



## Hyaluronan Oligosaccharide assortment (HA4, HA6, HA8, HA10, HA12, Endotoxin Free)

Code#: CSR-93002

Product Name: Hyaluronan Oligosaccharide assortment

Size: 3mg/vial (HA4, HA6, HA8, HA10), 1mg/vial (HA12)

Molecular Weight: 820.61(HA4), 1221.91(HA6), 1623.21 (HA8), 2024.51(HA10),  
2425.81 (HA12)

Storage: below 4 °C (Freezable)

Storage conditions: To avoid high temperature and high level of humidity and exposure to UV light. Preferably store in the dark.

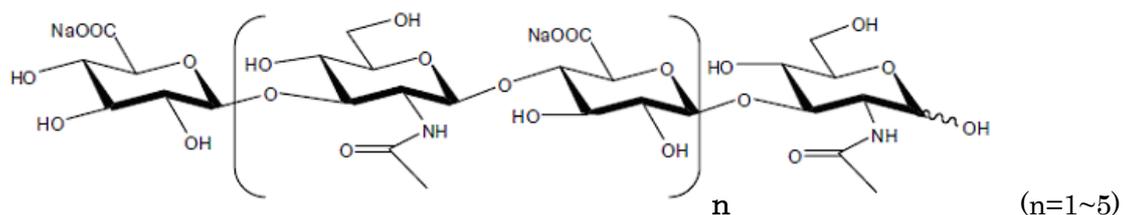
Note: This product is Endotoxin Free (tested and certified in house). However, it is not sterilized, please use filter (ex. 0.22µm) as you need.

Please pay enough attention to static electricity at the weighing.

Hyaluronan oligosaccharides are known for their various activities depending on the size as reported by Stern R. et al<sup>1)</sup>. Hyaluronan oligosaccharides are made by an enzyme, hyaluronidase, from hyaluronan polymer extracted from rooster comb or isolated from fermentation products of bacteria. There is a difference between the structure of hyaluronan oligosaccharides made by mammalian enzyme and by bacterial enzyme.

Oligosaccharides made by hyaluronidase derived from bacteria are called “unsaturated” oligosaccharides because of the double bond between C-4 and C-5 position of uronic acid at their non-reducing end. On the other hands, oligosaccharides made by hyaluronidase derived from mammalian testis are called “saturated” oligosaccharide because they have no unsaturated bound.

This product is made from hyaluronan polymer purified from fermentation products of streptococcus sp, by digestion with mammalian hyaluronidase derived from ovine testis, and purified by the column chromatography<sup>2)</sup>. The structure of this product is shown in the chart below.



References :

1) Stern R, et al.: Eur J Cell Biol, 85, 699 (2006)

2) Tawada A, et al.: Glycobiology, 12, 421 (2002)

NOTICE: For R&D use only. Do not use for drug, household, cosmetically and others.



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# Certification of Analysis

Code#: CSR-11006

Product Name: Hyaluronan Oligosaccharide 4mer sodium salt (Endotoxin Free)

