# Product Sheet

CytoCHECK SPAchip®
Calcium and pH Multi-Detection Kit

CytoCHECK SPAchip® Calcium and pH Multi-Detection Kit allows measuring cytosolic **calcium ion** and intracellular and extracellular **pH levels** through changes in fluorescence intensity. This facilitates a more comprehensive study of living single-cell physiology and enhances the performance of most of imaging analyzers. The product combines the two pH and calcium detection technologies in one single SPAchip, enabling real-time monitoring of intracellular and extracellular pH and calcium levels in individual cells.

These cell-based assays are useful for studying and tracking important biological processes as well as for evaluating anti-cancer drug treatments.

Highlights

- Multiparametric measurements of intracellular pH and Calcium levels by changes in fluorescence intensity in a single SPAchip.
- Non-invasive for living single cells allowing long-term monitoring of intracellular pH and Calcium changes.
- Composed of fluorescently labeled Silicon microparticles that can be internalized in the cytosol of cultured cells.
- Provides a more comprehensive study of single-cell physiology and metabolism.
- Ready-to-use, robust workflow.
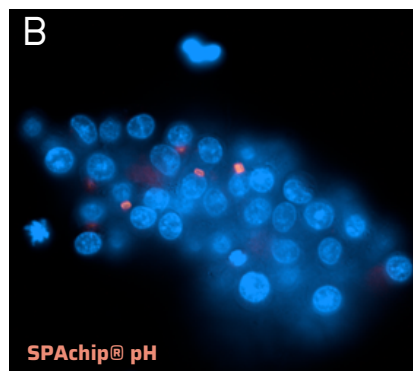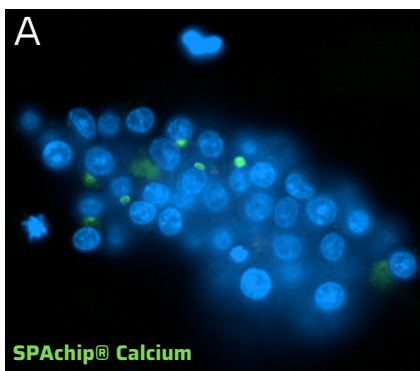
Figure 1: SH-SY5Y cell line (neuroblastoma cells) with nuclei stained in blue and CytoCHECK SPAchip® Multi-Detection Kit in green and red. Representative images of SH-SY5Y cells with internalized multiplex SPAchips **A)** exciting at 488 nm and emitting at 520 nm and **B)** exciting at 546 nm and collecting emission at 610 and 707 nm. Images **A)** and **B)** correspond to the same field but different fluorescence channels.

Product features

- SPAchip® assay kits are novel cell-based assays for living single-cell that bring together the fields of nanotechnology and cell biology.

- CytoCHECK SPAchip® Calcium and pH Multi-Detection kits are composed of fluorescently labeled silicon microparticles -SPAchips®- that can be internalized in cultured cells to monitor changes in specific intracellular analyte concentrations for long periods of time

- The main advantage of this product is the combination of our two pH and calcium detection technologies in a single SPAchip device for individual cell analysis.

- This technology simplifies cell-based assay by using one single technique to quantify pH and calcium variations.

- CytoCHECK SPAchip® Calcium and pH Multi-Detection Kit enables continuous, simultaneous, and accurate monitoring of intracellular and extracellular pH and Calcium levels in living cells, enabling a more comprehensive study of cell health and physiology.

- Experimental readouts obtained from the same single cell diminishes variability and allows to establish more reliable correlations.

Each CytoCHECK SPAchip Calcium and pH Multi-Detection Kit contains:

~2.5x10^6 ASSAY SPAchips	**ASSAY SPAchip® tube** (embedded in a solid fluorescence-protective soluble film)
5 mL	**ASSAY buffer tube** (Sterile, cell culture suitable)
~2.5x10^5 CONTROL SPAchips/100 µL	**CONTROL SPAchip® tube** (non-fluorescent, ready-to-use)

CytoCHECK SPAchip® Calcium and pH Multi-Detection Kit

Product code	**M-001-PC**	
Amount	~2.5 millions of SPAchips	
Applications	Cell viability, proliferation, cell image acquisition	
Assay time	30 minutes	
Assay type	Living single-cell based	
Solubility	Soluble in assay buffer (aqueous)	
Analyte	**Calcium**	**pH**
Detection method	Green fluorescence	Red fluorescence / Ratiometric curve*
Fluorescence	λex: 488 nm; λem: 520 nm	λex: 546 nm; λem: 610 and 707 nm
Measuring range	10 -1000 µM	4.5 – 9.0
Compatible Platforms	Fluorescence microscopy, HCS/HCA platforms (20x magnification and over) and flow cytometry	
Sample type	Adherent cells, suspension cells	

*Ensure to follow the full User Protocol

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