Ultra GelRed (10000×)

Catalog # GR501

Version 5.1

Vazyme biotech co., ltd.

Introduction

Ultra GelRed is a novel fluorescent dye for nucleic acid gel staining with high sensitivity, low toxicity, and robust thermal stability, which makes it a perfect substitute for ethidium bromide (EB). For DNA detection through agarose gel electrophoresis, Ultra GelRed shows a higher sensitivity for low concentrations and trace DNA, especially small molecular DNA. Under the ultraviolet light, the DNA exhibits red fluorescence. Ultra GelRed can be used for dsDNA, ssDNA, and RNA staining in agarose and polyacrylamide electrophoresis.

Package Information

Components	GR501-01	GR501-02	GR501-03
Ultra GelRed	0.5 ml	5 ml	50 ml

Storage

Store at room temperature.

Key Advantages

Non-toxic: Ultra GelRed has macromolecular characteristics so that it cannot penetrate cell membranes into the cells.

High sensitivity: suitable for electrophoresis staining of various sizes and is highly sensitive for low concentrations and trace DNA.

High stability: suitable for the agarose gel prepared by microwave or other heating methods.

High SNR: strong sample fluorescence signal and low background signal.

Simple operation: Ultra GelRed remains stable during the process of gel casting and electrophoresis. After electrophoresis, the staining process takes only 30 min and the results can be directly observed with no need for decolorization or flushing.

Wide range of application: Suitable for various staining methods, including staining before electrophoresis (gel staining) or post electrophoresis (soaking staining). Applicable to agarose gel and polyacrylamide gel electrophoresis. Suitable for dsDNA, ssDNA, and RNA staining.

Protocol

A. For Agarose Gels

1. Staining before electrophoresis (The same method as EB and is recommended when the amount of DNA is < 400 ng)

(1). Prepare molten agarose gel solution using your standard protocol.

(2). Heat in a microwave oven till the agarose melts completely.

(3). Dilute the Ultra GelRed 10000× stock into the molten agarose gel solution at 1:10,000 and mix thoroughly.

(4). Cast the gel and allow it to solidify. Normally it takes 30 min-60 min at room temperature.

(5). Load samples and run the gels using your standard protocol.

2. Staining post electrophoresis (Recommended when the amount of DNA is > 400 ng)

(1). Prepare molten agarose gel solution using your standard protocol

(2). Heat in a microwave oven till the agarose melts completely.

(3). Cast the gel and allow it to solidify. Normally it takes 30 min-60 min at room temperature

(4). Load samples and run the gels using your standard protocol.

(5). Dilute the Ultra GelRed 10,000× stock with 0.1 M NaCl to make a 3× Ultra GelRed staining solution. (i.e. add 15 µl of Ultra GelRed 10,000× to 50 ml of 0.1 M NaCl). The staining solution can be reused for three times and can be stored at 4℃ for one weeks (protected from light).

(6). Carefully place the gel in a suitable polypropylene container. Gently add a sufficient amount of the 3× staining solution to submerge the gel. Agitate the gel gently at room temperature for 15 min-30 min.

(7). Extend the staining time when the concentration and thickness of gel is higher and thicker.

B. For Polyacrylamid Gels

Staining post electrophoresis

1. Prepare gels as usual according to your standard protocol.

2. Load samples and run the gels using your standard protocol.

3. Dilute the Ultra GelRed 10,000× stock with 0.1 M NaCl to make a 3× Ultra GelRed staining solution. (i.e. add 15 μl of Ultra GelRed 10,000× to 50 ml of 0.1 M NaCl). The staining solution can be reused for three times and can be stored at 4℃ for one weeks (protected from light).

4. Carefully place the gel in a suitable polypropylene container. Gently add a sufficient amount of the 3× staining solution to submerge the gel. Agitate the gel gently at room temperature for 15 min-30 min.

5. Extend the staining time when the concentration and thickness of gel is higher and thicker.

Notes

1. Ultra GelRed is highly sensitive. Please reduce the sample amount loaded for electrophoresis and the recommended amount is 50 ng-200 ng per lane.

2. Electrophoresis voltage should not exceed 150 V.

3. Staining post electrophoresis is highly recommended to minimize the effect of dyes on nucleic acid migration.

4. In the case that the separation of DNA is not obvious, please try staining post electrophoresis. If the problem still exists, restart the experiment with new samples.

5. Store the staining solution at room temperature and protect from light.