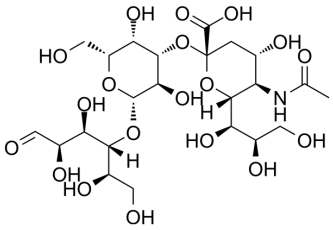
3'-Sialyllactose

Cat. No.:	HY-108065
CAS No.:	35890-38-1
Molecular Formula:	$C_{23}H_{39}NO_{19}$
Molecular Weight:	633.55
Target:	NF-κB
Pathway:	NF-κB
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

3'-Sialyllactose (3'-SL) is a prebiotic, maintains immune homeostasis and exerts anti-inflammatory and anti-arthritic effects. 3'-Sialyllactose is an ordinary carbohydrate with the lowest toxicity rating, it can be used for the research of inflammation[1][2][3].

In Vitro

3'-Sialyllactose (0-250 μM; 24-36 h) promotes and restores Col2a1 synthesis and accumulates extracellular sulphated proteoglycan, and inhibits the effect of inflammatory cytokines[1].

3'-Sialyllactose (0-250 μM; 24 h) activates the expression of Sox9 and inhibits NF-κB activation in chondrocytes[1].

3'-Sialyllactose (0-5000 μg/plate) shows no mutagenic effect with no evident growth inhibition and deposition in all strains in the presence or absence of metabolic activation[3].

3'-Sialyllactose (1250 μg/mL) induces no chromosomal aberrations and shows non-clastogenic effect in either the presence or absence of metabolic activation[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[1]

Cell Line:	Chondrocytes
Concentration:	0, 50, 100 and 250 μM
Incubation Time:	24-36 hours
Result:	Dose-dependently increased Col2a1 transcript and protein levels, and restored Col2a1 expression in IL-1β-treated chondrocytes. Dose-dependently inhibited IL-1β-induced Mmp3,Mmp13 and Cox2 expression in chondrocytes. Reduced expression of Mmp3, Mmp13 and Cox2 induced by IL-6, IL-17 and TNF-α in chondrocytes.

In Vivo

3'-Sialyllactose (10-100 mg/kg; p.o. three times a week for 6 weeks) protects mice against cartilage destruction from osteoarthritis[1].

3'-Sialyllactose (500, 1000 and 2000 mg/kg; orally administration; once) induces no micronuclei in the bone marrow cells of mice[3].

3'-Sialyllactose (oral administration; (500 to 1000 to 2000 mg/kg) every dose at 4-day intervals) shows the maximum tolerance dose (MTD) is greater than 2000 mg/kg in male and female beagle dogs[3].

3'-Sialyllactose shows a lethal dose (LD_{50}) above 20 g/kg bw, the highest dose tested[3].

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Animal Model:	8-week-old male C57BL/6 mice with medial meniscus surgery[1]
Dosage:	10, 50 and 100 mg/kg
Administration:	Oral gavage; 10-100 mg/kg three times a week; for 6 weeks
Result:	Effectively protected osteoarthritis mice against cartilage destruction by catabolic factor expression.

REFERENCES

[1]. Jeon J, et al. 3'-Sialyllactose protects against osteoarthritic development by facilitating cartilage homeostasis. J Cell Mol Med. 2018 Jan;22(1):57-66.

[2]. Kang LJ, et al. 3'-Sialyllactose prebiotics prevents skin inflammation via regulatory T cell differentiation in atopic dermatitis mouse models. Sci Rep. 2020 Mar 27;10(1):5603.

[3]. Kim D, et al. Toxicological evaluation of 3'-sialyllactose sodium salt. Regul Toxicol Pharmacol. 2018 Apr;94:83-90.

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