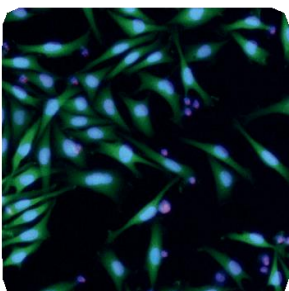
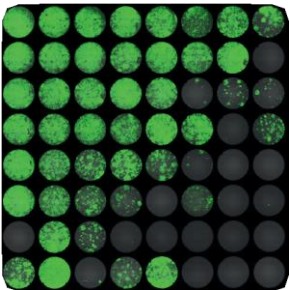
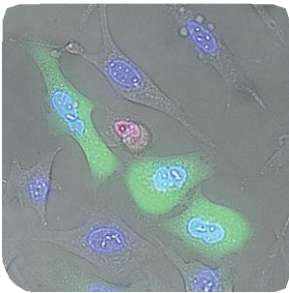


NYONE

Envisions confirmed



NYONE

Content

NyONE® - Cell imaging in a bird's eye view	4
From cells to numbers	6
NyONE® ...resolution matters!	8
Features & benefits	10
Fluorescence excitation channels	12
Technical specifications	14
Order information	15



NyONE®

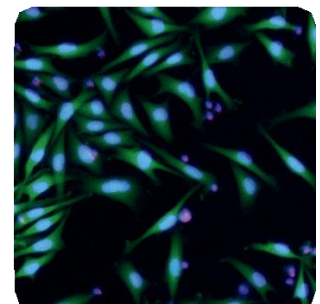
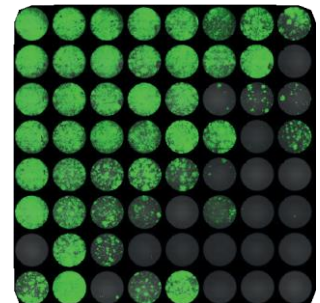
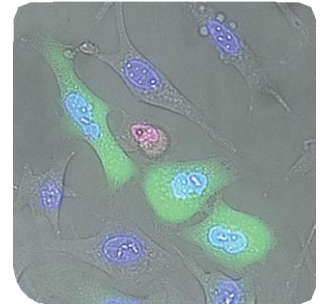
Cell imaging in a bird's eye view

NyONE® is a fully automated cell imager designed to simplify the screening, detection and classification of cells as an integral step of your research, development and production process. Mechanical robustness, optical quality and functionality are balanced in a way that you will soon recognize NyONE® as a reliable member of your team. And its small footprint requires only minimal space on your bench.

In generating high resolution images the NyONE® displays every tiny detail necessary to identify an individual cell that you're searching for or to count it as one of many in a cell culture plate. NyONE® employs fast non-invasive brightfield imaging to minimize cell stress and three fluorescence light sources for a detailed analysis of cell status. The workflow oriented software assists you to navigate the system and provides comprehensive and flexible tools to analyze high numbers of samples.

Standards, where useful

In any manner that you have chosen to culture your cells, whether adherent or in suspension, the stage port of NyONE® accommodates all SBS-standard microplates. You can select your format from a list of choices or create your own templates. A scan pattern is generated automatically to screen your culture seamlessly and effectively at the given magnification. In addition to plates, NyONE® is able to analyze other culture formats (slides, dishes, etc.).



NYONE

Information is a perfect point of view

NyONE® embodies a precisely synchronized optomechanical set-up. The sharp and contrasted brightfield image is complemented with fluorescence imaging in up to three different excitation channels and 6 detection channels. In order to provide the consistent high image quality necessary for automated image analysis, the NyONE® features homogeneous illumination in whole well images and a robust and precise autofocus.

Intuitive tools

In the toolbox-style software interface you can choose either a predefined set-up from a list of established assays or define your own work flow protocol. We have defined a coherent workflow comprising five steps: setup, prepare, measure, evaluate and report. Comprehensive tools make sure that the hardware settings are quickly and properly set. The prepare mode allows you to adjust parameters for the specific actual sample on any position of the plate and preview the results of the image analysis before the measurement of the whole plate starts.

During the measurement images are displayed in real time and stitched to create full well images. After the image acquisition has terminated the results can be viewed at each position in each single well. Results are exported in common formats documenting the whole experiment according to the user's requirements. In addition all images are stored in a well-defined folder structure.



