CYTATION|C10
confocal imaging reader

The bench-size microplate
imaging and analysis workhorse.

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BioTek®

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CYTATION C10

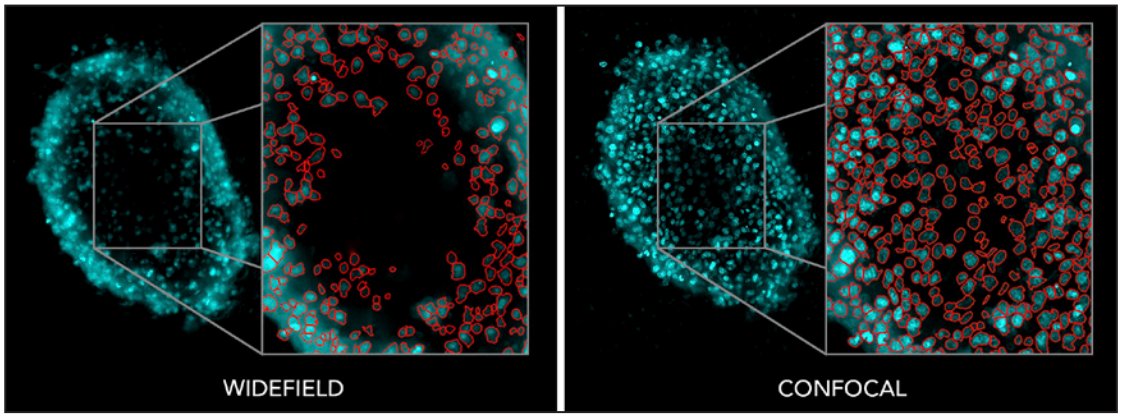
confocal imaging reader

Cytation C10 brings cost-effective automated spinning disk confocal microscopy to any lab that needs it along with established multi-mode reading design in a single, easy-to-use instrument.

Compact, affordable confocal imager for every laboratory

Expertise gained over several years of Cytation development, along with customer feedback, resulted in the Cytation C10.... an automated confocal microscope with excellent performance at a truly attainable price.

Confocal: Improved image quality and analysis

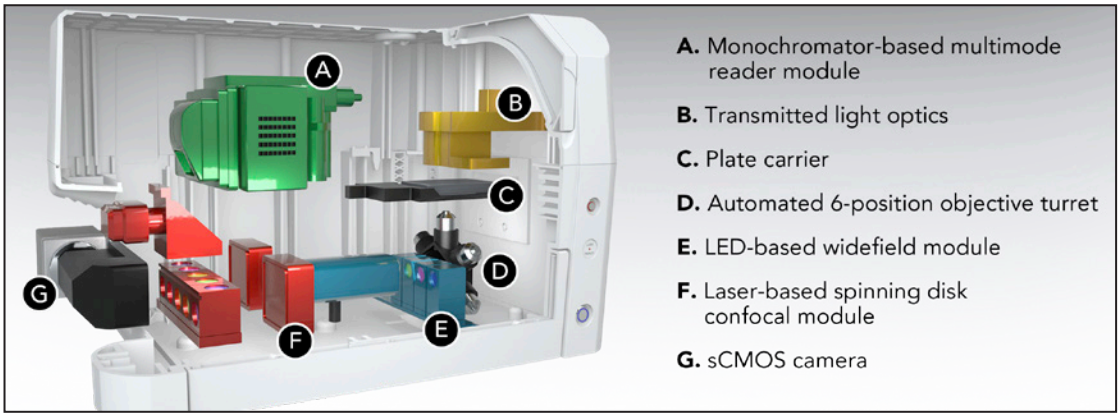


Confocal microscopy can enable you to see a level of detail in your samples that is not possible with widefield optics. Not only can you obtain improved image quality, you can get improved quantification and analysis with confocal images and Gen5 software.

