JuLI Stage

Real-Time Cell History Recorder



DO NOT miss every moment of your CELL

Record the whole history of your cell with JuLI™ Stage

- Fully automated X-Y-Z stage
- Multi-channel fluorescence imaging
- Multi-well plates & vessels
- Multi-position monitoring
- Remote control
- Easy & powerful software

"Image, video & edit all inside your incubator"

Do NOT miss every moment of your cell

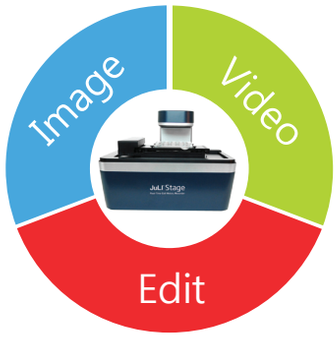
JuLI™ Stage is,

A fully-automated real-time cell history recorder that directly acquires cell images from numerous cell culture plates (6 up to 384 wells) and dishes in an incubator. JuLI™ Stage supports the multi-channel fluorescent colors and multiple objective lens, and the sensitive filter-based optics are optimized for live cell assays. It also enables users to obtain the quantified cell confluence results with low variation and the growth curve using images based analysis with a bright field.

It saves you a lot of hard work and helps for real-time monitoring and the optimal time point.

Real-Time CHR(Cell History Recorder)

JuLI™ Stage, the new standard of CHR(cell history recorder) is designed to get time-lapse images and make taking live cell videos much easier.



- Observe cells in real time and record a cell history from the beginning until the end
- Revert to the time point you desire
- Make a video with time-lapse images
- Save time with a fully automatic time-lapse image function

Understand what really happened to your cells.

Run Inside Incubator

The compact design of JuLI™Stage allows it to be installed and operated in a standard incubator.
During an experiment (from hours to weeks), control and data access can be accessible from the all-in-one computer(included) outside the incubator.

- Compact and compatible with a standard CO_2 incubator
- Processed in a stable and controlled experiment environment
- Generated data from JuLI™ Stage will be automatically stored in the all-in-one computer(included) outside incubator
- JuLI™ Stage replaces all set of CHR enviroment



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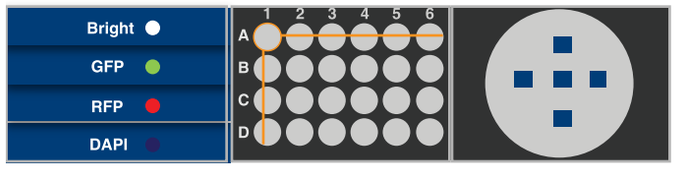
Multi-channel, Multi-well & Multi-position

To get the best result you expect, it is important to monitor the cell culture as you expect. JuLI™ Stage supports your experiment with a multi-fluorescence channel, multi-well and multi-position monitoring function.

- Fully automated and motorized X-Y-Z stage
- Monitor up to 384 wells in real time
- Multi-channel fluorescence imaging (Bright, GFP, RFP & DAPI)
- Take any number of images of any positions of a well

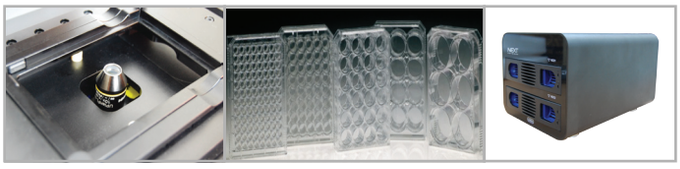


3 color flourescence | Multi-well selection | Multi-position monitoring

Sensitivity & Expandability

The sensitive CCD camera equipped with an objective lens for magnification (4X, 10X and 20X) provides the powerful detection capabilities required for various cell-based assays.

