SMOBIO
Small Bio, Smart Tool

## Product Information

**FluoroStain™ Protein Fluorescent Staining Dye (Red, 1,000X)**

| | |
|---|---|
| **PS1000** | **1 ml x 1** |
| **PS1001** | **1 ml x 5** |

## Storage

**Protected from light**

-20°C for 24 months

## Working Reagent Preparation

1:1,000 dilution in standard Alcoholic Ortho-Phosphoric acid staining solution

## Description

The FluoroStain™ Protein Fluorescent Staining Dye (PS1000/PS1001) is designed to substitute the common Coomassie Blue protein staining method and Silver Stain, offering great sensitivity and ease of operation.

Unlike the Coomassie Blue stain, the FluoroStain™ Protein Fluorescent Staining Dye binds to proteins with high specificity and exhibits low affinity to polyacrylamide gel, making destaining an option rather than a requirement.

With further reduction of background signals via destaining process, the FluoroStain™ Protein Fluorescent Staining Dye is capable of achieving detection levels parallel to silver staining even in absence of specialized imaging equipment (Fig. 1), making it one of the most sensitive dyes available.

In addition to its remarkable sensitivity, FluoroStain™ is also compatible with mass spectrometry analysis, i.e. LC-MS/MS, MALDI-TOF etc., facilitating the use for proteomics analysis.

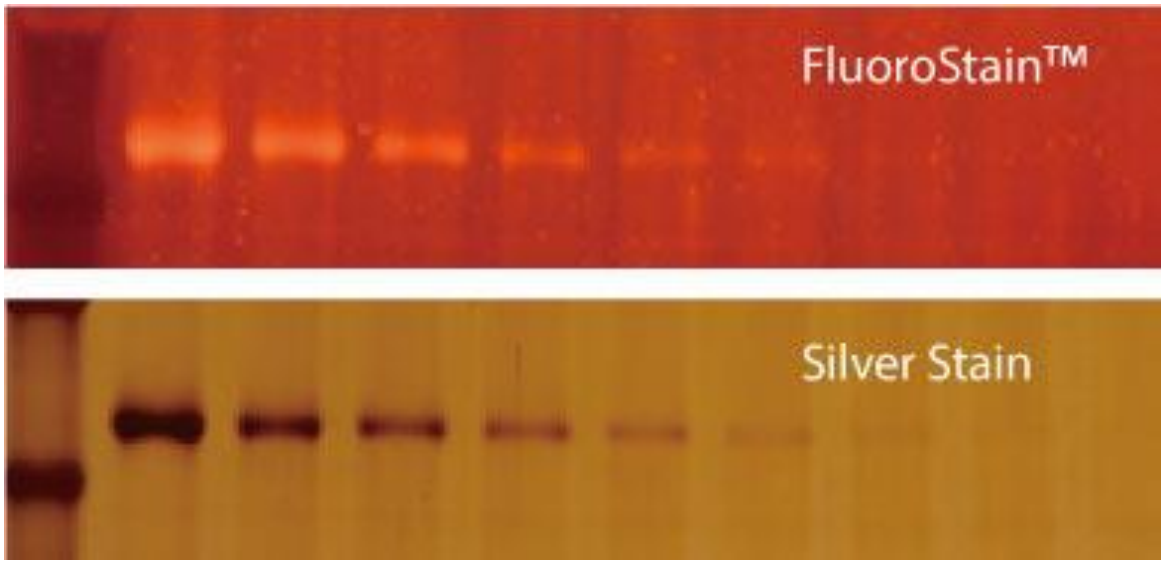

Fig. 1. Remarkable sensitivity of the FluoroStain™ Protein Fluorescent Staining Dye (PS1000/PS1001) in comparison with Silver Stain.

The FluoroStain™ Protein Fluorescent Staining Dye is compatible with both conventional ultra violet gel-illuminating systems and less harmful long wave length blue light illumination system. The FluoroStain™ Protein Fluorescent Staining Dye can be excited by UV and blue light sources, with excitation peaks around 369 and 517nm and emission at 605 nm (Fig. 2).

B-BOX™ Blue light epi-illuminator is recommended for convenient visualization of the gel stained with FluoroStain™ Protein Fluorescent Staining Dye.

