Product sheet

BJ Fibroblast | 305222

General information

Description	BJ cells, derived from neonatal male foreskin, are human fibroblasts, which are a type of cell found in connective tissue. They are often used in biological and medical research due to their ability to proliferate and their human origin, making them relevant for studying human biology and disease. BJ cells, derived from human skin fibroblasts, are primarily used in studies related to cellular responses to oxidative stress, contributing to our understanding of aging, disease mechanisms, and cellular defense against oxidative damage. The cells further present a viable alternative to mouse BALB/c 3T3 cells for in vitro toxicological evaluations, particularly in the Neutral Red Uptake (NRU) assay. This assay is widely used to assess cytotoxic effects by measuring cell viability through the uptake of neutral red dye. The absence of strong telomerase activity in the BJ human foreskin fibroblasts, independent of hTERT, highlights their role in studying premature senescence, elongation of telomeres, and the effects of hyperoxia on telomere length. The human cell lines BJ and HaCaT are often used together in dermatological research due to their complementary nature in representing key aspects of skin physiology. HaCaT cells, being human keratinocytes, serve as a model for the epidermal layer of the skin, while BJ cells, derived from human fibroblasts, represent the dermal layer. This combination allows for a comprehensive study of skin responses at both the epidermal and dermal levels, making them invaluable for investigating skin aging, wound healing, and the effects of various treatments on skin health. In summary, BJ cells, also known as human BJ fibroblasts, serve as a versatile model in biological research, offering insights into the impact of environmental exposures, cellular senescence, and radical biology.
Organism	Human
Tissue	Foreskin
Synonyms	FF-WT-BJ, BJ1

Characteristics

Age	Less than 1 month
Gender	Male
Ethnicity	Caucasian
Morphology	Fibroblast
Cell type	Fibroblast of foreskin
Growth properties	Adherent

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Regulatory Data

Citation	BJ (Cytion catalog number 305222)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_3653

Biomolecular Data

Karyotype	BJ cells maintain a normal diploid karyotype. However, beyond a certain population doubling, an abnormal karyotype indicative of genetic alterations may emerge.

Handling

Culture Medium	DMEM, w: 4.5 g/L Glucose, w: 4 mM L-Glutamine, w: 3.7 g/L NaHCO3, w: 1.0 mM Sodium pyruvate (Cytion article number 820300a)
Supplements	Supplement the medium with 10% FBS, 20 ng/mL bFGF
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.
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.

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.