High quality optical components

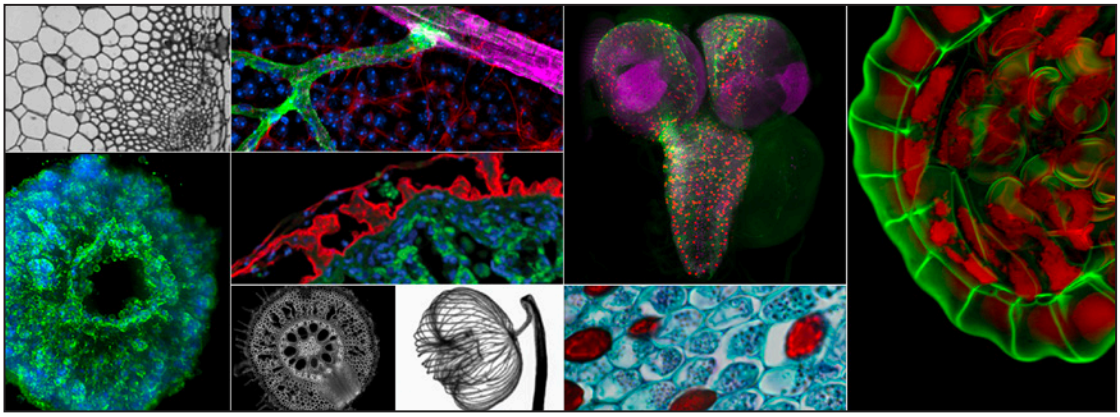
High quality objectives, filters and other components including the Hamamatsu sCMOS Orca camera, Semrock filters, Olympus objectives and other well-known brands, are used in Cytation C10, enabling the capture of stunning, publication-quality images.

Confocal imaging and multi-mode plate reader in one



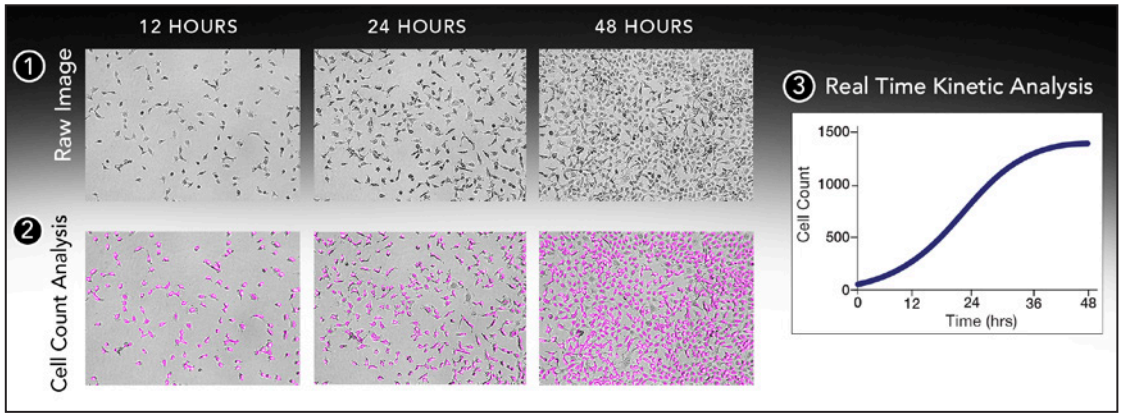
With a combination of spinning disk confocal and widefield imaging, plus multi-mode reader, Cytation C10 is truly ready for any assay. And since Cytation C10 is a modular, upgradable instrument, you can get the functionality you need today and add modules later as your needs expand.

Confocal plus widefield = stunning images and analysis



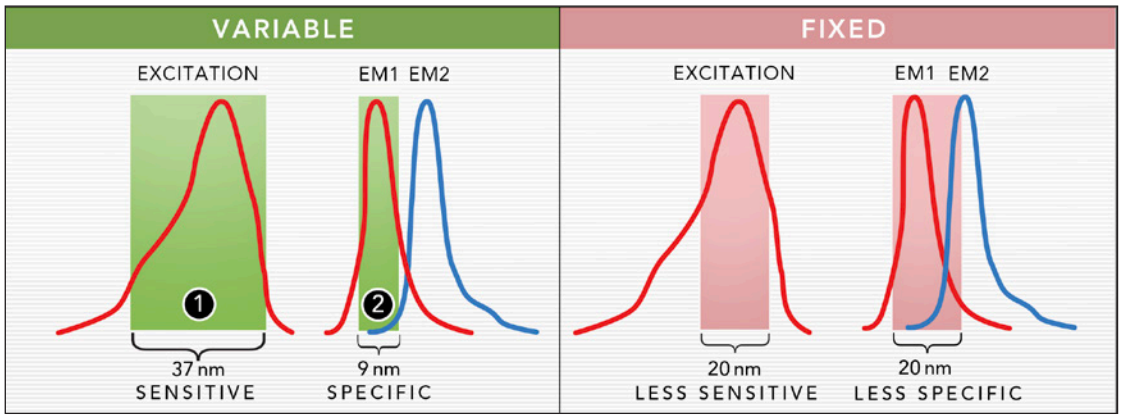
No matter what type of sample you use, Cytation C10 will capture it in stunning detail. Use widefield imaging for faster acquisition of large samples at lower magnification, switch to confocal to image small intracellular details or 3D samples. Or combine both modes for highly multiplexed, multi-parameter imaging experiments.

