Heparinase II Lyophilized, Research Grade

Part No 60-018 (0.5 IU/vial)
60-019 (2 IU/vial)

Product Information

Synonyms	Heparitinase II, Heparin Lyase II
Source	*Flavobacterium heparinum* (Recombinant)
EC Number	Not Assigned
CAS Number	149371-12-0
Product Format	Heparinase II is presented in phosphate buffered saline pH 6.5 containing a disaccharide as lyoprotectant and lyophilized in a vacuum-sealed vial. No bovine serum albumin (BSA) or preservatives added.

Reconstitution & Catalytic Concentration Post-reconstitution

Part No	*Purified water*	*Activity/vial*	*Catalytic conc.*
60-018	250 µL	≥ 0.5 IU/vial	≥ 2 IU/mL
60-019	250 µL	≥ 2 IU/vial	≥ 8 IU/mL

Storage and Shipping Information

Storage Temperature	2°C to 8°C
Transport Condition	Shipped at ambient temperature

Catalytic Reaction

The enzyme cleaves (*via* an elimination mechanism) sulfated polysaccharide chains containing 1-4 linkages between hexosamines & uronic acid residues (both iduronic & glucuronic acid residues). The reaction yields oligosaccharide products (mainly disaccharides) containing unsaturated uronic acids, which can be detected by UV spectroscopy at 232 nm. The enzyme also cleaves the antithrombin III binding pentasaccharide domain in the heparin molecule.

Substrate Specificity

The enzyme cleaves both heparin & heparan sulfate, with the heparan sulfate activity being about twice as high as the heparin activity.

Properties

- O-glycosylated at Thr-134
- Isoelectric point: 9.1 – 9.2
- Molecular weight: 85,765 Da
- Calcium is inhibitory

Activity

One International Unit (IU) is defined as the amount of enzyme that will liberate 1.0 µmole unsaturated oligosaccharides from porcine mucosal heparin or heparan sulfate per minute at 30°C & pH 7.3. (Activity depends on the assay temperature, the buffer, the source & the type of heparan sulfate used).

Activity Assay Parameters	*Range*	*Optimum*
pH	5.0 – 9.0	7.3 ± 0.1
Temperature	20 – 37°C	30 ± 0.5°C

Intended Use, Reference & Precautions

- These products are for ***in vitro*** **R&D use only** & not for therapeutic or other uses.
- Refer to the lot-specific Certificate of Analysis (CoA) for the shelf life when the products are stored as lyophilized vials (without reconstitution) at 2 – 8°C and the actual activity post-reconstitution.
- Reconstitute just before use.
- DO NOT freeze the reconstituted enzyme.

Applications

- Production of low- & ultra-low molecular weight heparins (LMWH & ULMWH).
- Characterization of heparin, heparan sulfate (HS) & LMWH,
- Structural & mass spectral analyses & characterization of heparin, HS, LMWH, heparosan & Heparin-like GAGs.
- Production & isolation of oligosaccharides with novel sequences of $GlcNH_3^+$ residues.
- Depolymerization of heparin & HS, chemically modified heparins & molecular weight profiling of heparins, HS & chemically modified heparins.
- In-process, quality control, & compendial testing of heparins, heparan sulfate (HS), heparin- & HS-derived products.
- Quantification of contaminants & process-related impurities in heparin such as over-sulfated chondroitin sulfate & persulfonated heparin.
- Glycobiology & cancer research.
- *In vitro* host-pathogen interactions in viral infections, virus plaque inhibition assays, virus-adhesion inhibition studies, cell culture experiments, etc.
- *In vitro* immunohistochemistry, immunocytochemistry & flow cytometry.
- Circumventing the inhibitory effects of heparin in the PCR reaction.

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