Lot No.: 9K70

Size: 3 mg/vial

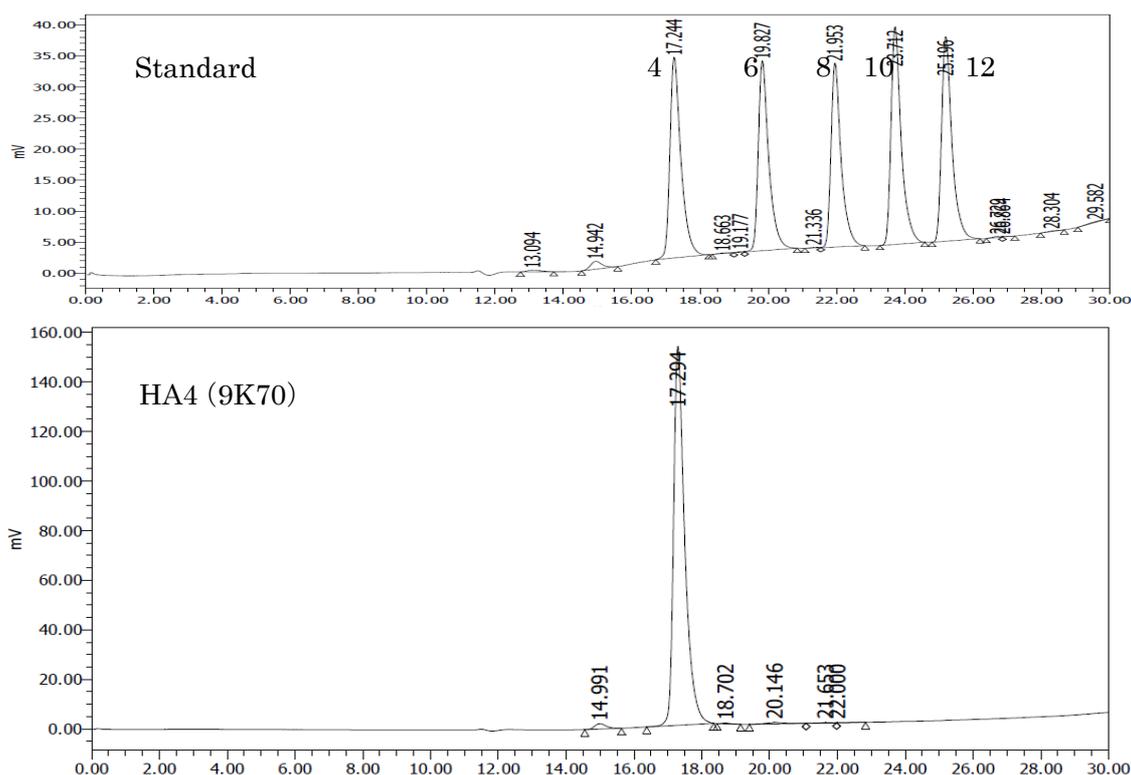
Date: 09/11/20

Item	Result	Specification	Method
Appearance	White lyophilizate	White lyophilizate	
Purity determined by HPLC See the chromatogram below	97.5%	>90.0 %	1)
Endotoxin	<0.001 EU/mg NaHA	<0.100EU/mg NaHA	2)

NaHA: Sodium Hyaluronate

1) Tawada A. et al.: Glycobiology, 12, 421 (2002)

2) Seikagaku Biobusiness Corp.: Package Insert of Endospecky<sup>®</sup>



Elution profile of Hyaluronan Oligosaccharide 4mer sodium salt

Manufactured by

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Research

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# Certification of Analysis

Code#: CSR-11007

Product Name: Hyaluronan Oligosaccharide 6mer sodium salt (Endotoxin Free)

Lot No.: 10A83

Size: 3 mg/vial

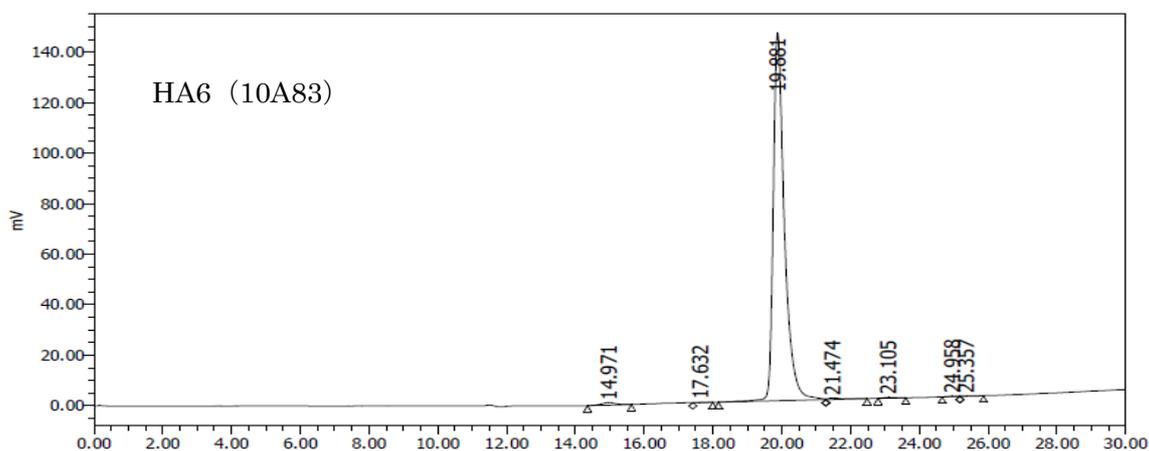
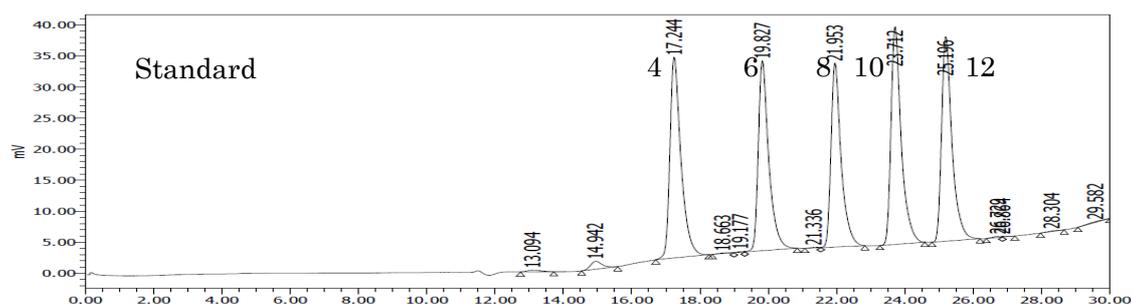
Date: 10/01/15

