Product Data Sheet

Product Name: Adalimumab (Anti-Human TNF-alpha, Human Antibody)
Cat. No.: GC34214

Chemical Properties

Cas. No.	331731-18-1	
SMILES	[Adalimumab]	
Formula	M.Wt	145425.42
Solubility	Storage	Store at -80°C
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		

Protocol

Pharmacokinetic experiment [1]:

Preparation Method	Using double-antigen enzyme-linked immunosorbent TNF-¦Á Adalimumab -coated plates and their detection by peroxidase-conjugated IgG.
Reaction Conditions	These patients received 40 mg adalimumab subcutaneously every other week combined with methotrexate and follow-up was done for 1 year.

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

Applications	Thirty patients treated for RA were analysed. The following pharmacokinetic and PK-PD parameters were estimated (interidividual coefficient of variation): apparent volume of distribution (Vd /F) = 10.8 l (92%); apparent clearance (CL/F) = 0.32 l day(-1) (17%); first-order absorption rate (ka) = 0.28 day(-1) ; CRP input (kin) = 22.0 mg l(-1) day(-1) (65%); adalimumab concentration leading to a 50% decrease in kin (C50) = 3.6 mg l(-1) (88%); baseline DAS28 (DAS0) = 5.5 mg l(-1) (11%); and adalimumab concentration leading to 50% decrease of DAS0 (IC50) = 11.0 mg l(-1) (71%). Simulations showed that a 160 mg loading dose should reduce the time to reach efficacy in terms of both CRP and DAS28 after the first injection.

Cell experiment [2]:

Cell lines	THP-1 monocytes
Preparation Method	CellTracker green-labelled THP-1 monocytes on a HUVECs monolayer after incubation with conditioned media from oxLDL-stimulated THP-1 macrophages (oxLDL CM) with or without adalimumab (ada) for 4 hours followed by the addition of CellTracker green-labelled THP-1 monocytes.
Reaction Conditions	1 ¦/mL Adalimumab (Anti-Human TNF-alpha, Human Antibody) for 4 hours

Product Data Sheet

Applications	The TNF-¦Á inhibitor adalimumab suppresses adhesion of THP-1 monocytes to endothelial cells.

Animal experiment [3]:

Animal models	Rd10 mice
Preparation Method	To evaluate the effect of Adalimumab (Anti-Human TNF-alpha, Human Antibody), each rd10 mouse received one intraperitoneal injection of Adalimumab (Anti-Human TNF-alpha, Human Antibody) aline solution at 3 mg/kg every three days starting at P9 and until P17.
Dosage form	3 mg/kg Adalimumab (Anti-Human TNF-alpha, Human Antibody)every three days
Applications	intraperitoneal administration of Adalimumab (Anti-Human TNF-alpha, Human Antibody) significantly decreased the number of TUNEL-positive cells in the ONL at P18 (2.7 ± 0.4 TUNEL-positive cells) compared to vehicle-treated rd10 retinas (12.5 ± 2.4 TUNEL-positive cells)

References:

[1]. Ternant D, Ducourau E, et,al. Pharmacokinetics and concentration-effect relationship of adalimumab in rheumatoid arthritis. Br J Clin Pharmacol. 2015

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

Feb;79(2):286-97. doi: 10.1111/bcp.12509. PMID: 25223394; PMCID: PMC4309634.

[2]. Oberoi R, Schuett J, et,al. Targeting Tumor Necrosis Factor-¦Á with Adalimumab: Effects on Endothelial Activation and Monocyte Adhesion. PLoS One. 2016 Jul 28;11(7):e0160145. doi: 10.1371/journal.pone.0160145. PMID: 27467817; PMCID: PMC4965117.

[3].Mart¨ªnez-Fern¨¢ndez de la C¨¢mara C, Hern¨¢ndez-Pinto AM, et,al.

Adalimumab Reduces Photoreceptor Cell Death in A Mouse Model of Retinal Degeneration. Sci Rep. 2015 Jul 14;5:11764. doi: 10.1038/srep11764. PMID: 26170250; PMCID: PMC4501000.