- High-sensitivity monochrome CCD
- Inter-changeable objective lens (4, 10 & 20 X)
- Compatible with various brand well plates with auto adjustment function (Well plates (6 to 384 wells), slides, petri dishes & flasks)
- 23" full HD all-in-one touch screen PC control
- Data backup and transfer to the external hard disk drive (8TB, optional)



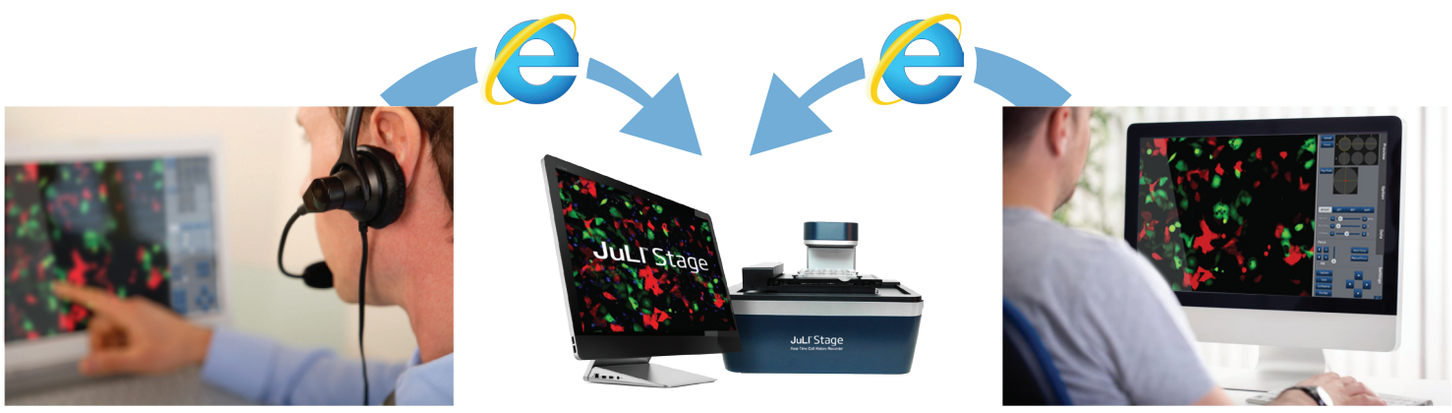
3 changeable magnifications | 6 to 384 well plates | External hard disk

Easy & Simple Remote Control

JuLI™ Stage can be remotely controlled from the long distance, even from overseas or home by a simple desktop software.

- **Highly qualified technical support by NanoEnTek Technical / Application Specialist (HQ) or its authorized local dealer**
  Qualified specialists are ready to support you. From free training on a basic operation to experimental support, they are willing to assist you without any barrier of distance.

- **Remote monitoring through personal computer outside laboratory**
  Simply walk away from your laboratory. You can monitor cell culture and approach the experimental data from any computer outside the laboratory as long as you have the remote control software installed on the computer.



Remote technical support service by Technical / Application Specialist

Remote Access & Monitoring

Do NOT miss every moment of your cell

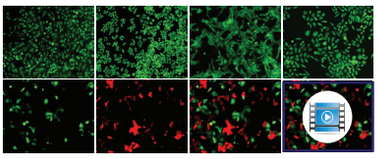
Applications

JuLI™ Stage Stage has a wide range of applications as follows.

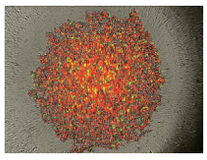
- Live cell imaging (time lapse)
- Cell culture quality control
- 3D spheroid
- Apoptosis monitoring
- Angiogenesis monitoring
- Image stitching
- Reporter genes
- Wound healing assay
- Cell growth monitoring
- Stem cell development
- Cell proliferation
- Cell cytotoxicity monitoring
- Cell differentiation
- Transfection efficiency
- Neurite growth

Scan QR code with your smart phone to watch application videos

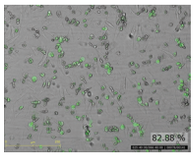
Live cell imaging (time lapse)



