Bevacizumab

Cat. No.: HY-P9906

CAS No.: 216974-75-3

Target: VEGFR

Pathway: Protein Tyrosine Kinase/RTK

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.

BIOLOGICAL ACTIVITY

Description	Bevacizumab, a humanized IgG1 monoclonal antibody, specifically binds to all VEGF-A isoforms with high affinity.
IC_{50} & Target	VEGF[1]
In Vitro	Bevacizumab, a humanized monoclonal antibody, specifically binds to all VEGF-A isoforms with high affinity, and inhibits its interaction with VEGFR-1 and VEGFR-2[1]. Experimental analysis shows that the EC_{50} of Bevacizumab to bind VEGF analyzed by ELISA is 0.18 μg/mL. Binding kinetics assays show similar results that Bevacizumab inhibits the VEGF-induced proliferation of HUVEC with an IC_{50} value of 0.047±0.0081 μg/mL[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	It is demonstrated that the subconjunctival administration of FD006 and Bevacizumab can significantly inhibit CoNV in NaOH cauterized rats compared with the control group ($p < 0.01$)[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [2]	Human umbilical vein endothelial cells (HUVECs) (1×10^4 cells/100 μL/well) are seeded in 96-well plates and cultured at 37 for 14 h with Endothelial Cell Medium. After low-serum starvation overnight, cells are treated with different concentrations of FD006 or Bevacizumab which are pre-incubated with 10 ng/mL VEGF for 30 minutes and incubated at 37, 5% CO_2 for 72 hours. Then, 10 μL CCK8 is added to each well and incubated for another 4 hours. The absorbance is measured by spectrophotometer at 450 nm to determine the cell viability[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [2][3]	Rats[2] After modeling, ninety rats are randomly divided into five groups (eighteen rats per group) and receive a subconjunctival injection with 0.05 mL per rat of (1) 0.9% NaCl, (2) solvent, (3) 25 mg/mL Bevacizumab and (4) 25 mg/mL FD006 in the superior temporal conjunctiva on the day after modeling. All chemical burns and treatments are performed by one investigator. The operator is blinded to the treatment group from which each cornea is derived. At postoperative days 3, 7, 14, 21 and 28, the eyes are harvested for further studies after the rats are sacrificed. Mice[3] Five-week-old Balb/cAnNCrlBR athymic (nu+/nu+) mice are injected into the fourth mammary fat pad with MDA-MB-468

	cells (10^7 cells per mice) resuspended in 200 μL of Matrigel. Seven days after the tumor cell injection, tumor-bearing mice are randomly assigned (n=10 per group) to receive the following: NVP-LDE225 20 mg/kg per os every day for 4 weeks; Bevacizumab 5 mg/kg intravenously (i.v.), twice a week for 4 weeks. Tumor diameter is assessed with a vernier caliper, and tumor volume (cm^3) is measured. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- J Extracell Vesicles. 2019 Jun 17;8(1):1629865.
- Adv Sci (Weinh). 2023 Apr 23;e2205915.
- Theranostics. 2024 Jan 20;14(3):1312-1324.
- J Exp Clin Cancer Res. 2023 Mar 30;42(1):77.
- Cancer Res. 2024 Mar 20.

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REFERENCES

[1]. Tan H, et al. 99mTc-labeled bevacizumab for detecting atherosclerotic plaque linked to plaque neovascularization and monitoring antiangiogenic effects of treatment in ApoE-/-mice. Sci Rep. 2017 Jun 14;7(1):3504.

[2]. Wang Q, et al. Pharmacological characteristics and efficacy of a novel anti-angiogenic antibody FD006 in corneal neovascularization. BMC Biotechnol. 2014 Feb 27;14:17.

[3]. Di Mauro C, et al. Hedgehog signalling pathway orchestrates angiogenesis in triple-negative breast cancers. Br J Cancer. 2017 May 23;116(11):1425-1435.

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