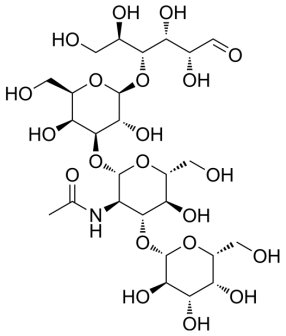
Lacto-N-tetraose

Cat. No.:	HY-N9448
CAS No.:	14116-68-8
Molecular Formula:	$C_{26}H_{45}NO_{21}$
Molecular Weight:	707.63
Target:	Bacterial
Pathway:	Anti-infection
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Lacto-N-tetraose is the significant core structure of human milk oligosaccharides (HMOs) naturally existing in human milk. Lacto-N-tetraose is consist of galactose, N-acetylglucosamine, and glucose moieties. Lacto-N-tetraose has prebiotic effect, immune regulatory effect, anti-inflammatory effects, intestinal cell responses regulatory effect, antibacterial activity and antiviral activity. Lacto-N-tetraose has been widely added to infant formula[1].

In Vitro

HMOs exhibits antimicrobial and antibiofilm activity against Streptococcus agalactiae, antibiofilm activity against Methicillin-resistant Staphylococcus aureus (MRSA), and antimicrobial activity against both Acinetobacter baumannii and Clostridium difficile[2].

Lacto-N-tetraose (500-2000 μg/mL) does not cause clastogenic or aneugenic signs in human peripheral blood lymphocytes, nor increase the percentage of micronucleated cells[3].

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

In Vivo

Lacto-N-tetraose (1000-4000 mg/kg; p.o.; daily for 90 days) does not show toxicity in neonatal SD rats[3].

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Animal Model:	Female neonatal SD rats (housed together with dam until weaning after 21 days)[3]
Dosage:	1000, 25000 and 4000 mg/kg
Administration:	p.o.; daily for 90 days
Result:	Did not show toxicity on clinical observations, body weight, food consumption, development and maturation, clinical pathology, organ weights or histopathology.

REFERENCES

[1]. Zhu Y, et al. Physiological effects, biosynthesis, and derivatization of key human milk tetrasaccharides, lacto-N-tetraose, and lacto-N-neotetraose. Crit Rev Biotechnol. 2022 Jun;42(4):578-596.

[2]. Craft KM, Thomas HC, Townsend SD. Sialylated variants of lacto-N-tetraose exhibit antimicrobial activity against Group B Streptococcus. Org Biomol Chem. 2019 Feb 13;17(7):1893-1900.

[3]. Phipps KR, et al. Preclinical safety evaluation of the human-identical milk oligosaccharide lacto-N-tetraose. Regul Toxicol Pharmacol. 2018 Nov;99:260-273.

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