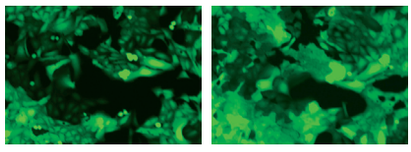
3D spheroid



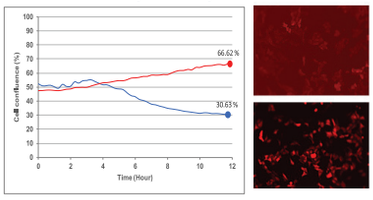
Apoptosis



Cell proliferation

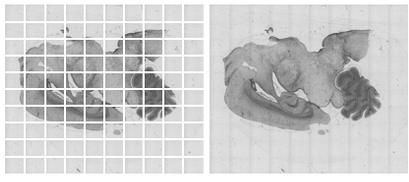


Cytotoxicity

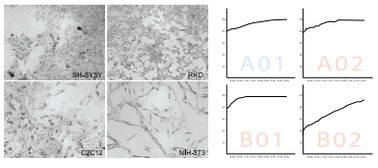


JuLI™ Stage
Real-Time Cell History Recorder

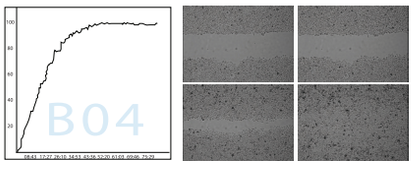
Image stitching



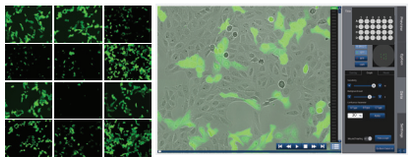
Real-time cell growth curve



Scratch-wound assay

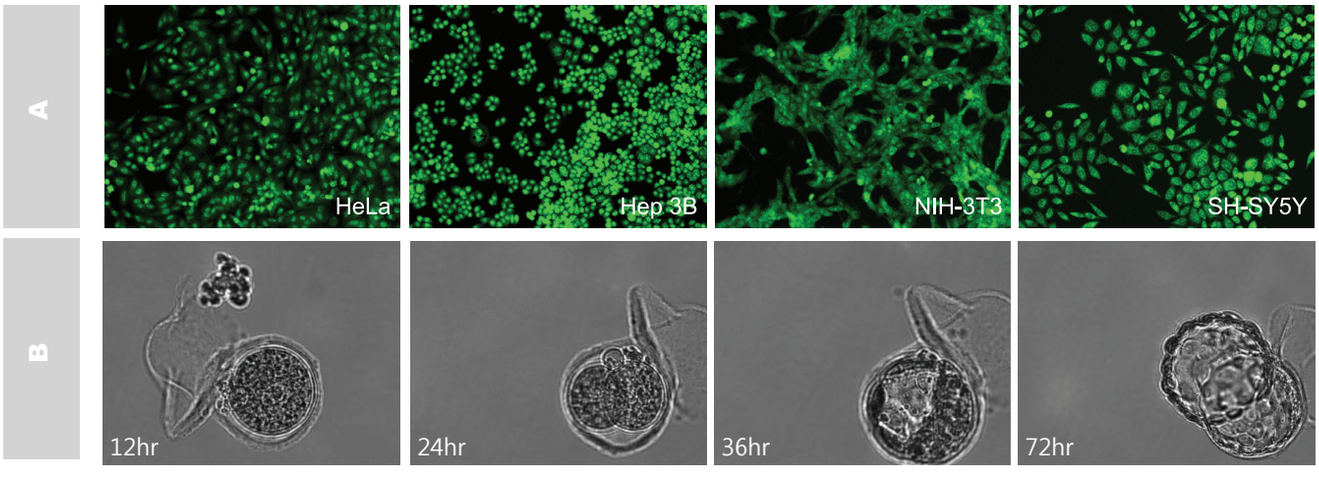


Transfection efficiency & fluorescence expression



Time-lapse image capture & video making in multi-modes

The four different cells (HeLa, Hep3B, NIH-3T3, SH-SY5Y) were seeded in a 6-well plate with Syto 9 staining (3 μM). The images were captured by JuLI™ Stage software (A). Cell monitoring for 72 hours of mouse embryonic stem cell by JuLI™ Stage (B).



Record the whole history of your cell with JuLI™ Stage

Image stitching

JuLI™ Stage allows capture of multiple images to produce a mosaic of high resolution images of the entire well.
This is ideal for analyzing tissue sections or stem cell colonies or viewing every cell in wells of various plates.
The motorized stage is used to create a tiled scan of a whole well and provides one stitched image from individual images.

