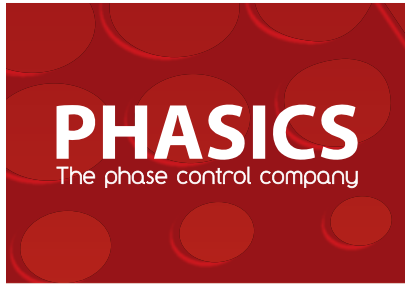
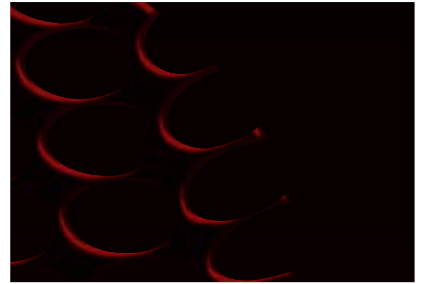
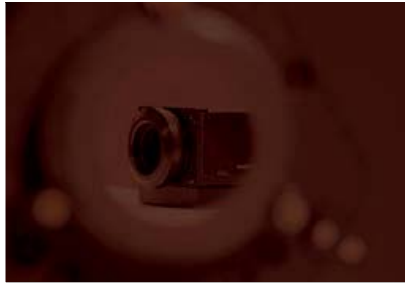
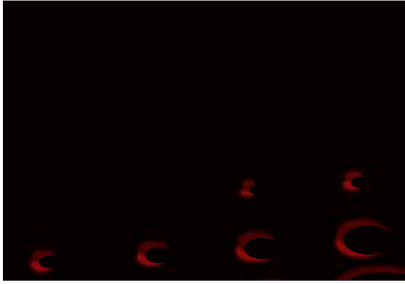


