IMPROVEMENTS IN HIGH CONTENT IMAGING TECHNOLOGIES TOGETHER WITH THE EMERGENCE OF PRE-VALIDATED CELL-BASED ASSAYS FACILITATE PHENOTYPIC CELL PROFILING AND TOXICITY ASSESSMENT

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Combining high content analysis (HCA) with optimized reagents and relevant human cell models enables more robust and pertinent information for predicting compound liabilities earlier in the drug discovery process. Continuing advancement of the IN Cell Analyzer cell imaging systems confers great advantages in the area of predictive toxicity assessment. Enhanced features support easier workflows as well as greater throughput without compromising image quality. To complement emerging improvements in high content imaging, we have also developed pre-validated Cytiva™ assay kits for HCA, along with simplified assay and analysis protocols to monitor multiple toxicity indicators and cellular parameters simultaneously, providing integrated surveillance of cell health indicators, including nuclear status, intracellular calcium levels, mitochondrial health and cell viability. A multiplexed approach to studying cellular toxicity, combined with increasingly powerful imaging capability, image analysis software and data interpretation tools, enables dynamic and detailed profiling of cell phenotypes in response to test compounds, which in turn can provide valuable insights into mechanisms of toxicity. We present here a complete solution for a high-content multiplexed cellular toxicity assay, from assay preparation through to high-content imaging and cell phenotype profiling.