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Product Information

FluoroVue™ Nucleic Acid Gel Stain (10,000X)

NS1000	**500 µl x 1**
NS1001	**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 TAE or TBE buffered agarose

Features:

1. Excellent for **in-gel staining**
2. Sensitivity: 0.14 ng (DNA) or 1 ng (total RNA)
3. A safer alternative to EtBr
4. Compatibility: suitable to blue or UV light
5. Increased cloning efficiency (blue light)

Description

FluoroVue™ Nucleic Acid Gel Stain (10,000X) is specially designed for in-gel use and is a safer replacement for conventional Ethidium bromide (EtBr), which poses a significant health and safety hazard to its users. It is a fluorescent stain which offers highly sensitive detection of double-stranded or single-stranded DNA and RNA in a convenient manner. FluoroVue™ Nucleic Acid Gel Stain offers high sensitivity (Table 1 and Fig. 1) that is several times greater than EtBr.

FluoroVue™ Nucleic Acid Gel Stain is compatible with both conventional UV gel-illumination systems as well as harmless long wavelength blue light illumination systems, like B-BOX™. When bound to nucleic acids, FluoroVue™ Nucleic Acid Gel Stain has a fluorescent excitation maximum of 250 and 482 nm, and an emission maximum of 509 nm (Fig. 2). Therefore, it can replace EtBr without the need of changing existing lab imaging systems.

Contents

Proprietary dye in a 10,000X concentration.

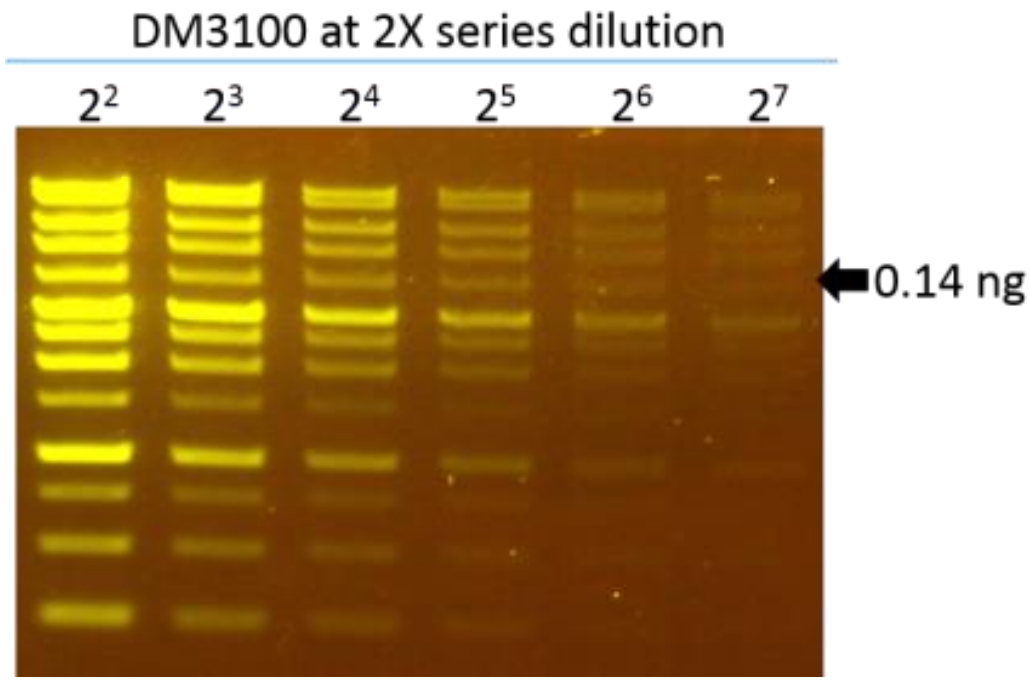

Fig. 1. The FluoroVue™ Nucleic Acid Gel Stain shows a green-yellow fluorescence under blue light excitation. The sensitivity of NS1000 is about 0.14 ng (arrow) for a 4 kb fragment

