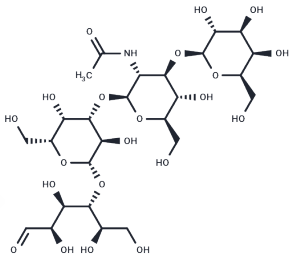
Data Sheet (Cat.No.T65265)

TargetMol

Lacto-N-tetraose

Chemical Properties



CAS No. : 14116-68-8

Formula: C26H45NO21

Molecular Weight: 707.63

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Lacto-N-tetraose is a core component of human milk oligosaccharides (HMOs) and is a tetrasaccharide composed of galactose, N-acetylglucosamine, and glucose. Lacto-N-tetraose exhibits a variety of biological activities, including prebiotic effects, immunomodulatory effects, anti-inflammatory effects, regulation of intestinal cell responses, as well as antibacterial and antiviral activities. Lacto-N-tetraose is widely used in infant formula, functional foods, and biomedical research.
Targets(IC50)	Antibacterial
In vitro	Methods: Human peripheral blood lymphocytes (HPBL) were treated with Lacto-N-tetraose (250, 500, 1,000, 2,000 μg/mL) for 3 or 20 hours. Cytoplasmic fragmentation was assessed, and the CBPI and micronucleus rate were calculated. Results: Lacto-N-tetraose did not induce chromosomal breaks or aneuploidy. [1]
In vivo	Methods: Neonatal Sprague-Dawley rats were administered Lacto-N-tetraose (1,000, 2,500, 4,000 mg/kg/day) orally via gavage once daily starting at PND 7 for 90 days. Results: No adverse effects were observed at the highest dose of Lacto-N-tetraose (4,000 mg/kg/day), which was the maximum tolerated dose. [1] Methods: A constipation model was established in female BALB/c mice by intraperitoneal injection of loperamide (10 mg/kg), followed by oral gavage of Lacto-N-tetraose (450 mg/kg) once daily for 14 days. Results: Lacto-N-tetraose effectively improved gastrointestinal motility and bowel movements. [2]

Solubility Information

Solubility	DMSO: 80.00 mg/mL (113.05 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.4132 mL	7.0658 mL	14.1317 mL
5 mM	0.2826 mL	1.4132 mL	2.8263 mL
10 mM	0.1413 mL	0.7066 mL	1.4132 mL
50 mM	0.0283 mL	0.1413 mL	0.2826 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Phipps KR, et al. Preclinical safety evaluation of the human-identical milk oligosaccharide lacto-N-tetraose. Regul Toxicol Pharmacol. 2018 Nov;99:260-273.
Shan Y, et al. Bifidobacterium breve and lacto-N-neotetraose mediate gut microbiota-derived acetate to regulate defecation performance and intestinal barrier function in constipated mice. J Dairy Sci. 2026;109(4):3158-3174.
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.