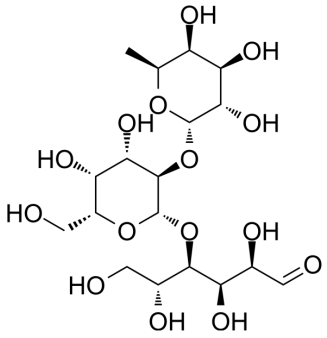
2'-Fucosyllactose

Cat. No.:	HY-N9965
CAS No.:	41263-94-9
Molecular Formula:	$C_{18}H_{32}O_{15}$
Molecular Weight:	488.44
Target:	TNF Receptor; Interleukin Related
Pathway:	Apoptosis; Immunology/Inflammation
Storage:	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 50 mg/mL (102.37 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.0473 mL	10.2367 mL	20.4733 mL
	5 mM	0.4095 mL	2.0473 mL	4.0947 mL
	10 mM	0.2047 mL	1.0237 mL	2.0473 mL

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

2'-Fucosyllactose (2'-FL) is an oligosaccharide that could be derived from human milk. 2'-Fucosyllactose regulates the expression of CD14, alleviates colitis and regulates the gut microbiome. 2'-Fucosyllactose stimulates T cells to increase IFN-γ production and decreases IL-6, IL-17, and TNF-α production of cytokines[1][2].

IC_{50} & Target

Target: IFN-γ, IL-6, IL-17, and TNF-α[1]

In Vitro

2'-Fucosyllactose (2'-FL; 0-12 mg/mL; 48 h) suppress cell-associated CD14 expression and to attenuate LPS (100 μg/mL) stimulated IL-8 secretion in T84 cells[1].

2'-Fucosyllactose (2 mg/mL; 48 h; T84 and HCT8 cells) ameliorates inflammation induced by bacterial invasion. 2'-Fucosyllactose inhibits ETEC invasion and attenuated the consequent IL-8 secretion[1].

2'-Fucosyllactose (2 mg/mL; 48 h; T84 and HCT8 cells) induces macrophage migration inhibitory factor signal pathways that suppress inflammation[1].

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

Western Blot Analysis[1]

Cell Line:	T84 cells

Concentration:	0, 2, and 4 mg/mL
Incubation Time:	48 hours
Result:	Suppressed CD14 mRNA and reduced cell-associated CD14 protein expression.

Western Blot Analysis[1]

Cell Line:	T84 and HCT8 cellsT84 and HCT8 cells
Concentration:	2 mg/mL
Incubation Time:	48 hours
Result:	Suppressed CD14 mRNA and reduced cell-associated CD14 protein expression. Inhibited CD14 and NF-κB induction. Induced iκB and SOCS2 expression and STAT3 phosphorylation.

In Vivo

2'-Fucosyllactose (2'-FL; 100 mg (200 μL); i.g.; daily, for 4 d; C57BL/6 mice with AIEC infection) inhibits AIEC infection and inflammation in vivo[1].

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

Animal Model:	C57BL/6 mice (8 weeks) with AIEC (uropathogenic E. coli, and adherent-invasive E. coli) infection[1]
Dosage:	100 mg (200 μL)
Administration:	Oral gavage; daily, for 4 days
Result:	Had colons lengths were closer to normal. Inhibited the colonisation of the colonic mucosa by O83-positive bacteria. Decreased CD14 expression, CD14 mRNA levels, IL-6, IL-17 and TNF-α levels in colonic.

REFERENCES

[1]. He Y, et, al. The human milk oligosaccharide 2'-fucosyllactose modulates CD14 expression in human enterocytes, thereby attenuating LPS-induced inflammation. Gut. 2016 Jan;65(1):33-46.

[2]. Eiwegger T, et, al. Human milk--derived oligosaccharides and plant-derived oligosaccharides stimulate cytokine production of cord blood T-cells in vitro. Pediatr Res. 2004 Oct;56(4):536-40.

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