NyONE®

From cells to numbers

Image Cytometry

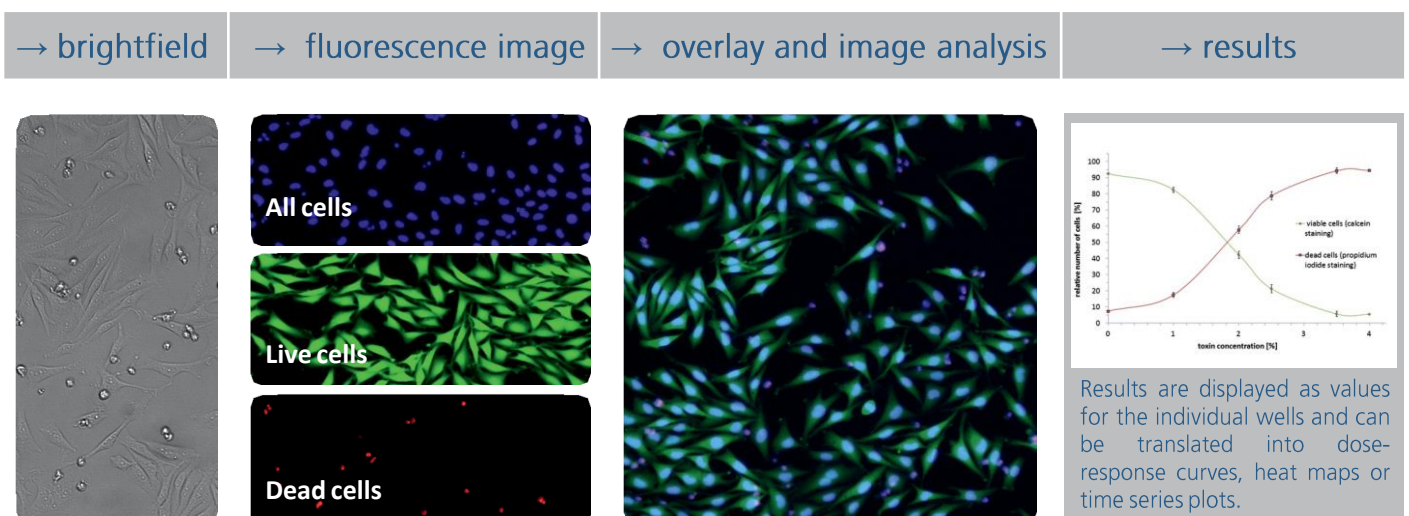
The NyONE® applies intelligent image analysis to speed up tedious routine work in the cell culture lab. It converts cell culture images into meaningful data; based on an unbiased classification of cells according to defined parameters, such as cell morphology, cell size and fluorescence intensity.

Applications

Typical NyONE® applications in the noninvasive brightfield mode include the monitoring of cell growth and state during culture, single cell cloning, cell confluence. Cell counting and cell viability testing for suspension cells with Trypan blue is another standard brightfield assay. Fluorescence assays comprise testing for cytotoxicity, cell viability, apoptosis as well as transfection efficiency.

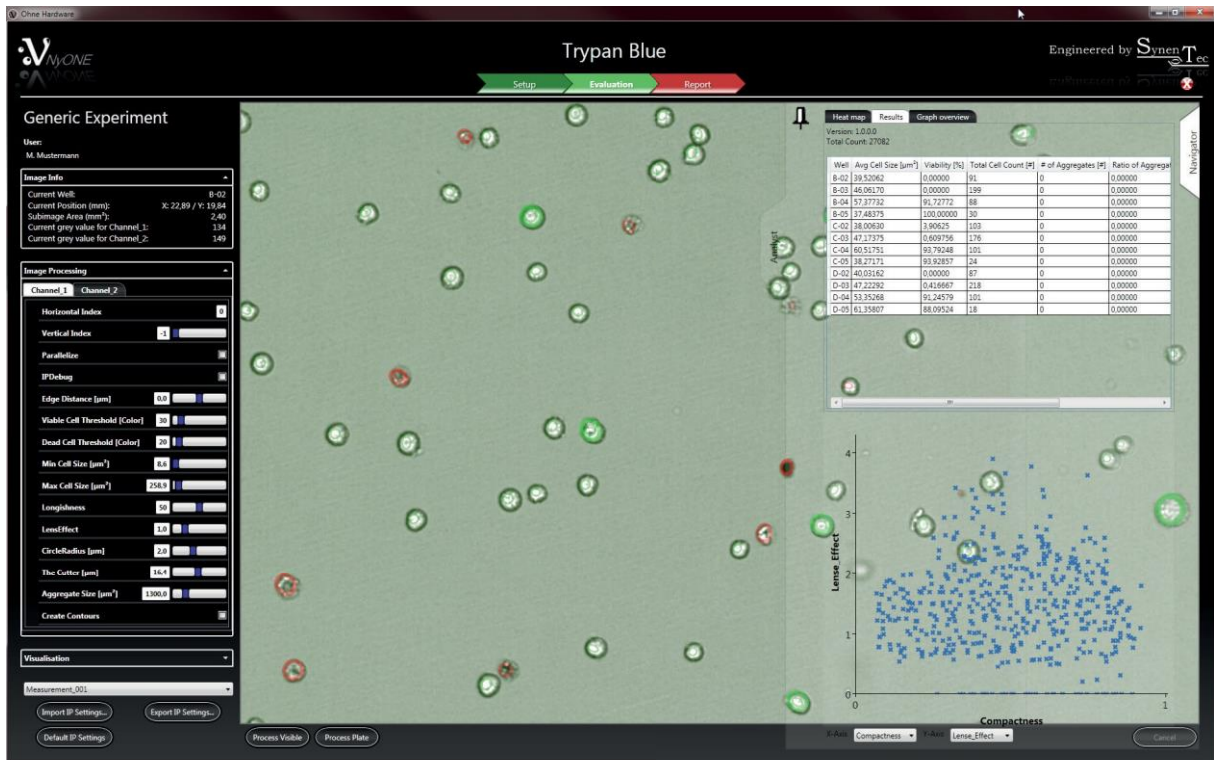
Assay kits

SYNENTEC has developed a set of different assay kits for the main applications like the Trypan blue cell count and viability testing and the Live/Dead assay using the Hoechst/Propidium iodide/Calcein staining for a number of common cell lines like CHO, HEK-293 and Caco-2 cells.