Distribution in the UK & Ireland

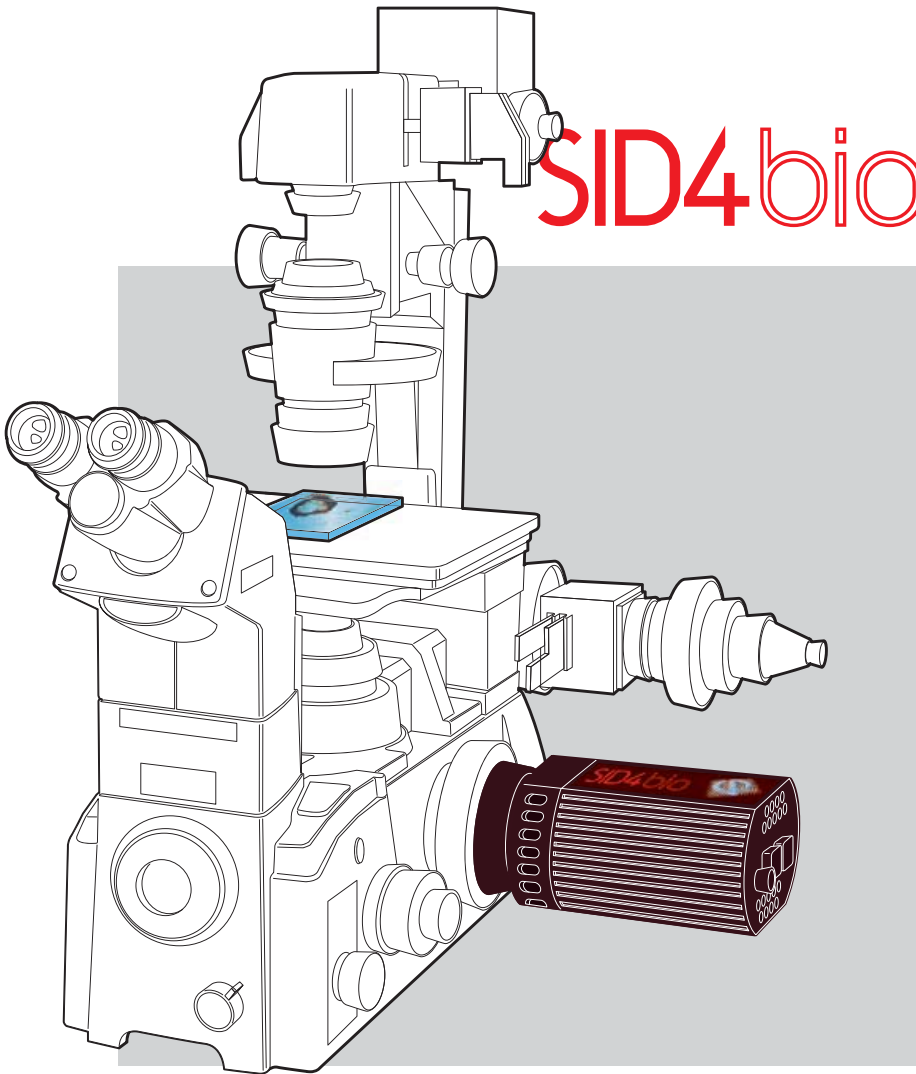


[www.lambdaphoto.co.uk](http://www.lambdaphoto.co.uk)

SID4bio



# SID4bio



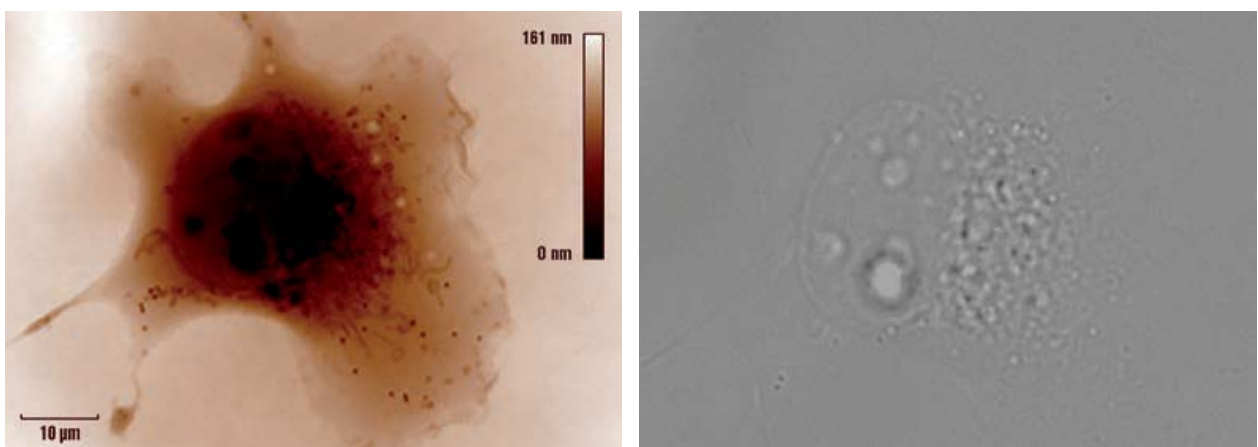
→ Our solution for fast and **label-free cell imaging** is based on our innovative quantitative phase imaging (QPI) technique.

Our instrument directly **plugs in to any microscope**, and can simultaneously measure quantitatively the local phase shift and intensity within a biological sample. We can obtain **automatically multiple parameters** on various cell types and tissues (dry mass, growth rate...). Because there is no change in the light path, it also enables multimodality such as phase-fluorescence merging.

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## LABEL-FREE QUANTITATIVE CELL IMAGING

**Single-shot measurements** with subnanometric OPD precision is achieved along with a diffraction-limited lateral resolution and a true video rate permitting intracellular components detection and dynamic follow-up. In the following example, we can see the high contrast enhancement brought by QPI.



