

G-Red nucleic acid dye

Code No.: NGG003 500 ul

Product features:

1. **Non-toxicity:** The unique oily nature and high molecular weight of G-Red prevent it from penetrating the cell membrane and entering the cell. The results the Ames test also indicate that the mutagenicity of this dye is far lower than that of EB.
2. **High sensitivity:** suitable for electrophoresis staining of fragments of various sizes, with less effect on nucleic acid migration than SYBR Green I.
3. **High stability:** Suitable for preparing agarose gels using microwave or other heating methods; extremely stable in acid or base buffers at room temperature, and highly light.
4. **High signal-to-noise ratio:** strong sample fluorescence signal and low background signal.
5. **Simple operation:** Like EB, the dye does not degrade during gel preparation and electrophoresis; the post-electrophoresis staining process also takes only 3 minutes and requires no destaining or rinsing, allowing for direct observation using a UV gel transilluminator.
6. **Wide range of applications:** Pre-electrophoresis staining (gel staining method) or post-electrophoresis staining (soaking method) can selected; applicable to agarose gel or polyacrylamide gel electrophoresis; can be used for dsDNA, ssDNA, or RNA staining. It has the same spectral characteristics as EB, requiring changes to filters or observation devices: standard EB filters or SYBR filters are both applicable, and it can be observed using the same ordinary UV gel transilluminator used for EB with optimal excitation obtained near 300 nm UV light.

Usage:

1. Gel dyeing method (usage same as EB) (recommended method)
 - (1) Add G-Red nucleic acid dye during gel preparation (e.g., add 5 μ L G-Red to every 50 mL of agarose solution, so on).
 - (2) Perform electrophoresis according to the conventional method.

Important Note :

- (1) This method uses a relatively small amount of staining dye. 500 μ L of dye can make about 100 pieces of 50 mL gels.
- (2) Due to its excellent thermal stability, G-Red can be added directly to hot agarose solutions without waiting for them to cool. Shake, swirl, or invert ensure the dye is thoroughly mixed. Alternatively, G-Red stock solution can be added to agarose powder and electrophoresis buffer, then heated using a microwave or other common methods to prepare the gel. G-Red is compatible with all commonly used electrophoresis buffers.
- (3) If band smearing or poor separation is consistently observed, it is recommended to use the soaking method for staining to confirm whether the issue is related to the dye. If the problem persists after staining, it indicates that the issue is unrelated to the dye. Please try the following: reduce the agarose concentration; use a longer gel; extend the gel time to ensure sharp bands; improve loading techniques or choose the soaking method for staining.
- (4) This method is not suitable for precast polyacrylamide gels; for polyacrylamide gels, please use the immersion method.

2. Soaking and dyeing method:

- (1) Perform electrophoresis according to the conventional method.
- (2) Dilute G-Red about 3,300-fold with H₂O into 0.1 M NaCl to prepare a 3 $\times$ staining. (For example, add 15 μ L G-Red 10,000 and 5 mL 1 M NaCl to 45 mL H₂O).



(3) Carefully place the gel into a suitable container, such as a polypropylene container. Slowly add a sufficient amount of 3× staining solution to submerge the. Shake to stain at room temperature for about 30 min; the optimal staining time varies slightly depending on the gel thickness and agarose concentration. For gels containing 3.5%-10% acrylamide, the staining time is typically between 30 min and 1 h, and increases with the acrylamide content.

Notes:

(1) When dyeing by the immersion method, a large amount of dye is used. The dyeing solution used once can be reused about 3 times.

(2) 3×G-Red staining solution can be prepared in large quantities and stored at room temperature away from light until used up.

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