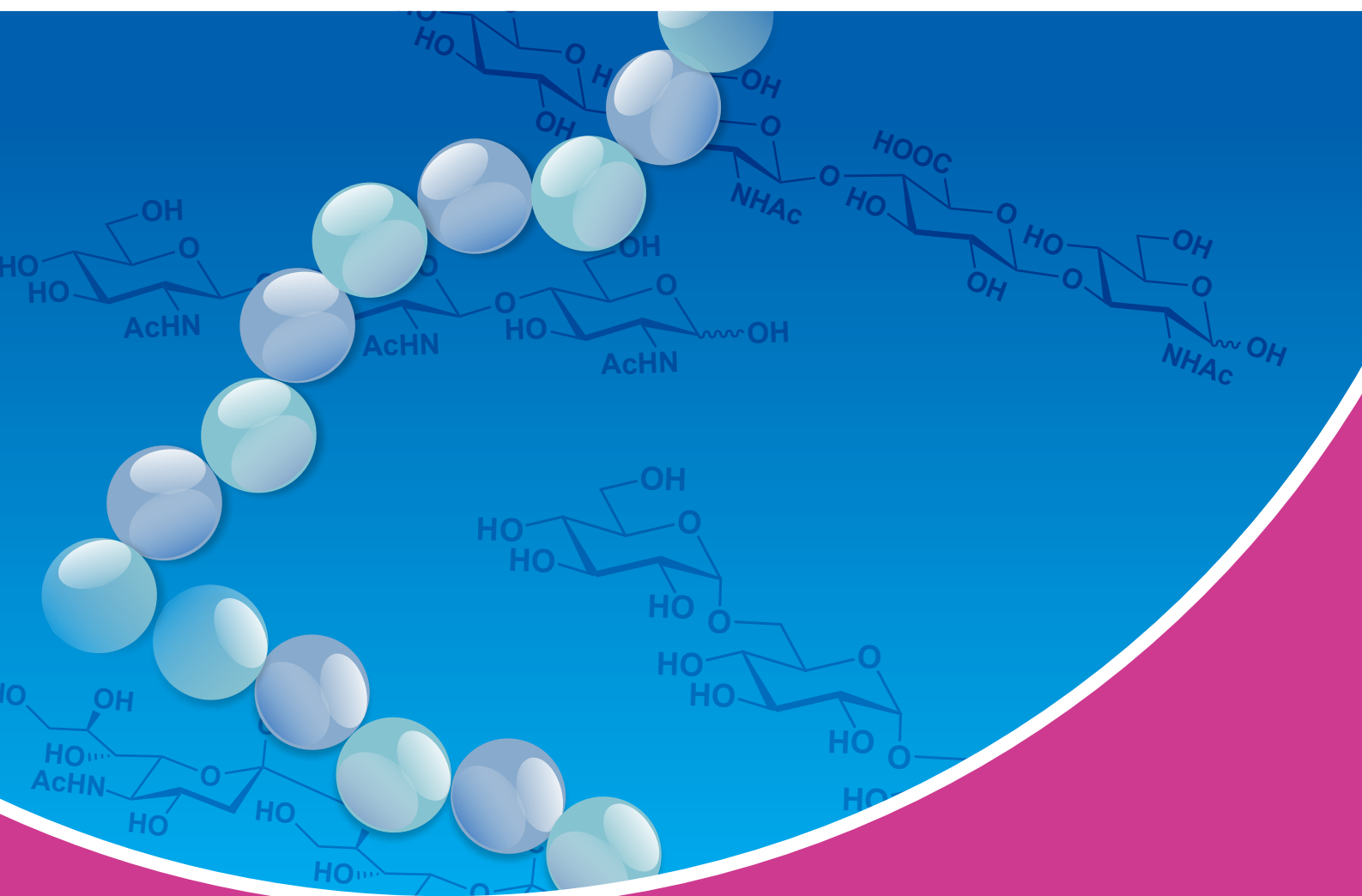


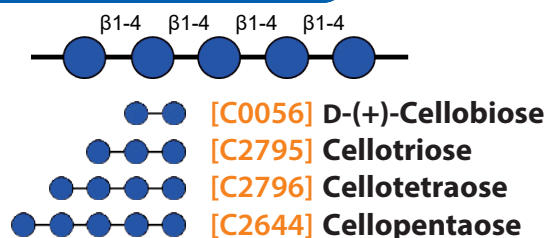
Oligosaccharide Series from Natural Resources



