

Heparinase III Lyophilized, Research Grade

Part No	60-020 (0.5 IU/vial)
	60-021 (2 IU/vial)
	60-030 (20 IU/vial)

Product Information

Synonyms	Heparin Lyase III, Heparan sulfate lyase/eliminase, Heparitinase I
Source	<i>Flavobacterium heparinum</i> (Recombinant)
EC Number	4.2.2.8
CAS Number	37290-86-1
Product Format	Heparinase III is presented in a phosphate buffered saline pH 7.0 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.
60-020	250 µL	≥ 0.5 IU/vial	≥ 2 IU/mL
60-021	250 µL	≥ 2 IU/vial	≥ 8 IU/mL
60-030	250 µL	≥ 20 IU/vial	≥ 80 IU/mL

Storage and Shipping Information

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

Catalytic Reaction

The enzyme cleaves selectively, via an elimination mechanism, sulfated polysaccharide chains containing 1-4 linkages between hexosamines & glucuronic acid residues. The reaction yields oligosaccharide products (mainly disaccharides) containing unsaturated uronic acids which can be detected by UV spectroscopy at 232 nm.

Substrate Specificity

Heparan sulfate (does not cleave unfractionated heparin)

Properties

- Isoelectric point: 9.6 – 9.9
- Molecular weight: 73,202 Da
- Calcium ion is a cofactor and an activator

Activity

One International Unit (IU) is defined as the amount of enzyme that will liberate 1.0 µmole unsaturated oligosaccharides from heparan sulfate per minute at 30°C & pH 7.5. (Activity depends on the assay temperature, the buffer & the source of heparan sulfate used).

Activity Assay Parameters	Range	Optimum
pH	5.5 – 9.0	7.5 ± 0.1
Temperature	20 – 37°C	30 ± 0.5°C

Intended Use, Reference & Precaution

- The product is 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 heparan sulfate (HS) & LMWH.
- Compositional analysis of glycocalyx in tissues & on cells.
- Depolymerization of HS & chemically modified heparins & molecular weight profiling of HS.
- Production & isolation of oligosaccharides with novel sequences of GlcNH₃⁺ residues.
- In-process, quality control, & compendial testing of heparan sulfate (HS) & HS-derived products.
- Quantification of contaminants & process-related impurities in heparin such as over-sulfated chondroitin sulfate & persulfonated heparin.
- Glycobiology & cancer biology research,
- Identification of the biological properties of HS that depend on the integrity of the S-domains & determination of the spacing between S-domains.
- *In vitro* host-pathogen interactions in viral infections, virus-adhesion inhibition studies, virus-plaque inhibition assays, cell culture experiments, etc.
- *In vivo* inhibition studies of neovascularization & proliferation of capillary endothelial cells.
- Mass spectral analysis of heparins & heparan sulfates.
- *In vitro* histochemistry, immunohistochemistry, immunocytochemistry & flow cytometry, etc.