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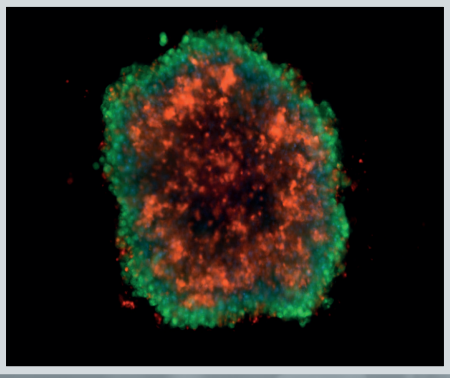
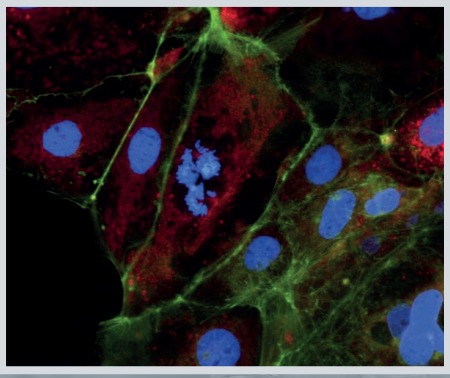
TECHNICAL INFORMATION
SCIENTIFIC LINE





CELLAVISTA
SCIENTIFIC

NYONE
SCIENTIFIC

Technical Specifications

Imager		**CELLAVISTA Scientific**	**NYONE Scientific**
Version		Highend	Highend
Illumination	Brightfield (LED 50.000 hour life time)	✓	✓
	4 fluorescence channels	-	✓
	6 fluorescence channels	✓	-
Resolution	2x (NA 0.08, Resolution ~ 6.5 µm ppx)	Opt.	Opt.
	4x (NA 0.2, Resolution ~ 3.25 µm ppx)	Opt.	✓
	10x (NA 0.5, Resolution ~ 1.3 µm ppx)	✓	✓
	20x (NA 0.75, Resolution ~ 0.65 µm ppx)	✓	✓
	40x (NA 0.75, Resolution ~ 0.35 µm ppx)	Opt.	Opt.
	FL Channel Upgrade possible	✓	-
	Alternative low NA objective lenses 10x (NA 0.3, Resolution ~ 1.3 µm ppx) 20x (NA 0.5, Resolution ~ 0.65 µm ppx) extensive Nikon lens selection (high NA lenses two times more sensitive)		
Method of measurement	Digital image recognition		
Culture system	Microwell plates (SBS formats 6, 12, 24, 48, 96 and 384), Microscope slides and Culture dishes		
Camera	Type	sCMOS (Scientific)	
	Pixel density	2048 x 2048 4.19 megapixel	
	Pixel size	6.5 x 6.5 µm	
	Full well capacity	30 000 (1x1)	45 000 (1x1)
	Read noise	1.8 med e-/ 2.1 rms e-	2.1 med e-/ 2.3 rms e-
	Dark current	< 0.8 e-/pixel/s @ 10°C	15 e- /pixel/s @ 21°C
	Quantum Efficiency	>81 %	~80 %
	Digital output	16 bit / 8 bit	
	Refresh rate	40 fps	
	Peltier cooled	Yes	No
Measurement time	96-well, full well scan, brightfield, 4x objective	2 minutes	3 minutes
	384-well, full well scan, brightfield, 4x objective	3 minutes	4 minutes
Operating temperature	20°C - 28°C (68°F - 84.4°F)		
Dimensions (height/width/depth)		407 / 625 / 530 [mm]	350 / 310 / 620 [mm]
Weight		61kg (134 lbs)	35kg (77 lbs)
Energy requirements	100 - 240 V AC, 50 - 60 Hz, 295 W maximum		

