

Product Sheet

H_VEGF Reporter 293 Cell Line

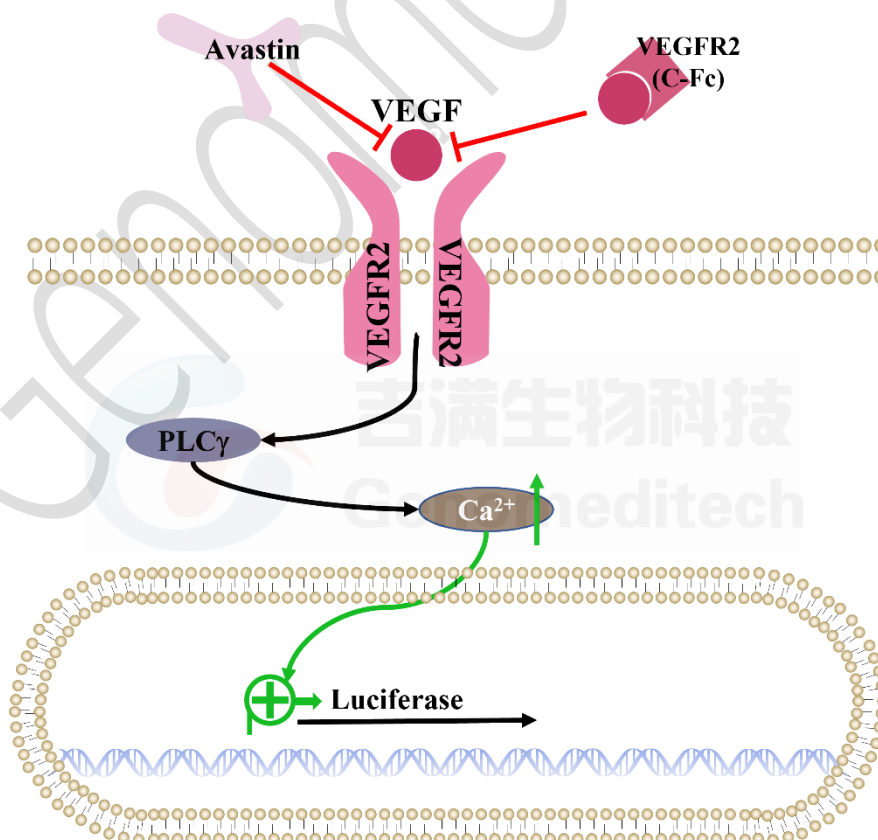
Catalog number: GM-C09057

Version 3.3.1.241204

Vascular Endothelial Growth Factor Receptor 2 (VEGFR2) is a key receptor for angiogenesis, primarily expressed in endothelial cells. It regulates angiogenesis, vascular permeability, and cell proliferation, with activation occurring through its binding to Vascular Endothelial Growth Factor (VEGF), promoting blood vessel formation and repair.

Upon VEGF binding, VEGFR2 dimerizes and activates its tyrosine kinase activity, triggering downstream signaling pathways, mainly the PI3K/Akt and MAPK/ERK pathways. These pathways enhance the proliferation, migration, and survival of endothelial cells, facilitating angiogenesis, while also regulating endothelial cell permeability to maintain blood vessel function and stability.

H_VEGF Reporter 293 Cell Line is a clonal stable cell line constructed using lentiviral technology, constitutive expression of the VEGFR2 gene, along with signal-dependent expression of a luciferase reporter gene. When VEGF binds to VEGFR2, it activates downstream signaling pathways, leading to the expression of luciferase. Blockade antibodies can inhibit this signal transmission. The luciferase activity measurement indicates the activation level of the signaling pathway and can thus be used to evaluate the in vitro effects of drugs related to VEGF.



Specifications

Quantity	5E6 Cells per vial, 1 mL
Product Format	1 vial of frozen cells
Shipping	Shipped on dry ice
Storage Conditions	Liquid nitrogen immediately upon receipt

Recovery Medium	DMEM+10% FBS+1% P.S
Growth medium	DMEM+10% FBS+1% P.S+4 µg/mL Blasticidin+400 µg/mL G418
Note	None
Freezing Medium	10% FBS+10% DMSO
Growth properties	Adherent
Growth Conditions	37°C, 5% CO ₂

Mycoplasma Testing	The cell line has been screened to confirm the absence of Mycoplasma species.
Safety considerations	Biosafety Level 2
Note	It is recommended to expand the cell culture and store a minimum of 10 vials at an early passage for potential future use.