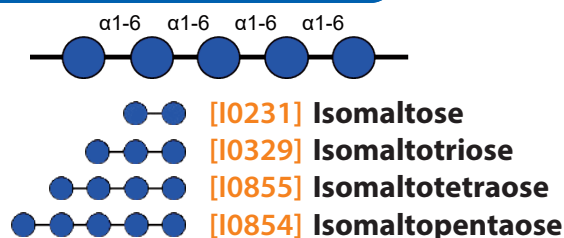
Oligosaccharide series from natural resources

Oligosaccharides are sugar compounds in which monosaccharides are combined with each other through the glycosidic bond, and basically have a molecular weight of about 300 to 3000. Disaccharides such as sucrose and lactose are also members of this group, but in general, those from trisaccharides to approximately 20 mer are often called oligosaccharides. The oligosaccharides, which are well-known so far, have been widely discovered in the animals and plants, and they are the advanced research field where new oligosaccharides are still being discovered from various natural resources.

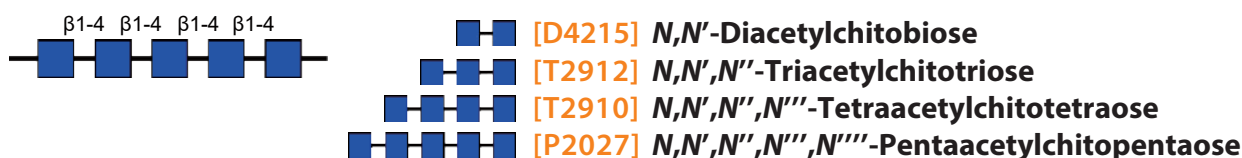
Cello-oligosaccharides



Isomalto-oligosaccharides



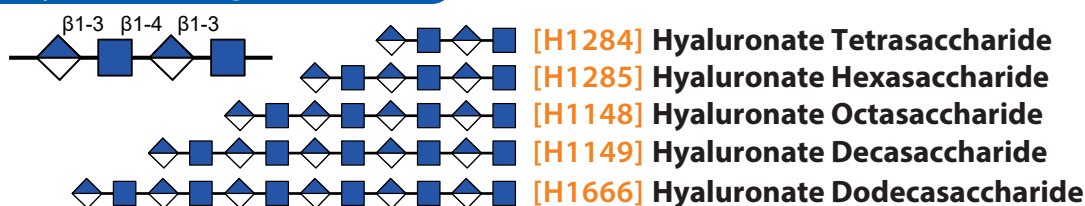
N-Acetyl chito-oligosaccharides



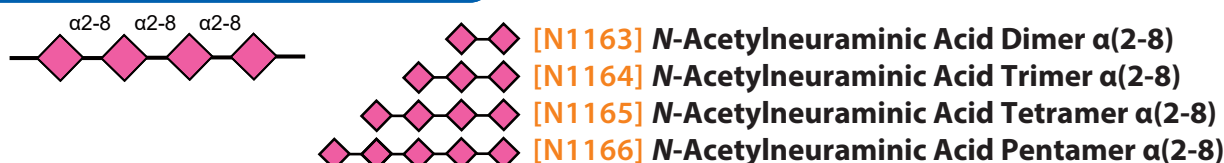
Chito-oligosaccharides



Hyaluronan-oligosaccharides

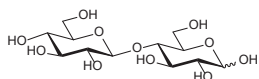


Colominic acid-oligosaccharides

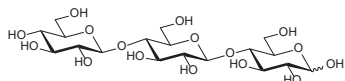


Cello-oligosaccharides [Glc β (1-4)]_n-Glc

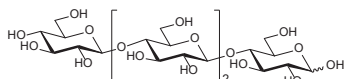
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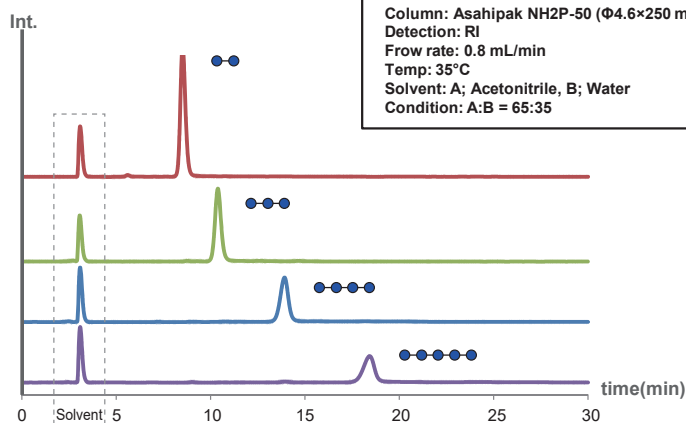
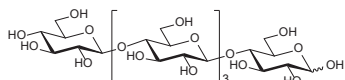
[C2795]



[C2796]



[C2644]



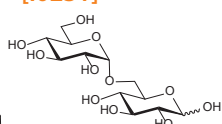
Column: Asahipak NH2P-50 (Φ4.6×250 mm)
 Detection: RI