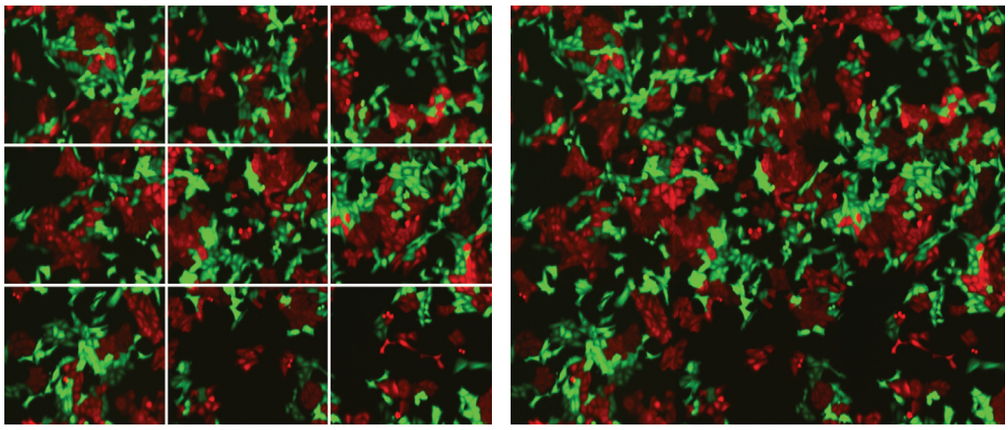


Figure A. Stitched image of one well from a 6 well plate, taken using a 10 X objective. U-2 OS GFP & RFP stable cell line

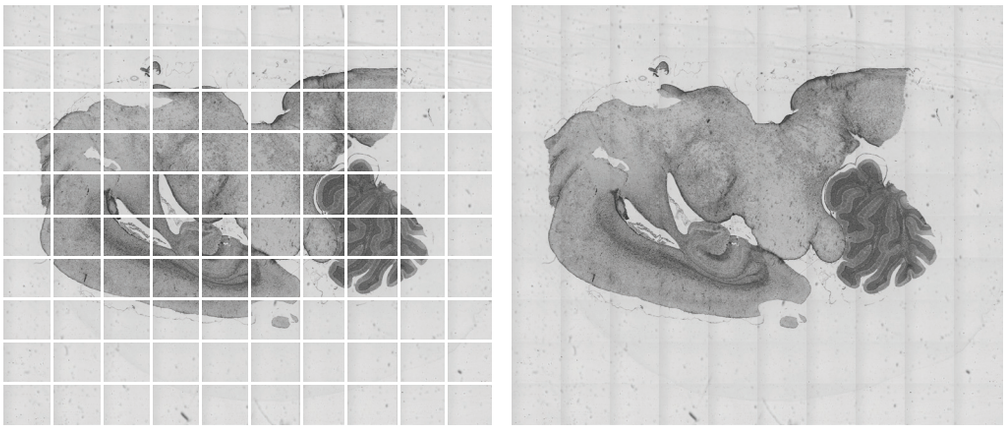
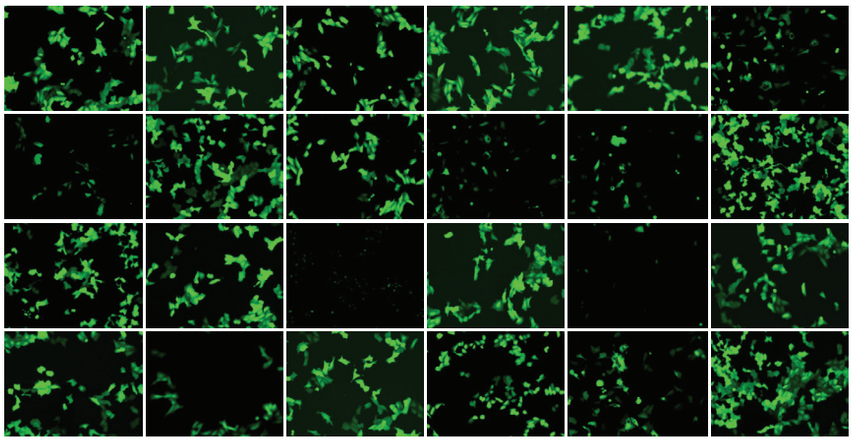