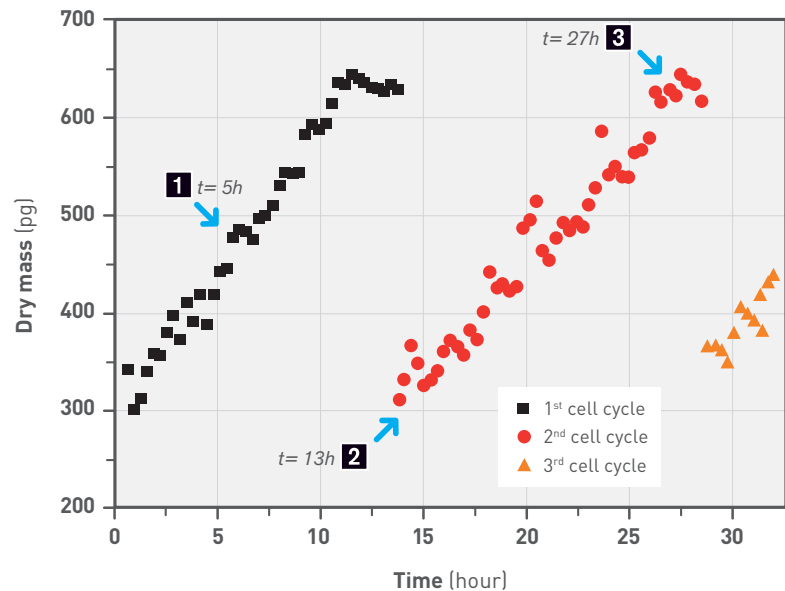
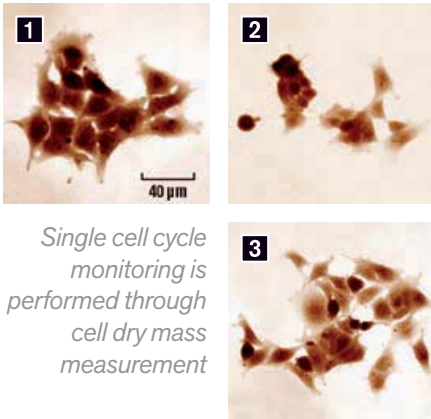
Quantitative phase (left) and brightfield (right) images of a living cell COS-7 cell observed with a conventional inverted microscope under white light illumination ( $\times 150$  NA=1.3). Scale bar =  $10\mu\text{m}$

**PHASICS** - The phase control company

# QUANTITATIVE CELL IMAGING

→ Our solution enables fast and label-free cell imaging. From our artifact free phase images, we can obtain automatically multiple parameters (morphological parameters, dry mass, growth rate...) on various cell types.

## Single cell monitoring



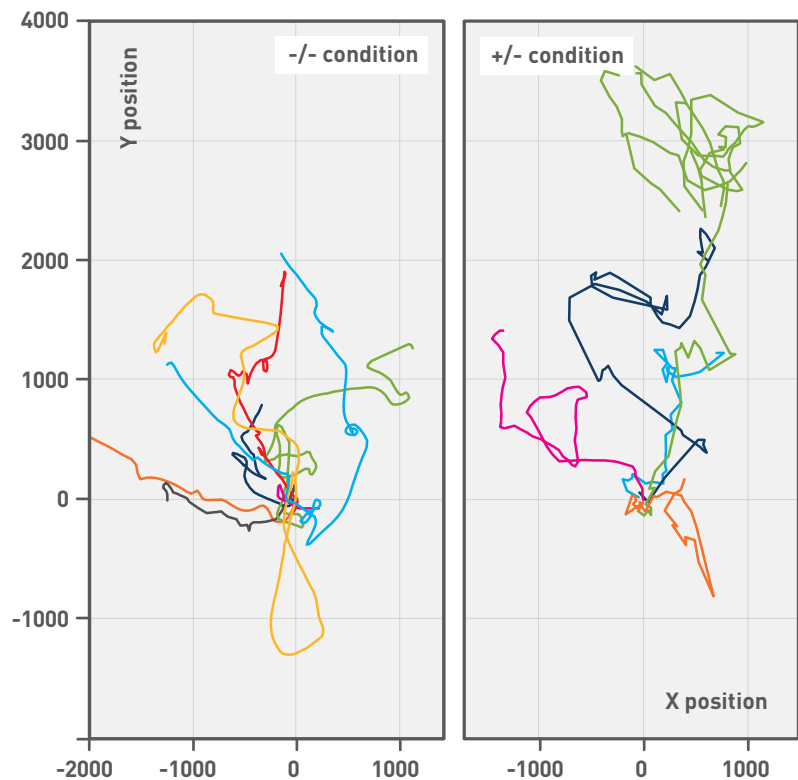
## ADVANTAGES

- **Single shot phase** and intensity measurement
- **Non-invasive** label-free modality (enables long time experiment duration)
- Achromatic measurements with any type of illumination (white light, LED, Laser).
- **Automated segmentation** & multi-parametric measurements
- Easy fluorescence merging

