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Small Bio, Smart Tool

Product Information

FluoroDye™ DNA Fluorescent Loading Dye (Green, 6X)

DL5000	**1 ml × 1**
DL5001	**1 ml × 5**

Storage

Protected from light

-20°C for 24 months

Working Reagent Preparation

1:6 dilution in DNA electrophoresis sample.

Features:

1. Sensitivity: 0.14 ng DNA
2. A safer alternative to EtBr
3. Compatibility: suitable to blue or UV light
4. Increased cloning efficiency (blue light)
5. For real-time monitoring electrophoresis

Description

FluoroDye™ DNA Fluorescent Loading Dye is a ready-to-use 6X DNA loading dye designed for fast qualitative electrophoresis analysis. Containing sensitive fluorescent dye with high specific affinity towards double stranded DNA (dsDNA), the FluoroDye™ DNA Fluorescent Loading Dye has negligible background and renders destaining process unnecessary. The FluoroDye™ DNA Fluorescent Loading Dye allows the user to immediately visualize electrophoresis result upon completion or to monitor the electrophoresis in real time. FluoroDye™ DNA Fluorescent Loading Dye is compatible with both the conventional UV gel-illuminating system as well as the less harmful long wavelength blue light illumination system. FluoroDye™ emission as bound to dsDNA is 522 nm, while its excitation peaks are at 270, 370 and 497 nm (Fig. 1). FluoroDye™ DNA Fluorescent Loading Dye is capable of detecting dsDNA fragments down to 0.14 ng in electrophoresis analysis (Fig. 2).

Contents

FluoroDye™ DNA Fluorescent Loading Dye is stored in 6X concentration in 60% glycerol and buffered with Tris-HCl and EDTA, containing Bromophenol blue, Xylene cyanol FF, and Orange G as tracking dyes.

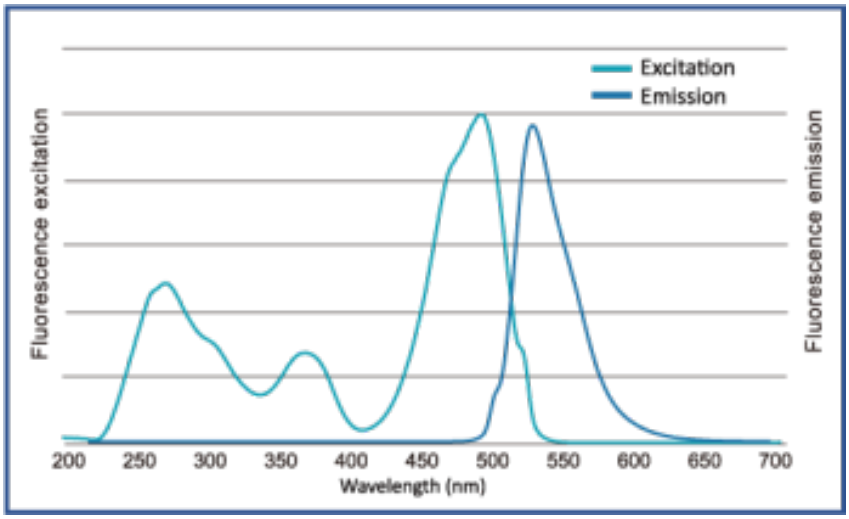

Fig. 1. FluoroDye™ DNA Fluorescent Loading Dye emission as bound to dsDNA is 522 nm while its excitation peaks are at 270, 370 and 497 nm.

