EPA-1 Integration of conventional cell viability assays-recruiting reliable and reproducible read-outs

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Cancer is rapidly emerging as an epidemic that may engulf millions of lives. Change in lifestyle and industrialization have been shown to contribute significantly to its increasing incidence. Most of the cancer treatments depend on the hallmark differences between the cancer and the normal cells. Short period cell viability assays have been used to identify and engineer cytotoxicity of drugs. These are often based on formation of a chromogen that is generated in viable cells. The quantitative measure of the chromogen in a spectrophotometer at a particular wavelength are the conventional read-outs. However, often the herbal extracts and the purified active components possess color that interferes with such quantitative cytotoxicity estimation. Furthermore, their action is rather slow/gradual and requires long term assays such as effect on clonogenic potential of cells in 1-2 weeks, which cannot be performed in 96-well plate and hence the quantitative assessments are fairly difficult. At the same time, the visual observations of cell morphology hold significant hints to molecular signaling underlining the effect of drugs. In view of these, we have combined the conventional cell viability assays and developed a single broad spectrum protocol that provides quantitative and qualitative evaluation of effect of drugs.

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