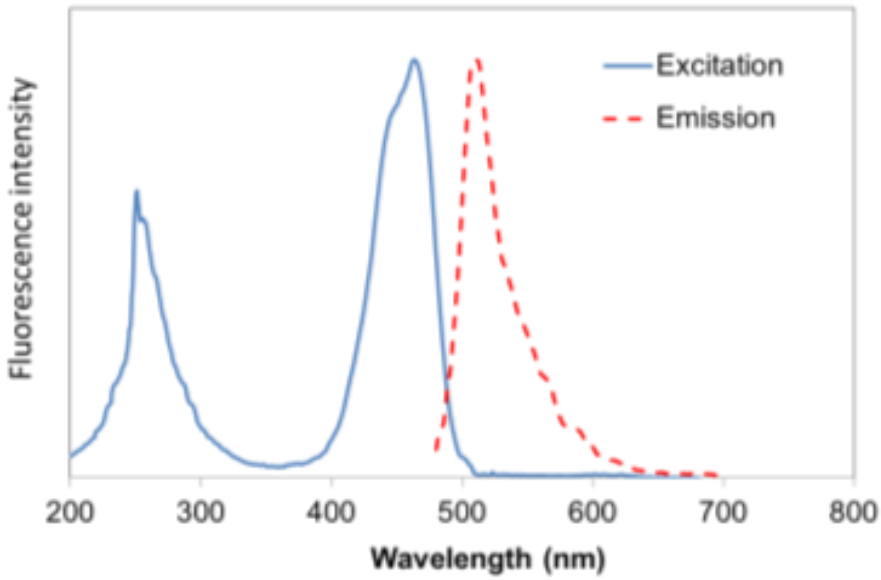

Fig. 2. The emission and exitation spectrum of FluoroVue™ Nucleic Acid Gel Stain.

Table 1. Different staining methods for using the FluoroVue™ Nucleic Acid Gel Stain

Staining methods[1]	Required dye[2]	Sensitivity[3]	Convenience
In- gel staining	**4 µl**	**0.14 ng**	**Excellent**
Staining during electrophoresis	30 µl	0.56 ng	Very good
Post stain	10 µl	0.56 ng	Good

[1] For detailed protocols of different staining methods: please see following pages. I**n-gel staining** method is highly recommended.

[2] With a mini horizontal gel electrophoresis system: Combine 40 ml of agarose gel with 300 ml running buffer. The regular post staining buffer volume is 100 ml.

[3] Sensitivity is evaluated according to the 4 kb band of DM3100.

Caution

Dispose of the stain in accordance to local rules and regulations.

The fluorescent staining dye stock solution should be handled with particular caution because the solvent is known to facilitate the entry of organic molecules into tissues. There is no data that addresses the mutagenicity or toxicity of the fluorescent dye in humans. However, the fluorescent dye binds to nucleic acids, thus it should be recognized as a potential mutagen and used with appropriate care.

Experimental Protocols

In-gel staining

This protocol is highly recommended.

1. Prepare molten agarose gel solution using your standard protocol.
2. Dilute FluoroVue™ Nucleic Acid Gel Stain 10,000X with the molten gel solution and mix well prior to being poured into the gel.
   - Cool the molten agarose gel until it can be handled by hand.
   - The casted gel with FluoroVue™ Nucleic Acid Gel Stain will have a slight yellow appearance which is correlated to the dye strength.
   - Casted gels are stable at 4°C for 3 days in dark. After three days the sensitivity will decrease daily.
3. Perform agarose gel electrophoresis (avoid light).
   - The recommended voltage is 4–10 V/cm (distance between anode and cathode). Avoid using high voltage during electrophoresis. High voltage causes excess heat and affects the dye adversely.
   - During electrophoresis, the staining dye runs toward the anode, therefore **DNA bands with smaller molecular weights may be weaker in intensity** due to less staining dye.
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.

Staining during electrophoresis

*The sensitivity of this method is slightly lower than the **in-gel staining**.*

1. Dilute FluoroVue™ Nucleic Acid Gel Stain 10,000 folds into the running buffer during electrophoresis.
2. Perform agarose gel electrophoresis (avoid light).
3. Visualize or photograph the gel with UV or blue-light illumination (blue-light is recommended).

Staining after electrophoresis (Post-Staining)

Post-staining method is recommended for polyacrylamide electrophoresis, due to the longer time required for running PAGE. The sensitivity of this method is lower than the in-gel staining method.

1. Performing agarose gel electrophoresis.
2. Dilute FluoroVue™ Nucleic Acid Gel Stain 10,000 folds in a TE, TAE, or TBE buffer.
   - Buffered solutions increase the stability of fluorescent dye.
   - Use a plastic container. Glass containers are not recommended, as they absorb fluorescent 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 can be stored for up to one week or more.
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.
4. Visualize or photograph the gel with UV or blue-light illumination (blue-light is recommended)

Quality Control

Staining according to NS1000 in-gel staining protocol, 0.28 ng of the 4 kb fragment of DM3100 must be visible when separated on a 1% agarose gel with 0.5x TAE buffer under B-BOX™ 470 nm blue light illumination.

Other information

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

Related Products

CV1000	GetClone PCR Cloning Vector, 20 RXN
DM2360	FluoroBand 100bp +3K Fluorescent DNA ladder, 500 µl
DM3160	FluoroBand 1KB (0.25-10 kb) Fluorescent DNA ladder, 500 µl
DL5000	FluoroDye DNA Fluorescent Loading Dye (Green, 6×), 1 ml
DS1000	FluoroStain DNA Fluorescent Staining Dye (Green, 10,000X), 500 µl
TF1000	SMO-HiFi DNA Polymerase, 100 U
TP1260	ExcelTaq 5× Fluorescent PCR Master Mix, 200 RXN
TP5000	ExcelTaq Hot Start II DNA Polymerase, 500 U
VE0100	B-BOX Blue Light LED epi-illuminator, AC 100-240V, 50/60Hz

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2017 ver. 2.1.1