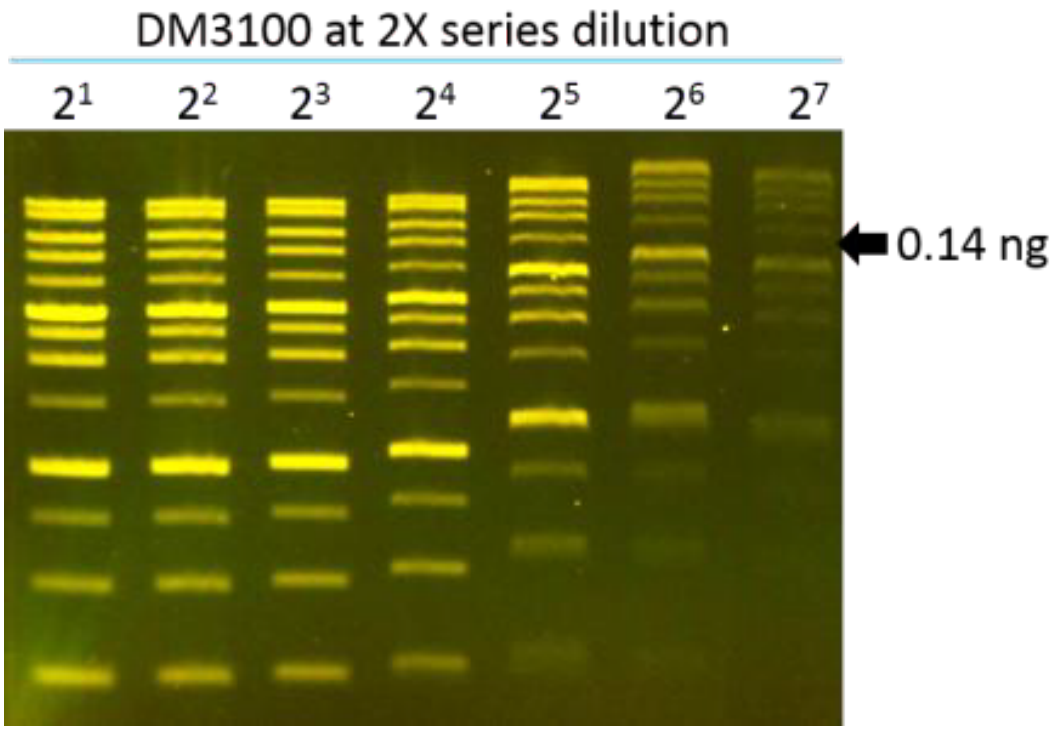

Fig.2. FluoroDye™ DNA Fluorescent Loading Dye is capable of detecting dsDNA fragments down to 0.14 ng in DNA markers (SMOBIO DM3100) in 2X serial dilution.

Cautions

It is important to dispose of the staining dye in accordance with local regulations.

There is no data that addresses the mutagenicity or toxicity of the 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.

Quality Control

The product must show 3 reference dyes separated (Xylene Cyanol FF, Bromophenol blue and Orange G) by electrophoresis on a 1.5% agarose gel with a 0.5x TAE buffer.

The product must be sufficiently dense when diluted 6 times with an aqueous solution in a 1x TAE buffer and 1× TBE buffer.

When combined with use of DL5000 in a standard protocol, all bands of 1 µl DM3100 must be visible when separated on a 1% agarose gel with a 0.5x TAE buffer under B-Box™ 470 nm blue light illumination.

Experimental Protocols

1. Mix FluoroDye™ DNA Fluorescent Loading Dye with the DNA sample at a volume ratio of 1:5.
2. Mix FluoroDye™ and DNA sample thoroughly.
    - A brief incubation time (1~2 minutes) for proper interaction between FluoroDye™ and DNA sample is highly recommended.
3. Perform agarose gel electrophoresis (avoid light).
4. Visualize or photograph the gel with UV or blue-light illumination (blue-light is recommended).
    - It is important to clean the surface of the illuminator before and after each use with deionized water. Otherwise, fluorescent dyes will accumulate on the surface and 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.

Notice

Binding of the fluorescence dye with double stranded DNA affects the ionic charge of the DNA, thus **distorting the migration pattern during electrophoresis.** Excessive difference in DNA/fluorescence dye can result in visible differences in migrational distances of identical DNA molecules (Fig. 3.).

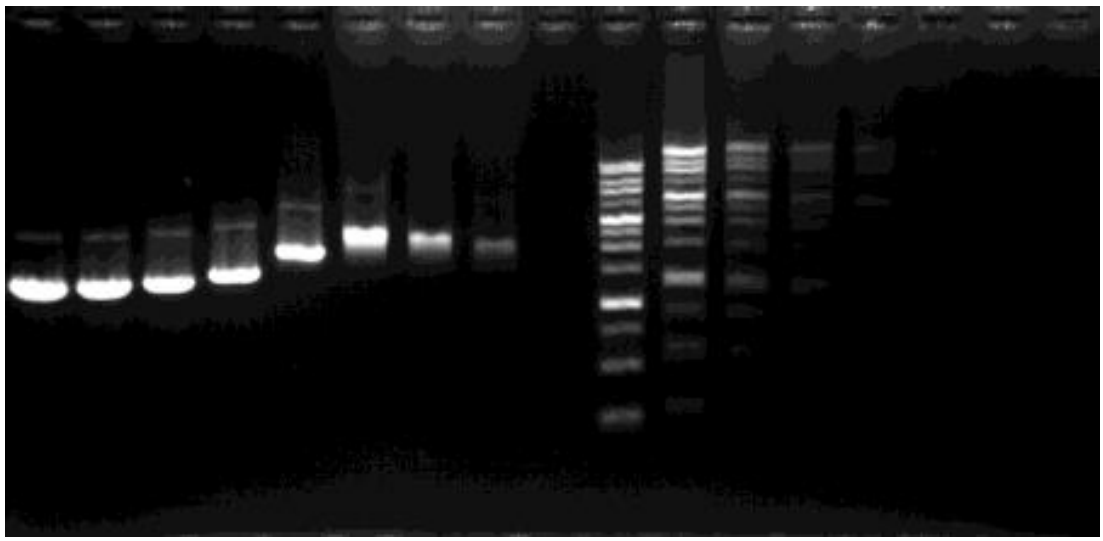

Fig. 3. Distortion of DNA migration due to counter migration of different DNA/FluoroDye DNA Fluorescent Loading Dye ratios.

For precise visualization of DNA migration pattern, we strongly recommend post electrophoresis staining method using FluoroStain™ DNA Fluorescent Staining Dye (DS1000) or in-gel staining method using FluoroVue™ Nucleic Acid Gel Stain (NS1000).

Other information

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