NyONE[®]

From cells to numbers



Comprehensive, user-friendly graphical interface including well selection on image processing results

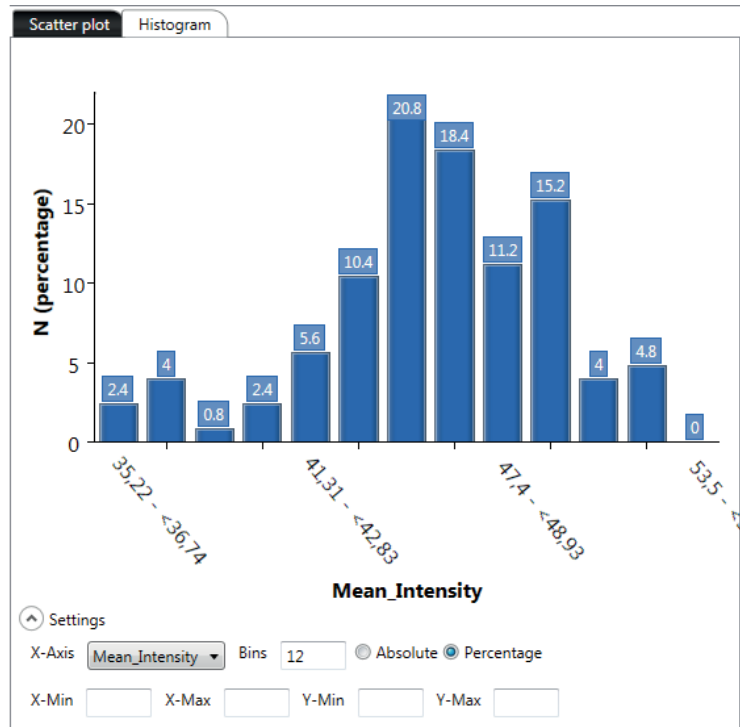
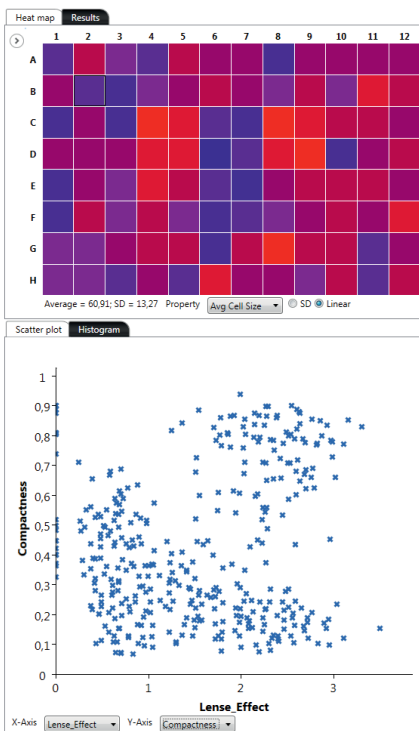
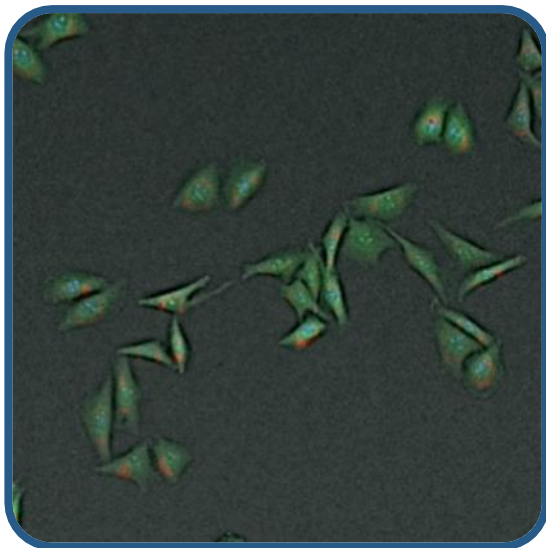


Image analysis results are presented as heat maps, time charts, histograms, and scatter plots

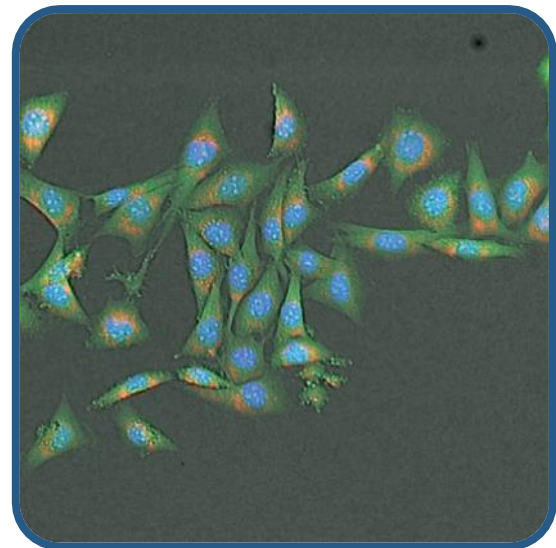
NyONE®

...resolution matters!