Imaging Capabilities

	CELLAVISTA Scientific	NYONE Scientific
Whole well imaging	Yes	Yes
Illumination/ Fluorescence	White light and 6 fluorescence, excitation sources, up to 6 fluorescence emission channels	White light and 4 fluorescence excitation sources, up to 6 fluorescence emission channels
Bitdepth	8 bit / 16 bit	8 bit / 16 bit
External Barcode Reader	Option	Option
API (Plate Stacker)	Yes	Yes
Batch Processing	Option	Option
Autofocus System	1000 fps	1000 fps
Illumination System	Electronically switched	Electronically switched
Harmonic Motion	Yes, ultrafast imaging	Yes, ultrafast imaging
Special Features	• Ultrafast multiplex imaging • Redesigned highly sensitive fluorescence optics • HCS-grade lenses • 3 times more sensitive: shorter exposure times, faster measurements (high throughput), less bleaching • Autofocus performance twice as fast as CELLAVISTA RS • Highest Dynamic Range (37.500 : 1 / 91.5 dB)	• Fast multiplex imaging • Highly sensitive fluorescence optics • HCS-grade lenses • 3 times more sensitive: shorter exposure times, faster measurements (high throughput), less bleaching • High Dynamic Range (21.400 : 1 / 87 dB)
	• Laser autofocus system • Image analysis during measurement • Combination of brightfield and fluorescence analysis • Automation friendly design	• Laser autofocus system • Image analysis during measurement • Combination of brightfield and fluorescence analysis • Small footprint

Automation and Batch Processing Features

	Automation Server	Batch Processing Server	Batch Processing Client
		Optional high performance PC	
General purpose	API to control the imagers via third party automation platform	High performance image processing and exporting increasing throughput of automation	Control module of batch processing server
Interface (Protocol)	IP-Address/ Port	IP-Address/ Port	IP-Address/ Port
Connection	GigE	GigE	GigE
Features	• Full external control • Measurements • Image processing • Exporting	• Parallel processing of measurements • Live Folder • Automation client • Reprocessing of old experiments • Updating IP-settings • Processing of third party images	• Detailed control of Batch processing server • Reprocess • Export • Process and export • General setup

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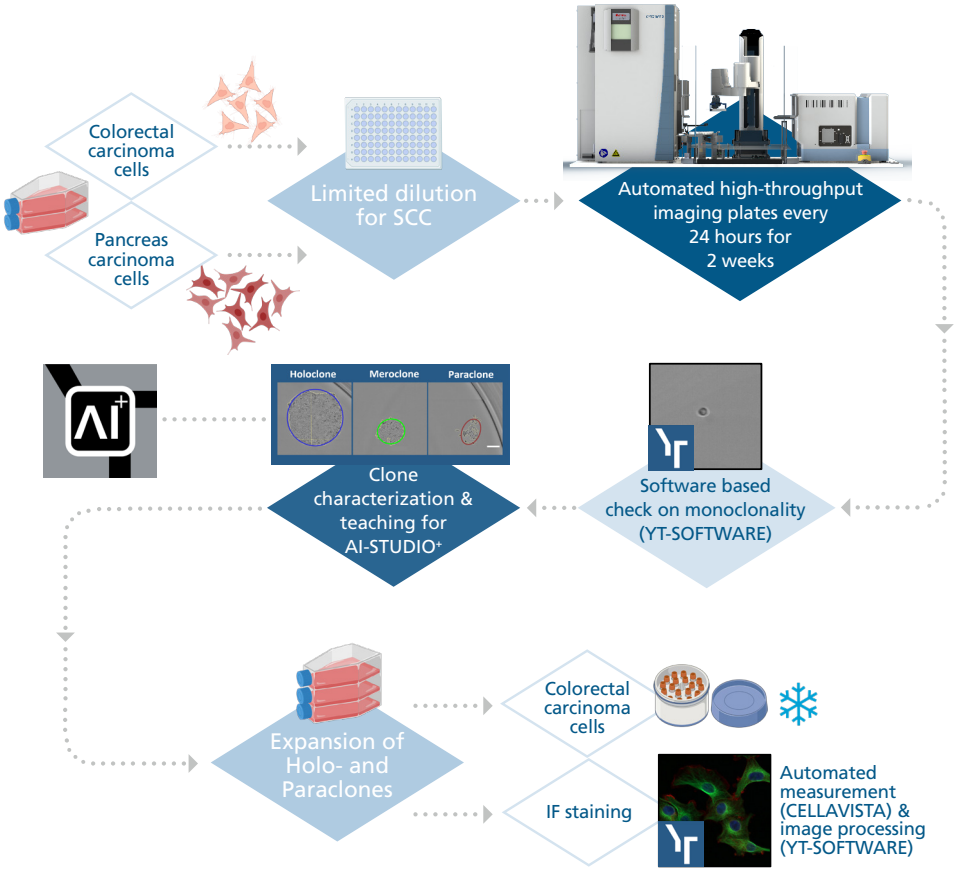
Example Assay setup for Automation



