Operetta High Content Imaging System

- The Operetta platform delivers fully automated image acquisition, analysis, and data management for robust phenotypic fingerprinting – everything you need to generate statistically significant and relevant data.

Hardware

- Confocal imaging eliminates background, improves signal-to-noise ratio, and protects live cell samples by reducing photobleaching and phototoxicity, for more reliability in both 2D and 3D imaging.

- Custom-designed optics, including barcoded emission filters and objectives, deliver both sensitive imaging and error-free operation.

- Transmitted light and digital-phase contrast imaging enable live-cell experiments without labelling, minimizing phototoxicity and interference from staining.

- The fast laser autofocus and intuitive plate wizards automatically detect important plate parameters, enabling reliable, unsupervised acquisition of high-quality images – quickly and accurately.

Software

Harmony 4.8 High-Content Imaging and Analysis Software for the set-up of assays, automation of experiments, image acquisition, data analysis, and storage and retrieval of results.

Image acquisition

- Computer-controlled **excitation power**

- **High-speed autofocus** in every field.

- **Full exposure control** and channel editor.

- **Simultaneous acquisition and analysis**, and visualization of data during acquisition.

- **Variable formats**: slides, multi-well plates from 6 well up to 1536.

- **Multi-field imaging acquisition.**

- Automated **flat field correction**.

- **Time kinetics** capabilities.

Applications

The Operetta system is the ideal platform for longitudinal cell studies.

- Live cell chamber can maintain the correct environment for keeping cell samples intact.

- Kinetic analysis capabilities let you track those cells over time, quantifying dynamic behaviour such as chemokinesis, chemotaxis, and signal oscillations.

Instrument Features

High content imaging reader

- Switch between non-confocal and confocal
- High power Xenon lamp (300W) providing entire visible spectrum
- Peltier cooled high resolution 14 bit CCD camera
- Brightfield excitation
- 4 or 8 excitation filters, up to 8 emission filters chosen from 17
- Up to 4 automatically exchangeable objective lenses for different fields of view /resolutions (2x to 100x objectives, high NA or long WD)
- Fast laser based auto focus
- Focal plane thickness 1.5 – 145 μm
- Simple experiment set-up
- Calibration free

Harmony software for fully automated image acquisition, online evaluation and data management

Supports various sample carrier formats, e.g. 96 and 384 well plates

Plug and play applications with ready-made image analysis solutions as a starting point

Excitation:
520-550 nm
460-490 nm
360-400 nm
620-640 nm
560-580 nm
410-430 nm
490-510 nm
600-630 nm

Emission Filters:
560-630 nm
500-550 nm
410-480 nm
650-760 nm
590-640 nm