Environmental controls for live cell imaging



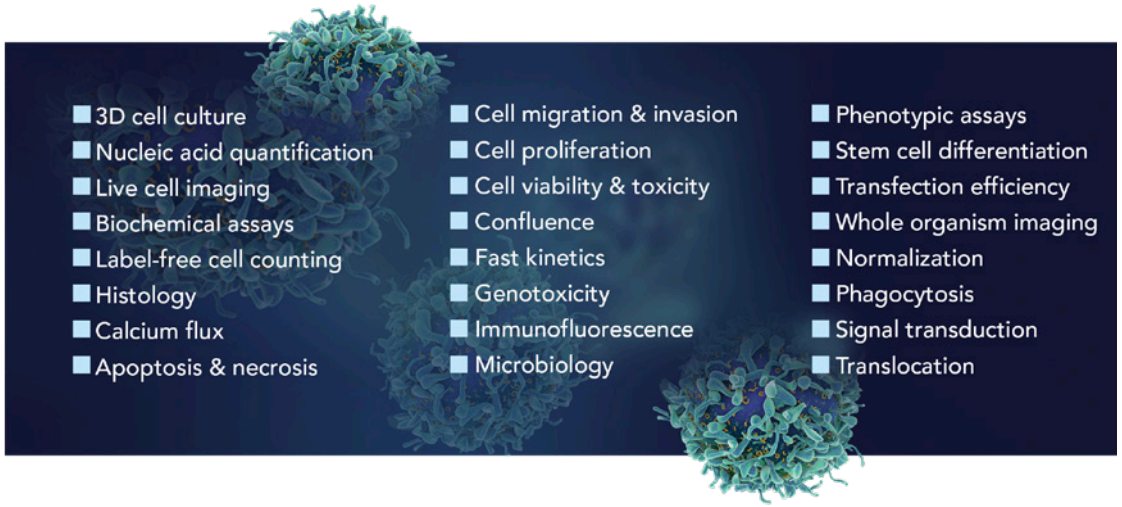
Successful live cell kinetic imaging relies on a consistent environment, including temperature control and CO_2/O_2 control and monitoring. Cytation C10 provides the perfect environment to grow and analyze live cells over time. Powerful movie maker and kinetic analysis software tools allow visualizing and analysis of time-lapse experiments.

Variable bandwidth for sensitivity and specificity



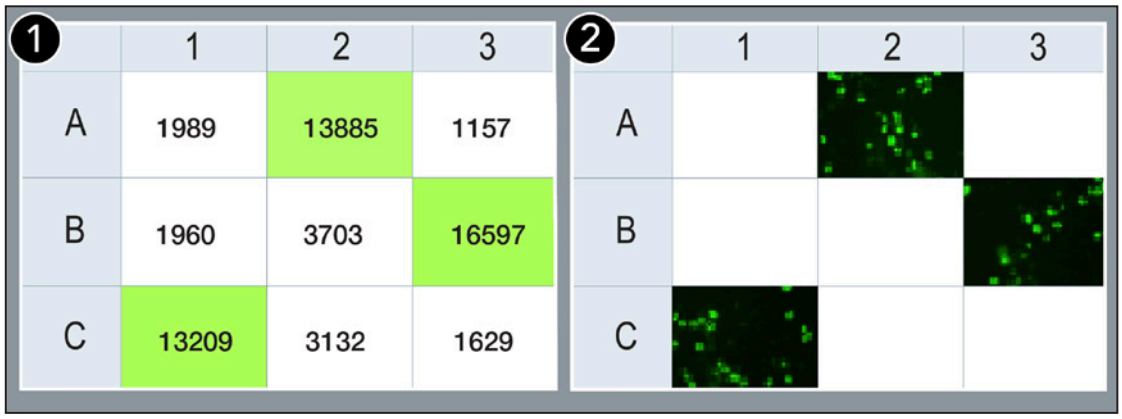
The plate reader optics of Cytation use a quad monochromator design with variable bandwidth. The bandwidth can be set anywhere between 9 and 50 nm in 1 nm increment. Large bandwidth settings **(1)** provide increased sensitivity and lower limits of detection. Small bandwidth settings **(2)** provide increased specificity when multiple signals are present, which reduces signal crosstalk and enhances assay performance.

