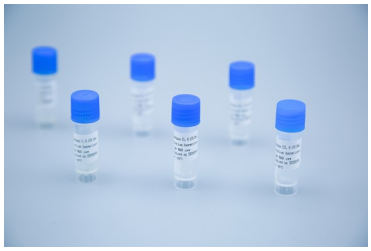
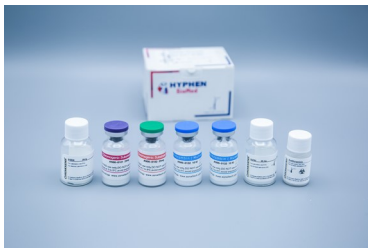
Product Catalog for Heparin Analysis





Asnail provides a comprehensive range of products and services for the heparin industry, including heparinase, chromogenic substrates, Automatic Pipetting Platform for Heparin Titer Detection , oligosaccharide fragments, standards, and BioGX PCR kit.

Our products can be used for chromogenic potency assays of heparins, analysis of 1,6-anhydro species, molecular weight determinations of heparin and low-molecular-weight heparins .

Introduction of Company

Found in 2017, Beijing Asnail Biotechnology Co., Ltd. is devoted to providing high-quality products for heparin analysis and coagulation testing.

Heparin analysis include:

Heparinases (I, II, III)

Chromagenic substrates, including S-2238, S-2765, and S-2222

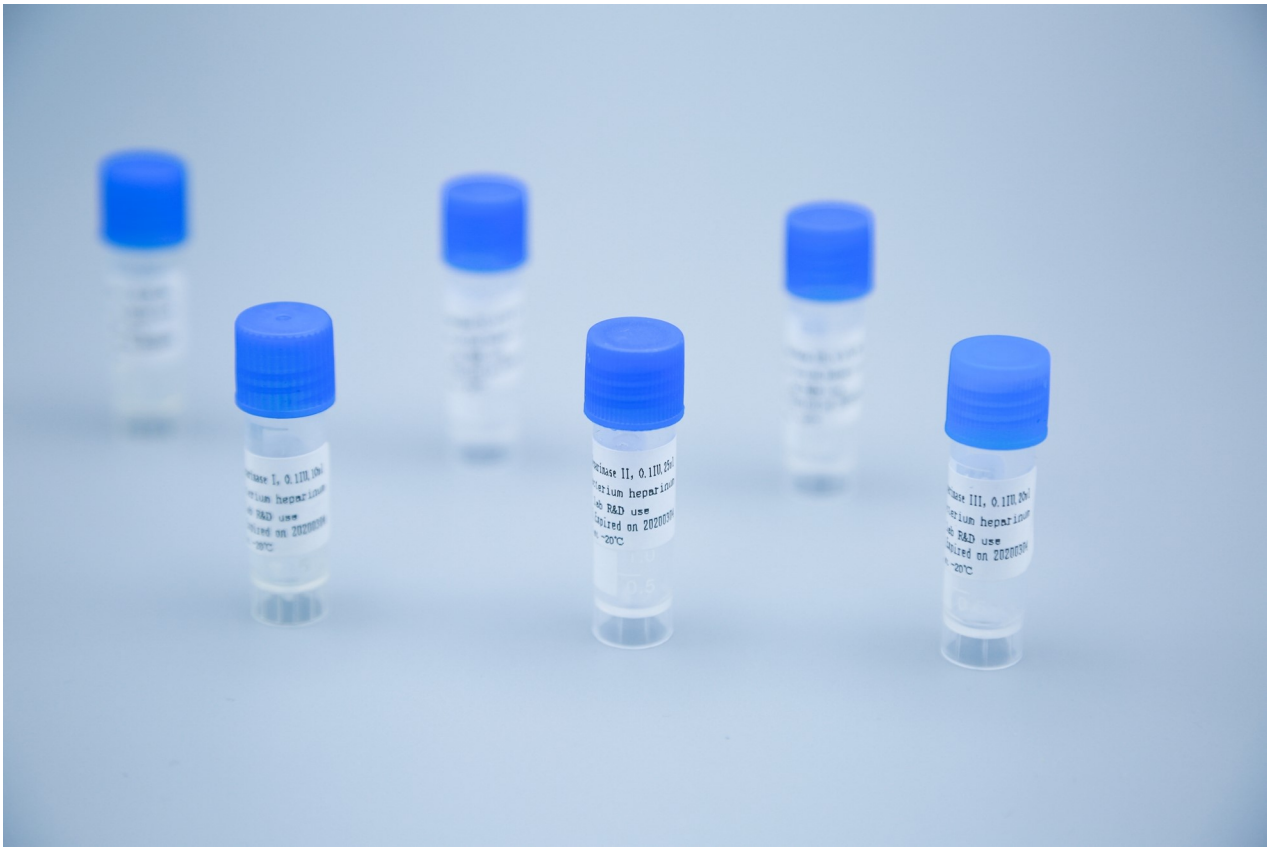
Coagulation factors and antithrombin, including FXa, FIIa