Item	Result	Specification	Method
Appearance	White lyophilizate	White lyophilizate	
Purity determined by HPLC See the chromatogram below	98.2 %	>90.0 %	1)
Endotoxin	<0.001 EU/mg NaHA	<0.100EU/mg NaHA	2)

NaHA: Sodium Hyaluronate

1) Tawada A. et al.: Glycobiology, 12, 421 (2002)

2) Seikagaku Biobusiness Corp.: Package Insert of Endospecy<sup>®</sup>



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# Certification of Analysis

Code#: CSR-11008

Product Name: Hyaluronan Oligosaccharide 8mer sodium salt (Endotoxin Free)

Lot No.: 9K71

Size: 3 mg/vial

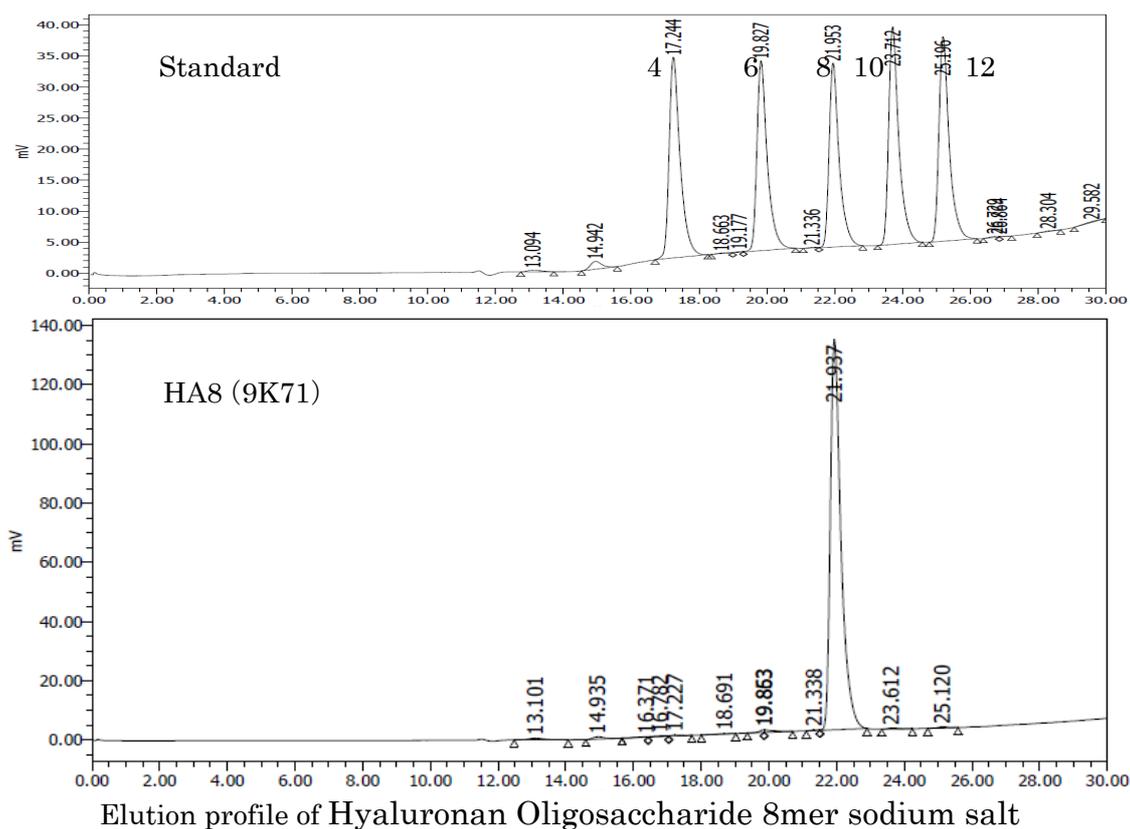
Date: 09/11/20

Item	Result	Specification	Method
Appearance	White lyophilizate	White lyophilizate	