Cytation C10: Ready for any application



The combination of confocal and widefield imaging with multi-mode detection will transform your laboratory workflows and increase productivity. Cytation C10 is ready for any application.

Hit-picking: Multi-mode detection + imaging saves time and data storage

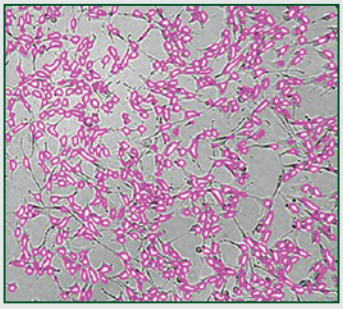


(1) Plate reader quickly identifies GFP positive wells. **(2)** Only GFP positive wells are imaged, saving both time and computer memory.

Imaging data sets can take a long time to acquire and require large data storage capacity. The unique hit-picking function takes advantage of the embedded plate reader optics. Set the hit picking criteria, quickly pre-screen the microplate with the plate reader optics and Cytation C10 will automatically image the samples that meet your criteria, saving both time and hard drive space.

APPLICATIONS

Label-free cell counting

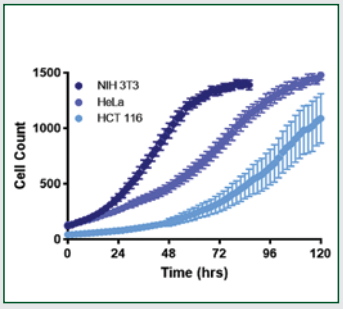


Use high contrast brightfield imaging for accurate label-free cell counting without the need for cell labeling dyes.

Calcium kinetics

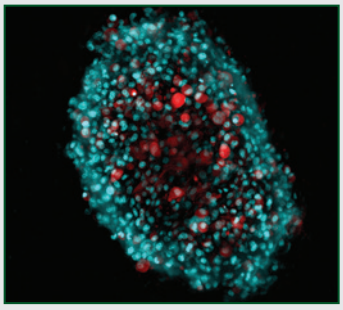
Cytation C10's dual reagent injectors enable capture and analysis of fast inject/image assays like calcium kinetics.

Time-lapse live cell imaging



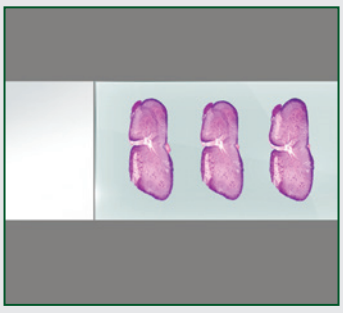
Cell proliferation studies require controlled environments. Cytation C10 automates image capture through analysis.

3D cell culture



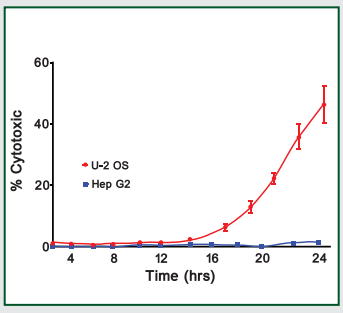
Automate 3D spheroid and tumoroid assays using environment control and automated media exchange with a BioTek liquid handler. Z-stack, z-project and analyze with Gen5.

