Product Information

Heparanase-1 pre-activated human

Recombinant, expressed in HEK 293 cells

SAE0116

Product Description

Enzyme Commission (EC) Number: 3.2.1.166

Synonyms: Endo-glucoronidase, HPA1, HPA, HPR1, HPSE1, HPSE, HSE1, Heparanase

Storage Temperature: –20 °C

Heparanase-1 (heparanase) is the only heparan sulfate-degrading endoglycosidase.[1] Heparanase is involved in the regulation of multiple biological processes that increase tumor growth, metastasis, angiogenesis, and inflammation.[1] Heparanase is involved in ECM remodeling and release of heparan sulfate-linked biological molecules, including cytokines and growth factors.[2] Heparanase cleaves the heparan sulfate side chains of heparan sulfate proteoglycans into fragments of 10-20 sugar units.[3]

Heparanase is initially translated as a preproenzyme containing a signal peptide. Cleavage of the signal sequence yields a latent 65 kDa pro-heparanase, which must undergo further processing for activity. Mature active heparanase is a heterodimer that consists of an N-terminal 8 kDa subunit and a C-terminal 50 kDa subunit.[4]

This recombinant human heparanase-1 is expressed in human HEK 293 cells as an active heterodimer glycoprotein that contains a 50 kDa subunit and a 8 kDa subunit. This protein is manufactured in human cells, with no serum. The human cell expression system allows human-like glycosylation and folding, and often supports higher specific activity of the protein. This heparinase-1 preparation is activated by proprietary methods to yield a catalytically active enzyme. The protein is produced with no artificial tags. It can be used to study the mode of action of heparanase-1, and to screen for potential inhibitors. It may also be used as a standard, such as in heparanase-1 activity assays.

Product

This product is lyophilized from a 0.22 µm filtered solution of 20 mM Trizma® with 400 mM NaCl, pH 7.5.

The activity of the protein is measured by its ability to cleave a pentasaccharide, to produce a reducing disaccharide.

Specific activity: ≥400 units/µg

Unit definition: One unit is defined as the amount of heperanase required to cleave 1 pmol of a pentasaccharide to disaccharide and trisaccharide in one minute at 37 °C and pH 5.0.

Purity: ≥95.0% (SDS-PAGE)

Endotoxin: ≤1.00 EU/µg (LAL)

UniProt: Q9Y251

Precautions and Disclaimer

This product is for R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store the lyophilized product at –20 °C. The product is stable for at least 2 years as supplied.

Preparation Instructions

- Briefly centrifuge the vial before opening.
- Reconstitute in water to a concentration of 0.1 mg/mL.
- **Do not vortex**.
- This solution can be stored at 2-8 °C for up to 1 week.
- For extended storage, it is recommended to store in working aliquots at –20 °C.

References

1. Vlodavski, I. *et al*., *Trends Biochem. Sci*., **43(1)**, 18-31 (2018).
2. Jin, H., and Cui, M., *Arch. Med. Res*., **49(7)**, 423-429 (2019).
3. Vlodavski, I. *et al*., *Nat. Med*., **5(7)**, 793-802 (1999).
4. Levy-Adam, F. *et al*., *Biochem. Biophys. Res. Commun*., **308(4)**, 885-91 (2003).

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