

# Application Note: Assessment of Cell Cytotoxicity: Differentiate Effects on Cell Death and Cell Growth.



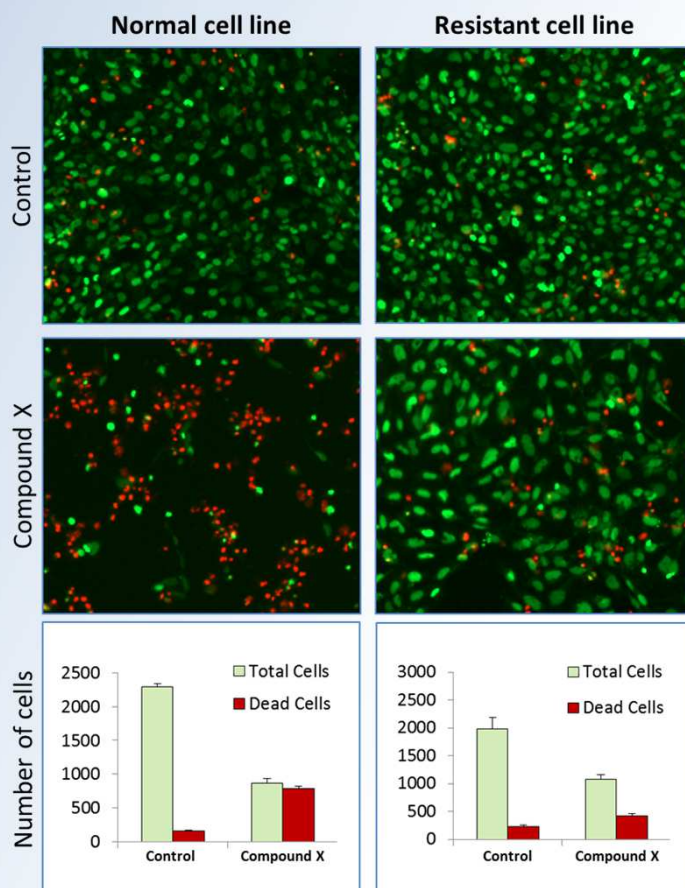
## Background.

Counting of live and dead cells represents one of the most confident assay to discriminate between cytotoxic or anti-proliferative effect. Many readouts are used in screening assays for new cytotoxic drugs : LDH, release assays (membrane rupture), MTT and MTS-Based Assays (cell proliferation), apoptotic enzymes activities, disruption of mitochondrial transmembrane potential or cellular ATP level. However each one depends of other parameters : 1) the intensity of colorimetric or fluorimetric signals that can be modulated by adverse drug effect, 2) the expression or regulation of a single enzyme, 3) the metabolic state of the cells. Consequently, our assay of counting live and dead cells by microscopy can be considered as the more suitable to decrease the number of false positives in a screening assay.



## Applications.

The Cell Cytotoxicity assay consists of the measure of two reliable end-points: disruption of the cytoplasmic membrane and cell number. This method is recommended for high content screening assay which aims at identifying drugs that affect cell proliferation or induce cell death. This assay does not require washing steps, which can result in the disappearance of cell subpopulations. It can be performed in 384 wells plate and consequently only required a small amount of compound. Finally, the simplicity of this method reduced the cost and time for performing an assay.



## Measurement of Cell Cytotoxicity in two cell lines sensible or resistant to compound X.

Images correspond to cells stained with propidium iodide (cell death) and Syto24 (total cells). Quantifications are represented in the above graphs. Note that Compound X kills almost all cells in the normal cell line condition. In the resistant cell line, treatment with the compound X results in a less pronounced cell death and in a reduction in cell proliferation.

**Questions?** Please contact us: [BMYScreen@gmail.com](mailto:BMYScreen@gmail.com)