



# Linking Glycoscience and health longevity

**MARUKYOU BIO FOODS Co.**

# Sialylglycopeptide

# What is a Sialylglycopeptide?

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Bridging Glycobiology and Healthy Longevity

## ■ Homogeneous Structure of N-linked Glycopeptides

SialylGlycopeptide (SGP) is an N-linked glycopeptide with a molecular weight of 2866. The non-reducing end of the sugar chain features a bifurcated structure of a tetrasaccharide linked to sialic acid, with a total of 11 sugar residues attached to a short peptide consisting of 6 residues.

## ■ Production of Sialylglycopeptides

SGP is present in egg yolk, but only in trace amounts. The manufacturing costs associated with extraction and purification were high, making it difficult to supply at an affordable price.

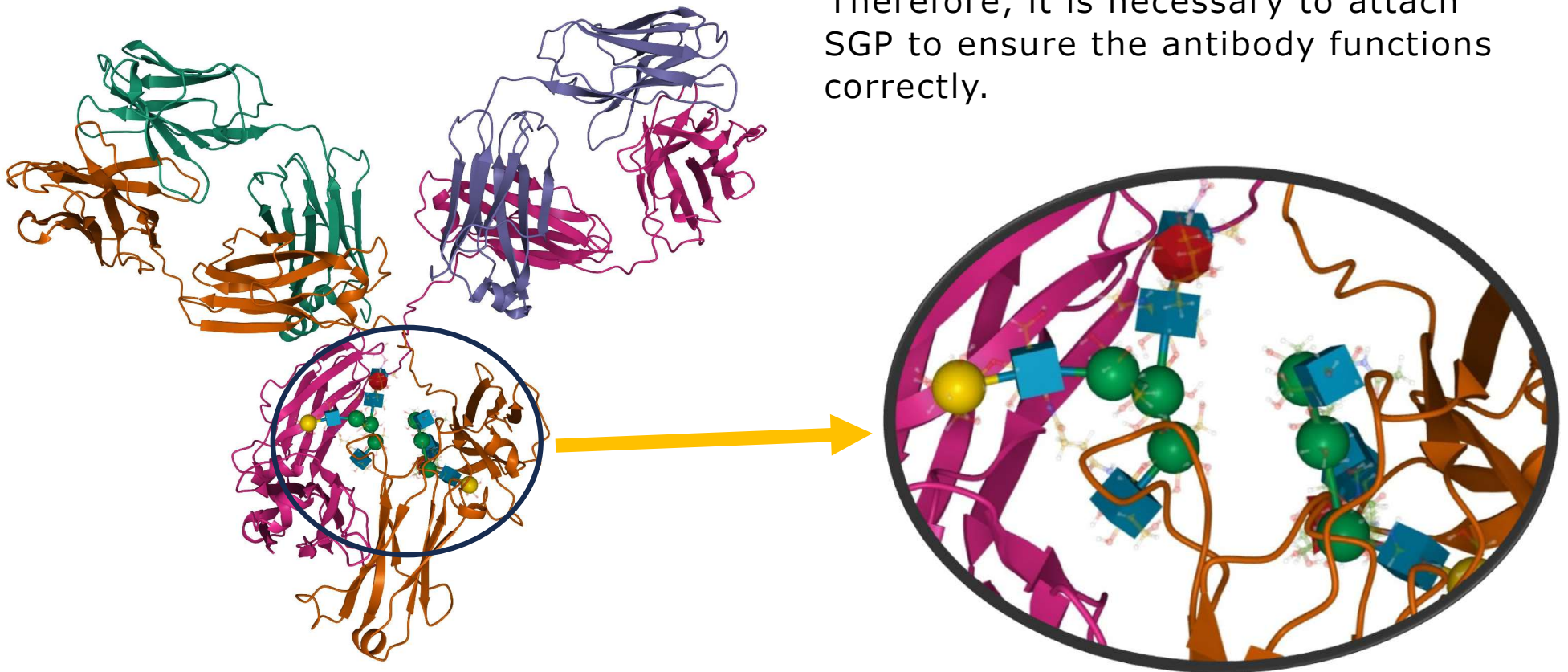
However, Marukyou Bio foods Co., Ltd. has achieved mass production using a patented manufacturing method developed by Professor Yamaguchi of Wakayama University. This has enabled us to supply SGP at a relatively lower cost than previously possible.

# Applications of Sialyl Glycopeptide

## ■ Antibody Production Bridging Glycobiology and Healthy Longevity

SGP is a sugar chain that binds to the Fc portion of antibodies (IgG) and is essential for maintaining antibody function by contributing to the stability of its three-dimensional structure. However, antibodies produced by genetic recombination lack this sugar chain portion or have it heterogenized, preventing the antibody from functioning properly on its own.

Therefore, it is necessary to attach SGP to ensure the antibody functions correctly.





