Leinco Technologies, Inc.
excellence in early discovery research™

Human PD-1 (Pembrolizumab) Antibody

Biosimilar Recombinant Human Monoclonal Antibody

Product Information

Product No.:	LT240
Clone:	MK-3475
Isotype:	Human IgG4κ
Storage:	Sterile 2 to 8°C

Product Description

Specificity:
This non-therapeutic biosimilar antibody uses the same variable region sequence as the therapeutic antibody Pembrolizumab. This product is for research use only. Pembrolizumab (lambrolizumab) activity is directed against human PD-1.

Antigen Distribution:
PD-1 is expressed on activated T cells, B cells, a subset of thymocytes, macrophages, dendritic cells, and some tumor cells and is also retained in the intracellular compartments of regulatory T cells (Tregs).

Background:
PD-1 is a transmembrane protein in the CD28/CTLA-4 subfamily of the Ig superfamily1, 2. When stimulated via the T cell receptor (TCR), Tregs translocate PD-1 to the cell surface3. Programmed cell death 1 ligand 1 (PD-L1; CD274; B7H1) and programmed cell death 1 ligand 2 (PD-L2; CD273; B7DC) have been identified as PD-1 ligands1. PD-1 is co-expressed with PD-L1 on tumor cells and tumor-infiltrating antigen-presenting cells (APCs)2. Additionally, PD-1 is co-expressed with IL2RA on activated CD4+ T cells3.

PD-1 is an immune checkpoint receptor that suppresses cancer-specific immune responses4. Additionally, PD-1 acts as a T cell inhibitory receptor and plays a critical role in peripheral tolerance induction and autoimmune disease prevention as well as important roles in the survival of dendritic cells, macrophage phagocytosis, and tumor cell glycolysis2. PD-1 prevents uncontrolled T cell activity, leading to attenuation of T cell proliferation, cytokine production, and cytolytic activities. Additionally, the PD-1 pathway is a major mechanism of tumor immune evasion, and, as such, PD-1 is a target of cancer immunotherapy2.

Pembrolizumab was generated as a humanized monoclonal antibody by grafting the variable region sequences of a mouse anti-human PD-1 antibody onto a human IgG4-κ isotype framework containing a stabilizing S228P Fc mutation5, 6. Pembrolizumab shows high affinity for the PD-1 receptor and prevents PD-1 binding to ligands PD-L1 and PD-L2. Additionally, pembrolizumab strongly inhibits PD-L1 and PD-L2 and has robust activity in a functional ex vivo T cell modulation assay using human donor blood cells.

Pembrolizumab is used in adult and pediatric patients to treat unresectable or metastatic solid tumors with certain genetic abnormalities7. Binding of pembrolizumab to PD-1 does not engage Fc receptors or activate complement and therefore is devoid of cytotoxic activity8.

Known Reactivity Species:
Human

Expression Host:
HEK-293 Cells

Products are for research use only. Not for use in diagnostic or therapeutic procedures.
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Product Datasheet

www.leinco.com

Format:
Purified No Carrier Protein

Immunogen:
Human PD-1

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.

Other Applications Reported in Literature:
FC,
FA,
ELISA,
WB,
IP

Country of Origin
USA

References

1) Matsumoto K, Inoue H, Nakano T, et al. J Immunol. 172(4):2530-2541. 2004.
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3) Raimondi G, Shufesky WJ, Tokita D, et al. J Immunol. 176(5):2808-2816. 2006.
4) Pardoll DM. Nat Rev Cancer. 12(4):252-264. 2012.
5) Hamid O, Robert C, Daud A, et al. N Engl J Med. Jul 11;369(2):134-144. 2013.
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7) Marcus L, Fashoyin-Aje LA, Donoghue M, et al. Clin Cancer Res. 27(17):4685-4689. 2021.
8) Kwok G, Yau TC, Chiu JW, et al. Hum Vaccin Immunother. 12(11):2777-2789. 2016.

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