Materials

Reagent	Manufacturer/Catalogue No.
DMEM	Gibco/C11995500BT
Fetal Bovine Serum	Cegrogen biotech/A0500-3010
Pen/Strep	Thermo/15140-122
Blasticidin	Genomeditech/ GM-040404
G418	Genomeditech/ GM-040402
Recombinant Human VEGF 121	Novoprotein/C744
Recombinant Human VEGF165	Novoprotein/C083
Recombinant Human VEGFR2 (C-Fc)	Novoprotein/CJ92
Anti-VEGF hIgG1 Antibody(Bevacizumab)	Genomeditech/ GM-51978AB
GMOne-Step Luciferase Reporter Gene Assay Kit	Genomeditech/ GM-040503

Figures

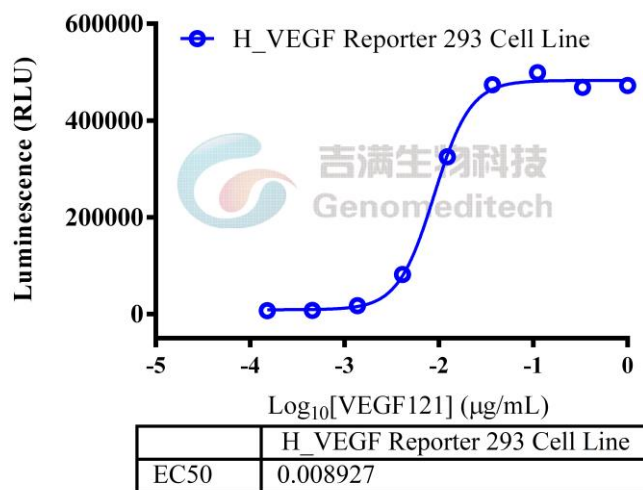


Figure 1 | Response to Recombinant Human VEGF 121. The H_VEGF Reporter 293 Cell Line (Cat. GM-C09057) at a concentration of 1.5E4 cells/well (96-well format) was stimulated with serial dilutions of Recombinant Human VEGF 121 (Novoprotein/C744) in assay buffer (DMEM + 1% FBS + 1% P.S) for 7 hours. The firefly luciferase activity was measured using the GMOne-Step Luciferase Reporter Gene Assay Kit (Cat. GM-040503). The maximum induction fold was approximately [67.2]. Data are shown by drug mass concentration.

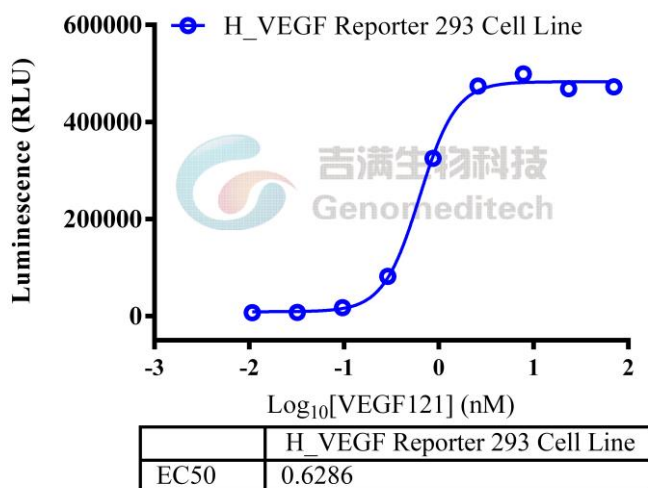


Figure 2 | Response to Recombinant Human VEGF 121. The H_VEGF Reporter 293 Cell Line (Cat. GM-C09057) at a concentration of 1.5E4 cells/well (96-well format) was stimulated with serial dilutions of Recombinant Human VEGF 121 (Novoprotein/C744) in assay buffer (DMEM + 1% FBS + 1% P.S) for 7 hours. The firefly luciferase activity was measured using the GMOne-Step Luciferase Reporter Gene Assay Kit (Cat. GM-040503). The maximum induction fold was approximately [67.2]. Data are shown by drug molar concentration.