Purity determined by HPLC See the chromatogram below	96.6%	>90.0 %	1)
Endotoxin	<0.001 EU/mg NaHA	<0.100EU/mg NaHA	2)

NaHA: Sodium Hyaluronate

1) Tawada A. et al.: Glycobiology, 12, 421 (2002)

2) Seikagaku Biobusiness Corp.: Package Insert of Endospecy®



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# Certification of Analysis

Code#: CSR-11009

Product Name: Hyaluronan Oligosaccharide 10mer sodium salt (Endotoxin Free)

Lot No.: 9K72

Size: 3 mg/vial

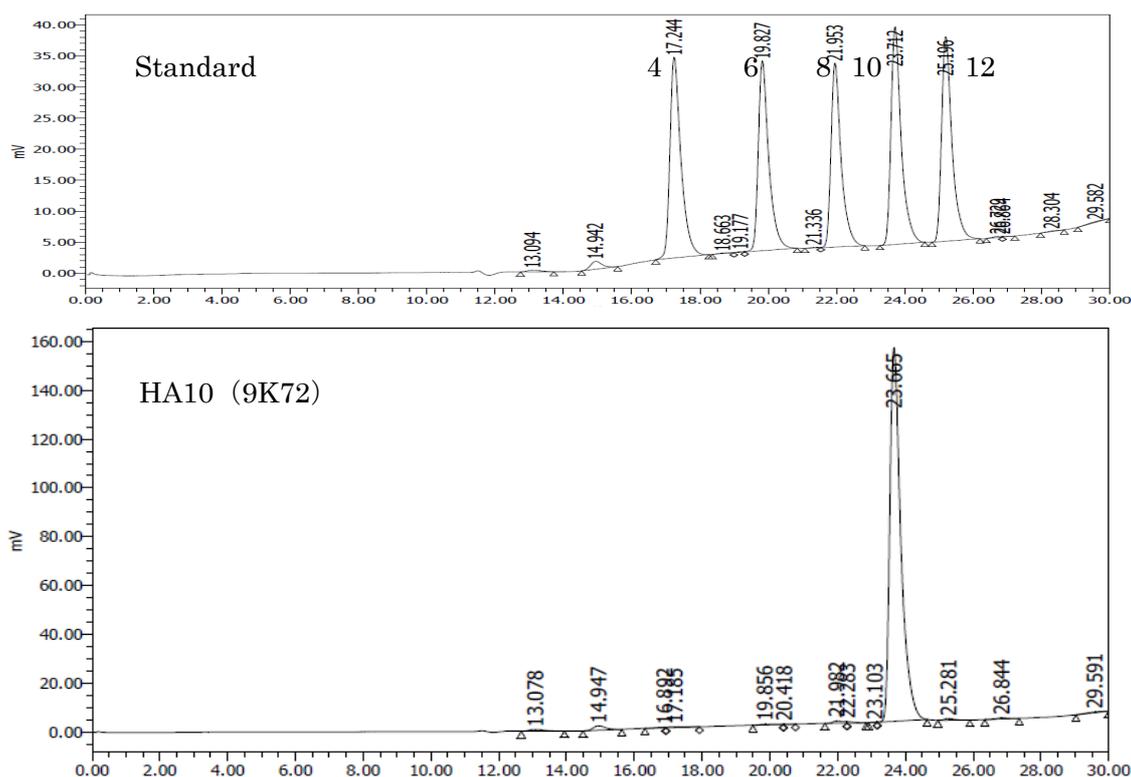
Date: 09/11/17

Item	Result	Specification	Method
Appearance	White lyophilizate	White lyophilizate	
Purity determined by HPLC See the chromatogram below	95.6%	>90.0 %	1)
Endotoxin	0.004 EU/mg NaHA	<0.100EU/mg NaHA	2)

