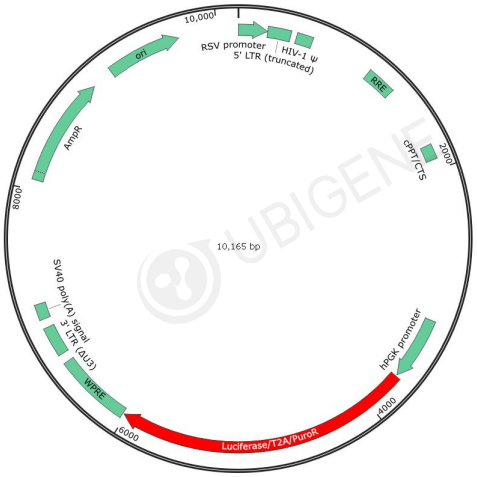
Cell Use Instruction - NIH/3T3-Luc Cell Line

Product Info

Catalog	YC-A013-Luc-P		
Cell line	NIH/3T3-Luc	Morphology	Fibroblast-like, adherent
Fluorescent & resistance	No fluorescence，Puro	Passage ratio	1:3~1:5
Culture method	90%DMEM+10%FBS Ubigene didn't use P/S. But client could use P/S after cells grow in good condition after thawing.		
Cryopreservation solution	50%DMEM+40%FBS+10%DMSO		
Antibiotic concentration for maintenance	Puro=0.75μg/mL Note: To maintain stable expression of the luciferase gene, maintain cells under antibiotic selection during optimal growth conditions.		
Special Note			

Product Validation Data

1) Plasmid map



(2) Luciferase validation process

Luciferase activity was detected using the Dual-Luciferase® Reporter Assay System Kit (Promega, Cat: E1910), and the firefly luciferase reaction intensity was read in the Microplate Reader (BioTek, Synergy LX).

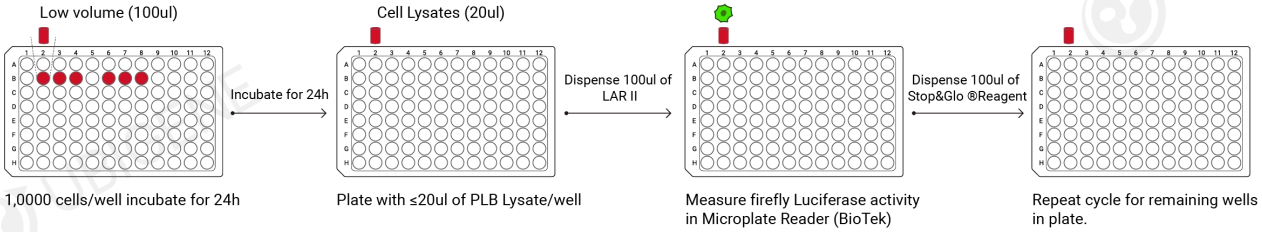


Figure 1. Luciferase activity validation workflow

(3) Luciferase assay results

Sample Name	Duplicated well 1	Duplicated well 2	Duplicated well 3	Average value	Ratio
NIH/3T3-Luc	158032	157843	185779	167218.000	182.022
NIH/3T3	952	987	817	918.667	

Introduction of luciferase stable cell line

Reporter gene system is widely used in the study of eukaryotic gene expression and cell physiology. It is a common method to improve the accuracy of experiments. Luciferase is a common reporter gene system that uses luciferin or firefly aldehyde as the substrate to detect luciferase activity. It has been widely used in the study of gene expression because of its convenience, high sensitivity, and high success rate.

Ubigene' s luciferase stable cell lines were constructed by the lentivirus method. Not only stably and efficiently expressing the luciferase gene, but it also has the advantages of strong specificity, high imaging quality, and accurate quantification of luminous intensity. It enables the flexible applications in various aspects including promoter activity research, mammalian cell two-hybrid experiments, and imaging experiments in living animals.

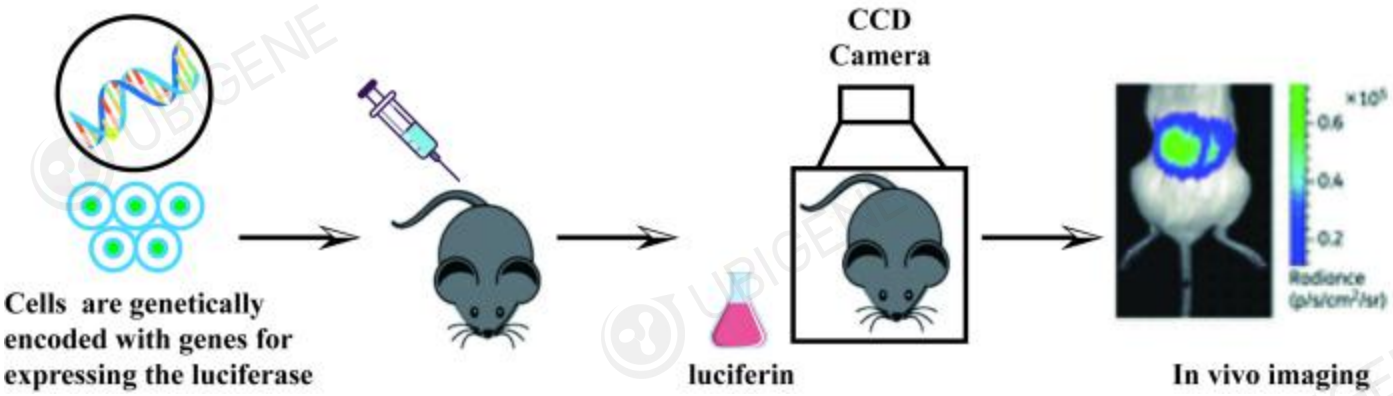


Figure 2. In vivo imaging process of luciferase stable tumor cell line

Cell Reception

Cryopreserved cells:

