IncuCyte S3

IncuCyte Zoom

Overview

- **IncuCyte S3 vs. Zoom**
  - Objectives
  - Spheroid Imaging
  - Vessel Scheduling
  - Analysis Tools
  - Hardware
  - Upgrades
- **Relevant applications**
- **Summary**

S3 – Motorised Turret

- ✓ All 3 objectives inside the IncuCyte at once
- ✓ Each vessel can work with a different objective
- ✓ No need to manually change the objective and cancel all upcoming scans

Zoom – Fixed Objective

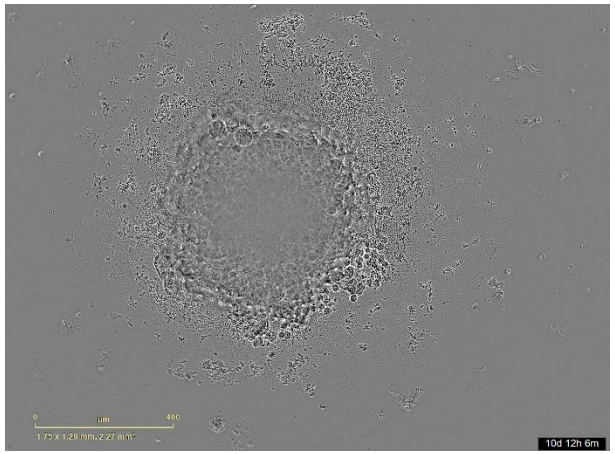
- Just one objective incorporated
- If a 4x experiment is running (e.g. Apoptosis for 5 days) the instrument is blocked for 20x or 10x application at this time
- Exchange of objectives has to be done manually

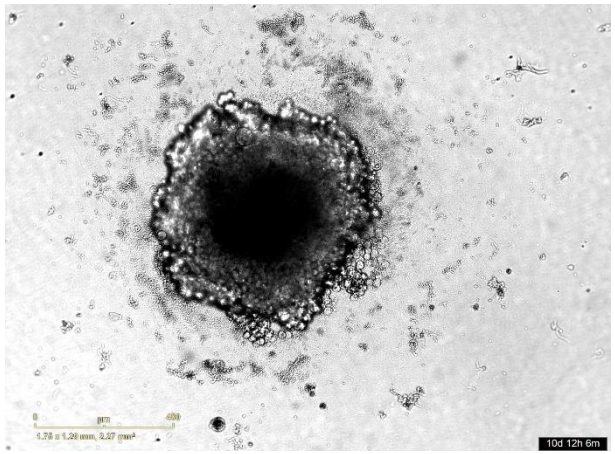
S3 – Spheroid Imaging

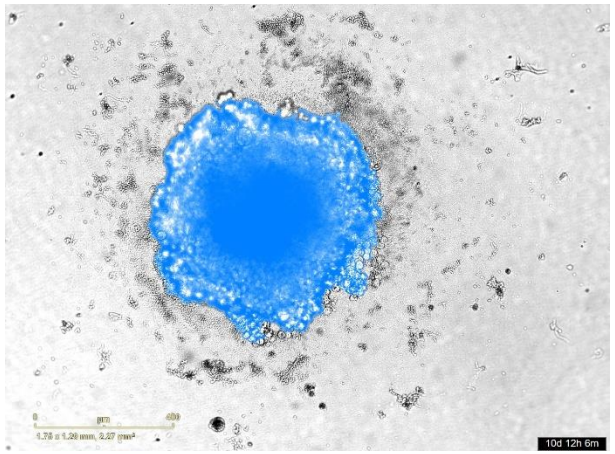
- ✓ Improved spheroid imaging capability
- ✓ Utilises brightfield images to give more consistency