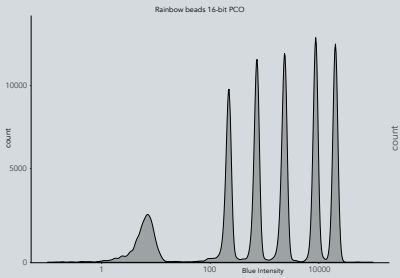
16 Bit Imaging Advantages

YT-Software enables switching from 8 bit to 16 bit

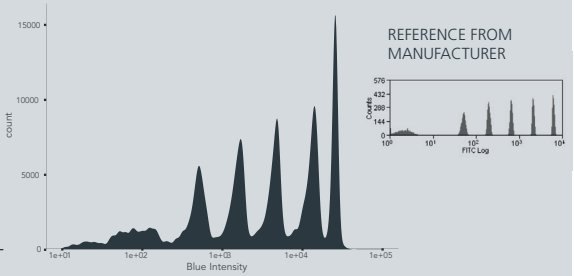
Higher dynamic range and a magnitude more sensitive than CLD line

SCIENTIFIC

20x, 0.5 NA

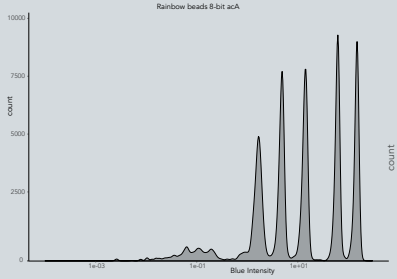


10x 0.4 NA

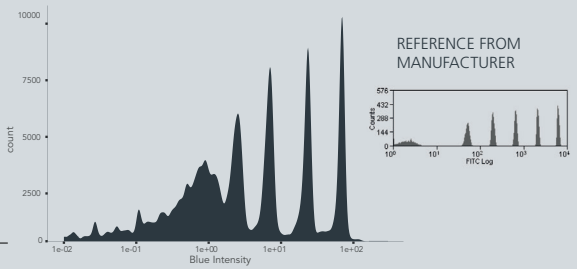


CLD

20x, 0.5 NA



10x 0.4 NA



The histograms above, imaged with NYONE Scientific using FACS calibration beads demonstrate that NYONE Scientific and CELLAVISTA Scientific are excellent tools to create outstanding results in terms of quantification, robustness and quality.

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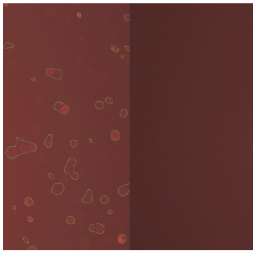
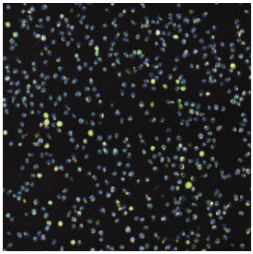
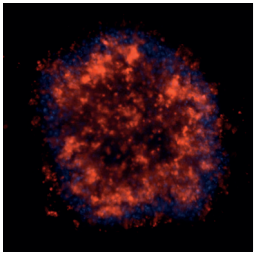
Capabilities of CELLAVISTA and NYONE in cell based assays