 Flow rate: 0.8 mL/min
 Temp: 35°C
 Solvent: A; Acetonitrile, B; Water
 Condition: A:B = 65:35

Cello-oligosaccharides

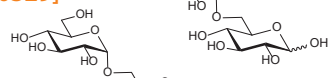
Cello-oligosaccharides are composed of β 1-4 linked glucose, and they are found in pine needles and cornstalks. It is reported that these oligosaccharides have effects on indigestible feature, metabolism activation of colonic epithelial cells, and regulation of intestinal function.

Isomalto-oligosaccharides [Glc α (1-6)]_n-Glc

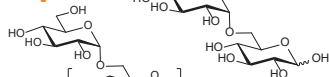
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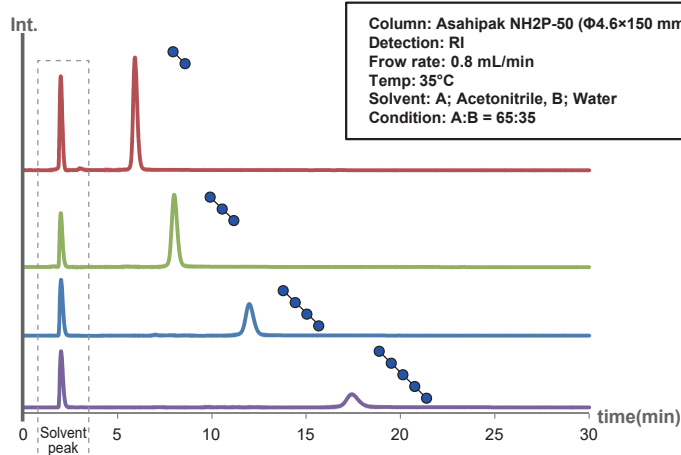
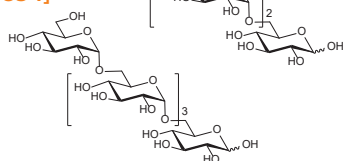
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[I0855]



[I0854]



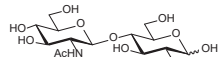
Column: Asahipak NH2P-50 (Φ4.6×150 mm)
 Detection: RI
 Flow rate: 0.8 mL/min
 Temp: 35°C
 Solvent: A; Acetonitrile, B; Water
 Condition: A:B = 65:35

Isomalto-oligosaccharides

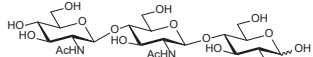
Isomalto-oligosaccharides are composed of α 1-6 linked glucose, and they are included in rice wine (= sake), mirin (= sweet sake), fermented soybean paste (= miso), soy sauce, and honey as naturally derived ingredients. Since these oligosaccharides are selectively uptaken by bifidobacteria and lactobacillus, their supportive characteristics for growth of valuable intestinal bacteria are widely known.

