

Fluorescein Tyramide

Catalog number: 11062
Unit size: 1 mg

Component	Storage	Amount (Cat No. 11062)
Fluorescein Tyramide	Freeze (< -15 °C), Minimize light exposure	1 mg

OVERVIEW

Fluorescein Tyramide is a green fluorescent reagent widely used for tyramide signal amplification (TSA) in IHC, ICC, FISH and multicolor FISH. HRP catalyzes localized deposition of multiple tyramide molecules (catalyzed reporter deposition, CARD), binding the fluorescein tyramide to adjacent tyrosines to enhance fluorescent signal. Under the same conditions, iFluor® 488 Styramide is a superior replacement with higher sensitivity and faster reaction speed. In addition, iFluor 488 is much more photostable, and tolerate much broad pH ranges.

AT A GLANCE

Protocol Summary

1. Fix/permeabilize/block cells or tissue
2. Add primary antibody in blocking buffer
3. Add HRP-conjugated secondary antibody
4. Prepare tyramide working solution and apply in cells or tissue for 5-10 minutes at room temperature

KEY PARAMETERS

Fluorescence microscope

Emission	FITC filter set
Excitation	FITC filter set
Recommended plate	Black wall/clear bottom

PREPARATION OF STOCK SOLUTIONS

Unless otherwise noted, all unused stock solutions should be divided into single-use aliquots and stored at -20 °C after preparation. Avoid repeated freeze-thaw cycles

Tyramide stock solution (1000X)

Add an appropriate amount of DMSO to make a 1-5 mM tyramide stock solution.

Note: Make single-use aliquots and store unused 1000X stock solution at 2-8 °C, protected from light. Avoid repeat freeze-thaw cycles.

PREPARATION OF WORKING SOLUTION

Tyramide working solution (1X)

Add 1 µL of the tyramide stock solution into 1 mL of a buffer of your choice containing 0.003% H₂O₂.

Note: For optimal performance, use Tris Buffer, pH=7.4.

Note: The tyramide working solution should be used immediately and made fresh on the day of use. Avoid direct exposure to light.

Secondary antibody-HRP working solution

Make an appropriate concentration of secondary antibody-HRP working solution per the manufacturer's recommendations.

SAMPLE EXPERIMENTAL PROTOCOL

This protocol is applicable for both cells and tissues staining.

Cell fixation and permeabilization

1. Fix the cells or tissue with 3.7% formaldehyde or paraformaldehyde, in PBS at room temperature for 20 minutes.
2. Rinse the cells or tissue with PBS twice.
3. Permeabilize the cells with 0.1% Triton X-100 solution for 1-5 minutes at room temperature.
4. Rinse the cells or tissue with PBS twice.

Tissue fixation, deparaffinization and rehydration

Deparaffinize and dehydrate the tissue according to the standard IHC protocols. Perform antigen retrieval with the preferred specific solution/protocol as needed. A protocol can be found at:

<https://www.aatbio.com/resources/guides/paraffin-embedded-tissue-immunohistochemistry-protocol.html>

Peroxidase labeling

1. Optional: Quench endogenous peroxidase activity by incubating cell or tissue sample in peroxidase quenching solution (such as 3% hydrogen peroxide) for 10 minutes. Rinse with PBS twice at room temperature.
2. Optional: If using HRP-conjugated streptavidin, it is advisable to block endogenous biotins by biotin blocking buffer.
3. Block with preferred blocking solution (such as PBS with 1% BSA) for 30 minutes at 4 °C.
4. Remove blocking solution and add primary antibody diluted in recommended antibody diluent for 60 minutes at room temperature or overnight at 4 °C.
5. Wash with PBS three times for 5 minutes each.
6. Apply 100 µL of secondary antibody-HRP working solution to each sample and incubate for 60 minutes at room temperature.

Note: Incubation time and concentration can be varied depending on the signal intensity.

7. Wash with PBS three times for 5 minutes each.

Tyramide labeling

1. Prepare and apply 100 µL of Tyramide working solution to each sample and incubate for 5-10 minutes at room temperature.

Note: If you observe a non-specific signal, you can shorten the incubation time with Tyramide. You should optimize the incubation period using positive and negative control samples at various incubation time points. Or you can use a lower concentration of Tyramide in the working solution.

2. Rinse with PBS three times.

Counterstain and fluorescence imaging

1. Counterstain the cell or tissue samples as needed. AAT provides a series of nucleus counterstain reagents as listed in Table 1. Follow

the instruction provided with the reagents.

2. Mount the coverslip using a mounting medium with anti-fading properties.

Note: To ensure optimal results, it is recommended to use either ReadiUse™ microscope mounting solution (Cat. 20009) or FluoroQuest™ TSA/PSA Antifade Mounting Medium *Optimized for Tyramide and Styramide Imaging* (Cat. 44890) instead of Vectashield® mounting media. There are instances where Vectashield® mounting media may not be suitable for certain TSA/PSA conjugates.

3. Use the appropriate filter set to visualize the signal from the Tyramide labeling.

Table 1. Products recommended for nucleus counterstain

Cat#	Product Name	Ex/Em (nm)
17548	Nuclear Blue™ DCS1	350/461
17550	Nuclear Green™ DCS1	503/526
17551	Nuclear Orange™ DCS1	528/576
17552	Nuclear Red™ DCS1	642/660

EXAMPLE DATA ANALYSIS AND FIGURES

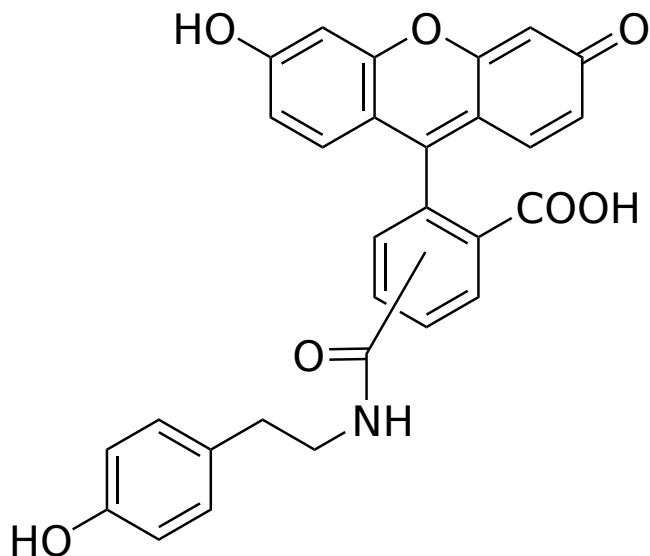


Figure 1. Chemical structure for Fluorescein Tyramide.

DISCLAIMER

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