Leinco Technologies, Inc.
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Anti-Human von Willebrand factor (vWF) (Caplacizumab) (CHO Expressed) [Clone ALX-0081]

Biosimilar Recombinant Human Monoclonal Antibody

Product Information

Product No.: V30

Clone: ALX-0081

Isotype: Hamster Human VHH

Product Description

Specificity:
This non-therapeutic biosimilar antibody uses the same variable region sequence as the therapeutic antibody Caplacizumab. ALX-0081 (Caplacizumab) is a humanized single- variable domain, bivalent immunoglobulin that targets the A1-domain of the ultra-large von Willebrand factor (vWF). ALX-0081 (Caplacizumab) cross-reacts with cynomolgus monkey and baboon vWF but not murine vWF.

Antigen Distribution:
vWF is found in blood plasma, the subendothelial matrix, storage granules of endothelial cells, platelets, and megakaryocytes. vWF can also be found in macrophages, where it is bound and endocytosed during clearance.

Background:
von Willebrand factor (vWF) is a plasma glycoprotein involved in clot formation via the adhesion of platelets to subendothelial collagen[1,2]. A severe deficiency of the vWF-cleaving metalloproteinase ADAMTS13 leads to acquired thrombotic thrombocytopenic purpura (aTTP), a rare autoimmune blood clotting disorder caused by anti-ADAMTS13 autoantibodies[2]. Reduced ADAMTS13 activity leads to the accumulation of ultra-large vWF multimers in the blood. These bind to platelets, leading to the formation of platelet-rich microthrombi in the microvasculature. These microvascular occlusions ultimately lead to thrombocytopenia, hemolytic anemia, tissue ischemia, and organ dysfunction. ADAMTS13 activity can be normalized via a combination of plasma exchange, immunosuppression, and immunotherapy.

ALX-0081 (Caplacizumab) was developed as a treatment for thrombosis in high-risk patients with acute coronary syndrome, including treatment of aTTP[2]. Caplacizumab was generated as a single-domain antibody fragment and consists of two identical, humanized building blocks linked by a 3-alanine linker[2,3]. The precursor of Caplacizumab was isolated from a llama immunized with the recombinant A1 domain of vWF, humanized, and used to form a monovalent vWF-binding Nanobody (PMP12A2h1)[3]. The bivalent form was subsequently produced in *Escherichia coli* using a secretory

system.

Caplacizumab inhibits the interaction between vWF and the platelet glycoprotein Ib-IX-V receptor, preventing platelet adhesion at high shear rates like those observed in stenosed arteries[2,3]. Administration of caplacizumab in patients leads to rapid suppression of ristocetin cofactor, a biomarker for vWF activity, as well as reductions in VWF antigen and factor VIII.

Known Reactivity Species:
Baboon, Cynomolgus Monkey, Human

Expression Host:
CHO Cells

Format:
Purified No Carrier Protein

Immunogen:
Recombinant A1 domain of vWF

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

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:

B,
ELISA,
FA

Country of Origin
USA

References
1 Lenting PJ, Christophe OD, Denis CV. Blood. 125(13):2019-2028. 2015.
2 Duggan S. Drugs. 78(15):1639-1642. 2018.
3 Ulrichts H, Silence K, Schoolmeester A, et al. Blood. 118(3):757-765. 2011.
4 Peyvandi F, Scully M, Kremer Hovinga JA, et al. N Engl J Med. 374(6):511-522. 2016.

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

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