Product sheet

A7r5 Cells | 305198

General information

Description	Derived from the smooth muscle of the embryonic thoracic aorta in a BDIx rat, the A7r5 cell line offers a remarkable tool for studying cardiovascular diseases. These fibroblast-like cells possess a unique flat ribbon-like morphology that differentiates into parallel arrays of spindle-shaped cells. When the A7r5 cells enter the stationary phase of their growth cycle, there is a noticeable increase in myokinase and creatine phosphokinase (CPK) activity. Furthermore, upon cessation of cell division, these cells synthesize a specific muscle type CPK isoenzyme. This intriguing behaviour allows researchers to investigate the molecular mechanisms underlying cell differentiation and muscle development. Researchers have employed the A7r5 cell line to investigate the impact of angiotensin II on vascular oxidative stress, shedding light on the role of this hormone in cardiovascular physiology. Additionally, the cells have been utilized in a study focusing on the inhibitory effects of PLA2 (phospholipase A2) and its role in lipid droplet formation. These applications highlight the versatility and relevance of the A7r5 cell line in elucidating critical pathways and potential therapeutic targets related to cardiovascular diseases.
Organism	Rat
Tissue	Aorta, thoracic, smooth muscle
Synonyms	A7R5

Characteristics

Age	Embryo
Morphology	Fibroblast
Growth properties	Adherent

Identifiers / Biosafety / Citation

Citation	A7r5 (Cytion catalog number 305198)
Biosafety level	1

Expression / Mutation

Protein expression	Myokinase, Creatine Phosphokinase(Muscle Isoenzyme), Myosin

Handling

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Culture Medium	DMEM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 1.5 g/L NaHCO3, w: 1.0 mM Sodium pyruvate (Cytion article number 820300a)
Medium supplements	Supplement the medium with 10% FBS
Passaging solution	Accutase
Subculturing	Remove medium and rinse the adherent cells using PBS without calcium and magnesium (3-5 ml PBS for T25, 5-10 ml for T75 cell culture flasks). Add Accutase (1-2 ml per T25, 2.5 ml per T75 cell culture flask), the cell sheet must be covered completely. Incubate at ambient temperature for 8-10 minutes. Carefully resuspend the cells with medium (10 ml), centrifuge for 3 min at 300 g, resuspend cells in fresh medium and dispense into new flasks which contain fresh medium.
Split ratio	1:2 to 1:4
Fluid renewal	2 to 3 times per week
Freeze medium	CM-1 (Cytion catalog number 800100) or CM-ACF (Cytion catalog number 806100)
Handling of cryopreserved cultures	A7r5 cells are shipped in a deep-frozen state on dry ice. Upon receipt, confirm that the vial remains frozen. For storage, place the cryovial immediately at temperatures below -150 degrees. If you plan to culture the cells immediately, swiftly thaw the vial by shaking it in a 37 degrees water bath with clean water and an antimicrobial agent for 40-60 seconds. Remove the vial once a small ice clump persists, ensuring it remains cold. Proceed with all subsequent steps under aseptic conditions. In a sterile flow hood, disinfect the cryovial with 70% ethanol. Then, gently open the vial and transfer the cell suspension into a 15 ml centrifuge tube pre-filled with 8 ml of room temperature culture medium. Gently mix the cells. For cell separation, centrifuge at 300 x g for 3 minutes and dispose of the supernatant. Skipping centrifugation is optional, although any residual freezing medium should be removed after 24 hours. Resuspend the pellet gently in 10 ml of fresh culture medium and divide between two T25 culture flasks. Follow the subculture protocol for subsequent steps.
Handling of proliferating cultures	One or two cell culture flasks come filled with cell culture medium. Collect the entire medium in a 50 ml centrifuge tube. Spin down the collected medium at 300 x g for 3 minutes to collect the cells which may have detached during transit. If a cell pellet is visible, resuspend the cells in 5 ml of cell culture medium and transfer to a T25 cell culture flask. Carefully add 5 ml of cell culture medium to each T25 cell culture flask. Examine cell morphology and confluency using a microscope. Finally, incubate the flasks at 37 degrees Celsius for at least 24 hours.

Quality control / Genetic profile / HLA

Sterility	Mycoplasma contamination is rigorously 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.