Leinco Technologies, Inc.
excellence in early discovery research™

Anti-Human PD-L1 (Atezolizumab)

Biosimilar Recombinant Human Monoclonal Antibody

Product Information

Product No.:	LT1750
Clone:	RG7446
Isotype:	Human IgG
Storage:	Sterile 2-8°C

Product Description

Specificity:
Atezolizumab (RG7446; INN or code name MPDL3280A) activity is directed against PD-L1 (CD274) and B7.1 (CD80).

Antigen Distribution:
PD-L1 is commonly expressed on the surface of antigen presenting cells (APC) and tumor cells. B7.1 is found on activated APCs including dendritic cells, macrophages, and activated B cells.

Background:
Atezolizumab is a humanized, monoclonal immunoglobulin-G1 antibody that binds to programmed death ligand 1 (PD-L1; CD274) and B7.1 (CD80)[1]. PD-L1 is a transmembrane protein, widely expressed in many types of tissues, that acts as a ligand for the immune inhibitory receptor protein programmed death 1 (PD-1)[2,3,4]. Interaction between PD-1 and PD-L1 triggers inhibitory signals that dampen T cell function. PD-1 is expressed on activated T cells and is overexpressed on many human cancer cell types and on various tumor-infiltrating immune cells. B7.1 is a transmembrane glycoprotein present on dendritic cells, activated B cells, and macrophages that induces T cell proliferation and cytokine production. When atezolizumab prevents binding of PD-L1 to B7.1, the T-cell-mediated immune response is further enhanced[4].

Atezolizumab was isolated by screening a human phage display library against a recombinant extracellular domain-Fc fusion of human PD-L1[1,5]. A high-affinity antibody was selected from a single phage clone on a human IgG1 backbone. Because PD-L1 is expressed on activated T cells, the Fc region of atezolizumab was engineered to eliminate antibody-dependent cytotoxicity (ADCC) or complement-dependent cytotoxicity (CDC)[1]. An Asn to Ala change at position 298 was introduced in the CH2 domain of each heavy chain, rendering atezolizumab effectorless and incapable of binding to human Fcγ receptors[1,5]. Atezolizumab does not interfere with the interaction of PD-1 with ligand PD-L2 (CD273).

Atezolizumab is used in cancer immunotherapy and has been approved for some patients by the FDA to treat hepatocellular carcinoma, melanoma, non-small cell lung cancer, small cell lung cancer, urothelial cancer, and triple negative breast cancer[6].

Known Reactivity Species:
Human

Expression Host:
HEK-293 Cells

Format:
Purified No Carrier Protein

Immunogen:
Unknown

Formulation

This biosimilar antibody is aseptically packaged and formulated in 0.01 M phosphate buffered saline (150 mM NaCl) PBS pH 7.2 - 7.4 with no carrier protein, potassium, calcium or preservatives added. Due to inherent biochemical properties of antibodies, certain products may be prone to precipitation over time. Precipitation may be removed by aseptic centrifugation and/or filtration.

Purity
≥95% by SDS Page, ≥95% monomer by analytical SEC

Endotoxin
< 1.0 EU/mg as determined by the LAL method

Storage and Stability
Functional grade preclinical antibodies may be stored sterile as received at 2-8°C for up to one month. For longer term storage, aseptically aliquot in working volumes without diluting and store at ≤ -70°C.
Avoid Repeated Freeze Thaw Cycles.

Product Preparation
Recombinant biosimilar antibodies are manufactured in an animal free facility using only *in vitro* protein free cell culture techniques and are purified by a multi-step process including the use of protein A or G to assure extremely low levels of endotoxins, leachable protein A or aggregates.

Pathogen Testing
To protect mouse colonies from infection by pathogens and to assure that experimental preclinical data is not affected by such pathogens, all of Leinco's recombinant biosimilar antibodies are tested and guaranteed to be negative for all pathogens in the IDEXX IMPACT I Mouse Profile.

Applications
Applications and Recommended Usage (Quality Tested By Leinco):

FC The suggested concentration for Atezolizumab biosimilar antibody for staining cells in flow cytometry is ≤ 0.25 µg per 10^6 cells in a volume of 100 µl. Titration of the reagent is recommended for optimal performance for each application.

Other Applications Reported in Literature:
WB

Country of Origin
USA

References
1. Herbst RS, Soria JC, Kowanetz M, et al. Nature. 515(7528):563-567. 2014.
2. Freeman GJ, Long AJ, Iwai Y, et al. J Exp Med. 2000192(7):1027-1034. 2000.
3. Tsai KK, Zarzoso I, Daud AI. Hum Vaccin Immunother. 10(11):3111-3116. 2014.
4. NCI Dictionaries. https://www.cancer.gov/publications/dictionaries/cancer-drug/def/atezolizumab
5. Irving H, Chiu H, et al, inventors; F Hoffmann La Roche AG, assignee. Anti-PD-L1 antibodies, compositions and articles of manufacture. US Patent US 8,217,149B2. July 10, 2012.
6. A to Z List of Cancer Drugs. https://www.cancer.gov/about-cancer/treatment/drugs/atezolizumab