Product description

A derivative of the KPAR cells, where the mutation Asp in position 12 from KRAS (G12D) was mutated to Cys (G12C) using prime editing. KPAR cells were derived from mouse models of mutant KRAS-driven lung cancer with an elevated tumour mutational burden by expressing the human DNA cytosine deaminase, APOBEC3B, to mimic the mutational signature seen in human lung cancer.

Name: KPAR-G12C Cell Line

Alternate name: $KPAR^{G12C}$

Organism: Mouse

Tissue: Lung

Disease: Cancer

Growth properties: Adherent

CRISPR Edited: No

Biosafety level: 2

Contributor(s)

Inventor(s): Julian Downward, Pablo Romero-Clavijo, Miriam Molina-Arcas
Institute: The Francis-Crick Institute

Properties

Product format: Frozen

Unpacking and storage:

1. Check all containers for leakage or breakage.
2. Remove the frozen cells from the dry ice packaging and immediately place the cells at a temperature below -130°C, preferably in liquid nitrogen vapor, until ready for use.

Recommended medium: DMEM, supplemented with 10% FCS, 4 mM l-glutamine, penicillin (100 U/ml), and streptomycin (100 mg/ml).

Subculture: Split 1:12 – 1:15 twice a week

Culture conditions: 37.0°C ± 1.0°C incubator with 5.0% ± 1.0% CO_2

Cryopreservation: Freeze in 10% DMSO in FBS.

Handling instructions

1. Please ensure that vials are frozen when received, and store at **<-130 °C long term**. When removing frozen cells from storage, it is important to minimize exposure to room temperature (15 - 25°C). If not proceeding directly to thawing, place the cells on dry ice or in a liquid nitrogen container.
2. **Do not thaw at room temperature.** To thaw, swirl the vial quickly in a 37 °C water bath with O-ring and cap above the water to avoid contamination. Remove from the water bath with a small ice pellet remaining (this should not take more than 2 minutes) and wipe the exterior with 70% ethanol or isopropanol before transferring to a biosafety cabinet. Further steps should be conducted under aseptic conditions.
3. We strongly recommend that the volume of cell suspension is measured at this point, and a 20 uL aliquot be removed for a **viable cell count** using trypan blue or similar dye. This ensures that provided cells are viable, and the cell count can be used to determine volume of growth medium to be added to the cell suspension.
4. **These cells are especially sensitive to centrifugation immediately post-thaw.** We recommend adding the thawed culture to 4 mL of prewarmed recommended medium in a T-25 culture flask and changing the medium after the cells have attached either later in the day or the next morning. Significant cell death is expected at this point. Once the cells have revived, they can be centrifuged and sub-cultured.

References

- Ng et al. 2023. Nature. 616: 563–573. PMID: 37046094.
- Boumelha et al. 2022. Cancer Research. 82(19):3435-3448. PMID: 35930804.
- Mugarza et al. 2022. Sci Adv. 8(29). PMID: 35857848.
- Molina-Arcas et al. 2019. Sci Transl Med. 11(510). PMID: 31534020.

Material Citation

If use of this material results in a scientific publication, please cite the material in the following manner: KPAR-G12C cell line, was invented by Julian Downward, Pablo Romero-Clavijo and Miriam Molina-Arcas (CancerTools.org #161804).