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.

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% CO_2 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

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.