Product Data Sheet

Product Name: Etanercept
Cat. No.: GC34579

Chemical Properties

Cas. No.	185243-69-0		
SMILES	[Etanercept]		
Formula	$C_{2224}H_{3475}N_{621}O_{698}S_{36}$	M.Wt	51234.33
Solubility	Soluble in water	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	Etanercept		

Protocol

Cell experiment [1]:

Cell lines	THP-1 cells
Preparation method	Cells were incubated with LPS, Etanercept (1μg/mL), for 3 h, and cell lysates were collected and analyzed for TNF-α.
Reaction Conditions	1μg/mL; 3 h

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

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Applications	Etanercept significantly reduced secreted levels of bioactive TNF-α following stimulation with LPS.
Animal experiment [2]:	
Animal models	AIA rats
Preparation method	On the day of the first inflammatory symptoms, AIA rats were randomized into two groups. One group received etanercept, at 10 mg/kg (s.c.) every 3 days for 3 weeks (Etanercept, n=30).The other group received saline at 1 ml/kg (s.c.) for 3 weeks (Vehicle, n=30).
Dosage form	10mg/kg; s.c.
Applications	Etanercept significantly reduced arthritis scores, improved endothelial function and NOS/BH4/arginase balance, and inhibited the COX-2 pathway.

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References:
[1] Grattendick K J, Nakashima J M, Feng L, et al. Effects of three anti-TNF-α drugs: etanercept, infliximab and pirfenidone on release of TNF-α in medium and TNF-α associated with the cell in vitro[J]. International immunopharmacology, 2008, 8(5): 679-687.
[2] Totoson P, Maguin-Gaté K, Prigent-Tessier A, et al. Etanercept improves endothelial function via pleiotropic effects in rat adjuvant-induced arthritis[J]. Rheumatology, 2016, 55(7): 1308-1317.

Background

Etanercept is a competitive tumor necrosis factor (TNF) inhibitor that prevents TNF-α and TNF-β from binding to cell surface receptors[1]. Etanercept is effective for rheumatoid arthritis, juvenile idiopathic arthritis, and plaque psoriasis[2].

In vitro, Etanercept (1 μg/mL) significantly reduces TNF-α secretion levels in THP-1 cells after 3 hours of treatment following lipopolysaccharide (LPS) stimulation[3].

In vivo, Etanercept (10mg/kg) administered subcutaneously in rats with adjuvant-induced arthritis (AIA) significantly reduces arthritis scores, improves endothelial function and the NOS/BH4/arginase balance, and inhibits the cyclooxygenase-2 (COX-2) pathway[4]. Etanercept (5mg/kg) administered subcutaneously in rats with periodontitis significantly reduces periodontitis inflammation and tissue damage, decreases neutrophil infiltration, and downregulates the expression of apoptotic regulatory factors Bax and Bcl-2[5]. Etanercept (5 mg/kg) administered intraperitoneally in rats with traumatic brain injury (TBI) significantly improves TBI-induced cerebral ischemia, motor and cognitive deficits, inhibits neuronal and glial apoptosis, and reduces levels of inflammatory factors[6].

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References:
[1] Alldred A. Etanercept in rheumatoid arthritis[J]. Expert opinion on pharmacotherapy, 2001, 2(7): 1137-1148.
[2] Culy C R, Keating G M. Etanercept: an updated review of its use in rheumatoid arthritis, psoriatic arthritis and juvenile rheumatoid arthritis[J]. Drugs, 2002, 62(17): 2493-2537.
[3] Grattendick K J, Nakashima J M, Feng L, et al. Effects of three anti-TNF-α drugs: etanercept, infliximab and pirfenidone on release of TNF-α in medium and TNF-α associated with the cell in vitro[J]. International immunopharmacology, 2008, 8(5): 679-687.
[4] Totoson P, Maguin-Gaté K, Prigent-Tessier A, et al. Etanercept improves endothelial function via pleiotropic effects in rat adjuvant-induced arthritis[J]. Rheumatology, 2016, 55(7): 1308-1317.
[5] Di Paola R, Mazzon E, Muià C, et al. Effects of etanercept, a tumour necrosis factor-α antagonist, in an experimental model of periodontitis in rats[J]. British journal of pharmacology, 2007, 150(3): 286-297.
[6] Chio C C, Lin J W, Chang M W, et al. Therapeutic evaluation of etanercept in a model of traumatic brain injury[J]. Journal of neurochemistry, 2010, 115(4): 921-929.

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