Heparin-related saccharides, including heparin disaccharides, and heparin analogs

HPLC columns: SAX columns for determining 1,6-anhydro species in enoxaparin sodium, and SEC columns for determining molecular weight distributions of heparin and LMWHs

Content

Heparinases



Heparinases can clave glycosidic bonds of heparin and/or heparan sulfate by a β-elimination mecha-nism, generating unsaturated products (mostly disaccharides) with a double bond be-tween C4 and C5 of the uronate residue.

Features

- Natural heparinase, from Flavobacterium hepa-rinum.
- It has the highest specific activity compare with other products on the market.
- Pure enzyme, free of BSA or other protein impu-rities.
- Good stability, consistent batch reproducibility and degradation characteristics.

Applications

- Test for 1,6-anhydro derivative for enoxaparin sodium
- Finding featured fragments in heparin chains
- Degrading of heparin before qPCR experiments for determining the origin of heparin
- Processing blood samples or other tissues in order to neutralize heparin/heparan sulfate
- Preparation of heparin derived unsaturated disaccharides and heparin oligosaccharides
- Production of low molecular weight heparins from unfractionated heparin

Specifications

	heparinase I	heparinase II	heparinase III
Origin	Flavobacterium Heparinum	Flavobacterium Heparinum	Flavobacterium Heparinum
CAS Number	9025-39-2	149371-12-0	37290-86-1
EC Number	9025-39-2	149371-12-0	37290-86-1
MW	42.8 kDa	84.1 kDa	70.8 kDa
Purity (HPLC)	>99%	>99%	>99%
Specific Activity	>400 IU/mg（Heparin as substrate)	>15 IU/mg（Heparin as substrate） >18 IU/mg（heparan sulfate as substrate)	>200 IU/mg （heparan sulfate as substrate)
Concentration	10 IU/mL	4 IU/mL	5 IU/mL
Storage Temperature	-20 ℃	-20 ℃	-20 ℃

Order information

Catlong No	Name	Package
AS00-2519	heparinase I，from Flavobacterium Heparinum	0.1 IU, 1.0 IU. 20 IU. 200 IU
AS00-6512	heparinase II，from Flavobacterium Heparinum	0.1 IU, 1.0 IU
AS00-8891	heparinase ，from Flavobacterium Heparinum	0.1 IU, 1.0 IU
AS00-2519-EP	heparinase I，from Flavobacterium Heparinum	0.1 IU
AS00-6512-EP	heparinase II，from Flavobacterium Heparinum	0.1 IU
AS00-8891-EP	heparinase III，from Flavobacterium Heparinum	0.1 IU

Note:

- Heparinases must be stored at -20 ℃ or below. Use dry ice as coolant during transportation ;
- 1 IU = 600 Sigma units where IU stands for international unit;
- AS00-2519-EP、AS00-6512-EP、AS00-8891-EP ,meets all requirements of the European Pharmacopoeia test method

European Pharmacopoeia （System suitability）:

– peak area ratio: maximum 1.15 for the peaks due to 1,6-anhydro ΔIS-IS and 1,6-anhydro ΔIS in the chromatogram obtained with reference solution (b);

- maximum 0.02 for the peaks due to ΔIS and reduced ΔIS in the chromatogram obtained with reference solution (c);

– resolution: minimum 1.5 between the peaks due to reduced ΔIA and 1,6-anhydro ΔIS in the chromatogram obtained with reference solution (c);

– the content of 1,6-anhydro derivatives in enoxaparin sodium CRS is within 1.5 per cent of the assigned content.