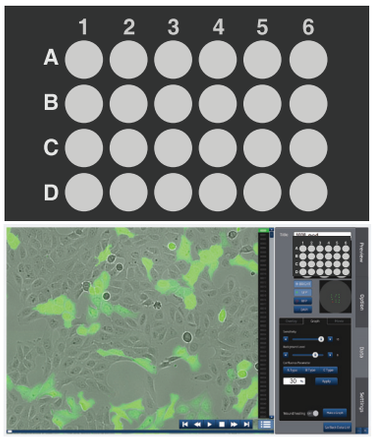
Figure B. Mouse brain sample imaged in a microscope glass slide taken using 4X objective. Whole well bright field image acquisition of 100 fields.

Transfection efficiency & fluorescence expression

JuLI™ Stage measured cell concentration of bright and fluorescence (GFP & RFP) It also indentified and calculated cell confluence value with multi-well plates (6 to 384 wells) automatically U-2 OS cells were transfected using the Neon™ transfection system (from Life Technologies) and 0.25 µg of EGFP-N1 plasmid & RFP plasmid.
For 48 hours after transfection, images were captured and calculated.



Captured images from 24 wells



Transfection efficiency (upcoming)

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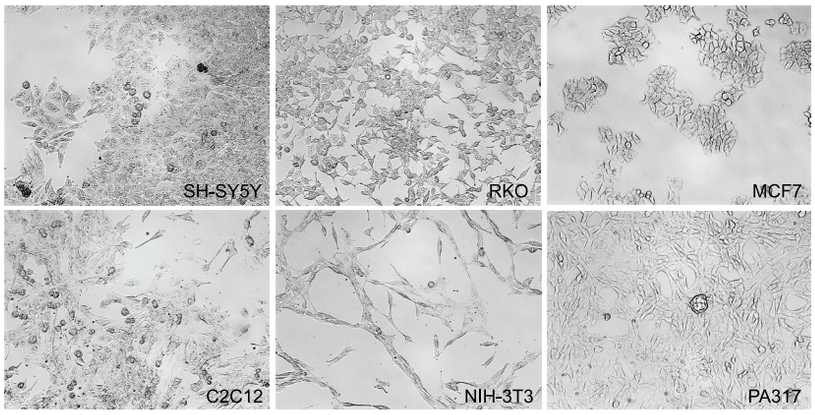
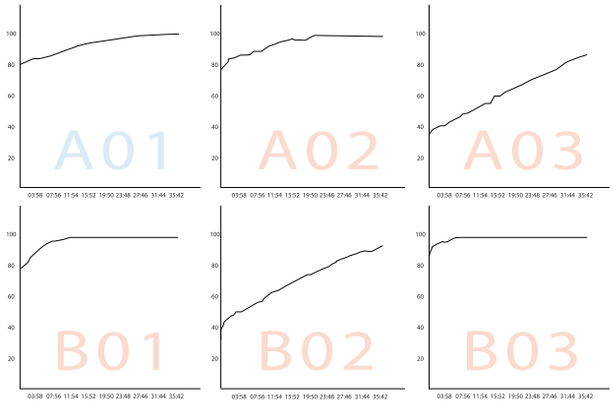
Growth curve of different cell types

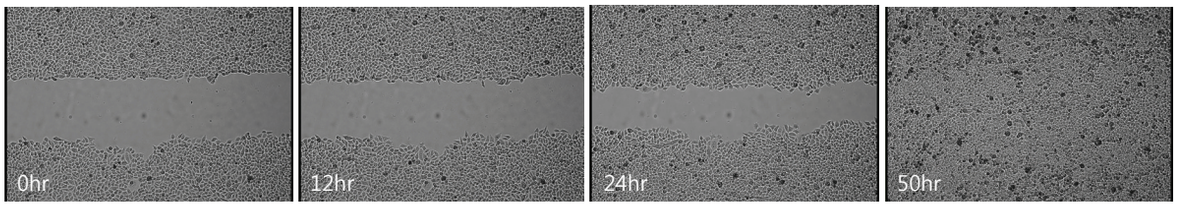
Growth of six different cells (SH-SY5Y, RKO, MCF7, C2C12, NIH-3T3, PA317) was observed and captured for 40 hours with 20-minute intervals, and the monolayer confluence was analyzed. Each image and graph was saved automatically. Also, the raw data can be exported to a spread sheet (.csv file format).



