Leinco Technologies, Inc.
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Human PD-1 (Genolimzumab) Antibody

Biosimilar Recombinant Human Monoclonal Antibody

Product Information

Product No.:	P440
Clone:	GB226
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 Genolimzumab. This product is for research use only. Genolimzumab activity is directed against human and cynomolgus 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 superfamily 1,2. When stimulated via the T cell receptor (TCR), Tregs translocate PD-1 to the cell surface 3. 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 ligands 1. 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 cells 3.

PD-1 is an immune checkpoint receptor that suppresses cancer-specific immune responses 4. 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 glycolysis 2. 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 immunotherapy 2.

Genolimzumab is a humanized IgG4 monoclonal antibody that targets PD-1 and prevents binding to PD-L1 and PD-L2 ligands, allowing T cell activation and tumor cell death 5,6. Genolimzumab has very low antibody-dependent cell mediated cytotoxicity and complement-dependent cytotoxicity 5. Genolimzumab does not completely block nivolumab or pembrolizumab binding to PD-1, suggesting the use of a novel binding epitope 6. Anti-tumor activity has been demonstrated in various clinical trials5.

Known Reactivity Species:
Human

Expression Host:
HEK-293 Cells

Format:
Purified No Carrier Protein

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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.

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

Country of Origin
USA

References
1) Matsumoto K, Inoue H, Nakano T, et al. J Immunol. 172(4):2530-2541. 2004.
2) Zhao Y, Harrison DL, Song Y, et al. Cell Rep. 24(2):379-390.e6. 2018.
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) https://www.apollomicsinc.com/pipeline-drugs/apl-501/
6) Zhou Q, Nian W, Sun Z, et al. J Clin Oncol. 35(7)suppl. 2017.