Chromogenic substrates for coagulation testing

Asnail provides all kinds of chromogenic substrates for determining anti-FIIa and anti-FXa potencies of heparin, heparin sodium, and other LMWHs.

The chromogenic substrate is a chemically synthesized small peptide with the chromogenic group nitroaniline (pNA) at one end. Specific enzymes, such as thrombin, catalyze the dissociation of pNA .The resulting chromophore, p-nitroaniline (pNA) , can be measured at 405 nm wavelength. The potency of heparin therefore can be calculated by parallel-line assay method.

Applications

- Anti-factor Xa activity to anti-factor IIa activity ratios of heparin and LMWHs
- Anti-factor IIa activities Anti-factor IIa activitis of heparin and LMWHs
- Production of kits for determination of antithrombin activity in plasma
- Evaluation of potential anticoagulants from synthesis, fermentation and animal tissues

	S-2238	S-2765
CAS Number	113711-77-6	115388-96-0
Molecular Weight	625.6 Da	714.6 Da
Purity (HPLC)	> 99.5%	> 99.5%
Impurities (OD405)	≤ 0.120 [L/(g·cm)]	≤ 0.120 [L/(g·cm)]
Solubility in Water	> 10 mg/mL	> 10 mg/mL

	Activated Factor X	Alpha-Thrombin	Antithrombin
Abbreviation	FXa	FIIa	AT
Origin	Bovine Plasma	Human Plasma	Human Plasma
Molecular Weight	~ 44 kDa	~ 35 kDa	~ 56 kDa
Purity (SDS-PAGE)	≥ 95%	> 95%	> 95%
Specific Activity	> 1.5ukat/mg	≥ 1500 IU/mg	> 6 IU/mg

Order information

Asnail™ Detection Reagent

Catalog #	Description	Size
AS00-0101	S-2238, Chromogenic Substrate for Thrombin	25mg
AS00-0102	S-2765, Chromogenic Substrate for Factor Xa	25mg
AS00-0121	Activated Factor X (FXa), from Bovine Plasma	71nkat
AS00-0122	Alpha-Thrombin (FIIa), from Human Plasma	50 IU
AS00-0131	Antithrombin (AT), from Human Plasma	10 IU

Note: 1 IU = 16.67 nkat。The reagent should not be used in clinical treatment

Chromogenix™ Detection Reagent

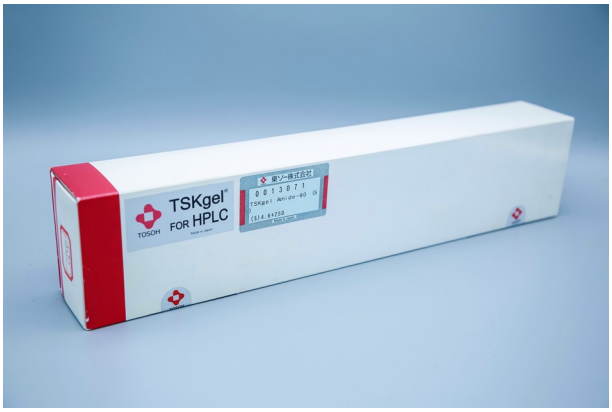
Catalog #	Description	Size
82032439	S-2238, Chromogenic Substrate for Thrombin	25 mg
82141339	S-2765, Chromogenic Substrate for Factor Xa	25 mg
82098539	Activated Factor X (FXa), from Bovine Plasma	10×71 nkat
82072039	Antithrombin (AT), from Human Plasma	10×10 IU

Hyphen-BioMed Detection Reagent

Catalog #	Description	Size
EZ006K	Thrombin，from Human Plasma	6×10 NIH
EZ006A	Thrombin，from Human Plasma	1×100 NIH
EZ006B	Thrombin，from Human Plasma	1×1000 NIH