# Applications of Sialylglycopeptide

Bridging Glycobiology and Healthy Longevity

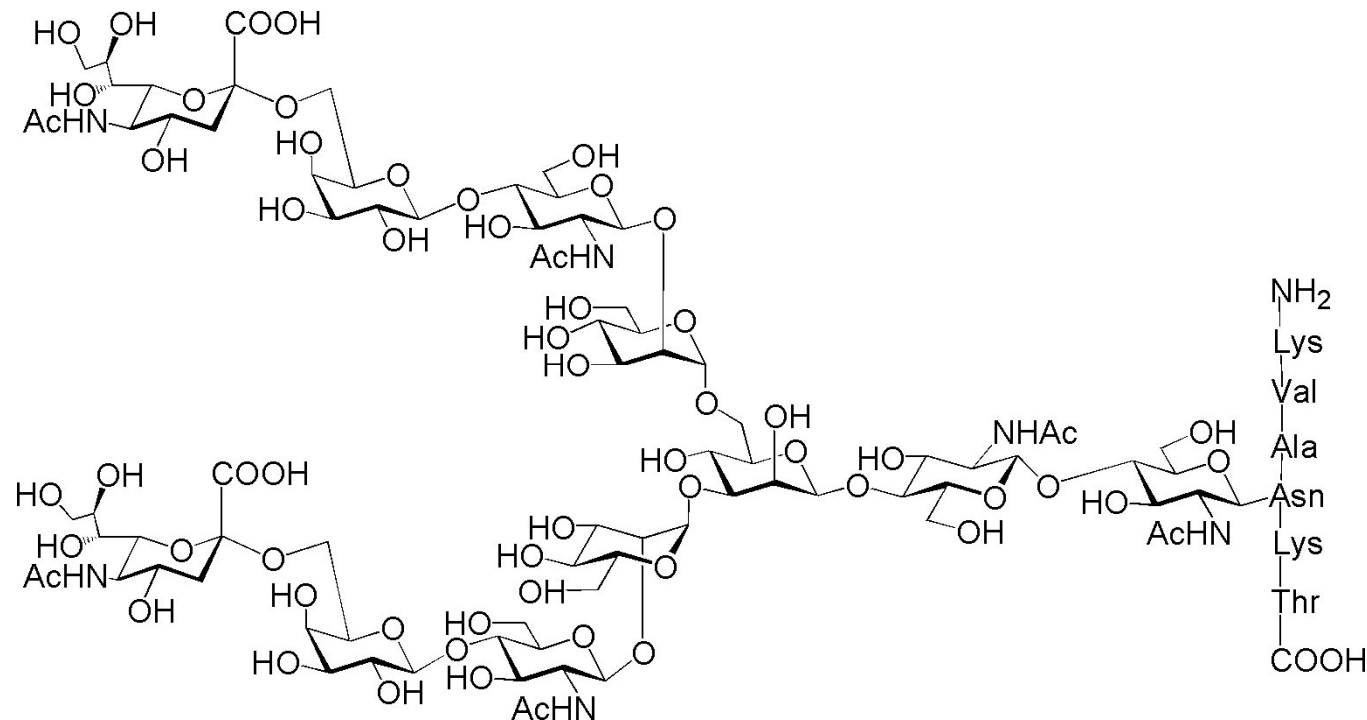
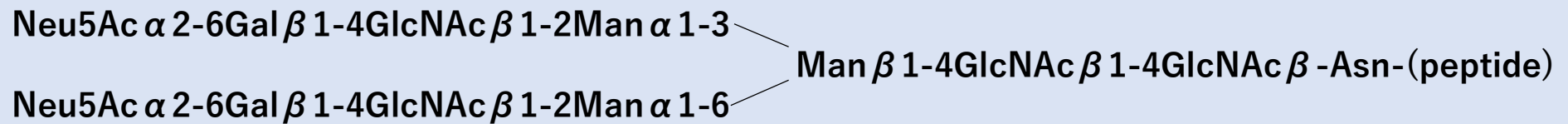
## ■ Antiviral agent

SGP possesses sialic acid at its non-reducing end, making it widely applicable as an infection inhibitor against various viruses and bacteria that recognize and infect via sialic acid.

- (1) For example, since it has sialyl  $\alpha$ 2-6 galactose at its non-reducing end, it can be used as an influenza virus infection preventative agent by recognizing this sugar chain portion.
- (2) By adding it to powdered milk and similar products, it can be utilized as an agent to inhibit rotavirus infection, one type of infectious diarrhea in infants and young children.