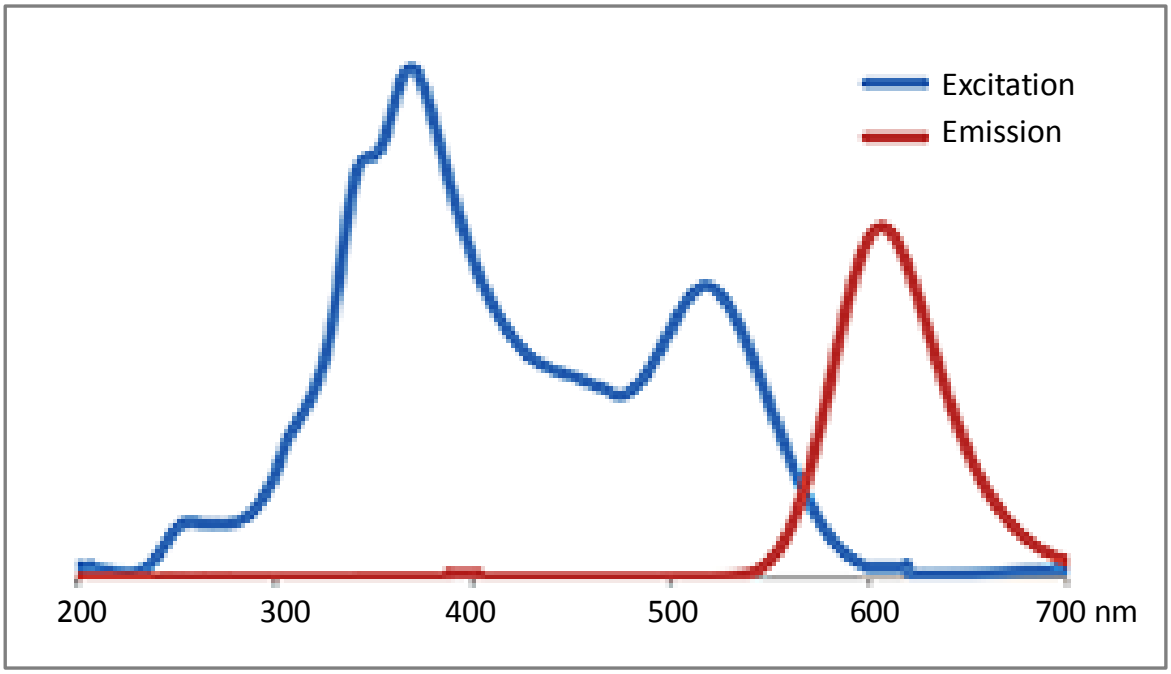


Fig. 2. The Excitation and Emission Spectra of FluoroStain™ Protein Fluorescent Staining Dye (PS1000/PS1001) bound with BSA proteins

The FluoroStain™ Protein Fluorescent Staining Dye (PS1000/PS1001) is also designed for a less toxic and more environment-friendly reagent for protein stain by avoiding the use of harmful methanol solvent and stimulating acetic acid.

## Contents

Fluorescent dye at 1,000X concentration.

## Experimental Protocols

### Standard Protocol

1. Perform protein separation by SDS-PAGE.
2. Dilute the stock FluoroStain™ Protein Fluorescent Staining Dye (Red, 1000X) at a 1:1,000 ratio to a staining solution consisting of 40% EtOH, 2% $H_3PO_4$ in deionized water. The volume of staining solution should be at least 15 times of the gel's volume (see Table 1).
    - The quantity of staining solution needed is proportional to the gel size, e.g. 100 ml staining solution is an optimal condition for a 1.0 mm thick and 9 x 7 cm SDS-PAGE gel.
    - Use a plastic container. Glass containers are not recommended, as they absorbs much of the dye in the staining solution.
    - Fresh preparation of staining solution is recommended.
3. Immerse the gel in the staining solution (1X) and incubate at room temperature for 2 to 24 h.
    - For an optimized sensitivity by minimization of the background signals, a quick rinse with deionized water before staining is suggested. Avoid immersing the gel in the SDS-PAGE running buffer before staining.
    - No fixation procedure is required.
    - Protect the staining container from light by covering it with aluminum foil or placing it in the dark.

4. Visualize or photograph the gel with a UV system or a blue-light illumination.

- It is important to clean the surface of the epi-illuminator or the trans-illuminator with deionized water or 70% ethanol to avoid accumulation of dye, gel debris, and proteins on the surface.
- The video cameras and CCD cameras have a different spectral response as compared with black-and-white print film and thus may not exhibit the same sensitivity.
- If higher sensitivity and lower background is desired, destain the gel with destaining solution consisting of 7% EtOH, 2% $H_3PO_4$ in water.

## Quick Protocol

1. Perform protein separation by SDS-PAGE.
2. Dilute the stock FluoroStain™ Protein Fluorescent Staining Dye (Red, 1000X) at a 1:1,000 ratio to a staining solution consisting of 40% EtOH, 2% $H_3PO_4$ in deionized water. The volume of staining solution should be at least 15 times of the gel's volume (see Table 1).
3. Immerse the gel in a 1X staining solution of sufficient volume (Table 1), and heat by microwave oven until boiling*, followed by incubation at room temperature with a gentle shake for at least 30 min.
4. Visualize or photograph the gel with UV or blue-light illumination.
5. Destain with destaining solution consisting of 7% EtOH, 2% $H_3PO_4$ in deionized water for 30 min if necessary.

**Caution: Handle the heated buffer with care. Avoid inhaling and contact with hot vapour. Proper protective wares are recommended.*

Table 1. The suggested volume of staining solution

| Gel dimension (1 mm thick) | Gel volume | 1× staining solution |
|---|---|---|
| 9 cm × 7 cm | ≈ 6.5 ml | ≈ 100 ml |
| 13 cm × 9 cm | ≈ 12 ml | ≈ 180 ml |
| 16 cm × 16 cm | ≈ 26 ml | ≈ 390 ml |
| 26 cm × 23 cm | ≈ 60 ml | ≈ 900 ml |

**Notice & Caution**

Before opening, warm the vial to an ambient temperature to ensure that the fluorescent dye is thoroughly thawed and the solution is homogeneous.

The stock solution should be handled with particular care because the solvent is known to facilitate the entry of organic molecules into tissues.

Please dispose of the stain in accordance with local rules and regulations.

## Other information

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Caution: Not intended for human or animal diagnostic or therapeutic uses.