NaHA: Sodium Hyaluronate

1) Tawada A. et al.: Glycobiology, 12, 421 (2002)

2) Seikagaku Biobusiness Corp.: Package Insert of Endospecy<sup>®</sup>



Elution profile of Hyaluronan Oligosaccharide 10mer sodium salt

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# Certification of Analysis

Code#: CSR-11010

Product Name: Hyaluronan Oligosaccharide 12mer sodium salt (Endotoxin Free)

Lot No.: 9K73

Size: 1 mg/vial

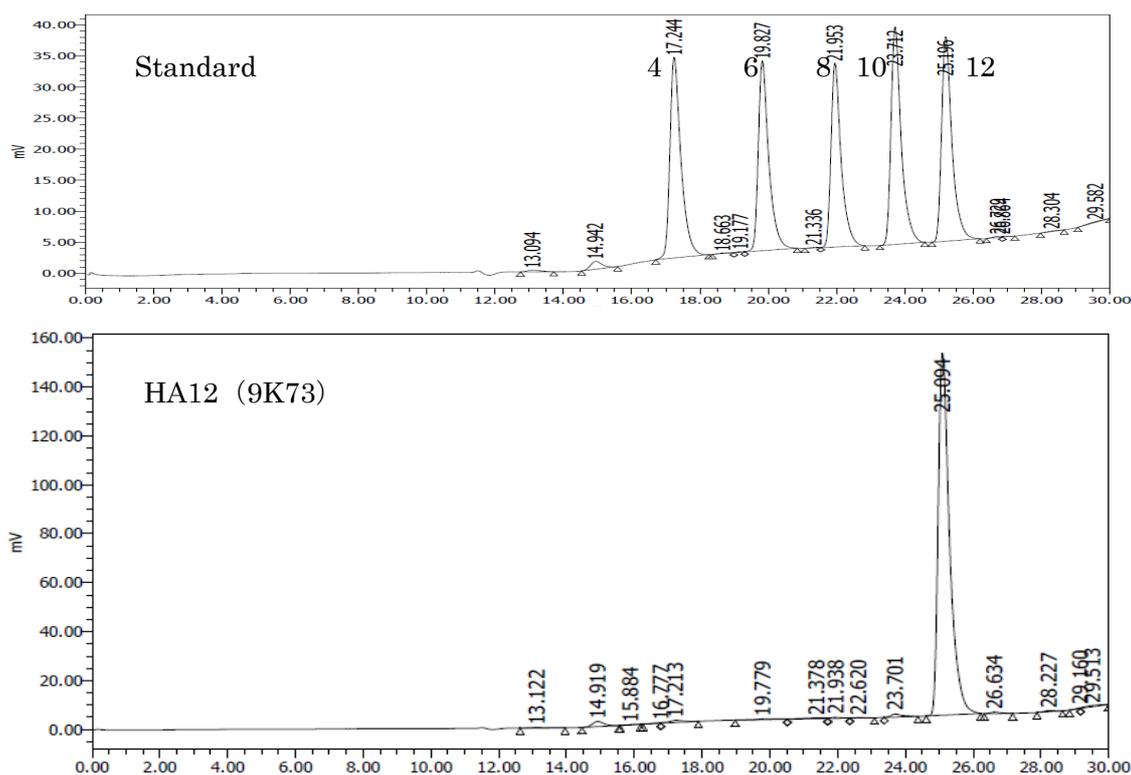
Date: 09/11/17

Item	Result	Specification	Method
Appearance	White lyophilizate	White lyophilizate	
Purity determined by HPLC See the chromatogram below	94.2%	>90.0 %	1)
Endotoxin	0.005 EU/mg NaHA	<0.100EU/mg NaHA	2)

NaHA: Sodium Hyaluronate

1) Tawada A. et al.: Glycobiology, 12, 421 (2002)

2) Seikagaku Biobusiness Corp.: Package Insert of Endospecy®



Elution profile of Hyaluronan Oligosaccharide 12mer sodium salt

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