

To study mercury toxicity in HK2 cells

Aim

- to study the cell toxicity of mercury with renal tubular epithelial cell (HK2)
- to study the ability of Cell-IQ to analyze cell viability/ cell toxicity
- to compare the results obtained with Cell-IQ and conventional methods (ATP-measurement and neutral red)

Cells

HK2 cells, 2×10^4 cells/well

Dulbecco's MEM /Nut mix F12 (HAM) (Gibco/Life #31330-038)

ITS: insulin (5 µg/ml), transferrin (5 µg/ml) and selenium (5 ng/ml) (# I 1884)

Hydrocortisone (36 ng/ml) (# H 0135)

EGF (10 ng/ml) (# E 1264)

Triiodothyronine (40 ng/ml) (# T 5516)

Antibiotic solution containing 100 units/ml penicillin, 100 g/ml streptomycin, 250 ng/ml amphotericin B

Cells are let to attach overnight.

Exposure

100 µl/ well, 3x stock solutions, serum-free

- in glucose-free DMEM (Hypoxia)
- in normal growth medium HgCl₂

c: control: glucose-free DMEM or normal medium

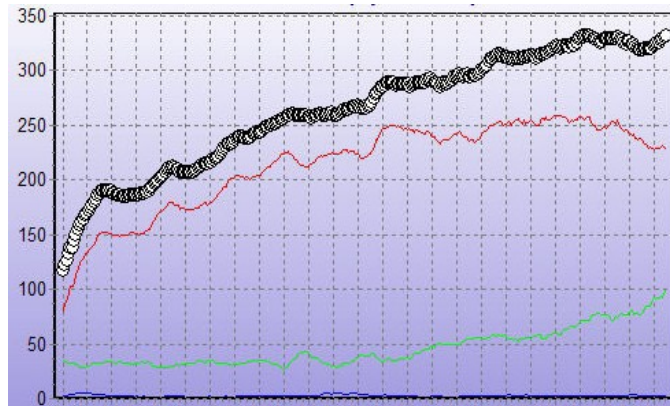
Hg: HgCl₂, 1, 5, 7, 10 µM

APPLICATION NOTE