Note: 1 NIH = 1 IU。The reagent should not be used in clinical treatment。

TOSOH TSKgel SWXL Columns



Tosoh SWxl series columns feature high porous volume/unit volume ratio, low sample absorption, and high column efficiency. could be used for MW determinations of heparin and LMWHs

Order information

Catalog #	Description	Particle size	Calibration range
0008540	TSKgel G2000SWXL，7.8×300 mm	125 A	5,000 - 150,000 Da
0008541	TSKgel G3000SWXL，7.8×300 mm	250 A	10,000 - 500,000 Da
0008542	TSKgel G4000SWXL，7.8×300 mm	450 A	20,000 - 7,000,000 Da
0008543	Guard Column for P/N 0008542 ， 6×40 mm	-	-

BioCore™ SEC columns

Asnail co-developed the BioCore SEC-HP columns, tailored for molecular weight (MW) and MW distribution. The column is durable and can provide better volume exclusion separation.

Order information

Catalog #	Description
B213-050015-07830S-HP	BioCore™ SEC-150，5 μm，7.8x300 mm
B213-050015-04630S	BioCore™ SEC-150，5 μm，4.6x300 mm
B213-050030-07830S-HP	BioCore™ SEC-300，5 μm，7.8x300 mm
B213-050030-04630S	BioCore™ SEC-300，5 μm，4.6x300 mm
B213-050050-07830S-HP	BioCore™ SEC-500，5 μm，7.8x300 mm
B213-050050-04630S	BioCore™ SEC-500，5 μm，4.6x300 mm
B213-050015-04601S	BioCore™ SEC-150Guard Column ，5 μm，4.6x10 mm
B213-050030-04601S	BioCore™ SEC-300Guard Column ，5 μm，4.6x10 mm
B213-050050-04601S	BioCore™ SEC-500Guard Column ，5 μm，4.6x10 mm
Guard-04601S	Holder of Guard Column

Dionex™ IonPac™ AS11 IC Columns

The Column specifically designed to resolve a large number of inorganic anions and organicacid anions from a single sample injection in one gradient run using hydroxide eluent systems.

USP officially specifies the method for the identification of heparin sodium chromatography

Order information

Catalog #	Description
044076	AS11，13 μm，4×250 mm
044077	AS11，13 μm，2×250 mm
044078	AG11 Guard Column，13 μm，4×50 mm
044079	AG11 Guard Column，13 μm，2×50 mm
052960	AS11-HC Guard Column，9 μm，4×250 mm
052961	AS11-HC，9 μm，2×250 mm
052962	AG11-HC Guard Column，9 μm，4×50 mm
052963	AG11-HC Guard Column，9 μm，2×50 mm
057594	AG15，5 μm，3×150 mm

Dionex™ CarboPac™ PA20 IC Columns

The Column can separates monosaccharides or disaccharides without derivatization for high-resolution separation. Can be used to detect galactosamine limits in total hexosamine.

Order information

Catalog #	Description
060146	CarboPac PA20 Amino Trap Column，3×30 mm
060144	CarboPac PA20 Guard Column，3×30 mm
060142	CarboPac PA20，3×150 mm

Waters Spherisorb SAX Columns

Spherisorb SAX columns contain a silica-based quaternary ammonium bonded sorbent. Can be used to determine the percentage of 1,6-anhydro species of enoxaparin sodium

Order infromation

Catalog #	Description
PSS832715	Spherisorb SAX，5 μm，4.6×250 mm
PSS845305	Spherisorb SAX，5 μm，4.0×250 mm

Thermo Scientific Hypersil SAX Columns

Order information

Catalog #	Description
34105-254630	Hypersil SAX analytical Column，4.6×250 mm
34105-014001	Hypersil SAX Guard Cartridge ，4.6×10 mm
850-00	Holder of Hypersil SAX

Designed for aqueous and low pH mobile phases, the column are highly stable silica-based quarternary amine strong anion exchange columns. This column can be used for the determination of chondroitin sulfate.