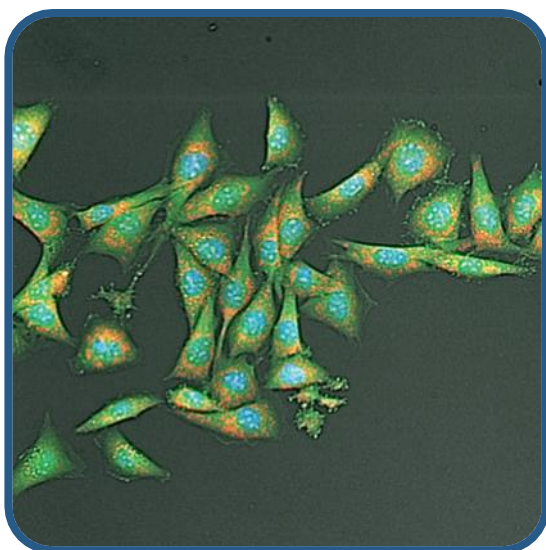
Resolution, also known as resolving power, plays a crucial role in discriminating important details in many biological applications, e.g. single cell discrimination. Due to the fact that digital imaging is prevalent, the definition of magnification becomes vague, i.e. you can zoom into the image for any magnification desired. The more you zoom in, the coarser the image becomes and the image becomes more blurred, i.e. less resolved. Unlike in conventional microscopy where you change the resolution by choosing a different magnification lens, the image once taken does not carry any further details. The information of the image is always limited by the optical system and pixel size of the camera used during image acquisition.



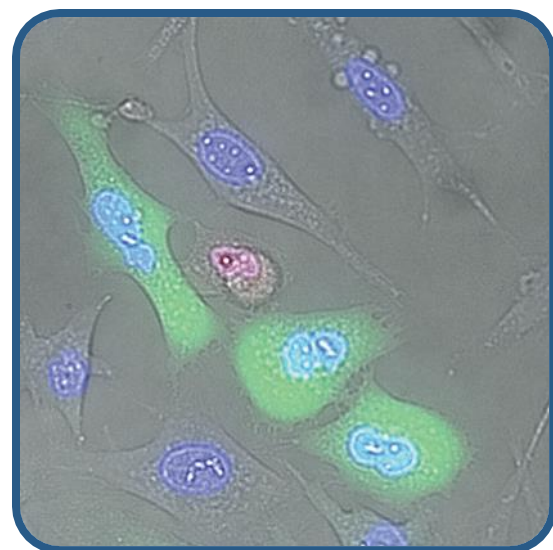
4x
Resolution $\sim 1.86 \mu\text{m ppx}$



