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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 ≥ 24 months

## Working Reagent Preparation

1:10,000 dilution in TAE or TBE buffered agarose

**Please see page 5, protocol 1.**

## 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

The 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 for its user. It is a fluorescent stain which offers high sensitivity detection of double-stranded or single-stranded DNA and RNA in a convenient manner. The FluoroVue™ Nucleic Acid Gel Stain offers high sensitivity (Table 1 and Fig. 2) that is several times greater than EtBr.

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

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

For detailed protocols of different staining methods: please see pages 5~7. We recommend using an **in-gel staining** method for optimal effect.

[1] 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.

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

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

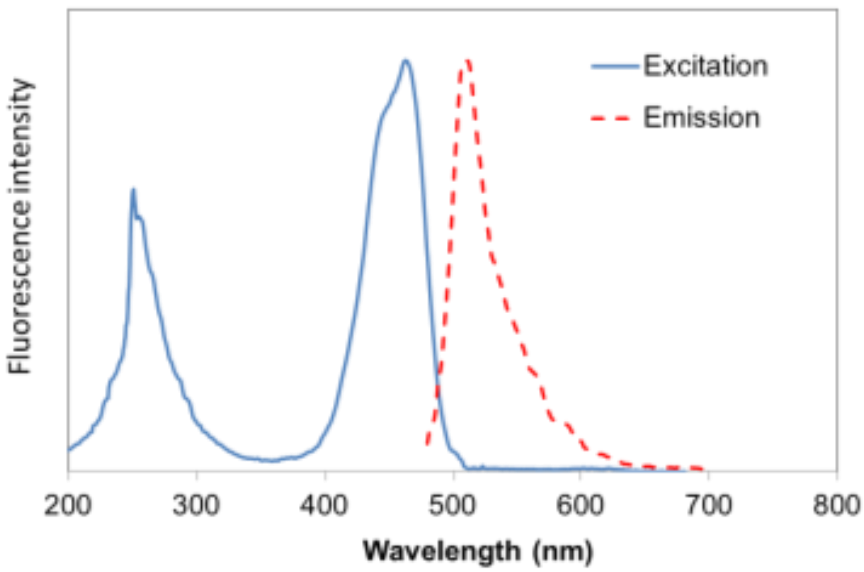


Fig. 1. The emission and exitation spectrum of FluoroVue™ Nucleic Acid Gel Stain (NS1000)

**Contents**

Proprietary dye in a 10,000X concentration.

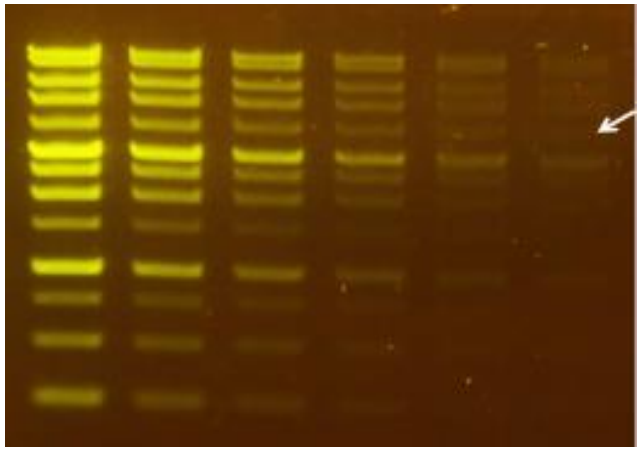

Fig. 2. The FluoroVue™ Nucleic Acid Gel Stain shows a green-yellow fluorescence under blue light excitation. The sensitivity of NS1000 is about 0.14 ng (arrow) for a 4 kb fragment.

**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

### 1. In-Gel Staining

**We recommend applying in-gel staining for agarose gel.**

- Add FluoroVue™ Nucleic Acid Gel Stain into the TAE or TBE buffered gel at a 1:10,000 ratio just prior to pouring the gel.
  [TAE (40 mM Tris-acetate, 1 mM EDTA, pH 8) or TBE (89 mM Tris base, 89 mM boric acid, 1 mM EDTA, pH 8)]
  *For Agarose gel: Cool the molten agarose gel until it can be handled by hand.
  **Note: For optimal staining, protect the gel from light.
- 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℃ for 3 days. After three days the sensitivity will decrease daily.
- Avoid using high voltage during electrophoresis. High voltage causes excess heat and affects the dye adversely. The recommended voltage is 4–10 V/cm (distance between anode and cathode,

not the length of the gel).