N-Acetyl chito-oligosaccharides [GlcNAc β (1-4)]_n-GlcNAc

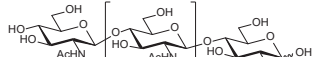
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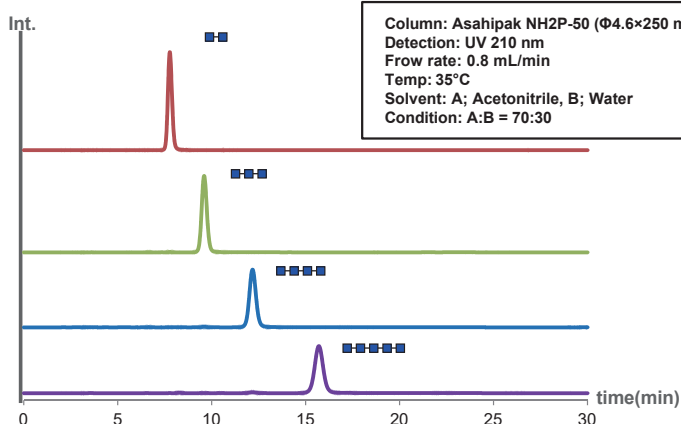
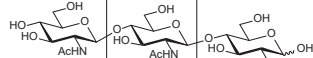
[T2912]



[T2910]



[P2027]



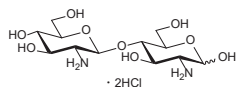
Column: Asahipak NH2P-50 (Φ4.6×250 mm)
 Detection: UV 210 nm
 Flow rate: 0.8 mL/min
 Temp: 35°C
 Solvent: A; Acetonitrile, B; Water
 Condition: A:B = 70:30

N-Acetyl chito-oligosaccharides

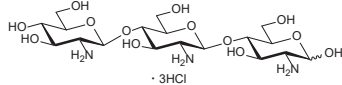
N-Acetyl chito-oligosaccharides are composed of β 1-4 linked N-acetyl-D-glucosamine, and they are present as chitin in crustaceans such as shrimp and crabs. It is reported that these oligosaccharides have effects on indigestible feature, growth promotion of bifidobacteria, and immunostimulatory effects.

Chito-oligosaccharides [GlcNH β (1-4)]_n-GlcNH $_2$

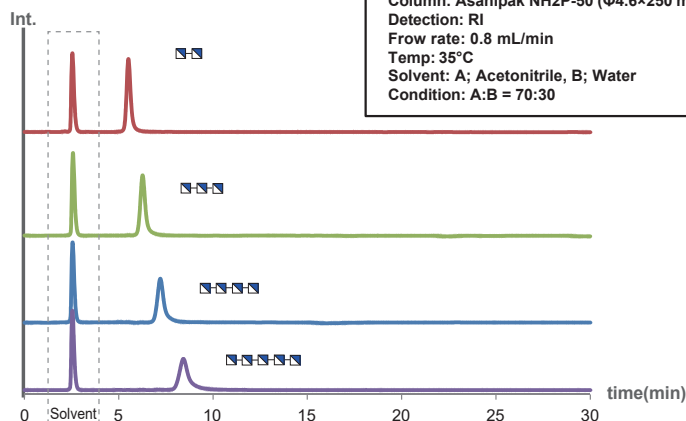
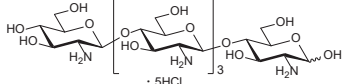
[C3679]



[C2642]



[C3678]



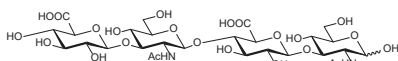
Column: Asahipak NH2P-50 (Φ4.6×250 mm)
Detection: RI
Flow rate: 0.8 mL/min
Temp: 35°C
Solvent: A: Acetonitrile, B: Water
Condition: A:B = 70:30

Chito-oligosaccharides

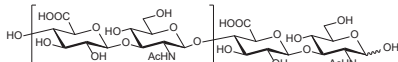
Chito-oligosaccharides are composed of β 1-4 linked D-glucosamine, and they are obtained by deacetylation of chitin. And their indigestible feature, growth promotion of bifidobacteria, and immunostimulatory effects are observed.