Unsaturated Heparin Disaccharides

The unsaturated heparin disaccharides are produced by the action of bacterial heparinase enzymes on high grade porcine heparin and isolated by high resolution gel filtration and ion exchange chromotography. Suitable for USP Chemical Tests / ⟨207⟩ 1,6-Anhydro Derivative for Enoxaparin Sodium

Order information

Iduron Catalog #	Description	Molecular Structure	Size
HD001	Unsaturated Heparin Disaccharides I-S	ΔUA2S-GlcNS6S	1.0 mg
HD002	Unsaturated Heparin Disaccharides III-S	ΔUA2S-GlcNS	1.0 mg
HD003	Unsaturated Heparin Disaccharides I-A	ΔUA2S-GlcNAc6S	1.0 mg
HD004	Unsaturated Heparin Disaccharides II-S	ΔUA-GlcNS6S	1.0 mg
HD005	Unsaturated Heparin Disaccharides IV-S	ΔUA-GlcNS	1.0 mg
HD006	Unsaturated Heparin Disaccharides IV-A	ΔUA-GlcNAc	1.0 mg
HD007	Unsaturated Heparin Disaccharides III-A	ΔUA2S-GlcNAc	1.0 mg
HD008	Unsaturated Heparin Disaccharides II-A	ΔUA-GlcNAc6S	1.0 mg
HD009	Unsaturated Heparin Disaccharides I-P	ΔUA2S-GlcNCOEt6S	1.0 mg
HD010	Unsaturated Heparin Disaccharides III-H	ΔUA2S-GlcN	1.0 mg
HD011	Unsaturated Heparin Disaccharides I-H	ΔUA2S-GlcN6S	1.0 mg
HD012	Unsaturated Heparin Disaccharides II-H	ΔUA-GlcN6S	1.0 mg
HD013	Unsaturated Heparin Disaccharides IV-h	ΔUA-GlcN	1.0 mg

Heparin Analogs

High-purity heparan sulfate (HS) and dermatan sulfate (DS) can be used as HPLC controls or as additives to cell culture media.

Order information

Catalog #	Description	Size
AS00-9320	Dermatan sulfate (DS), sodium salt ,>95%	2mg, 1mg
AS00-9905	Heparan sulfate (HS), sodium salt ,>95%	1g

Heparin Oligosaccharides

Prepared by controlled partial depolymerisation of UF heparin by Heparinase I and separation of the derived oligosaccharides using high resolution gel filtration. The products cover the entire range of oligosaccharides present in Low Molecular Weight Heparins.

Order information

Iduron Catalog #	Description	Molecular Weight	Size
H004	Heparin Oligosaccharide dp4	1200	2mg
H006	Heparin Oligosaccharide dp6	1800	2 mg
H008	Heparin Oligosaccharide dp8	2400	2mg
H010	Heparin Oligosaccharide dp10	3000	2mg
H012	Heparin Oligosaccharide dp12	3550	2mg
H014	Heparin Oligosaccharide dp14	4100	2mg
H016	Heparin Oligosaccharide dp16	4650	2mg
H018	Heparin Oligosaccharide dp18	5200	2 mg
H020	Heparin Oligosaccharide dp20	5750	2 mg
H022	Heparin Saccharide Av. Mol. Wt. 6300	6300	2 mg
H024	Heparin Saccharide Av. Mol. Wt. 6850	6850	2 mg
H030	Heparin Saccharide <9000	<9000	2 mg

Chondroitin/Dermatan Sulphate Disaccharides

The chondroitin/dermatan sulphate disaccharide mix is designed for disaccharide composition analysis of Chondroitin and Dermatan sulphate digested by chondroitinase enzymes.

