Product sheet

KGN Cells | 305446

General information

Description	The KGN cell line is a human ovarian granulosa tumor cell line derived from a patient with ovarian cancer and immortalized for use in various research studies. It maintains the functional characteristics of granulosa cells, including hormone synthesis, making it a valuable model for examining granulosa cell functions, hormonal regulation, and ovarian pathology. KGN cells have been utilized to investigate the molecular mechanisms underlying reproductive and endocrine disorders such as polycystic ovary syndrome (PCOS). They are particularly noted for their response to polyunsaturated fatty acids like arachidonic acid (AA), which can induce oxidative stress (OS) and impact mitochondrial function. Research has shown that exposure to AA in KGN cells elevates levels of oxidative markers such as reactive oxygen species (ROS) and malondialdehyde (MDA), reduces total antioxidant capacity, and impairs mitochondrial activity, leading to cell apoptosis. This process is associated with the upregulation of growth differentiation factor 15 (GDF15), which appears to serve a protective role against cellular damage induced by oxidative stress. Additionally, KGN cells are sensitive to ferroptosis, an iron-dependent form of cell death characterized by lipid peroxidation and oxidative stress. Studies highlight that iron uptake mediated through the transferrin receptor can promote ROS production and contribute to this pathway. Furthermore, KGN cells have been used to study the impact of microRNAs on cell function, as miR-93-5p has been identified as a factor promoting apoptosis and ferroptosis through the NF-κB signaling pathway, linking miRNA regulation to granulosa cell dysfunction in PCOS. These capabilities make KGN cells a significant model for advancing understanding of ovarian pathophysiology and exploring potential therapeutic targets.
Organism	Human
Tissue	Ovary, ovarian follicle, granulosa cell layer
Disease	Ovarian granulosa cell tumor

Characteristics

Age	63 years
Gender	Female
Ethnicity	Japanese
Morphology	Fibroblast-like
Growth properties	Adherent

Regulatory Data

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Citation	KGN (Cytion catalog number 305446)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0375

Biomolecular Data

Mutational profile	Mutation: FOXL2, p.Cys134Trp (c.402C>G), heterozygous

Handling

Culture Medium	DMEM:Ham's F12 (1:1), w: 3.1 g/L Glucose, w: 2.5 mM L-Glutamine, w: 15 mM HEPES, w: 0.5 mM Sodium pyruvate, w: 1.2 g/L NaHCO3 (Cytion article number 820400a)
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.
Fluid renewal	2 times per week
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% 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

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.