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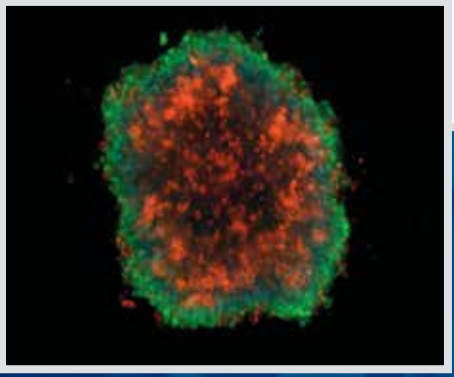
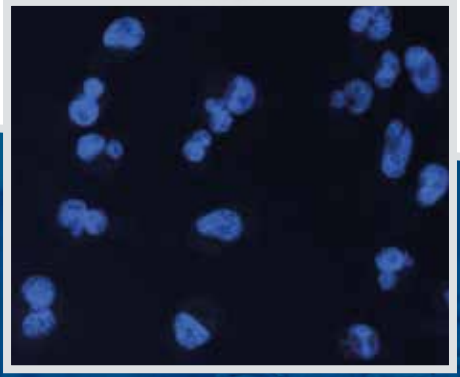
# SYNENTEC

## TECHNICAL INFORMATION







CELLAVISTA SCIENTIFIC

NYONE SCIENTIFIC

# CELLAVISTA® & NYONE® SCIENTIFIC
# Technical Specifications

## Technical Specifications

| Imager | | CELLAVISTA Scientific | NYONE Scientific |
|---|---|---|---|
| Version | | Highend | Highend |
| Illumination | Brightfield (LED 50.000 hour life time)<br>4 fluorescence channels<br>6 fluorescence channels | ✓<br>-<br>✓ | ✓<br>✓<br>- |
| Resolution | 2x (NA 0.08, Resolution ~ 6.5 µm ppx)<br>4x (NA 0.2, Resolution ~ 3.25 µm ppx)<br>10x (NA 0.5, Resolution ~ 1.3 µm ppx)<br>20x (NA 0.75, Resolution ~ 0.65 µm ppx)<br>40x (NA 0.75, Resolution ~ 0.33 µm ppx)<br>FL Channel Upgrade possible | Opt.<br>Opt.<br>✓<br>✓<br>Opt.<br>✓ | Opt.<br>✓<br>✓<br>✓<br>Opt.<br>- |
| | Alternative low NA objective lenses<br>10x (NA 0.3, Resolution ~ 1.3 µm ppx)<br>20x (NA 0.5, Resolution ~ 0.65 µm ppx)<br>extensive Nikon lens selection (high NA lenses two times more sensitive) | | |
| Method of measurement | Digital image recognition | | |
| Culture system | Microwell plates<br>(SBS formats 6, 12, 24, 48, 96 and 384),<br>Microscope slides and Culture dishes | | |
| Camera | Type | sCMOS (Scientific) | |
| | Pixel density | 2048 x 2048<br>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 |
| | 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 (134lbs) | 35kg (77lbs) |
| Energy requirements | 100 - 240 V AC, 50 - 60 Hz, 295 W maximum | | |



CELLAVISTA® & NYONE® SCIENTIFIC
# Imaging Capabilities

## 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<br>• Redesigned highly sensitive fluorescence optics<br>• HCS-grade lenses<br>• 3 times more sensitive: shorter exposure times, faster measurements (high throughput), less bleaching<br>• Autofocus performance twice as fast as CELLAVISTA RS<br>• Highest Dynamic Range (37.500 : 1 / 91,5 dB) | • Fast multiplex imaging<br>• Highly sensitive fluorescence optics<br>• HCS-grade lenses<br>• 3 times more sensitive: shorter exposure times, faster measurements (high throughput), less bleaching<br>• High Dynamic Range (21.400 : 1 / 87dB) |
| | • Laser autofocus system<br>• Image analysis during measurement<br>• Combination of brightfield and fluorescence analysis<br>• Automation friendly design | • Laser autofocus system<br>• Image analysis during measurement<br>• Combination of brightfield and fluorescence analysis<br>• Small footprint |