Hyaluronan-oligosaccharides [GlcA β (1-3)GlcNAc β (1-4)]_n-GlcA β (1-3)GlcNAc

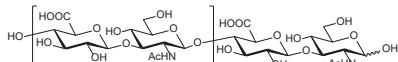
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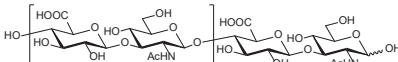
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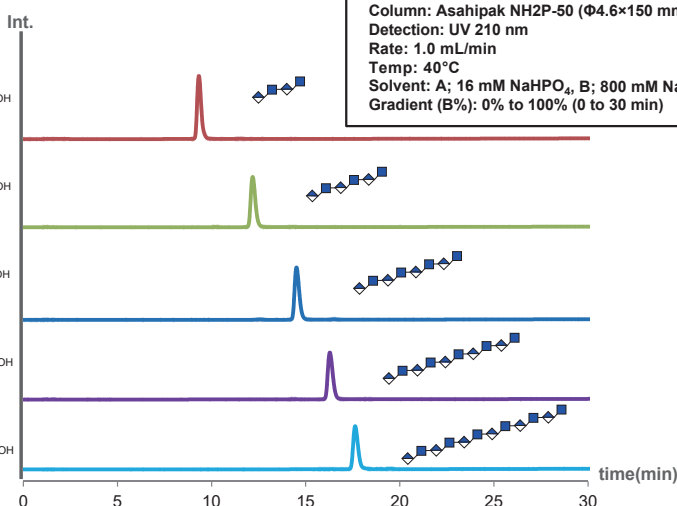
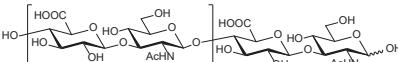
[H1148]



[H1149]



[H1666]



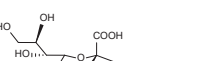
Column: Asahipak NH2P-50 (Φ4.6×150 mm)
Detection: UV 210 nm
Rate: 1.0 mL/min
Temp: 40°C
Solvent: A: 16 mM NaHPO₄, B: 800 mM NaHPO₄
Gradient (B%): 0% to 100% (0 to 30 min)

Hyaluronan-oligosaccharides

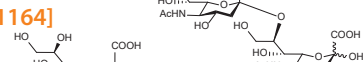
Hyaluronan-oligosaccharides consist of repetitive disaccharide units (of D-glucuronic acid β 1-3 linked by N-acetyl-D-glucosamine) via β 1-4 linkages. Typically, high molecular weight hyaluronic acid is present in normal tissues while low molecular weight hyaluronic acid is observed in inflammatory region and cancer tissues. Oligosaccharides derived from hyaluronic acid characteristically induce angiogenesis and cartilage degradation, and their physiological activities are not found in hyaluronic acid polymers.

Colominic acid-oligosaccharides [Neu5Ac α (2-8)]_n-Neu5Ac

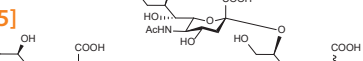
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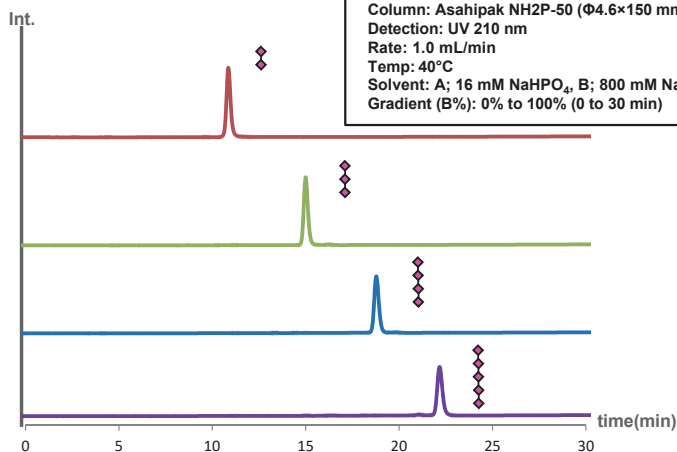
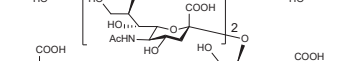
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[N1165]



