

GelStain

Cat.No. GS101

Storage at room temperature protected from light for two years.

Concentration: 10000×

Description

GelStain is a sensitive, stable and relatively safe fluorescent nucleic acid dye designed to replace the highly toxic ethidium bromide (EtBr) for staining dsDNA, ssDNA or RNA in agarose gels or polyacrylamide gels. The sensitivity of GelStain is much higher than EB, and destaining is not required. GelStain and EB have virtually the same spectral properties.

Highlights

- Nontoxic: Unique lipophilic and macromolecular properties of GelStain make it incapable of penetrating cell membranes. Ames test also shows the mutagenicity of GelStain is far less than that of EB.
- Highly sensitive: Suitable for staining fragments of different sizes in electrophoresis gel;
- Highly stable: Suitable for using microwave or other heating methods to prepare agarose gel; extremely stable at room temperature under acidic or alkaline conditions; highly resistant to light.
- High signal-to-noise ratio: Strong fluorescence signal of the sample with low background signal
- Simple operation: Similar to ethidium bromide, the dye does not degrade during the process of preparing gel or electrophoresis. It only takes 30 minutes for staining after electrophoresis, and the fragment can be visualized by a UV-transilluminator directly without detaining or washing.
- A broad range of applications: Applicable for precast protocol (add dye during gel preparation) and post-stain protocol (submerge the gel in the staining solution); suitable for agarose gels and polyacrylamide gels electrophoresis; suitable for staining dsDNA, ssDNA or RNA.
- Changing the existing imaging system is not required: Suitable for both standard EB filter and SYBR filter; same with the standard UV-transilluminator used for EB staining observation; optimal excitation in the UV region around 300 nm.

Staining Protocols

Method 1: Precast staining (the same as EB staining, recommended)

Add GelStain to molten agarose to make 1X working concentration (e.g. add 1 μ l of GelStain 10,000X stock reagent to 10 ml of agarose).

Note:

- Due to the high thermal stability, GelStain can be added to hot agarose solution directly and mix well without waiting for the solution to cool. It is also optional to add GelStain to agarose powder and electrophoresis buffer, which will be heated by microwave to prepare agarose gel. GelStain is compatible with all commonly used electrophoresis buffers.
- The precast gel staining protocol is not recommended for polyacrylamide gels. Polyacrylamide gels can be stained using the post-staining protocol.

Method 2: Post-staining

- Dilute GelStain 10,000× stock solution 3,300 fold with 0.1 M NaCl to make a 3× staining solution. (e.g. add 15 μ l GelStain 10000× stock reagent and 5 ml of 1 M NaCl into 45 ml H₂O).
- Place the gel carefully into an appropriate container, such as a polypropylene container. Add a sufficient amount of the 3× staining solution slowly to submerge the gel. Shake gently at room temperature for about 30 minutes for staining. The optimal staining time may vary depending on gel thickness and agarose concentration. For 3.5%-10% polyacrylamide gel, the staining time is usually in the range of 30 minutes to 1 hour and extends with the increase of acrylamide concentration.

Note

- More dye will be used by post-staining protocol. The 3× GelStain staining solution can be used for about 3 times repeatedly.
- The 3× GelStain staining solution can be prepared in large quantities and should be stored at room temperature away from light until it is used up.

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