Product Data Sheet

Product Name: Denosumab
Cat. No.: GC19535

Chemical Properties

Cas. No.	615258-40-7		
Formula	$C_{6404}H_{9908}N_{1724}O_{2004}S_{50}$	M.Wt	144716.86
Solubility		Storage	Store at 4°C, Do not freeze
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure	Denosumab		

Protocol

Cell experiment [1]:

Cell lines	RAW 264.7, MCF-7 cells
Preparation Method	RAW 264.7 and MCF-7 cells were all cultured in Dulbecco’s Modified Eagle Medium (DMEM) solutions, into which 10% fetal bovine serum was added, while RAW 264.7 cells were co-cultured with MCF-7 cells in a non-contact system.
Reaction Conditions	1 mg/mL, 5 days

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Applications	Denosumab inhibits MCF-7 cell line-induced spontaneous osteoclastogenesis, and the inhibition of denosumab was found to be more pronounced after MALAT1 downregulation and miR-124 overexpression

References:

[1]. Feng, Qi et al. Denosumab inhibits MCF-7 cell line-induced spontaneous osteoclastogenesis via the RANKL/MALAT1/miR-124 axis. Translational cancer research vol. 9,4 (2020): 2482-2491.

Background

Denosumab is a fully human IgG2 monovlonal antibody that binds human RANKL with a high affinity, exhibiting a dissociation equilibrium binding constant (K_d) of 3 pM as determined by immunoaffinity exclusion chromatography. Denosumab binds both soluble and membrane-bound primate RANKL but fails to recognize mouse or rat RANKL- a finding that is supported by sequence analysis of RANKL from diverse mammalian species. [2]

Initial screening of RANKL antibodies for in vivo bioactivity leveraged the crossreactivity of Denosumab with cynomolgus RANKL. Single-dose testing in cynomolgus monkeys revealed that infrequent dosing regimens in humans may be possible. The primary in vivo testing in primates accelerated the developmental timeframe of this molecule, which normally would have been preceded by extensive testing in animal models of bone loss in which recombinant OPG was active. [2]

Denosumab does not bind to other TNF family members, such as TRAIL, CD40 ligand (CD40L), TNFα and THFβ. Denosumab binds to the DE loop region of human RANKL, which is one of the surface loop structures that forms contacts with RANK on responding

cells. Owing to the different terminology used for the loop regions, the human DE loop region corresponds to the CD loop regions of the murine RANKL structure. Both Denosumab and OPG-Fc bind to soluble or membrane-bound human RANKL and block it from binding to and oligomerizing its receptor, RANK. Denosumab, however, is more specific than human OPG-Fc because Denosumab recognizes only human and non-human primate RANKL, in contrast to OPG, which also binds to mouse and rat RANKL as well as TRAIL. [1,2]

References:
[1]. Feng, Qi et al. Denosumab inhibits MCF-7 cell line-induced spontaneous osteoclastogenesis via the RANKL/MALAT1/miR-124 axis.” Translational cancer research vol. 9,4 (2020): 2482-2491.
[2]. Lacey, David L et al. Bench to bedside: elucidation of the OPG-RANK-RANKL pathway and the development of Denosumab. Nature reviews. Drug discovery vol. 11,5 (2012): 401-19.