo F3 or Endo S are active on N-linked glycans and release sugars from the protein backbone by cleaving asparagine-linked carbohydrates. SERVA Sialidase is one representative of exoglycolytic active glycosidases.

Benefits of SERVA's glycosidases

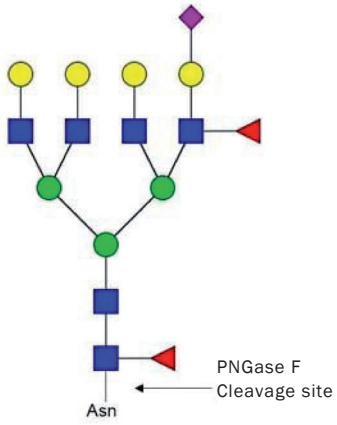
- Specifically engineered and formulated for use in MALDI Mass Spectrometry Glycan Tissue Imaging
- Recombinant enzymes with no detectable contaminating biomolecules or proteins
- Each lot quality tested using HPLC/UPLC and Mass Spectrometry Imaging
- His-Tag for the easy removal by affinity chromatography
- Lyophilized - no need for refrigerated transport, storage at room temperature



N-glycan image of a prostate cancer FFPE tissue

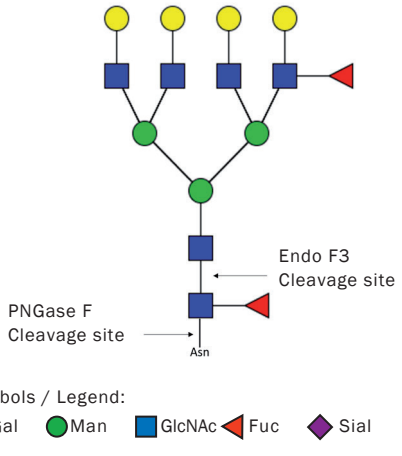
PNGase F – Faster Kinetics and Greater Activity Against Native Proteins

Recombinant endoglycosidase from *Flavobacterium meningosepticum*, which catalyzes the cleavage of N-linked oligosaccharides between the innermost GlcNAc and asparagine residues of high mannose, hybrid and complex oligosaccharides from N-linked glycoproteins. The enzyme does not need a denaturing step and works on native glycoproteins and serum glycoproteins in minutes at room temperature. SERVA PNGase F digestion leads to more complete glycan release and allows for the cleavage of glycans not released by other commercially available enzymes when used at the same concentrations with the same digestion conditions.



Endo F3 – Highly specific cleavage of core-fucosylated glycans

Recombinant endo-β-N-acetylglucosaminidase F3 from *Flavobacterium meningosepticum*, which cleaves in β(1-4) link in between the two core GlcNAcs of asparagine linked glycans. Endo F3 cleaves this link on core-fucosylated structures. Pairing Endo F3 with PNGase F allows for the differentiation between core-fucosylated and outer-arm fucosylated glycan structures in MALDI imaging.



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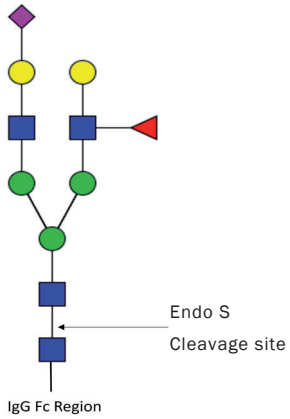
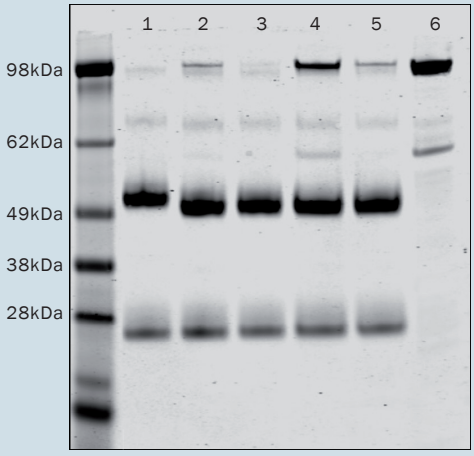
Endo S – Uniquely High Specificity for Cleaving N-linked Glycans

Recombinant endo-β-N-acetylglucosaminidase S from *Streptococcus pyogenes*, which has a unique accuracy for cleaving the N-linked glycans from the chitobiose core of the heavy chain of native IgG molecules. The enzyme hydrolyzes the β(1-4) linkage between the two core GlcNAcs of asparagine linked biantennary complex-type glycans of human IgG Fc regions. This enzyme will leave any human IgG with a single N-Acetylglucosamine, with or without an attached fucose molecule. Its performance is outstanding — able to produce clean peaks with very high yields (as detected by HPLC). Endo S plays a central role in glycoengineering strategies for the development of IgG antibodies with improved therapeutic efficacy.



Endo S digestion of IgG1

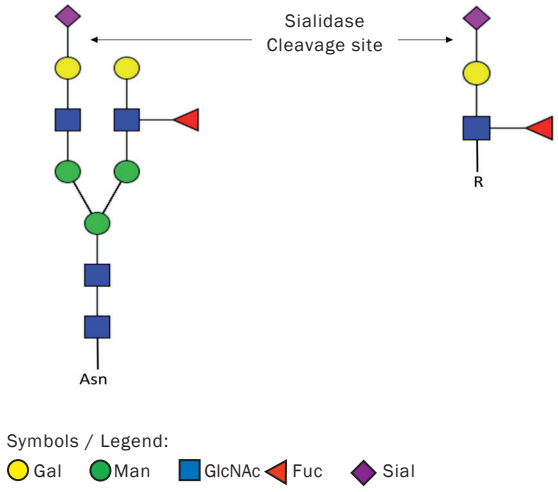


1. IgG1
2. 1 µL Endo S (2 mg/mL)+ 100 ug IgG1
3. 1 µL Endo S (1 mg/mL)+ 100 ug IgG1
4. 1 µL Endo S (2 mg/mL)+ 20 ug IgG1
5. 1 µL Endo S (1 mg/mL)+ 20 ug IgG1
6. Endo S

Reaction conditions: Incubation for 1 h at 37 °C

Sialidase – Complete Removal of Sialic Acids from Glycoconjugates

Sialidases are a family of exoglycosidases that catalyze the cleavage of non-reducing sialic acid residues of mono- or oligosaccharide chains on glycoconjugates. SERVA Sialidase, a recombinant glycosidase from *Arthrobacter ureafaciens*, cleaves α2,3-, α2,6- and α2,8- linked sialic acids. Because of its broad substrate specificity, Sialidase is capable of completely removing sialic acids from glycoconjugates of a wide variety of biological materials (cells, antibodies, serum, tissues etc.).



Ordering information

Product	Size	Cat. no.
PNGase F, recombinant, 1000 U/µl (2.0 mg/ml) in 1x PBS	50 µl	36404.01
PNGase F, recombinant, lyophilized (after reconstitution 1000 U/µl, 2.0 mg/ml)	100 µg	36405.01
Endo F3, recombinant, lyophilized (after reconstitution 8 U/µl)	100 µg	36407.01
Endo S, recombinant, lyophilized (after reconstitution 200 U/µl)	10 µg	36408.01
	50 µg	36408.02
	100 µg	36408.03
Sialidase, recombinant, lyophilized (after reconstitution 50 U/µl)	100 µg	36409.01

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