Product Data Sheet

Product Name: Certolizumab pegol
Cat. No.: GC65487

Chemical Properties

Cas. No.	428863-50-7		
Formula		M.Wt	
Solubility		Storage	Store at 2-8°C,do not freeze
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C 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			

Certolizumab

Protocol

Cell experiment [1]:

Cell lines	Human dermal microvascular endothelial cells (HMVECs)

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Preparation Method	HMVECs was stimulated with TNF-α (25ng/ml) for 24 hours in the presence or absence of varying concentrations of certolizumab pegol or Ms-Ig. The cell culture supernatant was collected and the level of HMVEC chemokines was detected by elisa.
Reaction Conditions	0-10μg/mL, 24h
Applications	Certolizumab pegol inhibits TNF-α-induced increases in angiogenic chemokines in a dose-dependent manner.

Animal experiment [2]:

Animal models	Rat model of acute edematous pancreatitis
Preparation Method	Healthy Wistar Albino male rats (n = 36) were randomly divided into 4 groups (9 rats in each group): group 1, control group; group 2, Certolizumab pegol group; group 3, cerulein group; and group 4, cerulein + Certolizumab pegol group.
Dosage form	10μg, single dose, i.p.
Applications	Certolizumab pegol reduced the severity of acute pancreatitis, and serum amylase, lipase and lactate dehydrogenase levels were significantly reduced in the certolizumab pegol-treated group.

Caution: Product has not been fully validated for medical applications. For research use only.
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References:
[1] Shu Q, Amin MA, Ruth JH, Campbell PL, Koch AE. Suppression of endothelial cell activity by inhibition of TNFα. Arthritis Res Ther. 2012 Apr 25;14(2):R88.
[2] Kosekli M A, Sungurtekin U, Cobankara V, et al. Effects of certolizumab on cerulein-induced acute pancreatitis in rats[J]. Pancreas, 2016, 45(8): 1120-1125.

Background

Certolizumab pegol (Certolizumab) is a recombinant, polyethylene glycolylated, antigen-binding fragment of a humanized monoclonal antibody that selectively targets and neutralizes tumour necrosis factor-α (TNF-α). Certolizumab pegol can be used for rheumatoid arthritis and Crohn disease research[1-2].

Certolizumab pegol neutralizes soluble TNF-α with an IC_{90} of 3ng/mL. Preincubation of human monocytes with certolizumab pegol at concentrations of 1μg/mL and above completely inhibited lipopolysaccharide(LPS)-induced IL-1β production, and certolizumab pegol did not induce apoptosis of activated human monocytes or peripheral blood lymphocytes (PBLs), nor did it cause changes in the integrity of polymorphonuclear granules (PMNs)[2]. In addition, certolizumab pegol can directly induce non-apoptotic cell death in transmembrane TNF-α-expressing cells[4].

Certolizumab pegol (10μg, single dose) reduced the severity of acute pancreatitis, and serum amylase, lipase, and lactate dehydrogenase levels were significantly reduced in the certolizumab pegol-treated group[3]. Compared with the control group (non-inflamed tissue), certolizumab pegol (2mg/kg) can effectively penetrate into the inflamed arthritic paws of mice and improve arthritis in mice[5].

References:
[1] Deeks ED. Certolizumab pegol: a review of its use in the management of rheumatoid arthritis. Drugs. 2013 Jan;73(1):75-97.
[2] Nesbitt A, et al. Mechanism of action of certolizumab pegol (CDP870): in vitro comparison with other anti-tumor necrosis factor alpha agents. Inflamm Bowel Dis. 2007 Nov;13(11):1323-32.
[3] Kosekli M A, Sungurtekin U, Cobankara V, et al. Effects of certolizumab on cerulein-induced acute pancreatitis in rats[J]. Pancreas, 2016, 45(8): 1120-1125.

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[4] Ueda N, Tsukamoto H, Mitoma H, et al. The cytotoxic effects of certolizumab pegol and golimumab mediated by transmembrane tumor necrosis factor α[J]. Inflammatory bowel diseases, 2013, 19(6): 1224-1231.
[5] Palframan R, Airey M, Moore A, et al. Use of biofluorescence imaging to compare the distribution of certolizumab pegol, adalimumab, and infliximab in the inflamed paws of mice with collagen-induced arthritis[J]. Journal of immunological methods, 2009, 348(1-2): 36-41.

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