HEK293-VEGFR2

305990

GENERAL INFORMATION

Description

Disclaimer: The prices displayed for cell lines are exclusively for academic/not-for-profit customers. For commercial entitites the price is approximately €6,250.
If you represent a commercial entity or are unsure which category applies, please
contact us.
HEK293-VEGFR2 cells are human embryonic kidney 293 (HEK293) cells engineered to stably express human vascular endothelial growth factor receptor 2 (VEGFR2/KDR/Flk-1), a receptor tyrosine kinase that serves as a principal mediator of VEGF-driven angiogenic signaling. VEGFR2 is primarily expressed on endothelial cells and plays essential roles in vascular development, endothelial cell proliferation, migration, permeability, and survival through activation of downstream pathways including MAPK/ERK, PI3K/AKT, PLCγ, and SRC family signaling cascades. Dysregulated VEGFR2 signaling contributes to tumor angiogenesis, inflammatory vascular remodeling, and pathological neovascularization, making the receptor a major target in oncology and vascular disease therapeutics.
HEK293-VEGFR2 cells are widely used in angiogenesis research and drug discovery for characterization of VEGFR2-targeted monoclonal antibodies, tyrosine kinase inhibitors, ligand traps, bispecific antibodies, and anti-angiogenic biologics. The stable recombinant expression system supports quantitative evaluation of VEGF ligand binding, receptor phosphorylation, downstream signaling activation, receptor internalization, and inhibitor potency. These cells are also commonly employed in reporter assays, flow cytometry-based binding studies, kinase activity assays, and high-throughput therapeutic screening workflows. Because HEK293 cells support robust recombinant protein expression and efficient propagation, they provide a reliable platform for standardized VEGFR2 assay development and mechanistic signaling studies.

Tissue	Fetal Kidney
Disease	Transformed/immortalized; non-tumorigenic (HEK293 background)

Applications

VEGFR2-targeted antibody development (ramucirumab analogs); angiogenesis research; ADCC/CDC assays; flow cytometry; anti-angiogenic therapy screening; oncology and ophthalmology research

Synonyms

- HEK293/VEGFR2

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
GMO status	GMO-S1

GMO status details

GMO-S1: This HEK293 cell line contains a VEGFR2 (KDR/FLK-1) expression construct for vascular endothelial growth factor receptor studies and anti-angiogenic therapy development. This classification applies only within Germany and may differ elsewhere.

Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial-like

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IBAN: DE35 6725 0020 0009 2076 86
BIC: SOLADES1HDB

Cell type	Epithelial cells
Doubling time	approx. 24-36 hours

IDENTIFIERS

Citation

HEK293-VEGFR2 (Cytion catalog number 305990)

NCBI TaxID	9606
Cellosaurus	CVCL_D7C3

EXPRESSION AND SUSCEPTIBILITY

Receptors expressed

VEGFR2

HANDLING AND CULTURE

Culture medium

RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

Supplements

Supplement the medium with 10% FBS, 1 mM sodium pyruvate, 10 mM HEPES, 1% NEAA. Add Geneticin (G418-Sulfat) to achieve a final concentration of 1 mg/mL.

Dissociation reagent	Trypsin-EDTA

Subculturing

For routine adherent cell culture: Aspirate the old culture medium from the adherent cells, and wash them with PBS to remove any remaining medium. After aspirating the PBS, add the appropriate volume of Trypsin/EDTA solution based on the culture vessel size (e.g., 1 ml for a T25 flask, 3 ml for a T75 flask) and incubate at room temperature or 37°C until the cells detach (5-10 minutes). Monitor detachment under a microscope, and gently tap the vessel if necessary to release the cells. Once detached, add complete medium to inactivate the Trypsin/EDTA, gently resuspend the cells, and transfer an aliquot of the cell suspension into a new culture vessel containing fresh medium. Place the vessel in an incubator set to 37°C with 5% CO_2, and change the medium every 2-3 days.

Split ratio	1 to 5
Seeding density	2 to 4 x 10^4 cells/cm^2
Fluid renewal	2 to 3 times per week
Post-thaw recovery	After thawing, split the cells at a ratio of 1:2 to 1:3 in T25 flasks and allow the cells to recover from the freezing process and to adhere for at least 24 hours. For best attachment and viability after thawing the cells, we recommend using Collagen-coated flasks or plates for the initial seeding after cryo-recovery. Collagen coating is not required for subsequent routine culture of the cells.

Thawing and culturing

Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit.
Upon receipt, either store the cryovial immediately at temperatures below -150°C to ensure the preservation of cellular integrity, or proceed to step 3 if immediate culturing is required.
For immediate culturing, swiftly thaw the vial by immersing it in a 37°C water bath with clean water and an antimicrobial agent, agitating gently for 40-60 seconds until a small ice clump remains.
Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
Carefully open the disinfected vial and transfer the cell suspension into a 15 ml centrifuge tube containing 8 ml of room-temperature culture medium, mixing gently.
Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
Gently resuspend the cell pellet in 10 ml of fresh culture medium. For adherent cells, divide the suspension between two T25 culture flasks; for suspension cultures, transfer all the medium into one T25 flask to promote effective cell interaction and growth.
Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

QUALITY CONTROL AND CRYOPRESERVATION

Sterility

Mycoplasma contamination is excluded using both PCR-based assays and luminescence-based mycoplasma detection methods.
To ensure there is no bacterial, fungal, or yeast contamination, cell cultures are subjected to daily visual inspections.

Freeze medium	As a cryopreservation medium, we use complete growth medium (including FBS) + 10% DMSO for adequate post-thaw viability, or CM-1 (Cytion catalog number 800100), which includes optimized osmoprotectants and metabolic stabilizers to enhance recovery and reduce cryo-induced stress.

Storage conditions

For long-term preservation, place vials in vapor-phase liquid nitrogen at about −150 to −196 °C. Storage at −80 °C is acceptable only as a short interim step before transfer to liquid nitrogen.

Shipping conditions

Cryopreserved cell lines are shipped on dry ice in validated, insulated packaging with sufficient refrigerant to maintain approximately −78 °C throughout transit. On receipt, inspect the container immediately and transfer vials without delay to appropriate storage.

DONOR

Donor age	Fetus

LEGAL AND SAFETY

Safety precautions

When planning to store a cryovial in liquid nitrogen for future thawing, it is mandatory to adhere to stringent safety measures. Appropriate protective gloves and clothing are essential, and the use of a face mask or safety goggles is required during the transfer of frozen samples to or from the liquid nitrogen tank. This is to mitigate the risk of injury from potential cryovial explosions upon removal, which can result in the projection of sharp fragments.

Warranty

At Cytion, we stand behind the quality and viability of our products.
We guarantee that our cells will be viable at the start of culture for
60 days after shipment from our facilities.
We assure that all materials conform to the specifications described in the
Certificate of Analysis and/or Product Sheet.
For full details, please refer to our
Warranty Statement.

Third-party agreements apply	Yes