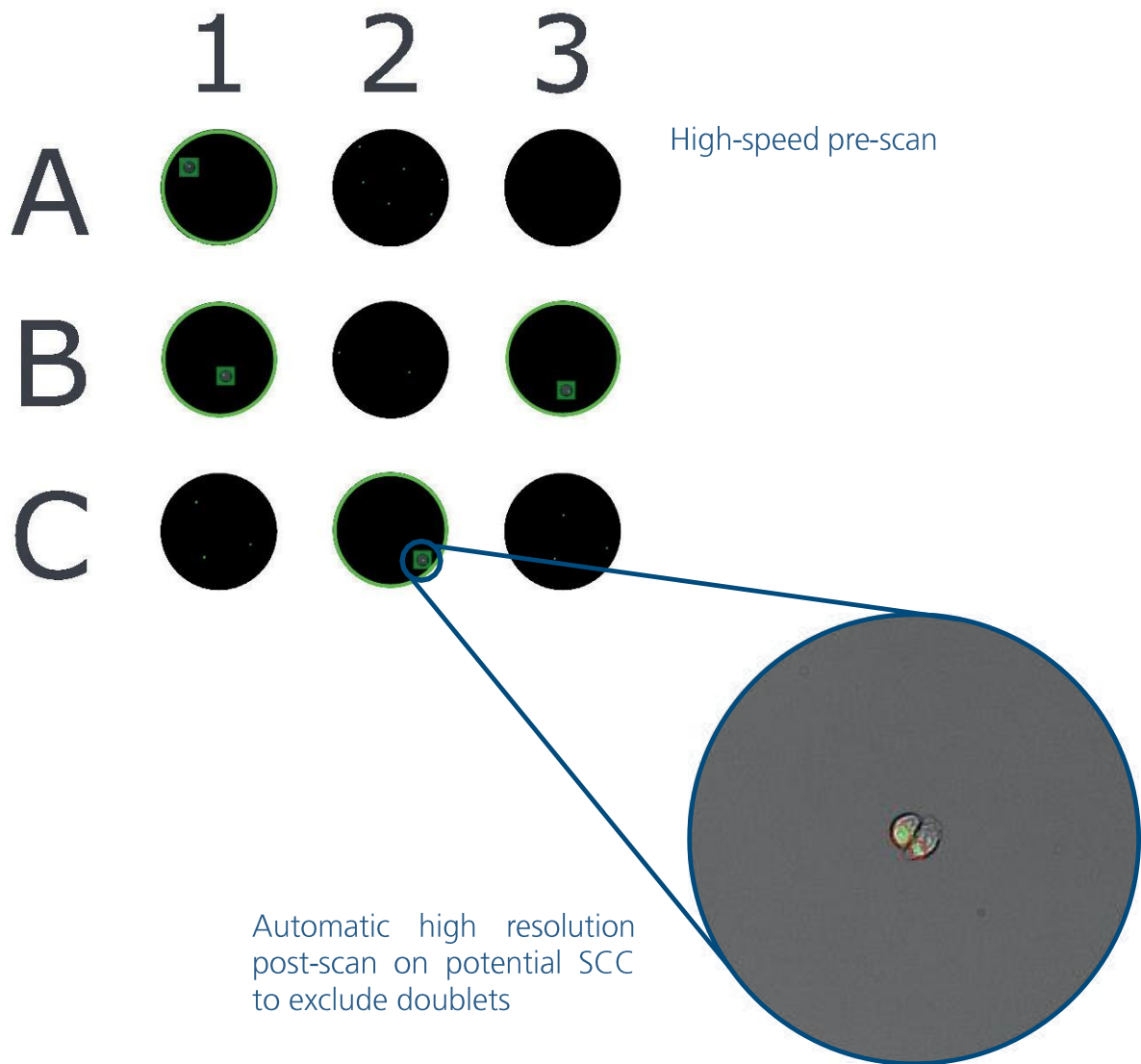
10x
Resolution $\sim 690 \text{ nm ppx}$



20x
Resolution $\sim 366 \text{ nm ppx}$



40x
Resolution $\sim 305 \text{ nm ppx}$



NanoView is a solution for the limitation described above as it enables you to zoom into spots of interest down to a resolution of up to 305 nm per pixel utilizing the fully automated objective lens changer of all SYNENTEC's imager systems (NyONE®, Cellavista®), which enables you to define your optimal optical system during image acquisition.

NanoView in Single Cell Cloning

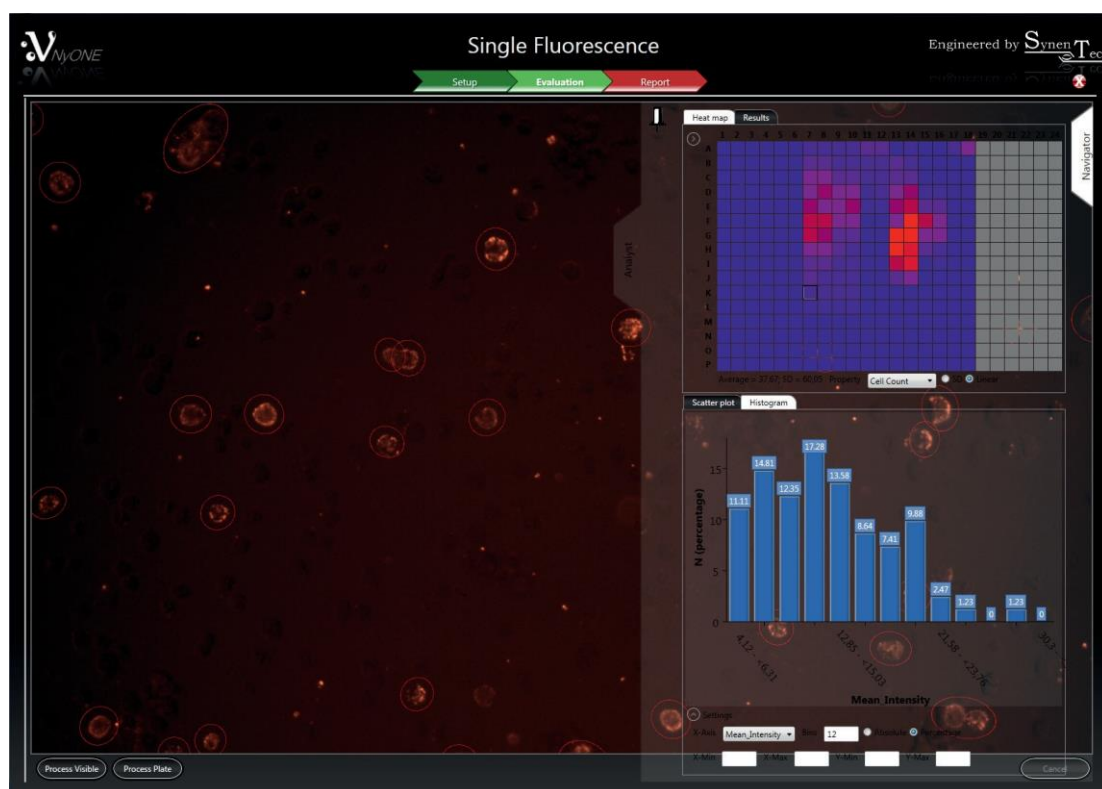
NanoView is best used in SCC by detecting potential clones using non-toxic fluorescent dyes, e.g. CellTracker™ or Calcein. With the fast and lower resolved pre-scan we eliminate all wells, which are empty or contain obviously more than one cell from our tracking. Subsequently all potential single clones will be captured automatically in a higher resolution and additionally in brightfield with NanoView resolution for an unambiguous documentation of your monoclonality.