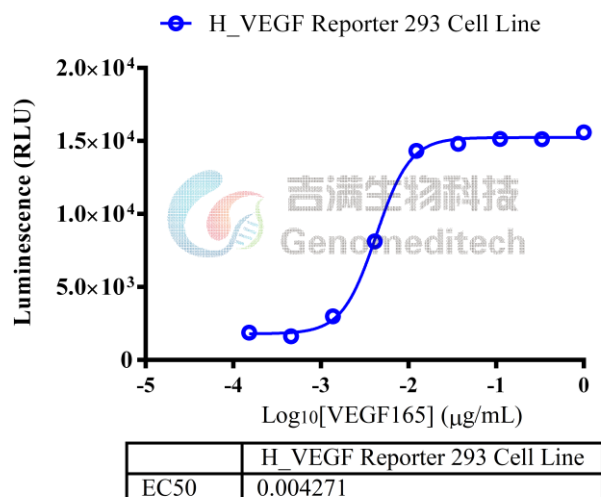


Figure 3 | Response to Recombinant Human VEGF165. The H_VEGF Reporter 293 Cell Line (Cat. GM-C09057) at a concentration of 1.5E4 cells/well (96-well format) was stimulated with serial dilutions of Recombinant Human VEGF165 (Novoprotein/C083) in assay buffer (DMEM + 1% FBS + 1% P.S) for 7 hours. The firefly luciferase activity was measured using the GMOne-Step Luciferase Reporter Gene Assay Kit (Cat. GM-040503). The maximum induction fold was approximately [9.5]. Data are shown by drug mass concentration.

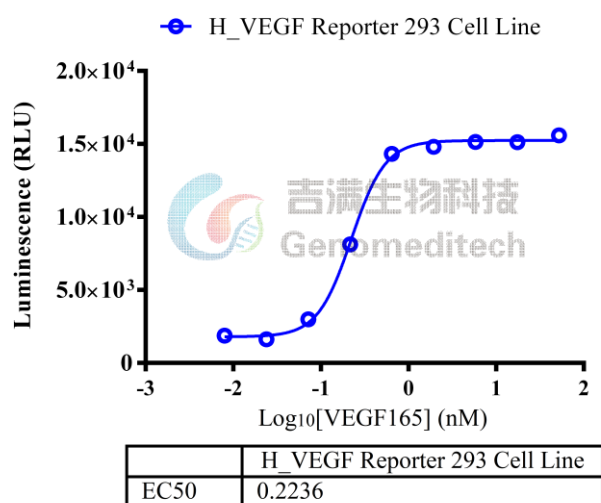


Figure 4 | Response to Recombinant Human VEGF165. The H_VEGF Reporter 293 Cell Line (Cat. GM-C09057) at a concentration of 1.5E4 cells/well (96-well format) was stimulated with serial dilutions of Recombinant Human VEGF165 (Novoprotein/C083) in assay buffer (DMEM + 1% FBS + 1% P.S) for 7 hours. The firefly luciferase activity was measured using the GMOne-Step Luciferase Reporter Gene Assay Kit (Cat. GM-040503). The maximum induction fold was approximately [9.5]. Data are shown by drug molar concentration.