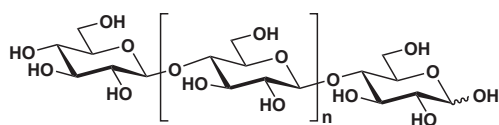
[N1166]



Column: Asahipak NH2P-50 (Φ4.6×150 mm)
Detection: UV 210 nm
Rate: 1.0 mL/min
Temp: 40°C
Solvent: A: 16 mM NaHPO₄, B: 800 mM NaHPO₄
Gradient (B%): 0% to 100% (0 to 30 min)

Colominic acid-oligosaccharides

Colominic acid-oligosaccharides consist of α 2-8 linked sialic acid known as an acidic sugar, and they are observed in neuronal cells and sodium channels in the early stages of development event. In addition, these oligosaccharides contribute to the various physiological function such as a regulation factor for construction of neural networks.

Cello-oligosaccharides [Glcβ(1-4)]_n-Glc**D-(+)-Cellobiose**

5g / 25g [C0056]

Cellotriose

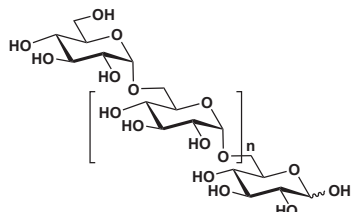
20mg [C2795]

Cellotetraose

10mg [C2796]

Cellopentaose

25mg [C2644]

Isomalto-oligosaccharides [Glcα(1-6)]_n-Glc**Isomaltose**

100mg / 1g [I0231]

Isomaltotriose

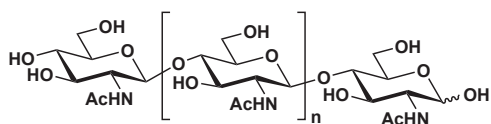
100mg / 1g [I0329]

Isomaltotetraose

50mg [I0855]

Isomaltopentaose

50mg [I0854]

N-Acetyl Chito-oligosaccharides [GlcNAcβ(1-4)]_n-GlcNAc**N,N'-Diacetylchitobiose**

20mg [D4215]

N,N',N''-Triacetylchitotriose

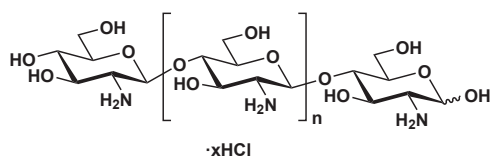
20mg [T2912]

N,N',N'',N'''-Tetraacetylchitotetraose

10mg [T2910]

N,N',N'',N''',N''''-Pentaacetylchitopentaose

10mg [P2027]

Chito-oligosaccharides [GlcNH₂β(1-4)]_n-GlcNH₂**Chitobiose Dihydrochloride**

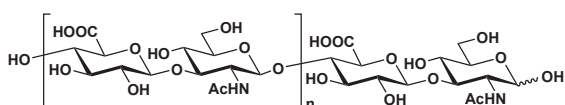
25mg [C3679]

Chitotriose Trihydrochloride

25mg [C2642]

Chitotetraose Tetrahydrochloride**Chitopentaose Pentahydrochloride**

25mg [C3678]

Hyaluronan-oligosaccharides [GlcAβ(1-3)GlcNAcβ(1-4)]_n-GlcAβ(1-3)GlcNAc**Hyaluronate Tetrasaccharide**

1mg / 5mg [H1284]

Hyaluronate Hexasaccharide

1mg / 5mg [H1285]

Hyaluronate Octasaccharide

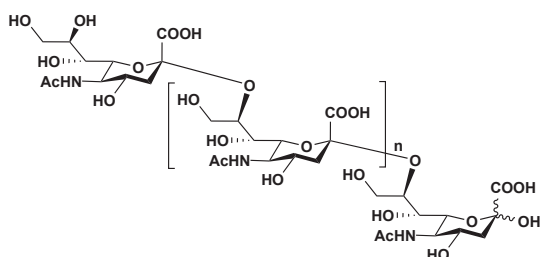
1mg [H1148]

Hyaluronate Decasaccharide

1mg [H1149]

Hyaluronate Dodecasaccharide

1mg [H1666]

Colominic acid-oligosaccharides [Neu5Acα(2-8)]_n-Neu5Ac**N-Acetylneuraminic Acid Dimer α(2-8)**