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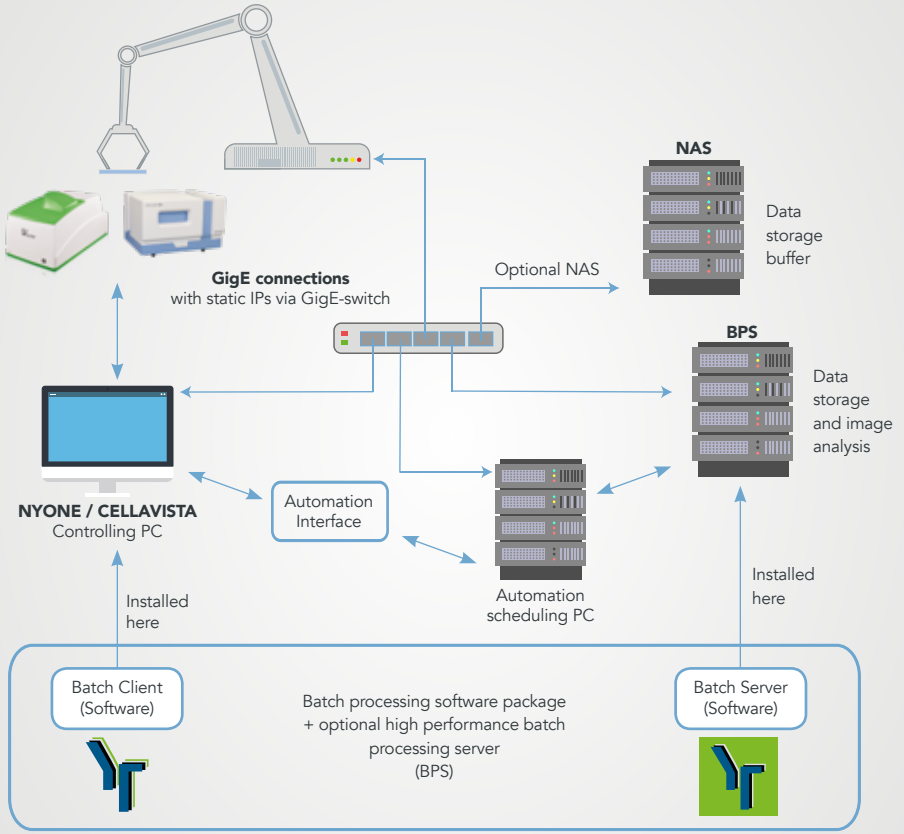
## Automation and batch processing features

| | 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<br>• Measurements<br>• Image processing<br>• Exporting | • Parallel processing of measurements<br>• Live Folder<br>• Automation client<br>• Reprocessing of old experiments<br>• Updating IP-settings<br>• Processing of third party images | • Detailed control of Batch processing server<br>• Reprocess<br>• Export<br>• Process and export<br>• General setup |





# SYNENTEC
# Imaging Capabilities

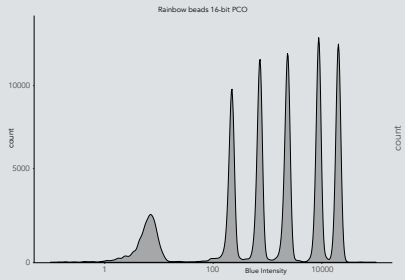
## 16 Bit Imaging Advantages

YT-Software enables switching from 8 bit to 16 bit

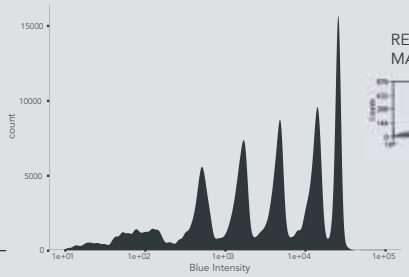
Higher dynamic range and a magnitude more sensitive than CLD line

