

CY5 triethylamine

Chemical Properties

CAS No. :

Formula:

Molecular Weight:

Keep away from direct sunlight

Storage:

Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Actual storage temperature shall be subject to the COA.

Biological Description

Description	CY5 triethylamine is a type of CY dye, where CY stands for cyanine, a compound consisting of two nitrogen atoms connected by an odd number of methine units. Cyanine compounds are characterized by their long wavelengths, adjustable absorption and emission, high extinction coefficients, good water solubility, and relatively simple synthesis. CY dyes are commonly used for labeling proteins, antibodies, and small molecules. The labeling of proteins and antibodies can be achieved through simple mixing reactions, and we provide a method for labeling protein antibodies, which serves as a practical reference.
Targets(IC50)	Others
In vitro	<p>Preparation of Stock Solution:</p> <ol style="list-style-type: none"> Protein Preparation: To maximize labeling effectiveness, prepare the protein (antibody) at a concentration of 2 mg/mL. Ensure the protein solution has a pH of 8.5±0.5; if the pH is below 8.0, adjust with 1 M sodium bicarbonate. If the protein concentration is below 2 mg/mL, labeling efficiency drops significantly. For optimal results, maintain a final protein concentration between 2 and 10 mg/mL. It's essential that the protein is in a buffer free of primary amines (e.g., Tris or glycine) and ammonium ions, as these can affect labeling efficiency. Dye Preparation: Dilute the CY dye in anhydrous DMSO to create a 10 mM stock solution, mixing thoroughly with a glass rod or vortex. Note: Store the CY solution in aliquots at -20°C or -80°C, protected from light. Before use, activate with condensate (500 µg/mL) for subsequent labeling experiments. Dye Working Solution Calculation: The amount of CY dye needed for the labeling reaction depends on the amount of protein to be labeled, with an optimal molar ratio of approximately 10 between CY dye and protein. Example: For labeling 500 µL of 2 mg/mL IgG (MW=150,000), dissolve a tube containing 1 mg CY dye in 100 µL DMSO. The required volume of CY is 3.95 µL, calculated as follows (using CY3-NHS ester as an example): <ul style="list-style-type: none"> 1) mmol (IgG) = (mg/mL (IgG) × mL (IgG)) / MW (IgG) = 2 mg/mL × 0.5 mL / 150,000 mg/mmol = 6.7×10⁻⁶ mmol

In vitro	<p>2) mmol (CY3-NHS ester) = mmol (IgG) $\times 10 = 6.7 \times 10^{-6}$ mmol $\times 10 = 6.7 \times 10^{-5}$ mmol</p> <p>3) μL (CY3-NHS ester) = mmol (CY3-NHS ester) \times MW (CY3-NHS ester) / mg/μL (CY3-NHS ester) = 6.7×10^{-5} mmol \times 590.15 mg/mmol / 0.01 mg/μL = 3.95 μL (CY3-NHS ester)</p> <p>Usage Method:</p> <p>1. Labeling Reaction:</p> <p>1) Slowly add the freshly prepared 10 mg/mL CY dye in calculated volume to the 0.5 mL protein sample solution, gently swirling to mix, and briefly centrifuge to collect the sample at the bottom of the reaction tube. Avoid vigorous mixing to prevent protein denaturation.</p> <p>2) Incubate the reaction tube in a dark place at room temperature, agitating gently for 60 minutes. Every 10-15 minutes, invert the tube carefully to ensure thorough mixing and improve labeling efficiency.</p> <p>2. Protein Purification and Desalting:</p> <p>Using a SepHadex G-25 column as an example for dye-protein conjugate purification:</p> <p>1) Prepare the SepHadex G-25 column as instructed by the manufacturer.</p> <p>2) Load the reaction mixture onto the top of the SepHadex G-25 chromatography column.</p> <p>3) Once the sample has moved below the top surface of the resin, add PBS (pH 7.2-7.4) promptly.</p> <p>4) Continue adding PBS (pH 7.2-7.4) until column purification is complete, collecting fractions containing the desired dye-protein conjugate.</p> <p>The above information is based on published literature. Experimental procedures should be appropriately modified to meet specific research demands.</p>
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