



idealp
Pharma

Personalised services in drug discovery

In vitro cytotoxicity assay

Development of new therapeutic drugs needs assay systems to evaluate the toxicity potential of the drugs early in the drug discovery process. *In vitro*


cell-based cytotoxicity assay is an easy and cost-effective tool for hit ranking and lead optimization at the early stage of drug discovery.

Other early ADMET assays available

 *In vitro* cytotoxicity assay

 Kinetic solubility and stability

 Permeability

 Spheroid Model for hepatotoxicity Study

 CYP450 inhibition

 Metabolic assay



In vitro cytotoxicity assay

Method

Our cytotoxicity assay has been validated on 10 human cell lines that include Hep-G2 (hepatocellular carcinoma), MCF-7 (breast adenocarcinoma), UMRC6 (kidney adenocarcinoma), and Daudi (Burkitt's lymphoma). Two protocols are available: a short protocol (4-24h) to evaluate acute toxicity and a long protocol (72h) to evaluate chronic toxicity.

The day before experiment cells are seeded in 96 well tissue culture plates at a concentration that allow cells to grow exponentially during the time of the assay.

Compounds to be tested are diluted in DMSO and then serially diluted in the corresponding culture

medium in order that the final DMSO concentration should not exceed 0.5%. Vehicle or compounds at different concentrations are then added to the cells in triplicates. Cells are then incubated at 37°C in humidified 5% CO₂ atmosphere for the appropriate period of time. Acute toxic effect of the drug is evaluated by lactate dehydrogenase release from the cytoplasm to the extra-cellular medium. Chronic toxicity is analyzed by common viability staining method (MTT) for adherent cells or ATP production for non adherent cells.

Taxol and Triton X-100 are used as control standard for chronic and acute toxicity respectively.

Data analysis:

% of remaining viable cells in the presence of various concentration of compound is calculated using vehicle treated cells as 100% of viability. Figures shows mean of three independent experiments run in triplicate.