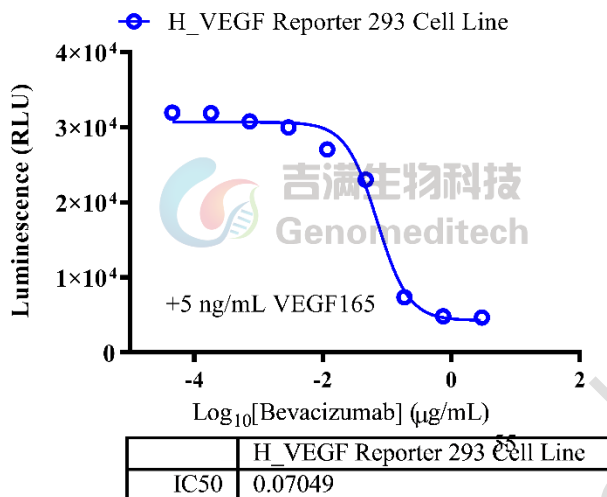


Figure 5 | Response to Anti-VEGF hIgG1 Antibody(Bevacizumab). Serial dilutions of Anti-VEGF hIgG1 Antibody(Bevacizumab) (Cat. GM-51978AB) was incubated with 0.5 ng/well of Recombinant Human VEGF165 (Novoprotein/C083) for 1 hour in assay buffer (DMEM + 1% FBS + 1% P.S). After pre-incubation, add the mixture to the H_VEGF Reporter 293 Cell Line (Cat. GM-C09057) at a density of 1.5E4 cells/well in a 96-well format, and incubate for 6 hours. Firefly luciferase activity is then measured using the GMOne-Step Luciferase Reporter Gene Assay Kit (Cat. GM-040503). The results indicated maximum blocking folds of approximately [6.8]. Data are shown by drug mass concentration.

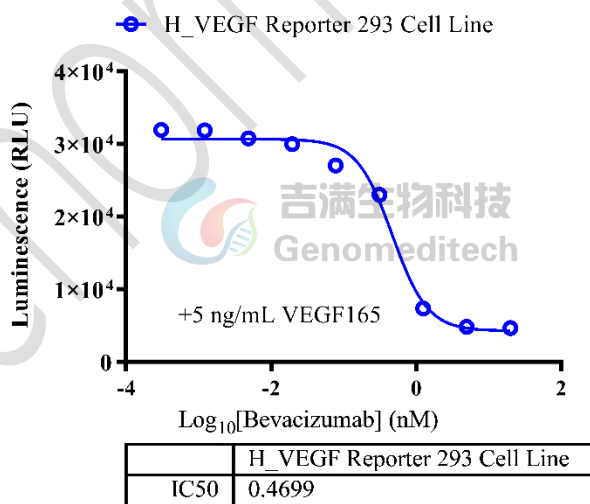


Figure 6 | Response to Anti-VEGF hIgG1 Antibody(Bevacizumab). Serial dilutions of Anti-VEGF hIgG1 Antibody(Bevacizumab) (Cat. GM-51978AB) was incubated with 0.5 ng/well of Recombinant Human VEGF165 (Novoprotein/C083) for 1 hour in assay buffer (DMEM + 1% FBS + 1% P.S). After pre-incubation, add the mixture to the H_VEGF Reporter 293 Cell Line (Cat. GM-C09057) at a density of 1.5E4 cells/well in a 96-well format, and incubate for 6 hours. Firefly luciferase activity is then measured using the GMOne-Step Luciferase Reporter Gene

Assay Kit (Cat. [GM-040503](#)). The results indicated maximum blocking folds of approximately [6.8]. Data are shown by drug molar concentration.

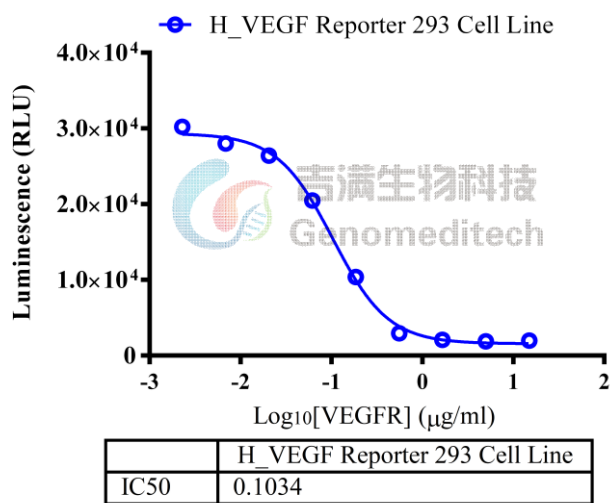


Figure 7 | Response to Recombinant Human VEGFR2 (C-Fc). Serial dilutions of Recombinant Human VEGFR2 (C-Fc) (Novoprotein/CJ92) was incubated with 1 ng/well of Recombinant Human VEGF165 (Novoprotein/C083) for 1 hour in assay buffer (DMEM + 1% FBS + 1% P.S). After pre-incubation, add the mixture to the H_VEGF Reporter 293 Cell Line (Cat. GM-C09057) at a density of 1.5E4 cells/well in a 96-well format, and incubate for 7 hours. Firefly luciferase activity is then measured using the GMOne-Step Luciferase Reporter Gene Assay Kit (Cat. [GM-040503](#)). The results indicated maximum blocking folds of approximately [16.2]. Data are shown by drug mass concentration.

