Product Datasheet
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Human CD47 (Magrolimab) Antibody

Purified No Carrier Protein

Biosimilar Recombinant Human Monoclonal Antibody

Product Information

Product No.:	C1070
Clone:	Hu5F9-G4
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 Magrolimab. This product is for research use only. Magrolimab activity is directed against CD47.

Antigen Distribution:
CD47 is a cell-surface protein with ubiquitous expression that is also overexpressed on cancer cells.

Background:
In healthy cells, signal molecules stimulate programmed cell removal via various proteins, phospholipids, and abnormal glycosylation1. However, cancer cells are able to evade phagocytic elimination, the normal method of cell removal by the innate immune system1, due to the inhibitory antiphagocytic “don’t eat me” signal generated by CD472. The CD47 signal, which is overexpressed on cancer cells3, enables immune evasion from macrophages and other phagocytes2. Since CD47 overexpression has been found on all known solid tumors and leukemias, it is a universal blocking target for cancer immunotherapy1.

Magrolimab was generated by immunizing Balb/c mice with a recombinant human-mouse CD47/mFC fusion protein composed of a cDNA fragment of human CD47 encoding the extracellular domain fused to mouse Fc1. Hybridomas were created by fusing spleen cells with SP2/0 cells, and screening resulted in clone 5F9. Humanization of mouse anti-CD47 5F9 was performed by CDR grafting onto a human IgG4 scaffold to minimize recruitment of antibody Fc-dependent effector functions. Magrolimab does not induce antibody-dependent cellular cytotoxicity, complement-dependent cytotoxicity, or apoptosis. Additionally, residue optimization was performed and the human IgG4 heavy chain constant region was modified by a Ser228Pro substitution to reduce the rate of Fab arm exchange, which can occur in human IgG4 molecules.

Magrolimab blocks the interaction between CD47 and one of its ligands, signal regulatory protein alpha (SIRPα)1. As a result, magrolimab is able to induce potent macrophage-mediated phagocytosis of primary human acute myeloid leukemia cells1, HER2+ breast cancer cells4, and lymphoma cells5, either on its own or in combination with other antibodies.

Known Reactivity Species:
Human

Expression Host:
HEK-293 Cells

Format:
Purified No Carrier Protein

Immunogen:
Humanized antibody derived from mouse clone 5F9

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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,
FA

Country of Origin
USA

References
1) Liu J, Wang L, Zhao F, et al. PLoS One. 10(9):e0137345. 2015.
2) Advani R, Flinn I, Popplewell L, et al. N Engl J Med. 379(18):1711-1721. 2018.
3) Maute R, Xu J, Weissman IL. Immunooncol Technol. 13:100070. 2022.
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5) Zeller T, Lutz S, Münnich IA, et al. Front Immunol. 13:929339. 2022.
6) Sikic BI, Lakhani N, Patnaik A, et al. J Clin Oncol. 37(12):946-953. 2019.

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