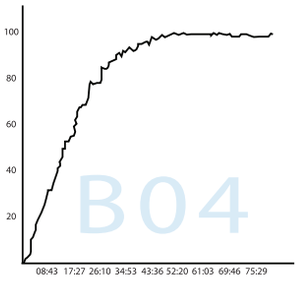


Cell migration (wound healing) assay

SHSY 5Y cells (Neuroblastoma) were incubated for 50 hours after scratching wound healing



Scan QR code with your smart phone to watch wound healing video



Bright field

[Wound healing progress graph]

Wound confluence can be graphed to quantitatively analyze the recovering surface of the wound. (Bright field only)



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Specifications

Items	Specification
Light source	Blue, Green, UV LED (Intensity adjustable)
Objective lens	4X, 10X, 20X, + Digital Zoom Inter-changeable objective lens
Fluorescence	3 fluorescence DAPI : Excitation 390/40, Emission 452/45 GFP : Excitation 466/40, Emission 525/50 RFP : Excitation 525/50 Emission 580LP
Camera	High-sensitivity monochrome CCD (Sony sensor 2/3") 1,936 x 1,456 pixels (2.8 M), 53 FPS, 14 bit
Stage	Automated, motorized,X-Y-Z stage Inter-changeable vessel holder
Exported formats	Image : JPEG, TIFF, BMP, PNG Video : AVI Raw data : CSV
PC	All-in-one touch screen PC (JP0100) CPU : Intel Core i5-4590S Processor (Qual Core, 6MB, 3. 00GHz) OS : Genuine Windows 8.1 64 bit (ENG) RAM : 8 GB(2x4 GB) 1600MHz DDR3L Memory HDD : 2TB 2.5" SATA (5,400 Rpm) 23" Full HD (1920 x 1080) with touch screen
Operating power	100 - 240 V, 1.5 A, 50/60 Hz
Electronic input	12VDC, 5.0 A
Operating environment	5 - 40 °C, 20 - 95%
Dimensions	429(W) X 310(D) X 324(H) mm
Weight	18. 0 kg / 39.7 ibs

Ordering information

Cat. No.	Description	Contents
JS1000S	JuLI™ Stage, Starter pack	JuLI™ Stage basic set (JS1000), All-in-one touch screen PC (JP0100), 3 Objective lenses (4X, 10X & 20X)
JS1000	JuLI™ Stage, Real-Time Cell History Recorder	Main device, Power supply, Control box
JP0100	All-in-one touch screen PC	23" Full HD (1920 x 1080) with touch screen
JP0150	External hard disk drive (Optional)	Total 8 TB (4TB X 2 ea)
JP0200	Desktop computer (Optional)	CPU: Intel® Core™ i5-4590 Processor (6 MB, 3.30 GHz) OS: Windows 10 RAM: 8GB HDD: 2TB Graphic Card: NVIDIA® GeForce® GT 720 Network: LAN, 802.11bgn (Wireless Lan) Monitor: 21" Full HD (1920 x 1080)
JO0004	Objective lens (4X)	Magnification : 4X, NA : 0.16
JO0010	Objective lens (10X)	Magnification : 10X, NA : 0.3
JO0020	Objective lens (20X)	Magnification : 20 X, NA : 0.45
JVH001	Vessel Holder (Optional)	Micro Slide (26 x 76 mm)
JVH002	Vessel Holder (Optional)	Petri Dish (35 mm)
JVH003	Vessel Holder (Optional)	Petri Dish (60 mm)
JVH004	Vessel Holder (Optional)	Petri Dish (100 mm)
JVH005	Vessel Holder (Optional)	T-Flask (25 & 75 cm^2)

JuLI™ Stage

Real-Time **C**ell **H**istory **R**ecorder

SCAN ME!

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