Zoom – Spheroid Imaging

- Limited spheroid imaging capability
- No Multi-Spheroid imaging capability





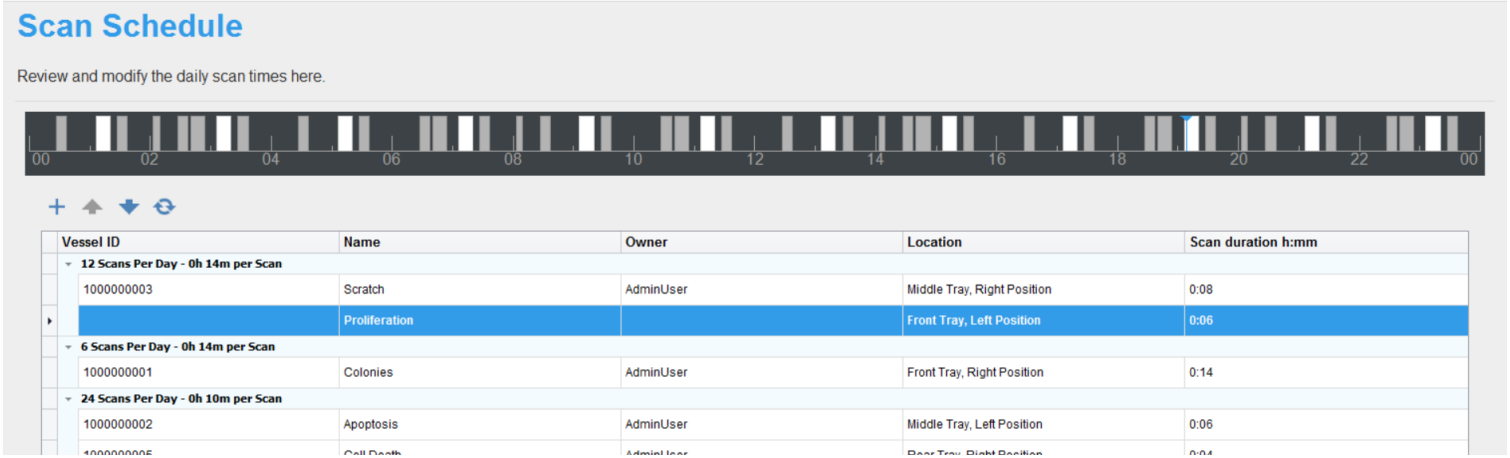


S3 – Independent Vessel Scheduling

- ✓ Scheduling imaging intervals is now vessel specific
- ✓ Possible to run 6 independent schedules
- ✓ Intuitive software highlights scheduling conflicts

Zoom – Fixed Vessel Scheduling

- One given fixed schedule for all positions. Set measurement for every 4 hours means instrument is blocked for faster kinetics

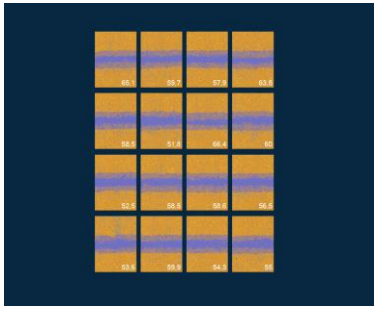


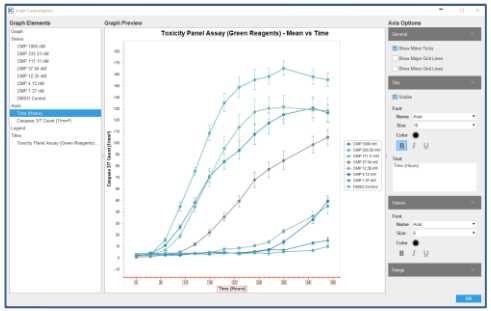
S3 – Analysis Tools

- ✓ Smoother workflow and easier/quicker to set up experiments
- ✓ Vessel view provides all images at a glance
- ✓ Easy navigation within plate and simple access to all time points
- ✓ Output graphs are now higher quality and easily customisable
- ✓ Quickly visualise trends and outliers

Zoom – Analysis Tools

- Experimental setup without Guided User Interface and therefore less intuitive
- No vessel view available





S3 – Hardware

- ✓ New CMOS sensor allows for faster image acquisition and increased sensitivity, particularly in the red channel.
- ✓ Increased processing speed
- ✓ Larger storage capacity, hard drives are now hot swappable

Zoom – Hardware

- Slower CCD sensor image acquisition

Hardware Improvements

	S3	ZOOM
• Processors	16 x 2.6 GHz	12 x 2.4 GHz
• Memory	48 GB	32 GB
• Drives	16.4 TB, 4 x 6TB RAID 5 Hot swappable for easy service	9 TB, 4 x 4 TB RAID 5
IncuStore	32.7 TB, 8 x 6 TB, RAID 6 Also hot swappable drives	21 TB, 8 x 4 TB, RAID 6
Total storage with IncuStore	49 TB	30 TB
Default acquisition green Default acquisition red	S3 CMOS sensor: 300 ms 400 ms	Zoom CCD sensor: 400 ms 800 ms

Scan Type	Channel	S3 Time	Zoom Time
Whole Well	Phase	14	20
	Phase + Green	20	26
	Phase + Red	21	30
	Phase + Green + Red	25	34

S3 – Future Upgrades

- ✓ All future system upgrades (software, software moduls, hardware) will be developed based on IncuCyte S3

Zoom – No Upgrades?

- Zoom won't be further developed - latest software update beginning of 2018
- Zoom replacement parts and warranty support will be stopped

Relevant applications: why use IncuCyte S3?

Angiogenesis assay	Proliferation assays
S3 is more sensitive and able to provide better quality of images which will be a key advantages to analyze this type of data set and get more robust metrics on tube length, branches etc..	Detection of flat adherent cells (HUVEC and other type of endothelial cells or fibroblasts) can be more difficult using Zoom and analyses will be also challenging on Zoom software.
Scratch wound migration assays	**Phagocytosis assay**
Better image quality for flat cells using S3.	S3 is more sensitive and scans with significantly higher speed than ZOOM. For assays that have fast kinetics, like phagocytosis assays, samples can be measured at higher frequencies and/or more samples can be measured at the same time (example: 96 well plate, 10x, 2 images/well, phase+red: S3: 6 min scan time; ZOOM: 9 min scan time).

Summary: Key advantages IncuCyte S3

✓ **Higher Throughput**

- Increased processing speed
- More experiments can be performed
- System accessible to multi users

✓ **Improved productivity:**

- Users have more time for other experiments

✓ **Reliable results and faster publication**

- Quickly visualise trends and outliers
- Faster production of results
- Publication ready graphs