**SCIENTIFIC**

**20x, 0.5 NA**



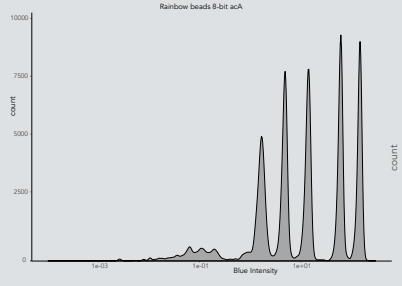

**10x 0.4 NA**



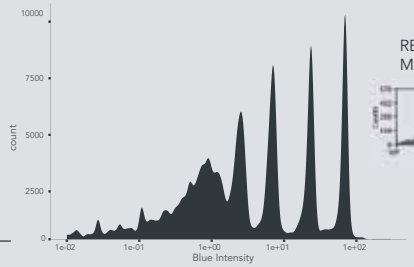

REFERENCE FROM MANUFACTURER

**CLD**

**20x, 0.5 NA**




**10x 0.4 NA**



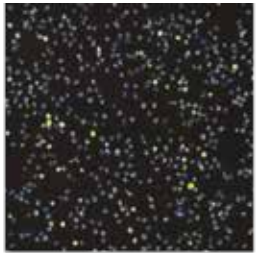

REFERENCE FROM MANUFACTURER

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.

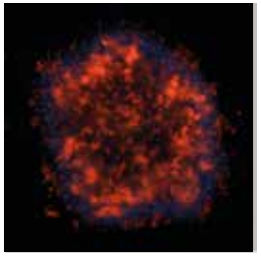


# SYNENTEC
# Capabilities of CELLAVISTA and NYONE in cell based assays

ANTIBODY BINDING



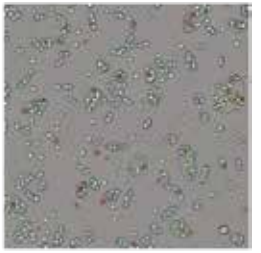
APOPTOSIS



SPHEROID IMAGING

FASCC

SINGLE CELL CLONING

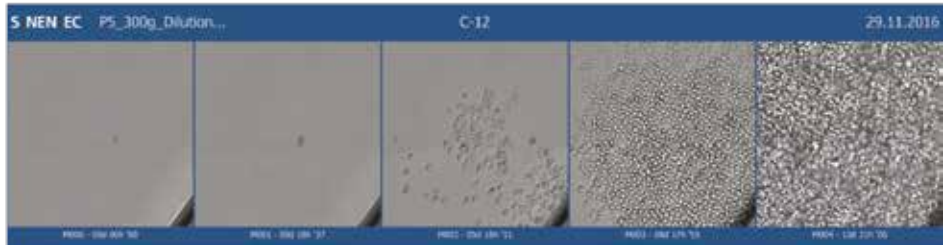


TRYPAN BLUE VIABILITY

4x @ 3.2 µm/px

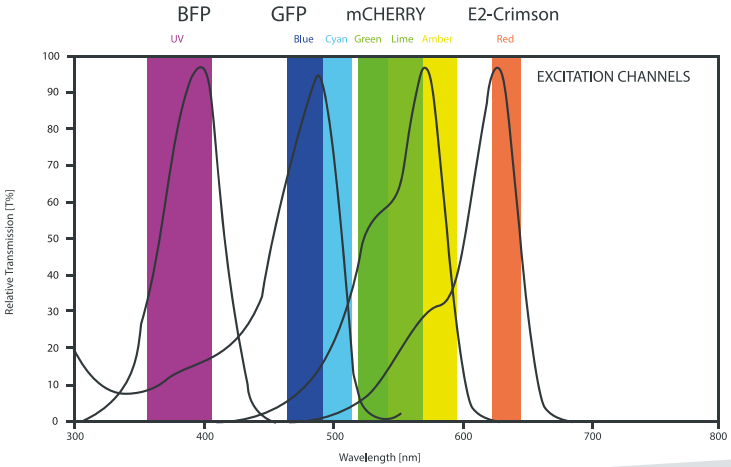
10x @ 1.3 µm/px

20x @ 0.65 µm/px




CLONE GALLERY

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



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