

Product Data Sheet

Product Name: DQ-BSA-RED

Cat. No.: GC26813

Chemical Properties

Cas. No.

Formula

M.Wt

Solubility

Storage -80°C, protect from light

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure

DQ-BSA-RED

Protocol

DQ-BSA-RED Assay for Measuring Lysosomal Activity in Cells^[1]

This protocol is adapted from research data and provided for reference only. Adjustments may be necessary based on specific experimental requirements.

1. Reagent Preparation: Dissolve DQ-BSA-RED lyophilized powder in DPBS, vortex and pipette mix to prepare a 2mg/ml stock solution, store at 4°C protected from light. Prepare trafficking media: DMEM + 1% HI FBS + 1% NEAA + 1% GlutaMax + 1% HEPES. Prepare a 1mg/ml DAPI stock solution using sterile water, dilute 1:1000 for use; Prepare 4% paraformaldehyde (PFA) fixative using DPBS.

Caution: Product has not been fully validated for medical applications. For research use only.

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2. Cell Preparation and Transfection: Culture cells on coverglass slips. For RNAi studies, seed 60,000 cells in a 35mm culture dish (containing 4 coverglass slips), transfer the coverglass slips to a 24-well plate after 16 hours, and perform siRNA transfection; For overexpression studies, perform plasmid transfection. Culture for 48-72 hours (RNAi) or 16 hours (overexpression) post-transfection to achieve effective gene silencing or exogenous gene expression.

3. DQ-BSA-RED Incubation and Fixation: Wash cells once with pre-warmed DPBS. Pre-warm an appropriate amount of trafficking media at 37°C, add DQ-BSA-RED stock solution to prepare a 10µg/ml working solution, and let stand at 37°C for 5 minutes. Add 300µl of DQ-BSA-RED working solution to each well of cells, ensuring coverage of the cells, and incubate at 37°C in a 5% CO₂ incubator protected from light for 1 hour and 6 hours. After incubation, aspirate the working solution and wash cells with pre-warmed DPBS. Add 4% PFA fixative and fix at room temperature for 10 minutes.

4. Nuclear Staining and Mounting: Wash fixed cells three times with DPBS. Stain with 1:1000 diluted DAPI working solution for 20 minutes, protected from light. Wash the coverglass slips three times with DPBS, 5 minutes each time. Place the coverglass slip cell-side down onto a glass slide with a drop of mounting medium, gently press to remove bubbles.

5. Imaging and Quantitative Analysis: Image on a single plane using a confocal microscope. The excitation/emission wavelengths for DQ-BSA-RED are 590nm and 620nm, respectively.

Precautions:

- (1) Always centrifuge the DQ-BSA-RED stock solution before use to allow any aggregates that may interfere with the assay to settle.
- (2) Perform operations protected from light during the experiment to minimize fluorescence quenching.
- (3) For your safety and health, please wear a lab coat and disposable gloves during operation.

References:

[1] Marwaha R, Sharma M. DQ-Red BSA Trafficking Assay in Cultured Cells to Assess Cargo Delivery to Lysosomes. Bio Protoc. 2017 Oct 5;7(19):e2571

Background

DQ-BSA-RED is a red fluorescent lysosomal activity molecular probe based on bovine serum albumin (BSA). After being degraded by lysosomes, DQ-BSA-RED emits bright red fluorescence (excitation/emission wavelengths approximately 590/620nm). DQ-BSA-RED can be used to detect lysosomal activity, assess lysosomal dysfunction, study autophagy and apoptosis processes, and

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monitor intracellular protein degradation pathways^[1-4].

References:

- [1] Mocăniță M, Martz K, D'Costa VM. Bacterial Pathogen-Mediated Suppression of Host Trafficking to Lysosomes: Fluorescence Microscopy-Based DQ-Red BSA Analysis. *Bio Protoc.* 2024 Mar 5;14(5):e4951.
- [2] Park JT, Lee YS, Park SC. Quantification of Autophagy During Senescence. *Methods Mol Biol.* 2019;1896:149-157.
- [3] Liu X, Wang K, Zhang X, et al. Gallic acid relieved bortezomib-induced peripheral neurotoxicity by restoring Schwann cell lysosomal activity. *Toxicol Sci.* 2025 Jun 1;205(2):297-309.
- [4] Tepekoy F, Bulut B, Karaoz E. Activation of Proteolysis During Oocyte In Vitro Maturation. *Mol Reprod Dev.* 2025 Jan;92(1):e70013.

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