10mg [N1163]

N-Acetylneuraminic Acid Trimer α(2-8)

10mg [N1164]

N-Acetylneuraminic Acid Tetramer α(2-8)

5mg [N1165]

N-Acetylneuraminic Acid Pentamer α(2-8)

5mg [N1166]

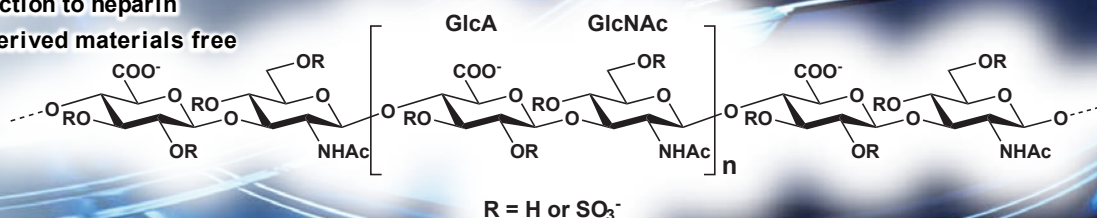
Polysaccharides

(+)-Arabinogalactan from Larch Wood	25g / 100g [A1328]
Amylopectin Hydrate (Amylose free), from Waxy Corn	25g / 500g [A0456]
Alginate Acid	25g / 500g [A0733]
Alginate Acid Calcium Salt	25g / 500g [A0738]
κ-Carrageenan	25g / 100g / 500g [C1804]
ι-Carrageenan	25g / 500g [C1805]
λ-Carrageenan (Low-viscosity)	1g / 5g [C2871]
λ-Carrageenan (High-viscosity)	25g / 500g [C3313]
Chitin	25g / 250g [C0072]
Chitosan (5-20mPa·s, 0.5% in 0.5% Acetic Acid at 20°C)	25g / 100g / 500g [C2395]
Chitosan (20-100mPa·s, 0.5% in 0.5% Acetic Acid at 20°C)	25g / 100g [C2396]
Chitosan (200-600mPa·s, 0.5% in 0.5% Acetic Acid at 20°C)	25g / 100g / 500g [C0831]
Chondroitin Sulfate Sodium Salt	25g / 100g [C0335]
Dermatan Sulfate Sodium Salt	20mg / 100mg [D3672]
Dextran 40 (<i>M_w</i> = ca. 40,000)	25g / 100g / 500g [D1448]
Dextran 70 (<i>M_w</i> = ca. 70,000)	25g / 100g / 500g [D1449]
Dextran Sulfate Sodium from Dextran of <i>M_w</i> Approx. 8000	25g [D5143]
Dextran Sulfate Sodium from Dextran of <i>M_w</i> Approx. 40000	25g [D5144]
Dextrin	100g / 500g [D4657]
Dextrin (Soluble fiber)	100g / 500g [D5658]
Glucan from Black Yeast	1g / 5g [G0331]
Guar Gum	25g / 500g [G0478]
Heparin Sodium Salt from Hog intestine	100mg / 1g [H0393]
Hyaluronic Acid from Cockscomb	1g [H0595]
Sodium Hyaluronate from Cockscomb	100mg / 1g [H0603]
Potassium Hyaluronate from Cockscomb	1g [H0652]
Inulin (by Enzymatic synthesis)	25g / 500g [I1067]
Laminaran from <i>Eisenia Bicyclis</i>	1g / 25g [L0088]
Pectin from Citrus	25g / 500g [P0024]
Pullulan	25g / 100g / 500g [P0978]
Xylan from Corn Core	25g / 100g [X0078]

Chemically-modified Polysaccharides

Sulfated Hyaluronic Acid

- Two products with different degree of sulfation
(Product Number : **H1739**, **H1740**)
- Similar action to heparin
- Animal derived materials free



