Engineered murine fallopian tube epithial cell line that contains rp53 -/-; Brca1 -/-; MycOE

An engineered murine fallopian tube epithelial cell line with rp53 -/-; Brca1 -/-; MycOE mutations models high-grade serous tubo-ovarian carcinoma (HGSC) for studying tumor biology and testing new therapies

Researchers have developed an engineered murine fallopian tube epithelial cell line with specific genetic alterations (rp53 -/-; Brca1 -/-; MycOE) to model high-grade serous tubo-ovarian carcinoma (HGSC). HGSC is characterized by significant structural genomic changes and an almost universally mutated TP53 gene, with over 50% of cases exhibiting defects in the homologous recombination (HR) repair pathway due to genetic and epigenetic alterations in genes such as BRCA1, BRCA2, and PTEN. This innovative cell line replicates the key genetic features of human HGSC, providing a valuable preclinical model for in vivo and in vitro studies. By utilizing CRISPR/Cas9 technology for bi-allelic deletions and viral gene transduction for overexpression, the cell line allows researchers to investigate the impact of these genetic alterations on tumor biology, the tumor-immune microenvironment, and responses to current and novel therapies. This model holds significant potential for advancing our understanding of HGSC and improving therapeutic strategies for patients with HR-deficient HGSC.

References

1. Iyer et al. , https://pmc.ncbi.nlm.nih.gov/articles/PMC8344888/#S12

Technology ID

NEE02-11

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Life Sciences/Materials/Cell Lines

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