NyONE®

Features & benefits

Your benefits

- Accurate measurements using non-invasive brightfield and fluorescence imaging
- Adherent and suspension cells
- Complete documentation of cellular growth
- Excellent well edge illumination of microplates
- Ultrafast electronic switched excitation sources – less than 5 ms switching time
- Runs a complete scan of a 96-well microplate in about 5 minutes
- Intuitive workflow to setup your experiment
- Ultrafast filter wheel – 40 ms position changing time; well suited for FRET assays
- Achieves extraordinary image quality using specifically designed optic and laser autofocus mechanisms
- Performs automated high-quality image analysis in parallel with image acquisition
- Uses the flexibility of automated image analysis to improve the handling of your cellular assays



Qualification of antibody binding

Typical Applications

- Single Cell Cloning
- Confluence assays
- Cell counting
- Cell proliferation assay
- Live/Dead assay
- Apoptosis assay
- Viability
- And many more to come...

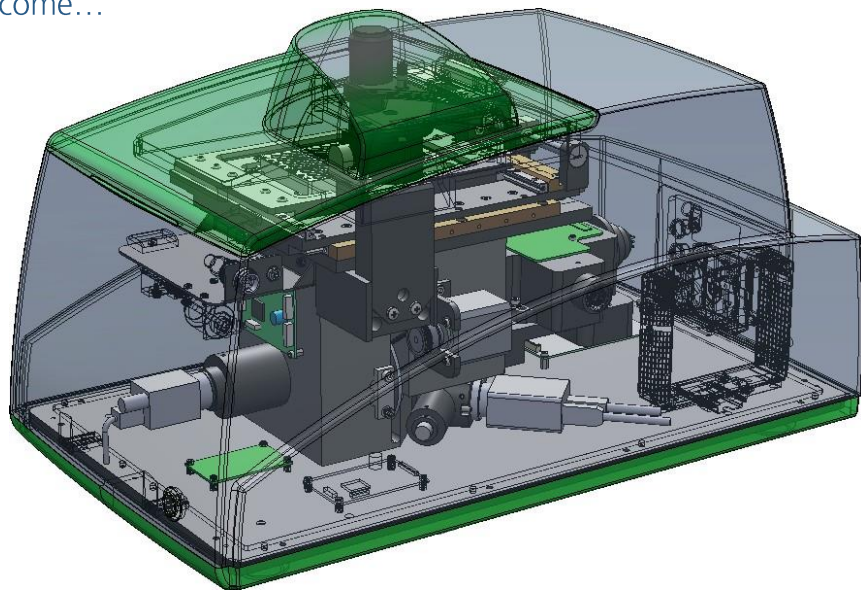


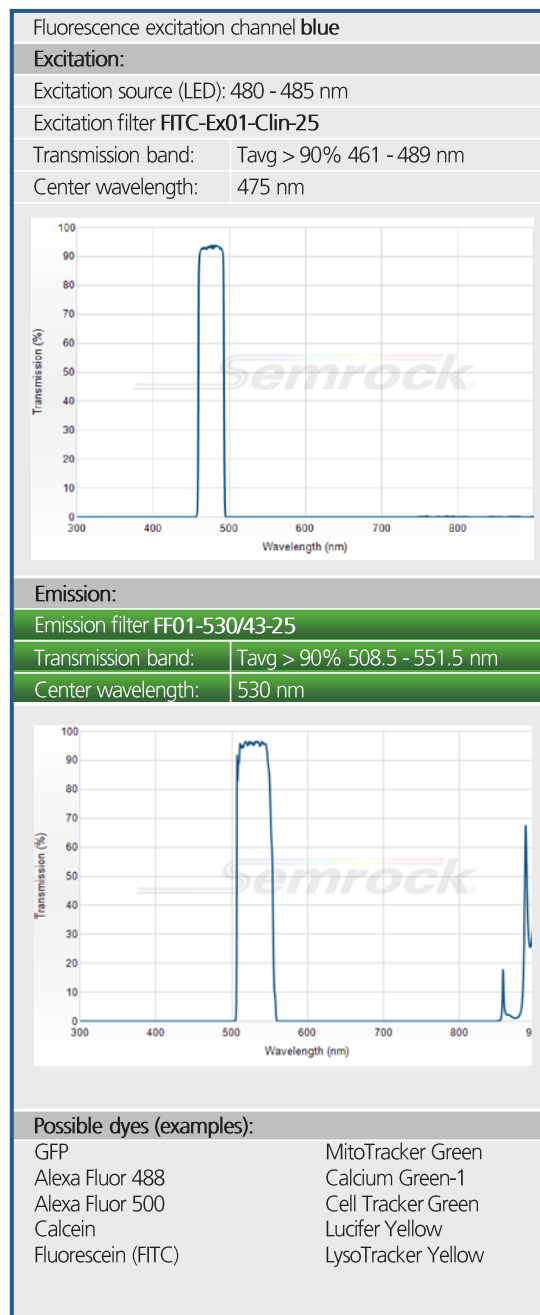
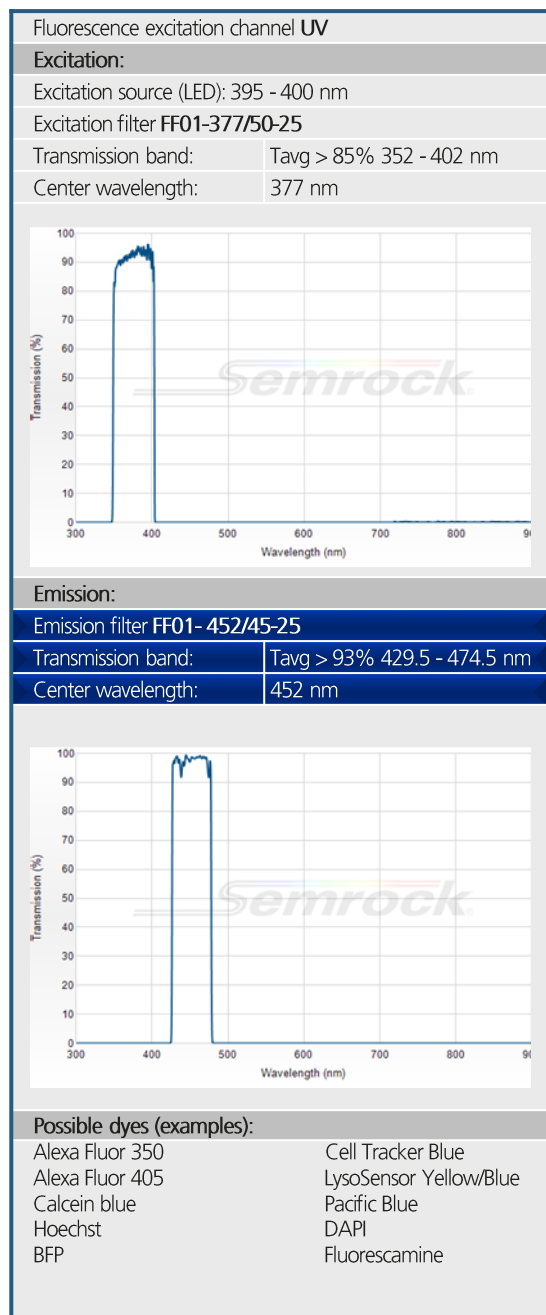
Image processing results comprises among others the following information:

- Number of objects per well (e.g., number of cells or number of cell colonies)
- Area covered by the objects
- Parameters describing the shape and morphology of the objects
- Size of the individual objects
- Location of the objects
- Fluorescence intensity of the objects

NYONE

NyONE[®]

Fluorescence channels



These tables show the standard configuration of the NyONE[®], additionally you have the possibility to choose one supplementary excitation source and up to three more customized fluorescence detection channels.

NyONE[®]

Fluorescence channels

Fluorescence excitation channel red

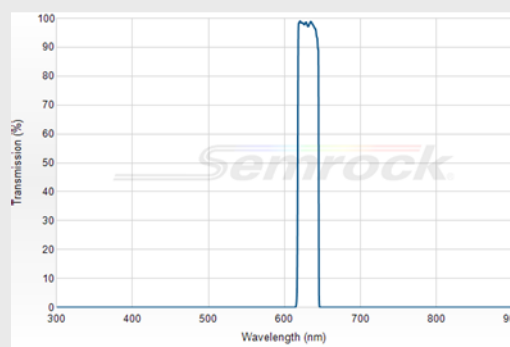
Excitation:

Excitation source (LED): 625 - 630 nm

Excitation filter FF01-632/22-25

Transmission band: $T_{avg} > 93\%$ 621 - 643 nm

Center wavelength: 632 nm

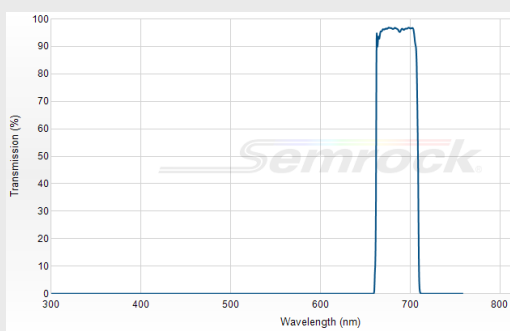


Emission :