### → FOR :

- Cell culture monitoring, cell-based assays
- **Drug screening** & testing
- Cell proliferation study

## Single cell tracking / Cell motility



Cell line HT-1080 : human Fibrosarcoma in a  $\mu$ -slide chemotaxis 3D from IBIDI place into an incubator time lapse (11 hours), 20x, 0.5 NA  
Courtesy of IBIDI Germany

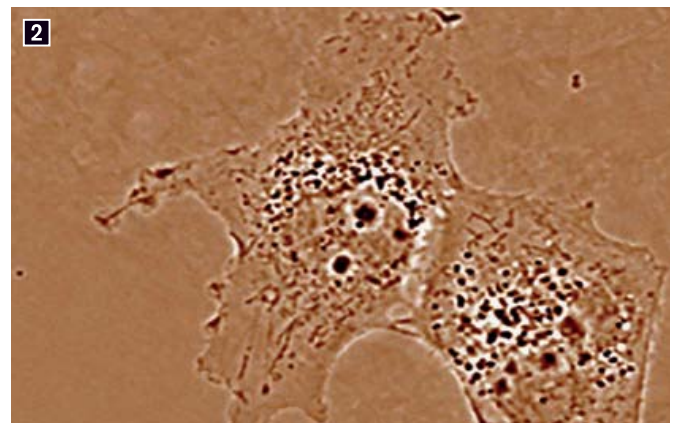
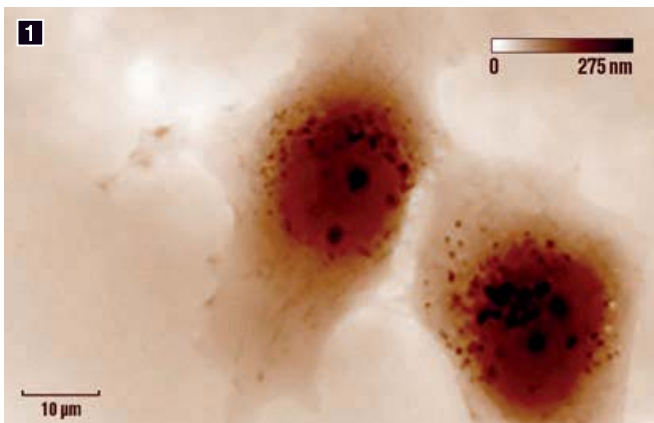
## PHASE FLUORESCENCE IMAGING

The SID4bio can be easily combined with other microscopic imaging techniques such as **fluorescence** or **polarization imaging**.

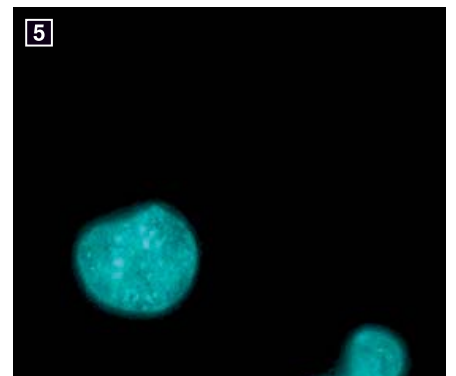
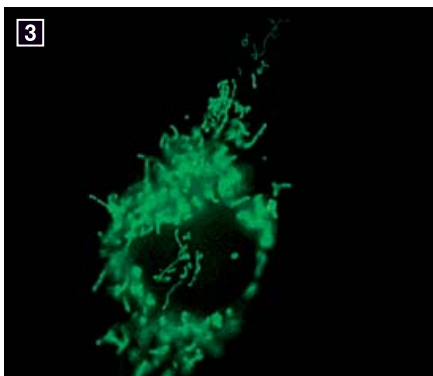
Co-localization of OPD and fluorescence signals measured from a single sample provides complementary information and thus enhances subcellular components identification.

While phase helps **morphological studies** and density or **refractive index quantification**, fluorescence signal is specifically related to targeted intracellular components.

