

HEK293-VEGFR2 Cells | 305990

General information

Description

Disclaimer: The prices displayed for cell lines are exclusively for academic/not-for-profit customers. For commercial entities 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, PLC γ , 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.

Organism Human

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

Characteristics

Age Fetus

Gender Female

Morphology Epithelial-like

HEK293-VEGFR2 Cells | 305990**Cell type** Epithelial cells**Growth properties** Monolayer, adherent**Regulatory Data****Citation** HEK293-VEGFR2 (Cytion catalog number 305990)**Biosafety level** 1**NCBI_TaxID** 9606**CellosaurusAccession** CVCL_D7C3**GMO Status** 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.**Biomolecular Data****Receptors expressed** VEGFR2**Handling****Culture Medium** RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO₃ (Cytion article number 820700a)**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**Doubling time** approx. 24-36 hours

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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% CO₂, and change the medium every 2-3 days.

Split ratio 1 to 5

Seeding density 2 to 4 x 10⁴ cells/cm²

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.

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.

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Thawing and Culturing Cells

1. Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit.
2. 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.
3. 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.
4. Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
5. 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.
6. Centrifuge the mixture at $300 \times g$ for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
7. 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.
8. Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

Incubation Atmosphere

37°C , 5% CO_2 , humidified atmosphere.

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.

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.

Quality Control & Molecular Analysis

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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.