- 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. Protect the gel from light during electrophoresis.
- Gels can be visualized and documented immediately following electrophoresis.

**2. Staining during electrophoresis**

The staining dye can be added into the electrophoresis buffer at a 1:10000 dilution for gel staining during electrophoresis. During/after electrophoresis the gel should be protected from light. The sensitivity of this method is slightly lower than the **In-Gel Staining** method.

**3. Staining after electrophoresis (Post-Staining)**

This staining dye can be used as a post-staining method. However, the sensitivity is lower than the **In-Gel Staining** method.

- For acrylamide gel, a post-staining method is recommended due to the longer time required

for running PAGE. The dye may decay or diffuse during electrophoresis.

- Use a plastic container. A glass container is not recommended, as it absorbs the dye in the staining solution.
- Prepare the staining solution by diluting the staining dye in TAE, TBE, or TE buffer at a 1:10,000 dilution.
- Protect the staining container from light (by covering it with aluminium foil or place it in the dark).
- The gels should be completely immersed in the staining solution (1X) and incubated at room temperature for 10-30 minutes. The staining time varies with the thickness and percentage of agarose gel. If needed, agitate the gel gently at room temperature to shorten staining time.

## Clean

It is possible to visualize and photograph the gel with UV or blue-light illumination.

- It is important to clean the surface of the epi-illuminator or trans-illuminator before/after each use with deionized water. Otherwise, fluorescent dye will accumulate on the surface and cause a high fluorescent background.
- Video cameras and CCD cameras have a different spectral responses compared to the black-and-white print film and thus may not exhibit the same sensitivity.

## Quality Control

Staining according to NS1000 standard protocol, 0.28 ng of the 4kb 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

| | |
|---|---|
| DM1160 | FluoroBand 50bp Fluorescent DNA ladder, 500 µl |
| DM2160 | FluoroBand 100bp Fluorescent DNA ladder, 500 µl |
| DM2360 | FluoroBand 100bp +3K Fluorescent DNA ladder, 500 µl |
| DM3160 | FluoroBand 1KB (0.25-10 kb) Fluorescent DNA ladder, 500 µl |
| DM3260 | FluoroBand 1KB Plus (0.1-10 kb) Fluorescent DNA ladder, 500 µl |
| DM4160 | FluoroBand XL 25KB Fluorescent DNA ladder Broad Range (up to 25 kb), 500 µl |
| DL5000 | FluoroDye DNA Fluorescent Loading Dye (Green, 6×), 1 ml |
| DS1000 | FluoroStain DNA Fluorescent Staining Dye (Green, 10,000X), 500 µl |
| TF1000 | ExcelTaq SMO-HiFi DNA Polymerase, 5 U/ µl, 500 U × 1 |
| TP1000 | ExcelTaq Taq DNA Polymerase, 500 U × 1 |
| TP1100 | ExcelTaq 5× PCR Master Mix, 200 RXN |
| TP1200 | ExcelTaq 5× PCR Master Dye Mix, 200 RXN |
| TP1260 | ExcelTaq 5× Fluorescent PCR Master Mix, 200 RXN |

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|---|---|
| TP2000 | ExcelTaq Blood Direct DNA Polymerase, 5 U/ µl, 500 U × 1 |
| TP2100 | ExcelTaq Blood Direct PCR Master Mix Kit, 200 RXN |
| PS1000 | FluoroStain Protein Fluorescent Staining Dye (Red, 1,000X), 1 ml |
| PS1001 | FluoroStain Protein Fluorescent Staining Dye (Red, 1,000X), 1 ml x 5 |
| VE0100 | B-BOX™ Blue Light LED epi-illuminator, AC 100-240V, 50/60Hz |


B-BOX™ Blue Light LED epi-illuminator


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