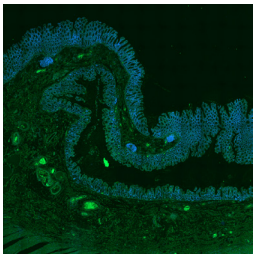
ANTIBODY BINDING



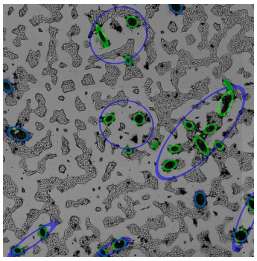
APOPTOSIS



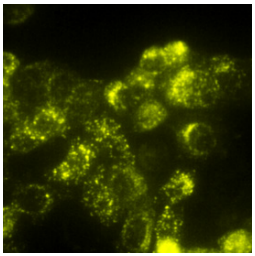
SPHEROID IMAGING



ICC / IHC

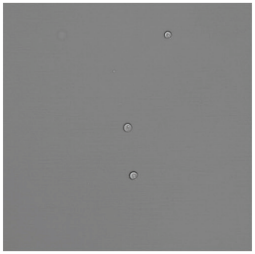


FOCUS FORMING ASSAY



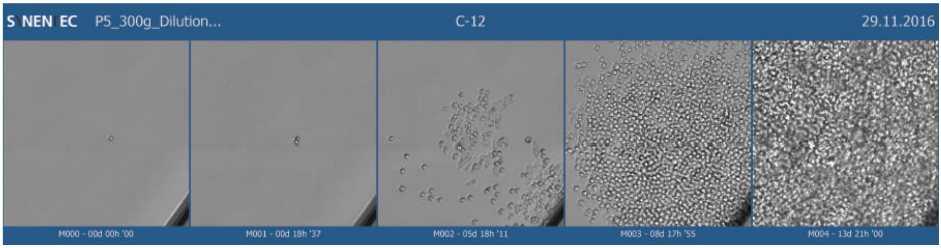
ANTIBODY INTERNALIZATION

4x @ 3.2 µm/px



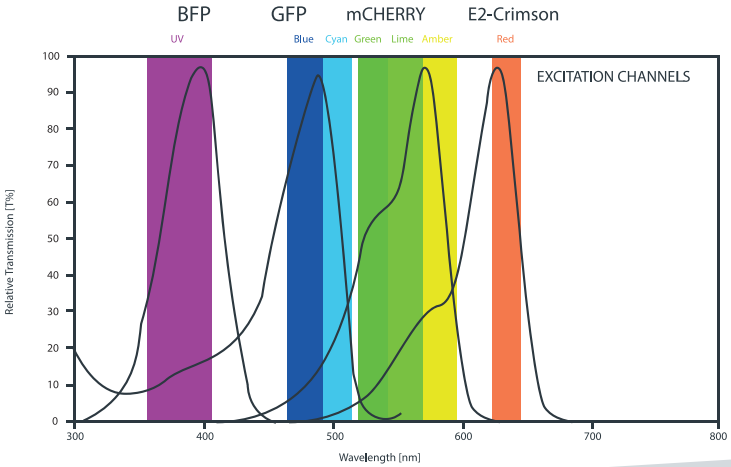
10x @ 1.3 µm/px

20x @ 0.65 µm/px



CLONE GALLERY

- CRISPR/Cas Gene Editing
- Single Cell Cloning (SCC/ FASCC)
- Trypan Blue Viability (Trypan Blue-Kit®)
- FACS Seeding Control
- Transfection Efficiency
- mAb-Aggregate Screening (mAbregation-Kit®)
- Confluence
- FISH Imaging
- iPS-Cell Detection
- CD-Antigen detection
- Apoptosis Monitoring
- Toxicity Studies
- Nuclei Count/ Organelle Characterisation
- ICC / IHC (Multiplex Imaging)
- Total Well Intensity
- Wound Healing
- Antibody Internalization
- Focus Forming Assay
- IgG (Fc/Fab) Quantitation (PAIA-Assay®)



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