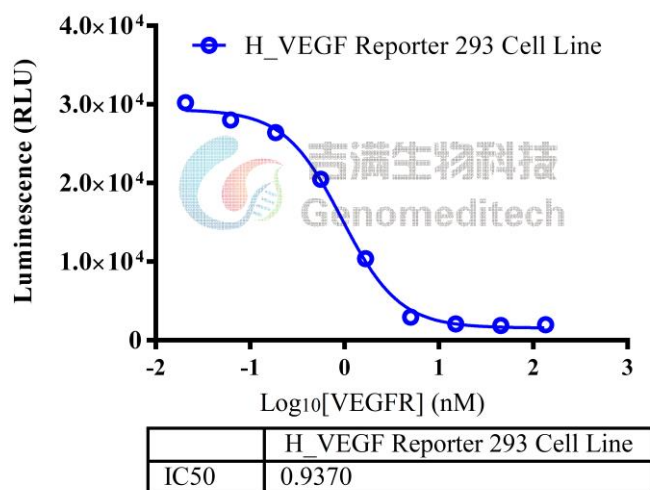


Figure 8 | Response to Recombinant Human VEGFR2 (C-Fc). Serial dilutions of Recombinant Human VEGFR2 (C-Fc) (Novoprotein/CJ92) was incubated with 1 ng/well of Recombinant Human VEGF165 (Novoprotein/C083) for 1 hour in assay buffer (DMEM + 1% FBS + 1% P.S). After pre-incubation, add the mixture to the H_VEGF Reporter 293 Cell Line (Cat. GM-C09057) at a density of 1.5E4 cells/well in a 96-well format, and incubate for 7 hours. Firefly luciferase activity is then measured using the GMOne-Step Luciferase Reporter Gene Assay Kit (Cat. [GM-040503](#)). The results indicated maximum blocking folds of approximately [16.2]. Data are shown by drug molar concentration.

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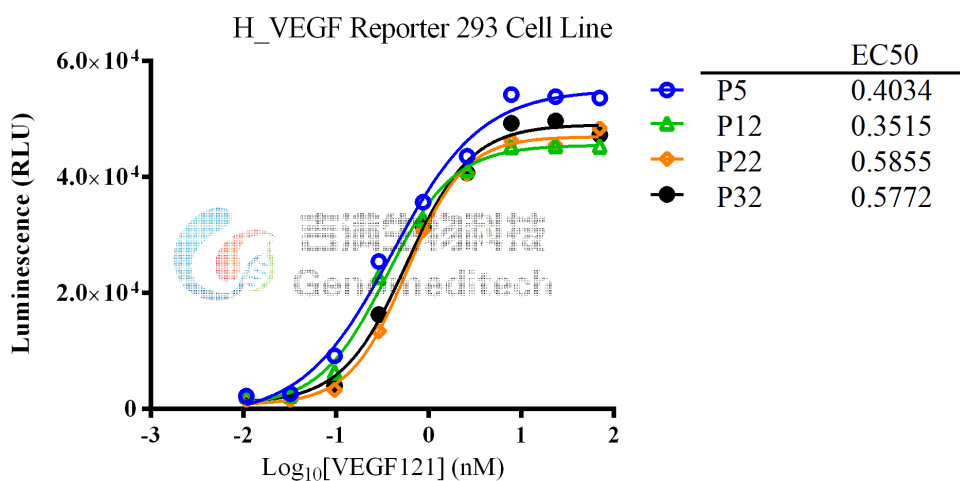


Figure 9 | The passage stability of response to Recombinant Human VEGF 121. The passage 5, 12, 22 and 32 of H_VEGF Reporter 293 Cell Line (Cat. GM-C09057) at a concentration of 1.5E4 cells/well (96-well format) were stimulated with serial dilutions of Recombinant Human VEGF 121 (Novoprotein/C744) in assay buffer (DMEM + 1% FBS + 1% P.S) for 7 hours. The firefly luciferase activity was measured using the GMOne-Step Luciferase Reporter Gene Assay Kit (Cat. GM-040503). Data are shown by drug molar concentration.