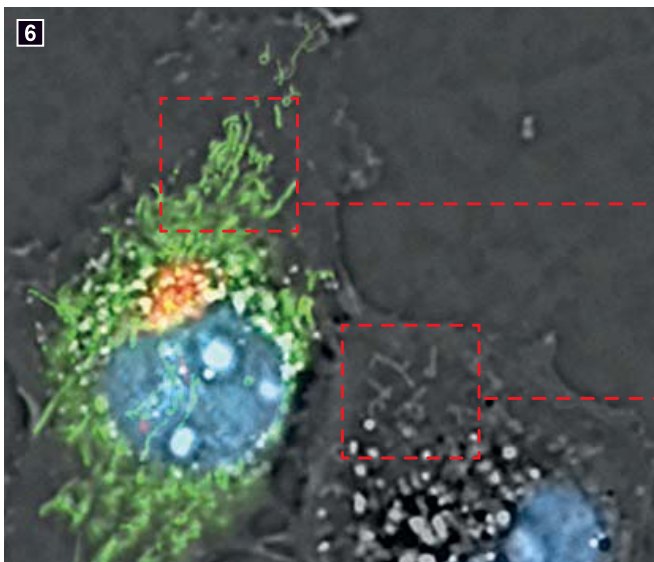
Phase



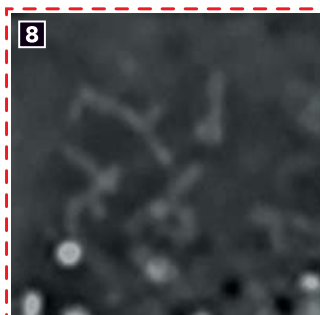
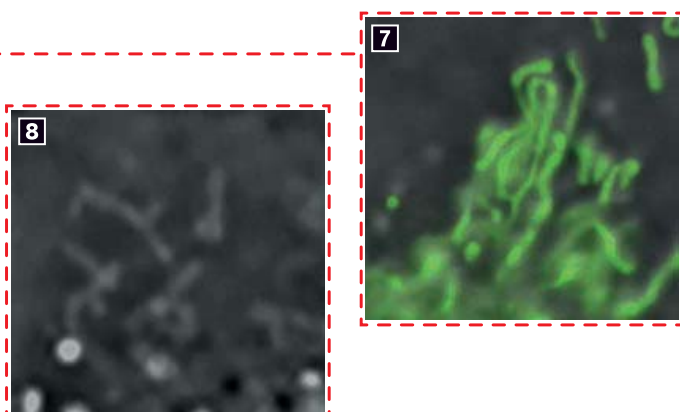
Fluorescence



Phase + Fluo merging

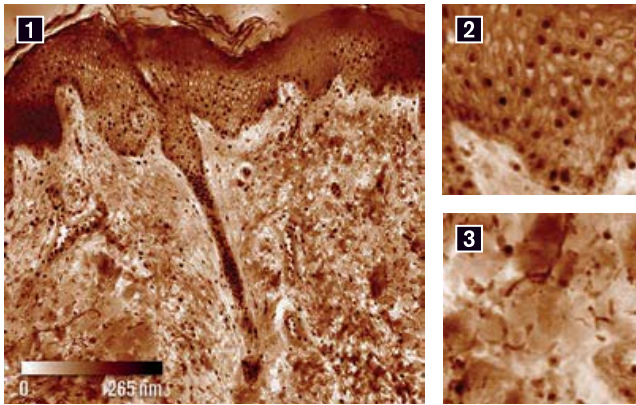


*COS-7 cells (x100 NA 1,3). [1] Phase, [2] High pass filtered phase image, [3, 4 & 5] fluorescence images with mitochondrion [3], Golgi apparatus [4] and nucleus [5]. [6, 7 & 8] Fluorescence & phase merged images.*



