Tinzyme Co., Limited

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HeparinaseI

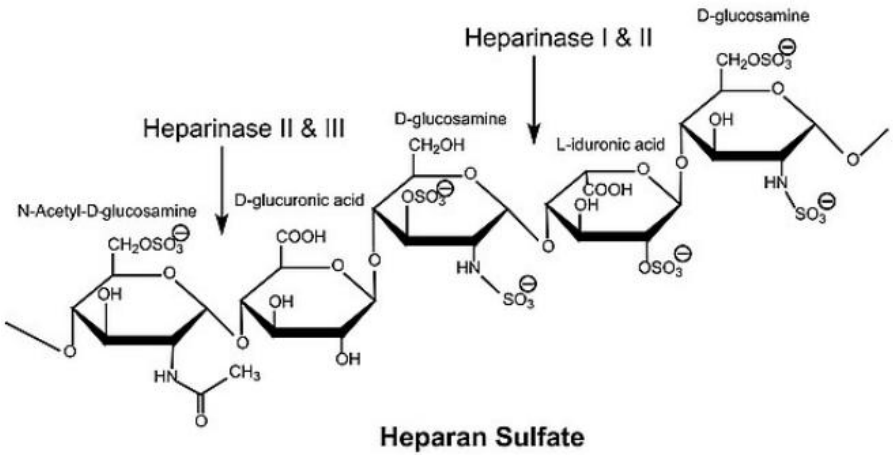
Product Number:HP0901

Shipping and Storage

Storage at -25℃~-10℃ (note: avoid freezing below -25℃; prolonged freezing may result in loss of active parts) Validity period: 12 months.

Description

Heparinases are a large class of polysaccharide lyases that can cleave structural analogues of heparin, such as heparin or heparin sulfate acetate. They are divided into three types based on substrate specificity: Heparinases I, Heparinases II, and Heparinases III. All three types of heparanases pass through β-Eliminating mechanisms acting on α(1-4) Glycoside bonds, producing oligosaccharides containing unsaturated uronic acid residues.Heparinase I acts on the glycosidic bonds of 2-3 sulfated disaccharides G1cNS (6S) - IdoUA (2S); The action site of heparanase III is the N-acetylated oligosaccharide region connected by GIcNS/NAC-G1cUA; Heparinase II has both heparanase I and heparanase III activities, which not only cleaves bonds adjacent to IdoA and G1cA, but also cleaves bonds adjacent to rare L-galactonic acid residues and rare disaccharides including $G1cNH_3$.



Heparinase I mainly acts on heparin, while Heparinase II can act on heparin and acetylated heparin sulfate. Heparinase III mainly acts on acetylated heparin (which can also act on heparin).

Heparinase I has high selectivity in recognizing the →4]G1cNS6S/G1cNS2S6S(1→4)1IdoA2S[1→in heparin, which is used for depolymerizing heparin. IdoA2S is an essential part of the cleavage reaction, and due to its substrate specificity, Heparinase I cannot effectively and completely depolymerize heparin.Heparinase III can cleave the rare disaccharide units in heparin:→4] G1cNS/G1cNS6S/G1cNAc/G1cNAc6S (1→4) IdoA/G1cA [1→, therefore, Heparinase III can compensate for the deficiency of Heparinase I in the depolymerization of heparin.

Heparinase III can be used to prepare low molecular weight heparin, analyze the structure of heparin, eliminate heparin during cardiopulmonary bypass, inhibit neovascularization, and treat obstetric complications.

Flavobacterium heparinum is currently the only source of commercial heparanase.

Enzymology number	EC 4.2.2.7
CAS number	9025-39-2
Source	Flavobacterium heparinum
Form	Solution (containing 50% glycerol)
Enzyme activity	10IU/ml
Purity	⩾90%(SDS-PAGE)

Application

For Research Use Only

1. Analysis of heparin disaccharide and oligosaccharide spectra.
2. 1,6-Anhydride Ring Structure Test of Enoxaparin Sodium (Ring Formation Rate).
3. Degradation of heparin, preparation of heparin disaccharides and heparin oligosaccharides.
4. Neutralizing Heparin in Clinical Blood Samples.
5. Production of low-molecular-weight heparin (Tingheparin sodium).

Unit definition

One International Unit (IU) refers to the potency of producing 1μmol of 4,5-unsaturated uronic acid per minute at 30℃ and pH 7.4.

Protocol

The product of heparanase I can be detected at a wavelength of 232nm using a UV visible spectrophotometer.

Recommended usage conditions

1. Optimum pH:7.4;Scope of application:4-9.
2. Optimum Temperature:30℃;Temperature applicable range:20 ~ 37℃.
3. Storage Buffer:20 mmol/L Tris-HCl (pH 8.0), 20 mmol/L NaCl,50% (v/v) Glycerol.
4. Using buffer solution:20 mmol/L Tris-HCl (pH 8.0), 100 mmol/LNaCl, 5mmol/L $CaCl_2$.