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Small Bio, Smart Tool

Product Information

FluoroStain™ DNA Fluorescent Staining Dye (Green, 10,000X)

DS1000	**500 µl x 1**
DS1001	**500 µl x 5**

Storage

Protected from light

4°C for 12 months

-20°C for 24 months

Working Reagent Preparation

1:10,000 dilution in TE, TAE or TBE buffer

Features:

1. Excellent for **post-staining**
2. Sensitivity: 0.04 ng DNA
3. A safer alternative to EtBr
4. Compatibility: suitable to blue or UV light
5. Increased cloning efficiency (blue light)

Description

FluoroStain™ DNA Fluorescent Staining Dye is designed to be a safer replacement for conventional Ethidium Bromide (EtBr) which poses a significant health and safety hazard for its users. FluoroStain™ DNA Fluorescent Staining Dye offers at least 10 times greater sensitivity in DNA detection levels, and is capable of detecting double stranded DNA (dsDNA) fragments up to 0.04 ng in electrophoresis analysis (Fig. 1).

FluoroStain™ DNA Fluorescent Staining Dye shows a high specificity to dsDNA, with negligible background signal, making the destaining process entirely optional. FluoroStain™ DNA Fluorescent Staining Dye is compatible with both the conventional UV gel-illuminating systems as well as the less harmful long wavelength blue light illumination systems. The emission when bound to dsDNA is 522 nm, while its excitation peaks are at 270, 370 and 497 nm (Fig. 2)

Contents

Proprietary Dye is stored at 10,000X concentration.

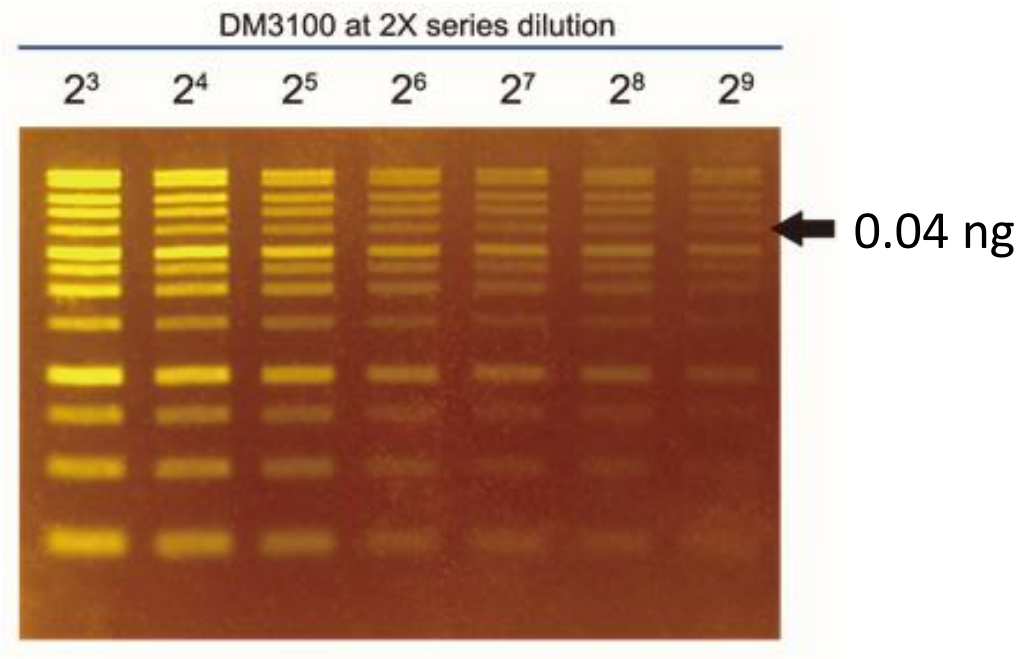

Fig. 1. FluoroStain™ DNA Fluorescent Staining Dye exhibits extreme sensitivity when detecting dsDNA.