Slide scanning



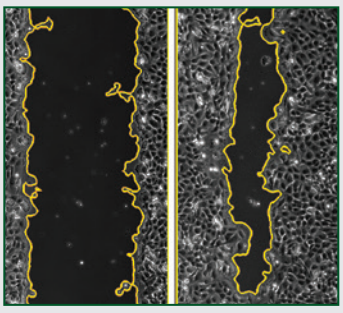
H&E staining and color brightfield allow easy, rapid image capture and analysis. Automate and increase throughput by integrating Cytation C10 to BioStack Microplate Stacker.

Cell viability/toxicity



Classic live/dead assays use fluorescent probes or membrane-impermeable dyes; viability or toxicity is measured in real time.

Cell migration

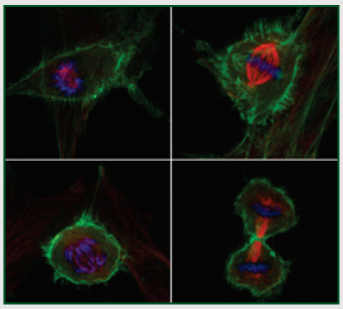


The time-lapse imaging and environmental controls in Cytation C10, enable kinetic cell migration assay imaging.

Whole organism imaging

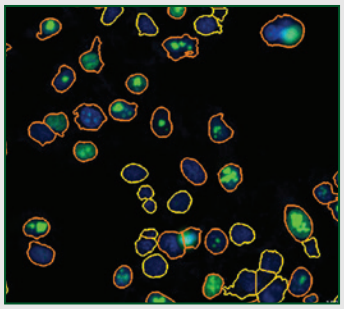
Essential to current drug screening methods, whole organisms like zebrafish and nematodes are effectively imaged and analyzed with Cytation C10 and Gen5 software.

Cell cycle analysis



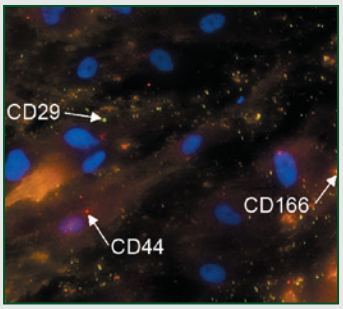
The progression of cellular growth though the cell cycle is a highly regulated process. Automated histogram analysis of objects facilitates threshold definition.

Transfection efficiency



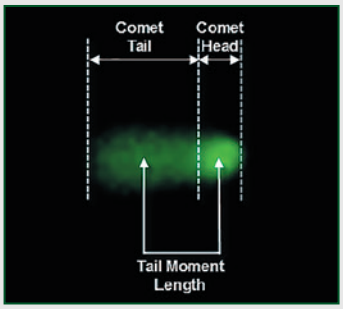
Cytation C10 provides intuitive image analysis for automating the assessment of transfection efficiency.

Stem cell differentiation



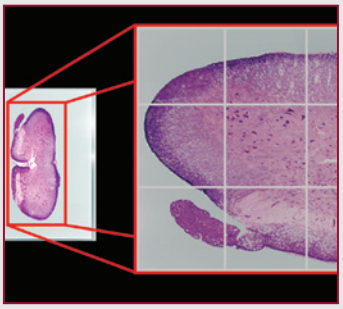
Cytation C10 facilitates the process of stem cell differentiation to find highly physiologically relevant cells for drug discovery.

Genotoxicity



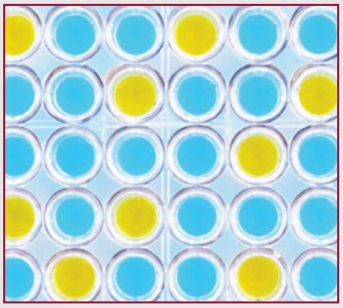
The destructive effects of mutagens such as high energy radiation and chemicals on nuclear DNA are measured with the comet assay and γH2AX immunofluorescence assays. Cytation C10 is an ideal imaging platform for these assays.

Automatic ROI identification



An accelerated process for imaging ROIs in complex microscopic samples: use the functionality in Cytation C10 to scan samples at low magnification to find ROIs. Then scan at higher magnification.

ELISA

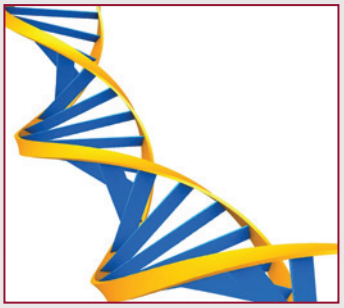


ELISA methods with colorimetric, fluorescent and luminescent substrates are easily detected with Cytation C10.

