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Anti-Human VEGF-A (Brolucizumab Biosimilar)

Catalog Number:	501101, 501102, 501103
Size:	1 mg, 5 mg, 20 mg
Target Name:	VEGF-A
Regulatory Status:	RUO

PRODUCT DETAILS

Clone:	Brolucizumab
Application:	Neutralization, Intracellular Flow cytometry, animal model study
Reactivity:	Human
Format:	Liquid
Product Description:	Anti-Human VEGF-A (Brolucizumab Biosimilar)
Isotype:	Human IgG1
Clonality:	Recombinant
Immunogen:	Human VEGF-A
Species specificity:	Human
Purity:	>95% by reducing SDS-PAGE
Grade:	In vivo
Min Sample Size:	1 mg
Storage Conditions:	4ºC
Maximal Shelf Life:	12 months
Synonyms:	VEGF
RRID:	AB_3739287
GeneID:	7422

BACKGROUND INFORMATION

Brolucizumab is a humanized single-chain antibody fragment (scFv) engineered to bind vascular endothelial growth factor A (VEGF-A) with high specificity and affinity. Structurally, it differs from conventional full-length antibodies in that it consists of only the variable regions of the heavy (VH) and light (VL) chains connected by a flexible peptide linker, forming a single polypeptide chain rather than a whole immunoglobulin molecule. The absence of constant (Fc) regions significantly reduces its molecular mass, approximately 26 kilodaltons (kDa), making Brolucizumab one of the smallest antibody-derived therapeutic proteins developed for VEGF inhibition.

The functional activity of Brolucizumab centers on its ability to bind with high affinity to all major isoforms of VEGF-A, including

VEGF121, VEGF165, and VEGF189. Through its antigen-binding site, formed by complementarity-determining regions (CDRs) within the VH and VL domains, Brolucizumab effectively neutralizes VEGF-A, preventing its interaction with surface receptors VEGFR-1 (Flt-1) and VEGFR-2 (KDR) on endothelial cells. Blocking this ligand–receptor interaction inhibits receptor dimerization and downstream signaling cascades, including those mediated by the MAPK and PI3K-AKT pathways, which are involved in endothelial cell proliferation, migration, and vascular permeability.

Structurally optimized for stability and solubility, Brolucizumab maintains a monomeric form under physiological conditions and exhibits strong biophysical integrity despite lacking glycosylation. The small molecular size facilitates efficient tissue penetration and high molar binding capacity per administered volume. Overall, Brolucizumab exemplifies a rationally designed antibody fragment, combining the precise antigen recognition of conventional antibodies with the compactness and pharmacokinetic advantages of a streamlined single-chain variable fragment architecture.

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