

Product Data Sheet

Product Name: Aflibercept

Cat. No.: GC68628

Chemical Properties

Cas. No. 862111-32-8

Formula M.Wt

Solubility Storage Sealed and stored at $\leq -30^{\circ}\text{C}$

General tips For obtaining a higher solubility, please warm the tube at 37°C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure

Aflibercept

Protocol

Cell experiment [1]:

Cell lines Human RPE (hTERT-RPE1) cells

Preparation Method Human RPE (hTERT-RPE1) cells were treated with Aflibercept ($7.5\mu\text{g/ml}$) for 10min.

Caution: Product has not been fully validated for medical applications. For research use only.

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Reaction
Conditions Aflibercept: 7.5µg/ml; 10min

Applications Aflibercept (7.5µg/ml; 10min) inhibits galectin-1-mediated VEGFR2 activation.

Animal experiment [2]:

Animal models Orthotopic murine renal cancer cell model

Preparation Method Aflibercept 10 and 25mg/kg versus solvents control was administered subcutaneously twice-weekly for up to 30 days.

Dosage form 10 and 25mg/kg; SC; twice-weekly; 30d

Applications Aflibercept (10 and 25mg/kg; SC; twice-weekly; 30d) inhibited primary tumor growth by 74% and 78% and Formation of detectable lung metastases was inhibited in 98% of cases.

References:

- [1] Kanda A, Noda K, Saito W, Ishida S. Aflibercept Traps Galectin-1, an Angiogenic Factor Associated with Diabetic Retinopathy. Sci Rep. 2015 Dec 9;5:17946.
[2] Moroney JW, Sood AK, Coleman RL. Aflibercept in epithelial ovarian carcinoma. Future Oncol. 2009 Jun;5(5):591-600.

Background

Aflibercept is a high-affinity soluble decoy vascular endothelial growth factor (VEGF) receptor and a potent angiogenesis inhibitor that binds vascular endothelial growth factor and placental growth factor (PIGF) with extremely high affinity. Preclinical studies have shown that Aflibercept has potent antitumor and antiangiogenic activities against a variety of tumors, including melanoma and solid tumors^[1].

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Aflibercept (7.5µg/ml; 10min) inhibits galectin-1-mediated VEGFR2 activation^[2]. Aflibercept (15nM; 1h) does not exhibit significant cell surface binding to ARPE-19 and HUVEC. Aflibercept (500nM; 10-15min) in the presence of heparin was unable to stimulate serotonin release^[3].

Aflibercept (10 and 25mg/kg; SC; twice-weekly; 30 days) inhibited primary tumor growth by 74% and 78% and Formation of detectable lung metastases was inhibited in 98% of cases ^[4] . Aflibercept (10mg/kg; 3h) can reduce stroke-induced VEGF-A and VEGFR2 expression, alleviate brain edema and Blood-Brain Barrier disruption, and improve the survival rate of obese mice after stroke after middle cerebral artery occlusion (MCAO) ^[5].

References:

- [1] Bender J G, Blaney S M, Borinstein S, et al. A phase I trial and pharmacokinetic study of aflibercept (VEGF Trap) in children with refractory solid tumors: a children's oncology group phase I consortium report[J]. Clinical cancer research, 2012, 18(18): 5081-5089.
- [2] Kanda A, Noda K, Saito W, Ishida S. Aflibercept Traps Galectin-1, an Angiogenic Factor Associated with Diabetic Retinopathy. Sci Rep. 2015 Dec 9;5:17946.
- [3] MacDonald DA, Martin J, Muthusamy KK, Luo JK, Pyles E, Rafique A, Huang T, Potocky T, Liu Y, Cao J, Bono F, Delesque N, Savi P, Francis J, Amirkhosravi A, Meyer T, Romano C, Glinka M, Yancopoulos GD, Stahl N, Wiegand SJ, Papadopoulos N. Aflibercept exhibits VEGF binding stoichiometry distinct from bevacizumab and does not support formation of immune-like complexes. Angiogenesis. 2016 Jul;19(3):389-406.
- [4] Moroney JW, Sood AK, Coleman RL. Aflibercept in epithelial ovarian carcinoma. Future Oncol. 2009 Jun;5(5):591-600.
- [5] Kim ID, Cave JW, Cho S. Aflibercept, a VEGF (Vascular Endothelial Growth Factor)-Trap, Reduces Vascular Permeability and Stroke-Induced Brain Swelling in Obese Mice. Stroke. 2021 Aug;52(8):2637-2648.

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