PIEC

305213

GENERAL INFORMATION

Description

PIEC (Porcine Iliac Endothelial Cells) is a spontaneously immortalized endothelial cell line derived from the iliac artery endothelium of a young pig. The cell line exhibits a typical cobblestone morphology when grown to confluence and forms adherent monolayers under standard culture conditions. PIECs retain key endothelial characteristics, including contact inhibition, expression of endothelial markers such as von Willebrand factor (vWF), and the ability to form capillary-like structures in appropriate in vitro assays. Due to their vascular origin, PIECs are widely used as a model for studying porcine endothelial biology and host-pathogen interactions.
Functionally, PIECs display features consistent with macrovascular endothelial cells, including responsiveness to inflammatory stimuli and the capacity to express adhesion molecules involved in leukocyte recruitment. They have been extensively utilized in virology research, particularly for the propagation and study of porcine viruses such as classical swine fever virus (CSFV), African swine fever virus (ASFV), and porcine reproductive and respiratory syndrome virus (PRRSV). Their high permissiveness to certain viral infections and stable growth characteristics make them a valuable in vitro system for viral replication studies, antiviral screening, and vaccine research.
Beyond infectious disease applications, PIECs serve as a relevant large-animal endothelial model for investigating vascular barrier function, endothelial activation, angiogenesis, and inflammatory signaling pathways. As a porcine-derived endothelial line, PIECs provide translational relevance for comparative cardiovascular research and preclinical studies where porcine models are commonly employed.

Tissue	Vascular endothelium

CLASSIFICATION

Organism	Pig
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Epithelial

IDENTIFIERS

Citation

PIEC (Cytion catalog number 305213)

NCBI TaxID	9823
Cellosaurus	CVCL_C0W5

HANDLING AND CULTURE

Culture medium

RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

Supplements

Supplement the medium with heat-inactivated 10% FBS

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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 to 3 times per week

Thawing and culturing

Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit. 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.
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.
Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
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.
Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
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.
Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

QUALITY CONTROL AND CRYOPRESERVATION

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.

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.

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.

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.

LEGAL AND SAFETY

Safety precautions

When planning to store a cryovial in liquid nitrogen for future thawing, it is mandatory to adhere to stringent safety measures. Appropriate protective gloves and clothing are essential, and the use of a face mask or safety goggles is required during the transfer of frozen samples to or from the liquid nitrogen tank. This is to mitigate the risk of injury from potential cryovial explosions upon removal, which can result in the projection of sharp fragments.

Warranty

At Cytion, we stand behind the quality and viability of our products.
We guarantee that our cells will be viable at the start of culture for
60 days after shipment from our facilities.
We assure that all materials conform to the specifications described in the
Certificate of Analysis and/or Product Sheet.
For full details, please refer to our
Warranty Statement.

Material Transfer Agreement required	Yes

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