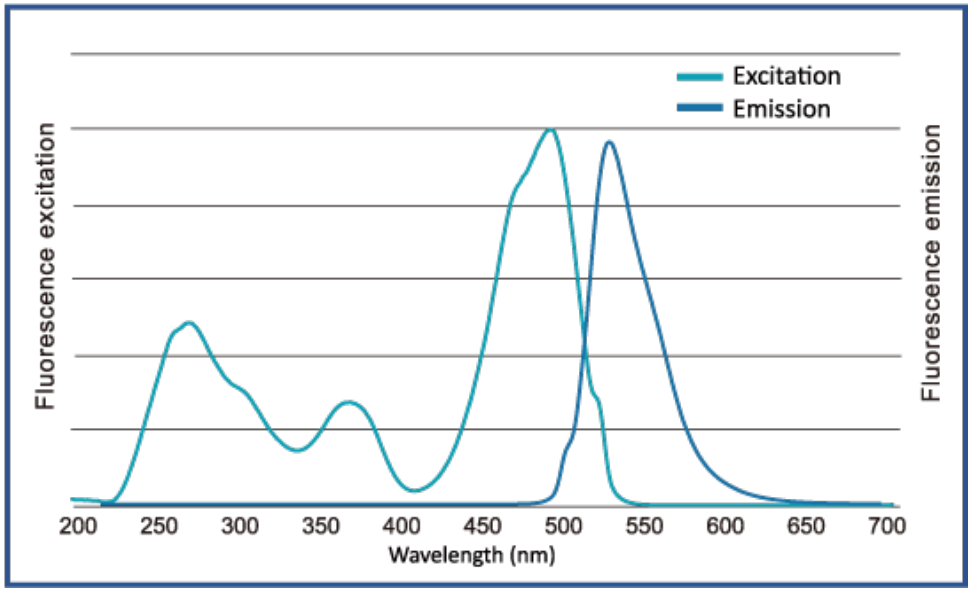

Fig. 2. FluoroStain™ DNA Fluorescent Staining Dye (Green, 10,000X), emission as bound to dsDNA is 522 nm while its excitation peaks are at 270, 370 and 497 nm.

Cautions

The fluorescent staining dye stock solution should be handled with caution because its solvent is known to facilitate the entry of organic molecules into tissue.

There is no data that addresses the mutagenicity or toxicity of fluorescent dye in humans. However, fluorescent dye binds to nucleic acids, thus it should be recognized as a potential mutagen and used with appropriate care.

Please dispose of the staining dye in compliance with local rules and regulations.

Quality Control

Staining according to DS1000 post-staining protocol allows all bands of 0.5 µl DM3100 to be visible when separated on a 1% agarose gel with a 0.5x TAE buffer under B-Box's 470 nm blue light illumination.

Experimental Protocols

Before opening, warm the vial to an ambient temperature until the solution is thawed thoroughly. Vortex and spin down the content of the vial to ensure the solution is homogeneous.

Staining DNA after electrophoresis (Post-Staining)

This protocol is highly recommended

1. Perform agarose gel electrophoresis as usual according to your standard protocol.
2. Dilute FluoroStain™ DNA Fluorescent Staining Dye reagent 10,000 folds in a TE, TAE, or TBE buffer.
   - Buffered solutions increase the stability of fluorescent staining dye. When diluted in water, it should be used within 24 hrs.
   - Use a plastic container. Glass containers are not recommended, as they absorb much of the dye in staining solution.
   - Protect the staining container from light by covering it with aluminium foil, or place it in the dark.
   - The staining solution may be stored in the dark at room temperature for up to one week.
3. Immerse the gel in a staining solution (1X) and incubate at room temperature for 10 - 30 minutes.
   - Staining time varies with the thickness of the gel and percentage of agarose. If needed, agitate the gel gently at room temperature to shorten staining time.
   - No de-staining required.

4. Visualize or photograph the gel with UV or blue-light illumination (blue-light is recommended).
    - Clean the surface of the illuminator before and after each use with deionized water. Accumulation of fluorescent dyes on the surface will create a high fluorescent background.
    - Video cameras and CCD cameras have a different spectral response compared to the black-and-white print film and therefore may not exhibit the same sensitivity.

Precasting Gels with FluoroStain™ DNA Fluorescent Staining Dye

The DNA detection limit for a precast gel may be slightly higher than that of a gel stained after electrophoresis. In addition, DNA migration rate in precast gel with FluoroStain™ may be significantly slower than that in a gel without dye. ***We recommend post-staining instead of precasting gels with FluoroStain™.*** *FluoroVue™ Nucleic Acid Gel Stain (NS1000) is an alternative choice for precasting gels.*

1. Prepare molten agarose gel solution using your standard protocol.
2. Dilute FluoroStain™ DNA Fluorescent Staining Dye 10,000X into the molten gel solution prior to being poured into the gel.
3. Perform agarose gel electrophoresis (avoid light).
4. Visualize or photograph the gel with UV or blue-light illumination (blue-light is recommended).

Note: The precast protocol is not recommended for polyacrylamide gels.

Recipes

1X Tris-acetate-EDTA (TAE) buffer

40 mM Tris, 20 mM acetate acid, 1 mM EDTA

1X Tris-borate-EDTA (TBE) buffer

89 mM Tris, 89 mM boric acid, 2 mM EDTA

1X Tris-EDTA (TE) buffer

20 mM Tris, 1 mM EDTA

Other information

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