

# ATP cell viability assay

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## Organisation

**Name of the organisation** Sciensano

**Department** Chemical and physical health risks

**Country** Belgium

## SCOPE OF THE METHOD

<b>The Method relates to</b>	Human health
<b>The Method is situated in</b>	Basic Research
<b>Type of method</b>	In vitro - Ex vivo
<b>Specify the type of cells/tissues/organs</b>	TK6 and HepaRG cell line
<b>Used species</b>	Human cell line

## DESCRIPTION

### Method keywords

cell viability test

in vitro

ATP

### Scientific area keywords

in vitro cytotoxicity

### Method description

The ATP cell viability assay (CellTiter-Glo assay test kit) provides a quantitative

measurement of the ATP content directly proportional to the number of cells present in culture. The homogeneous assay procedure involves adding one single reagent, CellTiter-Glo Reagent directly to cells cultured in serum-supplemented medium. This results in cell lysis and generation of a luminescent signal proportional to the amount of ATP present. Luminescence can be measured already 10 minutes after adding reagent & mixing. The half-life of the luminescent signal is greater than five hours so the measurement can be performed even hours after adding the reagent. The CellTiter-Glo® Assay relies on the properties of a proprietary thermostable luciferase (Ultra-Glo™ Recombinant Luciferase), which generates a stable “glow-type” luminescent signal. % Cell viability after exposure is calculated through comparison of measured RLU of unexposed control cells (set to 100% viability) and exposed cells.

### **Lab equipment**

Standard equipment for working with cell cultures, luminometer

### **Method status**

History of use

Published in peer reviewed journal

## **PROS, CONS & FUTURE POTENTIAL**

### **Advantages**

Sensitive (even few cells can be detected),

Fast (data available 10 minutes after adding reagent),

Easy,

Very stable luminescent signal flexible (ATP content from both adherent and suspension cells in different well formats can be measured),

No interference with compounds with oxido-reductive potential (MTT) or colored compounds (NRU).

### **Challenges**

Expensive (test kit),

Sensitivity can be a disadvantage (the occurrence of metabolic oscillations can cause fluctuations of the ATP content per cells).

## REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

### References

J Shi, S Springer, P Escobar (2010) Coupling cytotoxicity biomarkers with DNA damage assessment in TK6 human lymphoblast cells  
10.1016/j.mrgentox.2010.01.008

### Associated documents

[CellTiterGlo Luminescent Cell Viability Assay TB288.pdf](#)

[Coupling\\_cytotoxicity\\_biomarkers\\_with\\_DNA\\_damage\\_assessment\\_in\\_TK6\\_human\\_lymphoblast](#)

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