Luciferase reporter assays

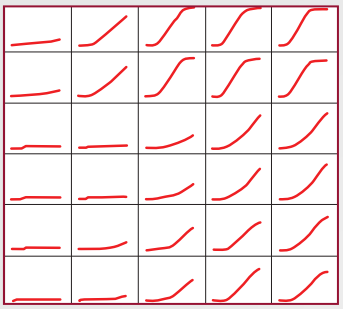
Luciferase-based reporter assays measure luminescent signal, allowing the quantification of the activity of factors affecting the signaling pathways under investigation.

Nucleic acid & protein quantification



Nucleic acid and protein quantification assays can be executed by spectrophotometric or fluorescent determination with Cytation C10, in microplates or in micro-volumes with the Take3 Plate.

Cell growth



Microbial growth assays including yeast and bacteria can be measured by several methods, including turbidimetric measurements with Cytation C10.

PERIPHERALS

BioStack Microplate Stacker

BioStack manages up to 50 microplates for automated imaging or multi-mode operations, including de-lidding and re-lidding of microplates used with cell-based assays. BioStack can also be used for automated microscope slide loading.

CO_2/O_2 Controller

The compact gas controller maintains control of CO_2 and O_2 levels in Cytation C10 to support live cell assays.

Dual Reagent Injector

The dual reagent injector module enables fast inject/read processes. Angled injector tips protect cell monolayers from shear stress during injection.

Take3 Micro-Volume Plate

Measure multiple 2 µL samples at a time with the Take3 Micro-Volume Plate, used with Cytation C10. Micro-volume nucleic acid and protein quantification made fast and easy.

Labware Adapters

Specialized holders can accommodate a variety of labware including microscope slides, petri dishes, tissue culture flasks and chamber slides.

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TECHNICAL DETAILS

General	
Microplate types	Imaging: 6- to 1536-well plates Detection: monochromator: 6- to 384-well plates
Other labware supported	Microscope slides, Petri and cell culture dishes, cell culture flasks (T25), counting chambers (hemocytometer)
Environmental controls	Temperature control to 45 °C CO_2 and O_2 control
Shaking	Linear, orbital, double-orbital with user-selectable amplitude
Automation compatibility	BioStack and 3rd party products
Software	Gen5 Microplate Reader and Imager Software (included) Optional software: • Gen5 Image +: Image analysis • Gen5 Image Prime: Advanced image analysis • Gen5 Secure, Gen5 Secure Image+, Gen5 Secure Image Prime, Gen5 Secure Image Prime: 21 CFR Part 11 compliant features • Auto ROI module, Spot Count module
Imaging	
Imaging modes	Confocal: fluorescence Widefield: fluorescence, brightfield, high contrast brightfield, color brightfield and phase contrast
Imaging methods	Single color, multi-color, time lapse, montage, z-stacking, z-stack montage
Camera options	Hamamatsu scientific CMOS camera 16-bit Sony CMOS camera
Light sources	Confocal: 6-line laser Widefield: Long-life LEDs
Objectives/capacity	1.25x to 60x/ 6-position automated turret
Imaging filter cubes available	Confocal: CFP, CY5, DAPI, GFP, RFP, TRITC Widefield: More than 20 filter/LED cubes available
Imaging filter cubes capacity	Confocal: 4 user-replaceable fluorescence cubes Widefield: 4 user-replaceable fluorescence cubes plus brightfield
Autofocus methods	Image-based autofocus Laser autofocus
Multi-Mode Detection	
Detection modes	UV-Vis absorbance, fluorescence intensity, luminescence
Reading methods	Endpoint, kinetic, spectral scanning, well area scanning
Physical Characteristics	
Dimensions	18.5" H x 27" W x 20" D (45.72 46.9 cm x 68.6 cm x 50.8 cm)
Weight	122 lbs (53.3 Kg)
Power	100-240VAC @50/50 Hz input Instrument: External 250 W power supply Laser light source: External 250 W power supply Hamamatsu sCMOS camera: External 75 W power supply

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