Hyaluronic Acid, High-Sulfated

10mg 15,000円 **[H1739]**

Hyaluronic Acid, Low-Sulfated

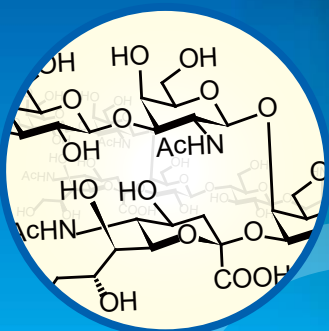
10mg 15,000円 **[H1740]**

Other Chemically-modified Polysaccharides

Carboxymethyl Cellulose Sodium (n=approx. 500)	25g / 500g [C0045]
Carboxymethyl Cellulose Sodium (n=approx. 1,050)	25g / 500g [C0603]
Carboxymethyl dextran Sodium Salt (<i>Mw.</i> =ca. 10,000)	1g / 5g [C3250]
Carboxymethyl dextran Sodium Salt (<i>Mw.</i> =ca. 40,000)	1g / 5g [C3251]
Cellulose PAB Capacity: 0.20meq/g	10g 9,100円 [C0064]
Cellulose TEAE Capacity: 0.72 meq/g	10g 5,300円 [C0068]
Ethyl Cellulose [9-11mPa·s, 5% in Toluene + Ethanol (80:20) at 25°C]	25g / 100g / 500g [E0265]
Ethyl Cellulose [18-22mPa·s, 5% in Toluene + Ethanol (80:20) at 25°C]	25g / 500g [E0072]
Ethyl Cellulose [45-55mPa·s, 5% in Toluene + Ethanol (80:20) at 25°C]	25g / 500g [E0266]
Ethyl Cellulose [90-110mPa·s, 5% in Toluene + Ethanol (80:20) at 25°C]	25g / 500g [E0290]
Hydroxyethyl Cellulose (200-300mPa·s, 2% in Water at 20°C)	25g / 500g [H0242]
Hydroxyethyl Cellulose (800-1,500mPa·s, 2% in Water at 20°C)	25g / 500g [H0418]
Hydroxyethyl Cellulose (4,500-6,500mPa·s, 2% in Water at 25°C)	25g / 500g [H0392]
Hydroxypropyl Cellulose (3-6mPa·s, 2% in Water at 20°C)	25g / 500g [H0473]
Hydroxypropyl Cellulose (6-10mPa·s, 2% in Water at 20°C)	25g / 500g [H0474]
Hydroxypropyl Cellulose (150-400mPa·s, 2% in Water at 20°C)	25g / 100g / 500g [H0386]
Hydroxypropyl Cellulose (1,000-4,000mPa·s, 2% in Water at 20°C)	25g / 100g / 500g [H0475]
Methyl Cellulose (13-18mPa·s, 2% in Water at 20°C)	25g / 500g [M0290]
Methyl Cellulose (20-30mPa·s, 2% in Water at 20°C)	25g / 500g [M0291]
Methyl Cellulose (80-120mPa·s, 2% in Water at 20°C)	25g / 500g [M0292]
Methyl Cellulose (350-550mPa·s, 2% in Water at 20°C)	25g / 500g [M0293]
Methyl Cellulose (1,000-1,800mPa·s, 2% in Water at 20°C)	25g / 500g [M0294]
Methyl Cellulose (3,500-5,600mPa·s, 2% in Water at 20°C)	25g / 500g [M0185]
Methyl Cellulose (7,000-10,000mPa·s, 2% in Water at 20°C)	25g / 500g [M0295]

Glycoscience

Sugar chains



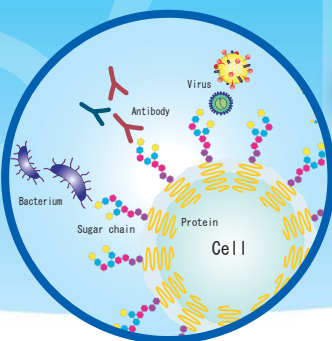
- Functional oligosaccharides
- Various sugar blocks at 10-100kg
- Synthetic technology with high-quality
- Application of sugar-conjugates

Enzymes



- Transfer of the intact oligosaccharide
- Glycohydrolase and the substrates

Antibodies & Lectins



- Antiglyco antibodies for Lewis, glycolipids, glycosaminoglycans
- Fucose specific lectins

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Tel : +81 (0)3-5640-8878
E-mail : globalbusiness@TCIchemicals.com

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