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# CytoScan™ WST-1 Cell Cytotoxicity Assay

Colorimetric Assay for Quantitation of Cellular  
Cytotoxicity & Proliferation

(Cat. # 786-212, 786-857)

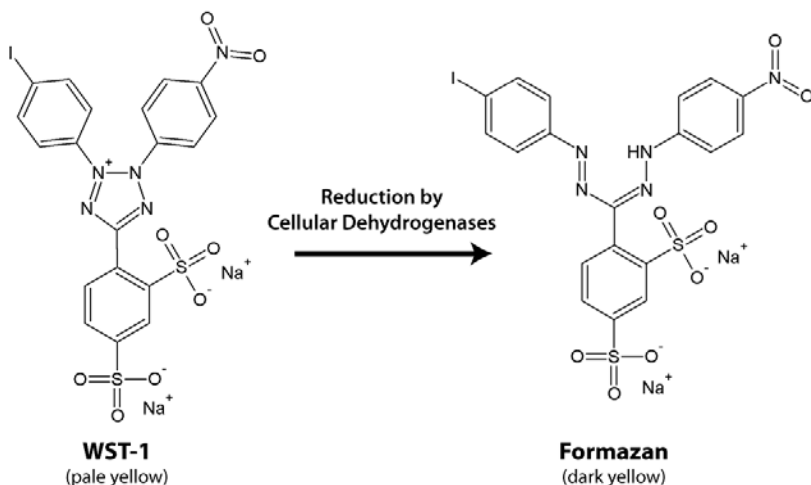


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## INTRODUCTION

CytoScan™ WST-1 Cell Cytotoxicity Assay is a sensitive and accurate assay for cell cytotoxicity and proliferation. The assay is highly convenient as it is performed in a single tissue culture well and requires no washing, harvesting or solubilization of cells. Adherent or suspension cells are cultured in a microplate and then incubated with WST-1 and the assay is monitored with a spectrophotometer. The assay principle is based upon the reduction of the tetrazolium salt WST-1 to formazan by cellular dehydrogenases (see figure below). The generation of the dark yellow colored formazan is measured at 420-480nm (optimal at 440nm) and is directly correlate to cell number. The kit components are sufficient for performing up to 500 or 2,000 assays.



## ITEM(S) SUPPLIED

Description	Cat. # 786-212	Cat. # 786-857
WST-1 Tetrazolium Salt	1 vial	4 vials
CEC (CytoScan™ Electron Carrier)	1 vial	4 vials
WST Assay Buffer	6ml	30ml

## STORAGE CONDITION

The kit is shipped at ambient temp. Store all kit components at 4°C, protected from light. The kit components are stable for six months, when stored as recommended.

## PREPARATION BEFORE USE

1. Add 2.5ml Assay Buffer directly to each vial of WST-1 and CEC. Once dissolved the solutions should be stored at -20°C and protected from light.
2. Mix equal volumes of the WST-1 and CEC solutions to prepare the Assay Dye Solution before use. Once mixed the solutions should be stored at -20°C and protected from light.

**NOTE:** We recommend making aliquots before freezing, 1ml aliquots are sufficient for a 96 well plate. The WST-1/ CEC solution is stable for 3 months at -20°C.

## PROTOCOL

- 1a For a cytotoxicity assay, culture  $5 \times 10^4$ - $5 \times 10^5$  cells per well of a 96-well plate with a final volume of 100µl/well culture medium.
- 1b For a cell proliferation assay, culture  $0.2 \times 10^4$ - $5 \times 10^4$  cells per well of a 96-well plate with a final volume of 100µl/well culture medium. Prepare a blank well with culture medium only.

**NOTE:** The number of cells required depends on the individual cell type. The optimal linear range can be established by placing  $5 \times 10^3$ - $5 \times 10^5$  cells per well and following the protocol from step 3. Also the established linear standard curve can be used for cell counting by using a fixed incubation time in step 4.

**NOTE:** Phenol red in the culture medium has little effect on the assay.

2. Add the appropriate concentration/ volume of the test factors to be assayed and culture cells for 24-96 hours.
3. At the end of the treatments, add 10µl WST-1/ CEC Assay Dye Solution to each well. Gently shake the plate to mix chemicals with medium.

**NOTE:** If different volumes of culture media are used then adjust the volume of the WST-1/ CEC Assay Dye Solution accordingly.

4. Incubate the plate for 30 min to 4 hours in the cell culture incubator.

**NOTE:** The cell culture time is dependent on cell type and concentration used, therefore determine the optimal times for your individual experiments.

5. Shake the plate for 1 minute on an appropriate shaker and measure the absorbance using a microplate reader at 420-480nm and set the reference wavelength more than 600nm.

**NOTE:** The reaction can be stopped by the addition of 10µl 1% SDS.

6. For cytotoxicity, subtract the culture medium background from your assay results and calculate percentage cytotoxicity with the following equation, using average absorbances for controls and experimental results.

$$\% \text{ Cytotoxicity} = \frac{(100 \times (\text{Cell Control} - \text{Experimental}))}{(\text{Cell Control})}$$

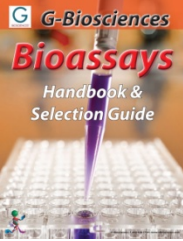
7. For cell proliferation the amount of absorbance is proportional to cell number. For cell counting a standard curve can be established with known cell number and fixed incubation times with the assay reagent.

## CITED REFERENCES

1. Li, H. et al (2009) Mol. Cancer Ther. 8: 3255 - 3265

## RELATED PRODUCTS

Download our Bioassays Handbook.



<http://info.gbiosciences.com/complete-bioassay-handbook/>

For other related products, visit our website at [www.GBiosciences.com](http://www.GBiosciences.com) or contact us.

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