Dyes and Stains

Resazurin (Sodium Salt)

Cell proliferation and viability dye

Catalog # 75005

5 g

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Product Description

Resazurin (7-hydroxy-10-oxidophenoxazin-10-ium-3-one, sodium) is a blue fluorogenic dye used as a redox indicator in cell viability and proliferation assays for bacteria, yeast, or mammalian cells. The blue form of the dye is irreversibly reduced by enzymes in viable cells to generate a highly red-fluorescent product, resorufin, which exhibits an emission maximum at ~580 nm and can be detected by flow cytometry, fluorescence microscopy, and high-throughput screening methods. Resazurin is minimally toxic to living cells, making it suitable for use in long-term cell culture. The dye has also been used to assay L-glutamate and to measure the metabolic activity of mitochondria.

Chemical Name:	sodium;10-oxido-7-oxophenoxazin-10-ium-3-olate
Alternative Names:	7-hydroxy-10-oxidophenoxazin-10-ium-3-one, sodium; Diazoresorcinol, sodium salt
CAS Number:	62758-13-8
Chemical Formula:	$C_{12}H_6NO_4 \cdot Na$
Molecular Weight:	251.2 g/mol
Excitation Wavelength:	570 nm
Emission Wavelength:	580 nm

Properties

Storage:	Store at 15 - 25°C.
Shelf Life:	Product stable until expiry date (EXP) on label. Protect product from prolonged exposure to light.
Format/Formulation:	A crystalline solid

Applications

Verified:	FA
Reported:	Enzyme assay, FA (Cytotoxicity, Proliferation, Viability), FC, Fluorescence microscopy, Fluorometry, Spectroscopy
Special Applications:	This product has been verified for analyzing hematopoietic cells cultured in StemSpan™ SFEM (Catalog #09650) and StemSpan™ SFEM II (Catalog #09655).

Abbreviations: CellSep: Cell separation; ChIP: Chromatin immunoprecipitation; FA: Functional assay; FC: Flow cytometry; ICC: Immunocytochemistry; IF: Immunofluorescence microscopy; IHC: Immunohistochemistry; IP: Immunoprecipitation; RIA: Radioimmunoassay; WB: Western blotting

Handling/Directions for Use

For preparing a stock solution, Resazurin is soluble in aqueous buffers and in organic solvents, as follows:
· Phosphate-buffered saline (PBS), pH 7.2 ≤ 5 mg/mL
· Ethanol ≤ 0.5 mg/mL
· Dimethyl sulfoxide (DMSO) ≤ 0.5 mg/mL
· Dimethyl formamide (DMF) ≤ 0.5 mg/mL

NOTE: If preparing stock solution using an organic solvent, further dilute into aqueous buffer or isotonic saline before performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, as it may have physiological effects at low concentrations.

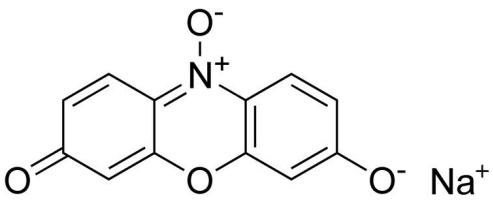
Whenever possible, prepare and use stock solution on the same day. Protect stock solution from prolonged exposure to light. If stock solution must be made in advance, aliquot and store in tightly sealed vials at -20°C and protect from prolonged exposure to light. Generally these will be stable for up to 1 month.

Titrate the dye for optimal performance in each application.

Notes and Tips

Data may be collected using either fluorescence-based or absorbance-based instrumentation. Absorbance can be measured using a spectrophotometer at 570 nm, or 600 nm if wavelength correction is available. It is recommended that the dye be assayed at pH 6.8 - 7.4.

Data/Structure



Chemical structure of Resazurin (Sodium Salt)

References

1. Dreidax D et al. (2013) Low p14ARF expression in neuroblastoma cells is associated with repressed histone mark status, and enforced expression induces growth arrest and apoptosis. Hum Mol Genet 22(9): 1735–45. (Cell viability assay)
2. Diril MK et al. (2012) Cyclin-dependent kinase 1 (Cdk1) is essential for cell division and suppression of DNA re-replication but not for liver regeneration. Proc Natl Acad Sci USA 109(10): 3826–31. (Cell proliferation assay)
3. Alsford S & Horn D. (2011) Elongator protein 3b negatively regulates ribosomal DNA transcription in african trypanosomes. Mol Cell Biol 31(9): 1822–32. (Cell proliferation assay)
4. Crilly A et al. (2011) Phosphodiesterase 4 (PDE4) regulation of proinflammatory cytokine and chemokine release from rheumatoid synovial membrane. Ann Rheum Dis 70(6): 1130–7. (Cell viability assay)
5. Paget C et al. (2011) Potential role of invariant NKT cells in the control of pulmonary inflammation and CD8+ T cell response during acute influenza A virus H3N2 pneumonia. J Immunol 186(10): 5590–602. (Cell proliferation assay)
6. Voloshin T et al. (2011) G-CSF supplementation with chemotherapy can promote revascularization and subsequent tumor regrowth: prevention by a CXCR4 antagonist. Blood 118(12): 3426–35. (Cell viability assay)
7. Wilson BAP et al. (2011) High-throughput screen identifies novel inhibitors of cancer biomarker α-methylacyl coenzyme A racemase (AMACR/P504S). Mol Cancer Ther 10(5): 825–38. (Cell growth, viability assays)
8. Xu S et al. (2011) Marek's disease virus type 1 microRNA miR-M3 suppresses cisplatin-induced apoptosis by targeting Smad2 of the transforming growth factor beta signal pathway. J Virol 85(1): 276–85. (Cell viability assay)

9. Hamid R et al. (2004) Comparison of alamar blue and MTT assays for high through-put screening. Toxicol In Vitro 18(5): 703–10. (Cell viability assay, Fluorescence microscopy)
10. O'Brien J et al. (2000) Investigation of the Alamar Blue (resazurin) fluorescent dye for the assessment of mammalian cell cytotoxicity. Eur J Biochem 267(17): 5421–6. (Cell proliferation assay, Cytotoxicity assay)
11. Ahmed SA et al. (1994) A new rapid and simple non-radioactive assay to monitor and determine the proliferation of lymphocytes: an alternative to [3H]thymidine incorporation assay. J Immunol Methods 170(2): 211–24. (Cell proliferation assay)

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