Emission filter FF02-685/40-25

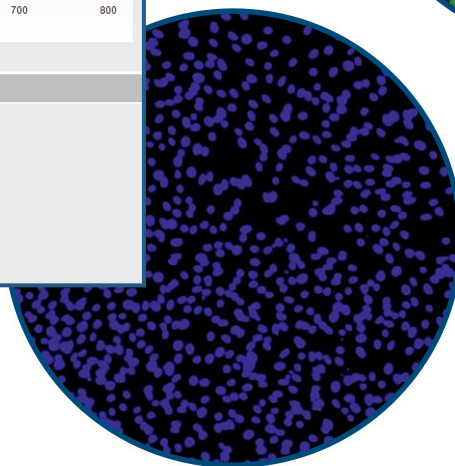
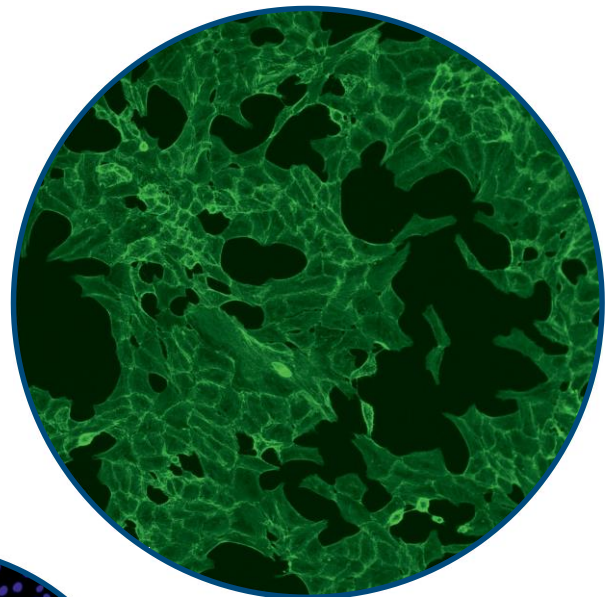
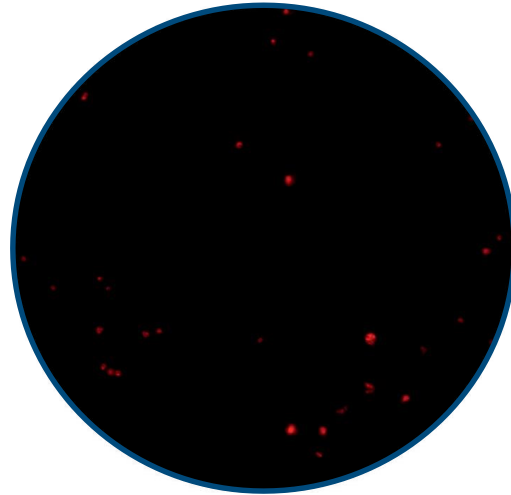
Transmission band: $T_{avg} > 90\%$ 665 - 705 nm

Center wavelength: 685 nm



Possible dyes (examples):

Alexa Fluor 660
Alexa Fluor 680
APC-Cy5.5
Cy5
PE-Cy5.5



NyONE®

Technical specifications

Technical specifications			
		Basic	HighEnd
Illumination	Brightfield (LED 50.000 hour life time)	✓	✓
	3 fluorescence excitation channels	✓	✓
	6 fluorescence detection channels	✓	✓
Resolution	4x (NA 0.16, Resolution ~ 1,72 µm ppx)		✓
	10x (NA 0.3, Resolution ~ 920nm ppx)	✓	✓
	20x (NA 0.5, Resolution ~ 550nm ppx)		✓
	Alternative Objective lenses: 10x (NA 0.4, Resolution ~ 745nm ppx) 20x (NA 0.75, Resolution ~ 366nm ppx)		
Method of measurement	Digital image recognition		
Culture systems	Microwell plates (SBS formats 6, 12, 24, 48, 96 and 384) Microscope slides Culture dishes		
Camera	Pixel density	2048 x 2048 Pixel, 4.19 megapixel	
	Pixel size	5.5µm x 5.5µm	
	Refresh rate	25 fps	
	Video output format	Mono 8, Mono 12, Mono 12 Packed, YUV 4:2:2 Packed	
Operating temperature	20 °C - 28 °C (68 °F - 82,4 °F)		
Operating humidity	20 - 85 % relative humidity (non condensing)		
Dimensions (height/width/depth)	350 mm / 310 mm / 620 mm		
Weight	35 kg (77 lbs)		
Energy requirements	100 - 240 V AC, 50 - 60 Hz, 295 W maximum		
Special features	Laser autofocus system On the fly image analysis Combination of brightfield and fluorescence analysis Automation possible		

NyONE®

Order information



Product	Catalog No.
Instrument	
NyONE Basic	300023
NyONE HighEnd	300024
Software	
NyONE Software Workstation Version	101812
Accessories	
Slide Holder	600000
Culture Dish Adapter	600017

Find out more

For further information, including pricing, in-lab demo and orders please contact:

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