Background

Adalimumab (Anti-Human TNF-alpha, Human Antibody) is one of the leading therapies for the treatment of rheumatoid arthritis. It is a humanized monoclonal antibody that binds to TNF-α and blocks its interaction with the TNF receptor [1]. It neutralizes both soluble as well as transmembrane TNF-α[2].

Product Data Sheet

Adalimumab (Anti-Human TNF-alpha, Human Antibody) prevents major inflammatory effects of TNF-α on endothelial activation, endothelial monocyte adhesion, endothelial leakage[3].

Adalimumab (Anti-Human TNF-alpha, Human Antibody) prevented TNFα upregulation, reduced photoreceptor cell death, slowed microglial and MÜller cell activation, improved antioxidant response and ameliorated the energetic and metabolic dysfunction at P18[4]. VaD rats treated with Adalimumab (Anti-Human TNF-alpha, Human Antibody) exhibited significant improvements in memory. In addition, Adalimumab (Anti-Human TNF-alpha, Human Antibody) treatment significantly alleviated neuronal loss in the hippocampi of VaD rats[5]. The important role of TNF-α for atherosclerotic plaque development in experimental models is well documented, different TNF-α-deficient mice models consistently showed reduced plaque burden[6,7]. Adalimumab (Anti-Human TNF-alpha, Human Antibody) has demonstrated a good prognosis and improvement of physical function in rheumatoid arthritis [8].

References:
[1]. HÜrlimann D, Forster A, et,al. Anti-tumor necrosis factor-alpha treatment improves endothelial function in patients with rheumatoid arthritis. Circulation. 2002 Oct 22;106(17):2184-7. doi: 10.1161/01.cir.0000037521.71373.44. PMID: 12390945.
[2]. Ternant D, Ducourau E, et,al. Pharmacokinetics and concentration-effect relationship of adalimumab in rheumatoid arthritis. Br J Clin Pharmacol. 2015 Feb;79(2):286-97. doi: 10.1111/bcp.12509. PMID: 25223394; PMCID: PMC4309634.
[3]. Oberoi R, Schuett J, et,al. Targeting Tumor Necrosis Factor-α with Adalimumab: Effects on Endothelial Activation and Monocyte Adhesion. PLoS One. 2016 Jul 28;11(7):e0160145. doi: 10.1371/journal.pone.0160145. PMID: 27467817; PMCID: PMC4965117.
[4]. MartÍnez-FernÁndez de la CÁmara C, HernÁndez-Pinto AM, et,al. Adalimumab Reduces Photoreceptor Cell Death in A Mouse Model of Retinal Degeneration. Sci Rep. 2015 Jul 14;5:11764. doi: 10.1038/srep11764. PMID: 26170250; PMCID: PMC4501000.
[5]. Xu JJ, Guo S, et,al. Adalimumab ameliorates memory impairments and neuroinflammation in chronic cerebral hypoperfusion rats. Aging (Albany NY). 2021 May 24;13(10):14001-14014. doi: 10.18632/aging.203009. Epub 2021 May 24. PMID: 34030135; PMCID: PMC8202885.
[6]. BrÅnÉn L, Hovgaard L, et,al. Inhibition of tumor necrosis factor-alpha reduces

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

atherosclerosis in apolipoprotein E knockout mice. Arterioscler Thromb Vasc Biol. 2004 Nov;24(11):2137-42. doi: 10.1161/01.ATV.0000143933.20616.1b. Epub 2004 Sep 2. PMID: 15345516.

[7]. Ohta H, Wada H, et,al. Disruption of tumor necrosis factor-alpha gene diminishes the development of atherosclerosis in ApoE-deficient mice. Atherosclerosis. 2005 May;180(1):11-7. doi: 10.1016/j.atherosclerosis.2004.11.016. Epub 2005 Jan 20. PMID: 15823270.

[8]. Toussirot E, Wendling D. The use of TNF-alpha blocking agents in rheumatoid arthritis: an update. Expert Opin Pharmacother. 2007 Sep;8(13):2089-107. doi: 10.1517/14656566.8.13.2089. PMID: 17714062.

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