

HK-CRISPR-Nup62-mEGFP Cells | 300659

General information

Description

The HK-CRISPR-Nup62-mEGFP cell line is a human cell model with the Nup62 gene tagged with monomeric Enhanced Green Fluorescent Protein (mEGFP). This modification allows for real-time visualization of Nup62 within the nuclear envelope, aiding studies on nuclear transport, NPC assembly, and dynamics. Precise genome editing was achieved using CRISPR-Cas9 technology, making it a reliable model for investigating Nup62's role in cellular processes.

This cell line is valuable for research in nucleocytoplasmic transport, cell cycle regulation, and nuclear architecture. The fluorescent tagging of Nup62 enables high-resolution imaging and live-cell tracking, facilitating fluorescence microscopy and other imaging techniques. Researchers can explore the molecular mechanisms of nuclear-cytoplasmic exchange and the role of Nup62 in diseases such as cancer and neurodegenerative disorders.

Organism

Human

Tissue

Endocervix

Disease

Adenocarcinoma

Characteristics

Age

30 years

Gender

Female

Ethnicity

African American

Morphology

Epithelial-like cells with mosaic stone shape

Growth properties

Adherent

Regulatory Data

Citation

HK-CRISPR-Nup62-mEGFP (Cytion catalog number 300659)

Biosafety level

1

NCBI_TaxID

9606

HK-CRISPR-Nup62-mEGFP Cells | 300659**Depositor** The Ellenberg Lab (EMBL)**GMO Status** GMO-S1: This HeLa Kyoto line contains an mEGFP-tagged Nup62 generated via CRISPR, enabling imaging of central channel nuclear pore components. This classification applies only within Germany and may differ elsewhere.**Biomolecular Data****Protein expression** Nup62, mEGFP-tag**Handling****Culture Medium** DMEM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 3.7 g/L NaHCO₃, w: 1.0 mM Sodium pyruvate (Cytion article number 820300a)**Supplements** Supplement the medium with 10% FBS**Dissociation Reagent** Accutase**Subculturing** Remove the old medium from the adherent cells and wash them with PBS that lacks calcium and magnesium. For T25 flasks, use 3-5 ml of PBS, and for T75 flasks, use 5-10 ml. Then, cover the cells completely with Accutase, using 1-2 ml for T25 flasks and 2.5 ml for T75 flasks. Let the cells incubate at room temperature for 8-10 minutes to detach them. After incubation, gently mix the cells with 10 ml of medium to resuspend them, then centrifuge at 300xg for 3 minutes. Discard the supernatant, resuspend the cells in fresh medium, and transfer them into new flasks that already contain fresh medium.**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 x 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% CO₂, 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.