Vedolizumab (anti-α4β7-integrin)

Cat. No.: HY-P9911A

CAS No.: 943609-66-3

Target: Integrin

Pathway: Cytoskeleton

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.

BIOLOGICAL ACTIVITY

Description	Vedolizumab (anti-α4β7-integrin) is a humanized IgG1 monoclonal antibody that targets the α4β7 integrin for the treatment of ulcerative colitis and Crohn's disease[1][2].
In Vitro	Vedolizumab does not bind to the majority of memory CD4+ T lymphocytes (60%), neutrophils, and most monocytes. The highest level of vedolizumab binding is to a subset (25%) of human peripheral blood memory CD4+ T lymphocytes that include gut-homing interleukin 17 T-helper lymphocytes. Vedolizumab also binds to eosinophils at high levels, and to naive T-helper lymphocytes, naive and memory cytotoxic T lymphocytes, B lymphocytes, natural killer cells, and basophils at lower levels; vedolizumab binds to memory CD4+ T and B lymphocytes with subnanomolar potency (EC_{50}=0.3-0.4 nM). Vedolizumab selectively inhibits adhesion of α4β7-expressing cells to mucosal addressin cell adhesion molecule 1 (IC_{50} =0.02-0.06 μg/mL) and fibronectin (IC_{50}=0.02 μg/mL), but not vascular cell adhesion molecule 1[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Blockade of α4β7 receptors on T-lymphocytes has been shown to occur for several weeks after a single dose of vedolizumab. The drug concentration following the infusion has been shown to be dose related with a mean maximum concentration of 12.5 μg/mL in those receiving 0.5 mg/kg of vedolizumab and 52.0 μg/mL in those receiving 2 mg/kg. The serum half-life of these two doses is 9-12 days respectively and saturation of α4β7 receptors on T-lymphocytes is >90% at both 4-6 weeks following infusion. In a dose ranging study, the serum drug concentrations increase with increasing dose and when regular induction infusions are used (on day 1, 15, 29 and 85), the serum half-life is between 15 and 22 days across all groups[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Soler D, et al. The binding specificity and selective antagonism of vedolizumab, an anti-alpha4beta7 integrintherapeutic antibody in development for inflammatory bowel diseases. J Pharmacol Exp Ther. 2009 Sep;330(3):864-75.

[2]. Singh H, et al. Vedolizumab: A novel anti-integrin drug for treatment of inflammatory bowel disease. J Nat Sci Biol Med. 2016 Jan-Jun;7(1):4-9.

Caution: Product has not been fully validated for medical applications. For research use only.

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