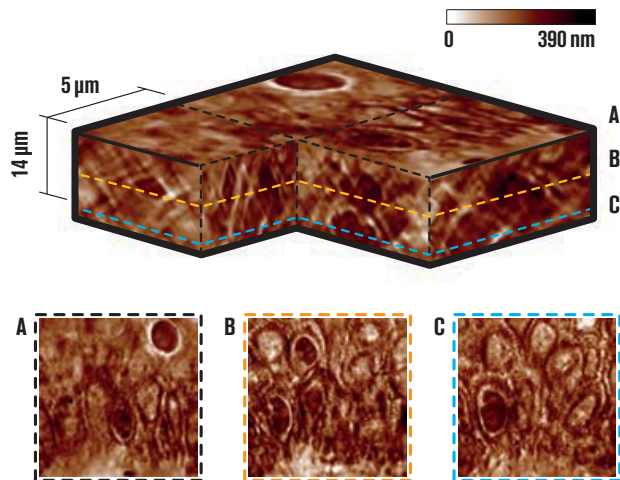
# QUANTITATIVE CELL IMAGING

## 2D Tissue Imaging



[1] Phase image of a 10 μm thick mouse skin tissue resulting of image stitching (scan with 40x, NA=0.75). Bars scale = 0.01mm [2 & 3] Zooms of two different areas. [2] Epithelial cell [3] Adipocytes. Scale bars = 20μm.

## 3D Tissue Imaging

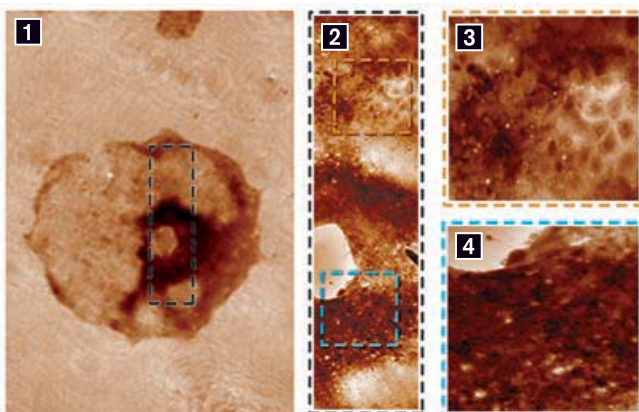


Reconstruction of a 14 μm thick mouse skin tissue, 100x magnification  $NA_{coll} = NA_{ill} = 1,3$

## TISSUE IMAGING

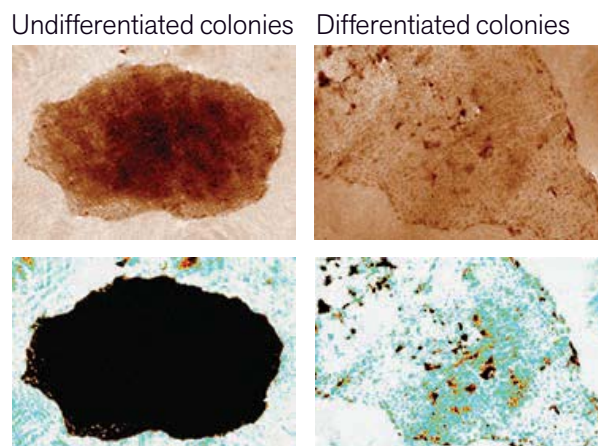
Tissue imaging with SID4bio enables visualizing cells and other tissue components such as fibers without labelling. The high contrast created allows **tissue study without any coloration**. The principle can be transposed on thicker samples of several dozens of microns to make **tomographic reconstructions** thanks to a single z stack scanning with a subcellular axial resolution.

## Stem cells colonies imaging...



[1] Weakly differentiated hiPSC lines PFX#9 colony, 5x [2] 40x magnification. Zooms of outlined areas : differentiated [3] and undifferentiated [4] cells.

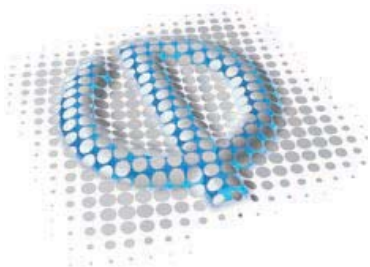
## and differentiation detection



Phase and density images of hiPSC lines PFX#9. 2.5x imaging. Scale bars = 0,45 mm

## STEM CELL COLONIES IMAGING

Phase and matter density are relevant indicators for stem cells colonies differentiation studies to determine the **differentiation state without any labelling**.



Distribution in the UK & Ireland



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**F: +44 (0)1582 712084**