# Structure and Composition of SGP

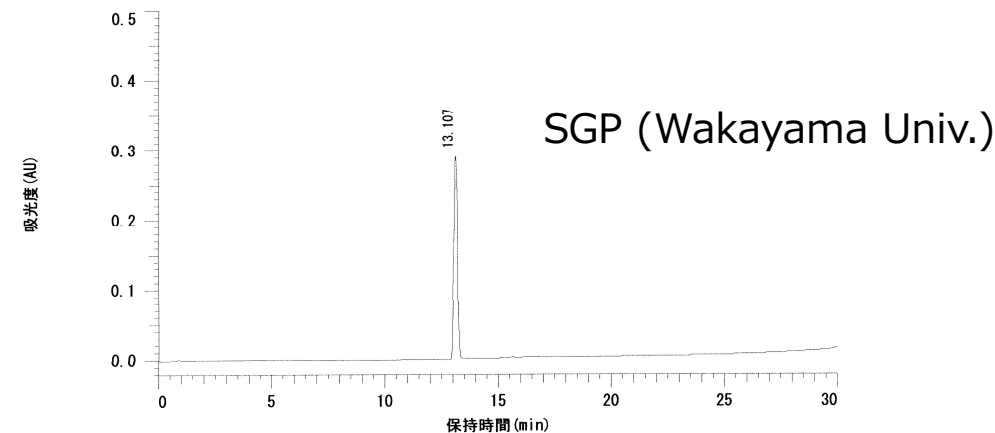
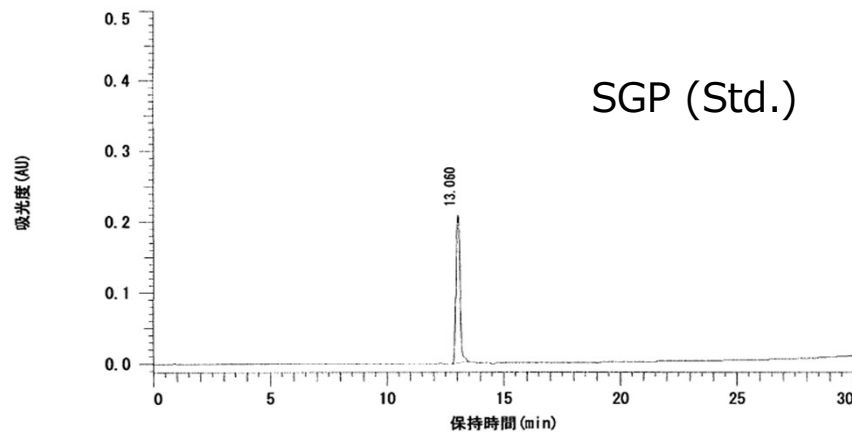
- Size: A glycopeptide with a molecular weight of 2866, consisting of 11 sugars and 6 residues
- Glycan Structure: Sialic acid is attached to the non-reducing end of a bifurcated tetrasaccharide. The core portion consists of a trisaccharide of mannose and N-acetylglucosamine, which is attached to the asparagine of a peptide consisting of 6 residues.



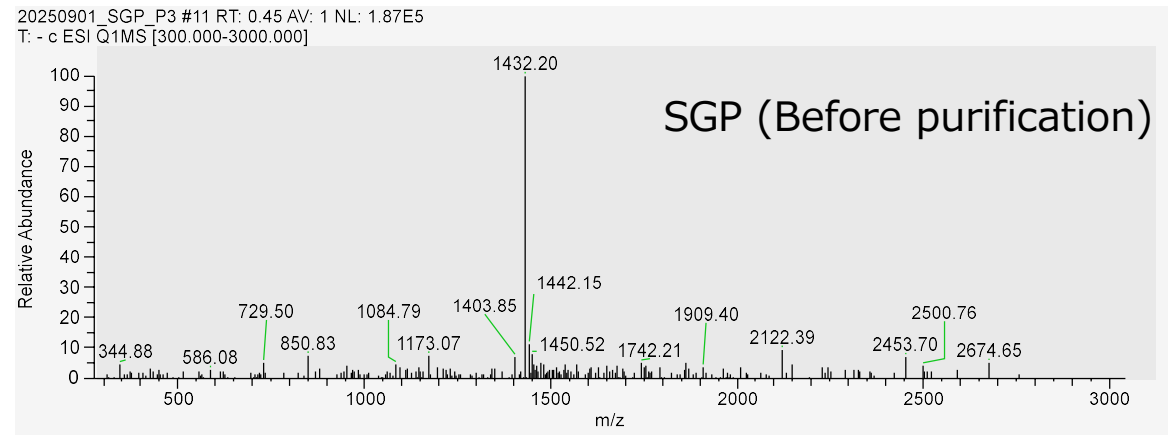
# Quality of Prepared SGP

■ Analysis results of SGP prepared under this method. High-purity SGP has been confirmed via reverse-phase HPLC and LC-MS analysis.

reverse-phase HPLC



MS



$$m/z = 1432.2$$

$$1432.2 = [M-H]^{2-}$$

$$Mw = 2866$$

# Manufacturing process

No.	Process
1	raw materials (Egg yolk)
2	Water Extract
3	clarifying filtration
4	ultra filtration
5	Concentration and heat sterilization
6	Ion exchange chromatography
7	Gel filtration chromatography
8	De saltation
9	Filtration
10	Freeze-drying

This product is manufactured in accordance with the health food raw materials GMP of the Japan Health and Nutrition Food Association.



# Product Specifications

Item	Result	method
Appearance	White powder	Visual
Assay	Minimum 95.0%	HPLC method
Molecular weight (Assuming the counter ion is H <sup>+</sup> )	2866	LCMS method

This product is manufactured in accordance with the health food raw materials GMP of the Japan Health and Nutrition Food Association.



## **CONTACT US**

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## **Fine Chemical Laboratory**

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