Data Sheet (Cat.No.T12177)

TargetMol

Natalizumab

Chemical Properties

CAS No. : 189261-10-7

Formula:

Molecular Weight: 146.19 kDa

Storage: Store at low temperature
-20°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Natalizumab is a recombinant humanized monoclonal antibody and a humanized monoclonal antibody inhibitor that selectively targets α4 integrin (CD49d). Natalizumab binds to the α4β1 heterodimer and blocks its interaction with vascular cell adhesion molecule 1. Natalizumab also prevents lymphocytes from entering the central nervous system, thereby preventing acute demyelinating relapses, and is used in the study of relapsing-remitting multiple sclerosis and Crohn's disease. Natalizumab possesses anti-inflammatory and immunomodulatory activity, inhibiting the adhesion, retention, and transendothelial migration of immune cells, and reducing the infiltration of inflammatory cells into the central nervous system or affected sites. Natalizumab is also being studied for autoimmune or inflammation-related diseases such as B-cell lymphoma and non-infectious uveitis.
Targets(IC50)	Integrin
In vitro	**Methods**: PBMCs from healthy donors (HD) were sorted into CD4+ and CD8+ T cells. The cells were pretreated for 30 minutes with 2 μg/mL natalizumab, left untreated, or treated with isotype-matched IgG4. After seeding the cells onto VCAM-1-coated plates, they were stimulated for 10 minutes. High-content imaging was used to measure cell adhesion, cell area, aspect ratio, pSLP76 intensity, and F-actin intensity. **Results**: Natalizumab treatment significantly reduced T-cell adhesion and spreading on VCAM-1 and decreased pSLP76 and F-actin intensity. PCA analysis clearly distinguished treated from untreated samples. [1] **Methods**: In vitro, the binding of natalizumab to VLA-4 ($\alpha_4\beta_1$ integrin / CD49d) on the surface of lymphocytes was assessed; in vivo, its effect on leukocyte migration across the blood-brain barrier was examined. **Results**: Natalizumab specifically binds to CD49d, blocks the interaction between $\alpha_4\beta_1$ and VCAM-1, and inhibits the infiltration of lymphocytes, B cells, and other cells into the central nervous system (CNS). [2]
In vivo	**Methods**: AppKI mice bearing PTEN-CaP8 prostate cancer tumors and treated with ADT were administered natalizumab (62.5 μg, intraperitoneally, twice weekly), with isotype IgG serving as the control. **Results**: Natalizumab effectively blocked α4 integrin-mediated immune cell adhesion and migration. Furthermore, Natalizumab repaired blood-brain barrier (BBB) damage, reduced immune infiltration in the brain, alleviated neuroinflammation and gliosis, and

In vivo	significantly improved ADT-exacerbated cognitive deficits. [3]

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	0.0068 mL	0.0342 mL	0.0684 mL
5 mM	0.0014 mL	0.0068 mL	0.0137 mL
10 mM	0.0007 mL	0.0034 mL	0.0068 mL
50 mM	0.0001 mL	0.0007 mL	0.0014 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.