Order information

Iduron Catalog #	Description	Molecular Structure	Size
CD001	Chondroitin Disaccharides ΔDi-0S	ΔUA–GalNAc	1.0 mg
CD002	Chondroitin Disaccharides ΔDi-4S	ΔUA–GalNAc4S	1.0 mg
CD003	Chondroitin Disaccharides ΔDi-6S	ΔUA–GalNAc6S	1.0 mg
CD004	Chondroitin Disaccharides ΔDi-diSE	ΔUA–GalNAc4S,6S	0.5 mg
CD005	Chondroitin Disaccharides ΔDi-diSB	ΔUA2S–GalNAc4S	0.5 mg
CD006	Chondroitin Disaccharides ΔDi-diSD	ΔUA2S–GalNAc6S	0.5 mg
CD007	Chondroitin Disaccharides ΔDi-triS	ΔUA2S–GalNAc4S,6S	0.5 mg
CD008	Chondroitin Disaccharides ΔDi-UA2S	ΔUA–GalNAc	0.5 mg

WHO Standards

Order information

Catalog #	Description	Size
07/328	Unfractionated Heparin (6th I.S.)	10.7 mg
05/112	Low Molecular Weight Heparin for Molecular Weight Calibration (2nd I.S.)	23.5 mg
11/176	Low Molecular Weight Heparin 2 (3rd I.S.)	9.22 mg
06/166	Antithrombin Concentrate, Human (3rd I.S.)	4.4 IU

USP Standards

For quality control of heparin sodium, including identification, potency testing, molecular weight distribution testing,

Order information

Catalog #	Description	Size
1304038	Heparin Sodium Identification	50 mg
1304016	Heparin Sodium for Assays	9.5 mg
1304049	Heparin Sodium System Suitability	50 mg
1304050	Heparin Sodium with Oversulfated Chondroitin Sulfate	8.8 mg
1304107	Heparin Sodium Molecular Weight Calibrant	10.3 mg
1133580	Oversulfated Chondroitin Sulfate	10 mg
1171455	Dermatan Sulfate	25 mg
1287722	Galactosamine Hydrochloride	50 mg
1294207	Glucosamine Hydrochloride	200 mg
1061901	Benzyl Alcohol	500 mg
1012123	Adenosine	200 mg
1235820	Enoxaparin Sodium	300 mg
1235831	Enoxaparin Sodium for Bioassays	批次效价
1448854	Low Molecular Weight Heparin Molecular Weight Calibrant	10.6 mg

EP Standards

Order information

Catalog #	Description	Size
H0200000	Heparin Sodium BRP	1.1 mL
Y0001282	Heparin for Physico-Chemical Analysis	300 mg
Y0001283	Heparin Sodium for NMR Identification	50 mg
Y0001287	Heparin Calcium for NMR Identification	30 mg
Y0001321	Dermatan Sulfate and Oversulfated Chondroitin Sulfate	1 mL
H0190000	Heparin Low-Molecular-Mass for calibration CRS	10 mg
H0185000	Heparin Low-Molecular-Mass for assay BRP	1 mg
E0180000	Enoxaparin Sodium	200 mg
Y0000167	Benzyl Alcohol	70 mg

CP Standards

Order information

Catalog #	Description	Size
140647	Low Molecular Weight Heparin	10 mg
140787	Heparin Sodium	300 mg
140788	Dermatan Sulfate	30 mg
140789	Oversulfated Chondroitin Sulfate	30 mg
140810	Enoxaparin Sodium	300 mg
140817	Heparin	10 mg
140818	Heparin	50 mg
140819	Heparin for Molecular Weight	25 mg
140820	Low Molecular Weight Heparin for Molecular Weight	25 mg

Ruminant and Porcine DNA Kit

Ruminants may carry pathogenic prions, which can lead to infectious spongiform encephalopathy. In order to ensure the safety of the heparin supply chain, heparin APIs are not allowed to come from cattle and sheep. Crude heparin sodium and APIs contain animal genes, so ruminant genes are detected by quantitative PCR, according to which their source can be determined.

The FDA has developed and recommended a PCR assay for the detection of ruminant raw materials in crude heparin products. This method mainly involves the ChargeSwitch®DNA Extraction Kit, the PowerClean DNA Cleaning Kit, and the BioGX Ruminant DNA Test Kit.

Order information

Catalog #	Description	brand
CS400-100	gDNA Rendered Meat Purification Kit	ChargeSwitch
12877-50	DNA Clean-Up Kit	PowerClean
204-0002	Ruminant and Porcine DNA Kit	BioGX
CS15000	Magnetic Separation Rack	MagnaRack

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