In the case of cryopreserved cells transported with dry ice, upon received, immediately transfer to liquid

nitrogen for storage or store briefly at -80°C freezer, or proceed directly to cell thawing. Upon cell thawing, please count the cell number and cell viability and take some photos of the cells under different magnification (e.g. at 100x and 40x) as the records.

Notice: Upon received, please ensure to takes photos of the package, including dry ice and the tubes, and contact us within 24 hrs if any abnormalities such as dry ice has ran out, the cap of the cryovial is dislodged, broken and the cell is contaminated.

Cell Thawing

1) Preparation: warm up the complete culture medium in 37°C water bath for 30 mins. Transfer the cryopreserved vial from liquid nitrogen to - 80°C freezer, and leave for several minutes to volatilize residual liquid nitrogen;
2) Inside the ultra-clean bench, pipet 6-7 mL of complete medium into a 15 mL centrifuge tube;
3) Take out the cryopreserved vial from - 80℃ freezer and leave in dry ice temporarily, shake slightly before thawing to remove residual dry ice and liquid nitrogen. Then hold the cap with forceps, quickly thaw cells in a 37°C water bath by gently swirling the vial (Note: keep the cap out of the water). In about 1 minute, it would completely thaw;
4) Inside the ultra-clean bench, sterilize the outer surface of the vial by wiping with an alcohol cotton pellet and leave it to dry. Transfer the thawed cells to the prepared centrifuge tube (step 2) by pipette, close the lid, and centrifuge at 1100 rpm for 4 mins at room temp to collect the cells;
5) Inside the ultra-clean bench, carefully remove and discard the supernatant. Resuspend cell pellet with 1mL of fresh complete medium and then transfer to a T25 flask (or 6 cm culture dish) containing 4 mL of complete medium, label the flask with cell name, date and passage no., incubate

the flask in a 37℃, 5%CO2 incubator.

Note: Please do not thaw the cells directly to a T75 flask or 10 cm culture dish.

Cell Passaging

1) As long as the cells are 80%-90% confluent, it is ready to passage. Inside the ultra-clean bench, remove and discard the medium from the flask and briefly rinse the cell 1-2 times with 1×PBS (2-3 mL for T25 flask, 4-5 mL for T75) to remove residual medium and serum;
2) Add the corresponding volume of trypsin solution (see below table 1 for details) and allow trypsin completely cover the cells, place the flask into the incubator and incubate for 1-2 mins (If cells are hard to digest, allow appropriate extension of incubation), until the majority of the cells become round and non-adherent as observed under the microscope, a large number of cells detached from each side when gently shaking and tapping the flask, terminate trypsin digestion immediately;
3) Add complete medium to stop digestion, the volume is 2 times of trypsin. Then gently pipet the cells several times to allow all cells to be completely detached from the flask;
4) Transfer the cell suspension with a 10 mL pipette into a 50 mL centrifuge tube, rinse the residual cells from the flask using appropriate volume of PBS , then collect and put them together to the centrifuge tube;
5) Centrifuge at 1100 rpm for 4 mins at room temp. After centrifugation, remove and discard the supernatant and resuspend the cells with 2 mL of complete medium;
6) Cells need to be passaged at appropriate passage ratio, 1:3 for the first passage, increasing the passaging ratio if the cells are grown to confluence within two days, or decreasing the passaging

ratio if the cells are not grown to confluence in 3-4 days.

Table 1. Volume of Trypsin solution added to different size of culture plates/flasks

Size of culture plates/flasks	Trypsin Volume added
6-well plate	0.5 mL
T25	1 mL
T75	2-3 mL
T175	3-4 mL

Cell cryopreservation

1) Same as procedures of cell passaging, inside the ultra-clean bench, digest the cells to a single-cell suspension, and terminate digestion by adding complete medium. All liquid is transferred to a 50 mL centrifuge tube;
2) Mix well by pipetting and take 20 μL for cell counting;
3) Centrifuge at 1100 rpm for 4 mins at room temp. After centrifugation, remove and discard the supernatant, and resuspend the cells with 1-2 mL of 4℃ pre-cooled cryopreservation medium (use the one you usually use in lab, or any commercial cryopreservation solutions are fine), then add cryopreservation medium to adjust to the required density ($1x10^6$-$1x10^7$cells/mL);
4) Aliquot the cell suspension to cryovials as 1 mL/tube, close the lid tightly, and the cryovials should be labeled with the cell name, source, cell passage number, and date of cryopreservation in advance;
5) Place the cryovials in 4°C pre-cooled Freezing Container, then put the container in -80℃ freezers

within 15 mins after cell cryopreservation;

6) Stay overnight, transfer the cryovials to liquid nitrogen for long-term storage.