Cell Recovery

Recovery Medium: DMEM+10% FBS+1%P.S

To insure the highest level of viability, thaw the vial and initiate the culture as soon as possible upon receipt. If upon arrival, continued storage of the frozen culture is necessary, it should be stored in liquid nitrogen vapor phase and not at -70°C. Storage at -70°C will result in loss of viability.

- a) Thaw the vial by gentle agitation in a 37°C water bath. To reduce the possibility of contamination, keep the O-ring and cap out of the water. Thawing should be rapid (approximately 2 - 3 minutes).
- b) Remove the vial from the water bath as soon as the contents are thawed, and decontaminate by dipping in or spraying with 70% ethanol. All of the operations from this point on should be carried out under strict aseptic conditions.
- c) Transfer the vial contents to a centrifuge tube containing 5.0 mL complete culture medium and spin at approximately 176 x g for 5 minutes. Discard supernatant.
- d) Resuspend cell pellet with the recommended recovery medium. And dispense into appropriate culture dishes.
- e) Incubate the culture at 37°C in a suitable incubator. A 5% CO₂ in air atmosphere is recommended if using the medium described on this product sheet.

Cell Freezing

Freezing Medium: 10% FBS+10% DMSO

- Centrifuge at 176 x g for 3 minutes to collect cells.
- Resuspend the cells in pre-cooled freezing medium and adjust the cell density to 5E6 cells/mL.
- Aliquot 1 mL into each vial.
- Place the vial in a controlled-rate freezing container and store at -80°C for at least 1 day, then transfer to liquid nitrogen as soon as possible.

Cell passage

Growth medium: DMEM+10% FBS+1% P.S+4 µg/mL Blasticidin+400 µg/mL G418

For the first 1 to 2 passages post-resuscitation, use the recovery medium. Once the cells have stabilized, switch to a growth medium.

- Subculturing is necessary when the cell density reaches 80%. It is recommended to perform subculturing at a ratio of 1:3 to 1:4 every 2-3 days. Ensure that the density does not exceed 80%, as overcrowding can lead to reduced viability due to compression.
- Remove and discard culture medium.
- Briefly rinse the cell layer with PBS to remove all traces of serum that contains trypsin inhibitor.
- Add 1.0 mL of 0.25% (w/v) Trypsin-EDTA solution to dish and observe cells under an inverted microscope until cell layer is dispersed (usually within 30 to 60 seconds at 37°C).
- Note: To avoid clumping do not agitate the cells by hitting or shaking the flask while waiting for the cells to detach. Cells that are difficult to detach may be placed at 37°C to facilitate dispersal.
- Add 2.0 mL of growth medium to mix well and aspirate cells by gently pipetting.
- After centrifugation, resuspend the pellet and add appropriate aliquots of the cell suspension to new culture vessels.
- Incubate cultures at 37°C.

Subcultivation Ratio: A subcultivation ratio of 1:3 - 1:4 is recommended

Medium Renewal: Every 2 to 3 days

Notes

- Upon initial thawing, a higher number of dead cells is observed, which is a normal phenomenon. Significant improvement is seen after adaptation. Once the cells reach a stable state, the number of dead cells decreases after subculturing and the cell growth rate becomes stable.
- Ensure that the cell density does not exceed 80%, as overcrowding may lead to reduced viability due to compression.

Related Products

VEGF	
H_VEGF Reporter 293 DDX35TM Cell Line	

Anti-VEGF hIgG1 Antibody(Bevacizumab)	Anti-VEGF hIgG1 Reference Antibody (Bevbio)
Anti-VEGFxPD1 hIgG1 Reference Antibody (Ivobio)	

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