CTX

305358

GENERAL INFORMATION

Description

CTX (also designated CTX0E03) is a conditionally immortalized human neural stem cell line derived from first-trimester human fetal cortical neuroepithelium. The line was generated by retroviral integration of a c-mycERTAM fusion transgene, which drives cell proliferation only in the presence of 4-hydroxytamoxifen (4-OHT). In the absence of 4-OHT and in mitogen-free medium, CTX0E03 cells undergo growth arrest and differentiate into neurons and astrocytes, retaining multipotent differentiation capacity. The line is clonal, has a normal human karyotype (46,XY), and was developed under GMP-compatible conditions for potential clinical application.
CTX0E03 has been evaluated in preclinical models of ischemic stroke (MCAo rat model), where implanted cells promoted significant recovery in sensorimotor function. The line has entered clinical trials for stroke therapy. It is also used as an in vitro model for neural stem cell biology, cortical neuron differentiation, Alzheimer's disease research (Abeta toxicity studies), and neuropharmacological screening. The conditional immortalization system makes CTX0E03 particularly suitable for safety and efficacy studies, as proliferation can be switched off by removal of 4-OHT prior to transplantation.

Tissue	Brain (cerebral cortex)
Disease	Normal fetal cortical neuroepithelium; conditionally immortalized neural stem cell line

Applications

Neural stem cell biology; cortical neuron differentiation; stroke research; neurodegenerative disease modeling; Alzheimer's disease research; neuropharmacological screening; cell therapy research

CLASSIFICATION

Organism	Human
Growth properties	Adherent
GMO status	GMO-S1

GMO status details

GMO-S1: Contains a single-copy retroviral c-mycERTAM conditional immortalization transgene. Proliferation is 4-OHT-dependent. Not tumorigenic in vivo. This classification applies within Germany; regulations may differ in other jurisdictions.

Biosafety level	1

CHARACTERISTICS

Morphology	Neural stem cell-like (bipolar, elongated)
Cell type	Neural stem cells
Doubling time	50 to 60 hours

IDENTIFIERS

Citation

CTX (Cytion catalog number 305358)

NCBI TaxID	9606
Cellosaurus	CVCL_C2BI

Cytion GmbH
Nikola-Tesla-Str. 3
69124 Heidelberg
Tel: +49 (0)6221 405780
info@cytion.com
cytion.com

Registered office Heidelberg
VAT ID: DE283292917
Local court Mannheim - HRB 714394
CEO / Geschäftsführer: Jonathan Steubing

Banking information
Sparkasse Heidelberg
IBAN: DE35 6725 0020 0009 2076 86
BIC: SOLADES1HDB

HANDLING AND CULTURE

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)

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

Supplements

Supplement the medium with 10% FBS

Dissociation reagent	Accutase, 5 min., 37°C

Subculturing

When 70–80% confluent, aspirate medium, wash with PBS (Ca^{2+}/Mg^{2+}-free), add Accutase and incubate 5–10 min at 37°C. Neutralize with complete medium, centrifuge at 300 × g for 5 min, resuspend in fresh medium with 4-OHT, and replate on pre-coated flasks. Coat flasks with laminin (10 µg/ml in PBS) 1 h at 37°C prior to plating.

Split ratio	1 to 3
Seeding density	1 to 3 × 10^4 cells/cm^2
Fluid renewal	Every 3 to 5 days (depending on confluency)

Cytion GmbH
Nikola-Tesla-Str. 3
69124 Heidelberg
Tel: +49 (0)6221 405780
info@cytion.com
cytion.com

Registered office Heidelberg
VAT ID: DE283292917
Local court Mannheim - HRB 714394
CEO / Geschäftsführer: Jonathan Steubing

Banking information
Sparkasse Heidelberg
IBAN: DE35 6725 0020 0009 2076 86
BIC: SOLADES1HDB