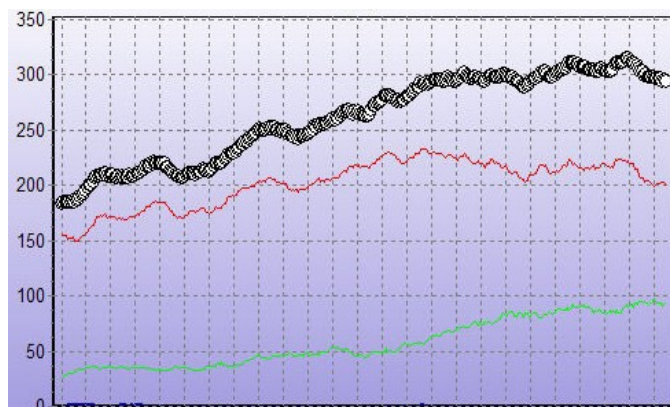
Results

Cell-IQ® Data

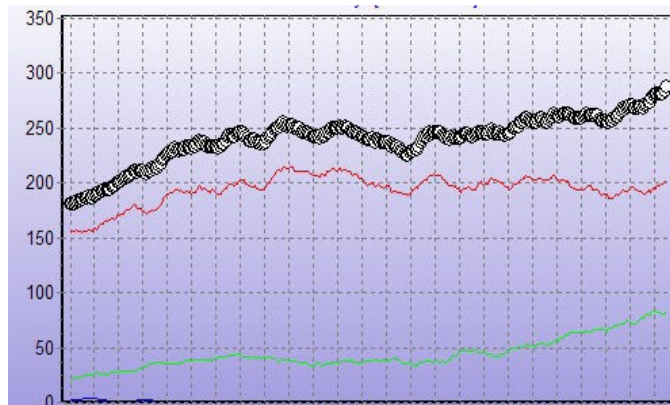
Control



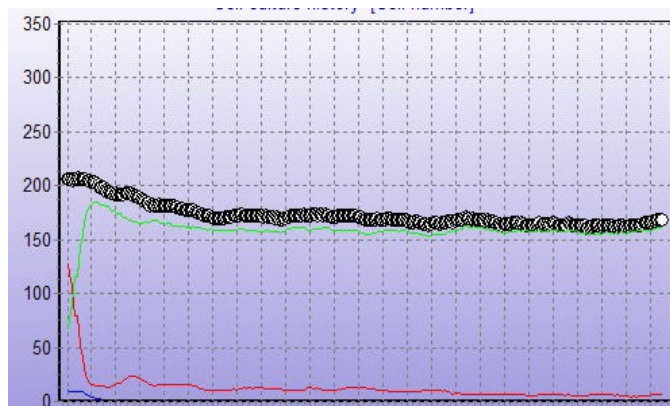
Mercury 1 μM



Mercury 5 μM



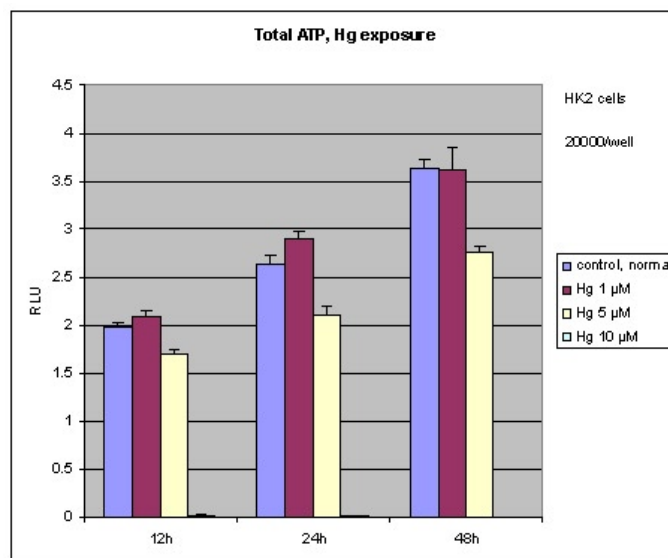
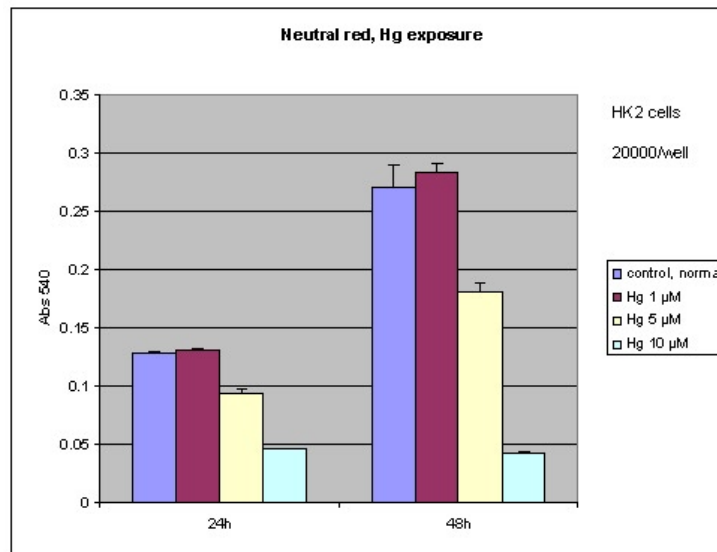
Mercury 10 μM



o=Total cell number red line = stable green line = dead blue line = dividing

APPLICATION NOTE

Conventional Method Data



Conclusion

Cell-IQ can measure cell toxicity similarly well as conventional cell viability tests (ATP test and neutral red test): 1 micro molar mercury was not cell toxic; 5 micromolar mercury showed slight cell toxicity when measured by Cell-IQ (decreased cell growth) and by neutral red and ATP-test; 10 micro molar concentration was highly toxic.

Clearly the Cell-IQ records the entire incubation allowing further analysis when required. In addition very subtle changes in cellular behaviour are recorded that are not detected by conventional end point methods.

A P P L I C A T I O N N O T E