

Product Data Sheet

Product Name: sCy5DA
Cat. No.: GC79854

Chemical Properties

Cas. No.

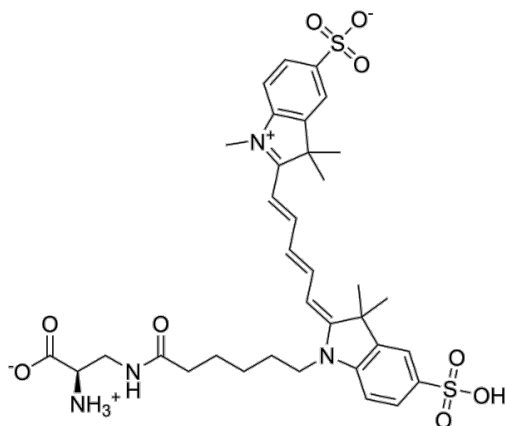
Formula $C_{35}H_{44}N_4O_9S_2$ M.Wt 728.88

Solubility Storage Store at $-20^{\circ}C$

General tips For obtaining a higher solubility, please warm the tube at $37^{\circ}C$ and shake it in the ultrasonic bath for a while. Stock solution can be stored below $-20^{\circ}C$ 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



Background

sCy5DA is a fluorescent D-amino acid. sCy5DA incorporates into bacterial peptidoglycan layers and cross-links via transpeptidase action, replacing peptidoglycan stem peptide D-amino acids. sCy5DA labels live bacterial cell walls, nascent peptidoglycan biosynthesis sites, and diverse bacterial species including Gram-negative, Gram-positive, and mycobacteria (Ex/Em = 646/665 nm) [1] [2] [3].

In Vitro, sCy5DA (0.2 mM; 45 min) is incorporated into peptidoglycan in a growth-dependent manner by live *P. gingivalis* W83, with negligible incorporation in heat-killed cells and reduced incorporation in

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bacteriostatic conditions^[1]. sCy5DA (0.2 mM; 45 min labelling, 4 h post-labelling) labelled *P. gingivalis* W83 retains strong fluorescence for at least 4 h under anaerobic conditions, with slight intensity decreases linked to bacterial growth-related peptidoglycan synthesis^[1]. sCy5DA (100 µM; ~2 h (continuous labeling); ~15 min (pulse labeling)) effectively labels the cell walls of *Streptococcus pneumoniae* D39V cells during both continuous and pulse incubation, supporting super-resolution SMLM imaging^[2]. sCy5DA (0.5 mM; 20 min) efficiently incorporates into the cell wall of *Bacillus subtilis* cells, enabling clear visualization of cell outlines and septa via widefield microscopy during midexponential growth^[3]. sCy5DA (0.5 mM; 5 min) efficiently labels nascent peptidoglycan in *Caulobacter crescentus* cells during a pulse, enabling visualization of cell cycle-specific PG growth patterns with nanoscale resolution via SMLM^[3]. sCy5DA (0.1-1 mM; 1-2 cell cycles) efficiently incorporates into the cell walls of diverse bacterial species during long-pulse incubations, enabling visualization of cell wall structures via widefield and SMLM imaging^[3].

References:

- [1]. Lewis B, et al. Labelling of a live obligate anaerobe using fluorescent D-amino acids. *Anaerobe*. 2025;91:102939.
- [2]. Juliette Griffié, et al. An unsupervised deep learning framework encodes super-resolved image features to decode bacterial cell cycle. *Biorxiv*. March 14, 2024.
- [3]. Zhang C, et al. Fluorescent d-Amino Acids for Super-resolution Microscopy of the Bacterial Cell Wall. *ACS Chem Biol*. 2022 Sep 16;17(9):2418-2424.

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