Amplite® Tyramide (TSA) UV Channel Signal Scavenger *10X*

Catalog number: 44500
Unit size: 1000 Slides

Component	Storage	Amount (Cat No. 44500)
Amplite® Tyramide (TSA) UV Channel Signal Scavenger *10X*	Freeze (< -15 °C), Minimize light exposure	1 bottle (10 mL, 1000 slides)

OVERVIEW

Tyramide signal amplification (TSA) is a technique used to enhance the signal of target molecules, such as antibodies or nucleic acid probes. This technique is particularly useful when working with samples that have low levels of target molecules or weak signals. TSA works by utilizing the enzymatic activity of horseradish peroxidase (HRP), which can catalyze the deposition of labeled tyramide molecules in close proximity to the target molecules. The tyramide molecules contain a reporter group, such as a fluorescent dye, which generates a detectable signal upon enzymatic reaction. This localized deposition of labeled tyramide molecules leads to signal amplification at the site of the target molecules, making them more easily detectable. Recently multicolor TSA detections are increasingly used for complicated detections, e.g., cancer diagnostics. There are a number of fluorescent tyramides available for TSA applications. However, some of the long wavelength tyramide conjugates tend to leak to UV (e.g., DAPI) and green (FITC) channel. This phenomenon is particularly severe with NIR or infrared tyramide or styramide conjugates. Amplite® Tyramide (TSA) UV Channel Signal Scavenger is used to quench the leaked fluorescence of UV (DAPI) and green (FITC) channel to eliminate or reduce the background resulted from the leakage of with NIR or infrared tyramide or styramide conjugates.

PREPARATION OF WORKING SOLUTION

Add 1 mL of Amplite® Tyramide (TSA) UV Channel Signal Scavenger stock solution in 10 mL of PBS (pH 7.4).

Note: For best results, this solution should be used within a few hours of its preparation.

SAMPLE EXPERIMENTAL PROTOCOL

1. After the Cy7-tyramide treatment, add 100 µL of Amplite® Tyramide (TSA) UV Channel Signal Scavenger working solution.
   Note: Any dye that has a background fluorescence caused in the UV channel can be used with Amplite® Tyramide (TSA) UV Channel Signal Scavenger.
2. Acquire image in desired filters with fluorescence microscope.

EXAMPLE DATA ANALYSIS AND FIGURES

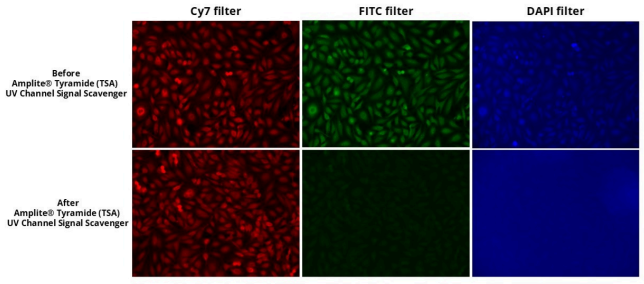

Figure 1. HeLa cells were fixed, permeabilized, and labeled with rabbit anti-Tubulin primary antibody using manufacturer's recommended 1:500 dilution. Amplified staining was then performed using an HRP-labeled Goat anti-Rabbit IgG secondary antibody and Cy7 tyramide (Cat# 11064). To assess the efficacy of the Amplite® Tyramide (TSA) UV Channel Signal Scavenger (Cat# 44500), fluorescence images were captured with Cy7, FITC, and DAPI filters both before and after scavenger treatment. The results show that the Amplite® Tyramide (TSA) successfully quenches the unwanted DAPI and FITC signals while preserving the signal in the Cy7 filter.

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