FISHER MOLECULAR BIOLOGY

Green Gel Plus Nucleic Acid Stain -*High Concentration-*

DESCRIPTION: Green Gel Plus™ is a new and safe nucleic acid stain, an alternative to the traditional ethidium bromide (EB) stain for detecting DNA and RNA in agarose gels. It emits green fluorescence when bound to DNA or RNA. This new stain has two fluorescence excitation maxima when bound to nucleic acid, one centered at approximately 309 nm and one at approximately 419 nm.
Green Gel Plus™ has a concentration of 50.000X

Green Gel Plus™ is as sensitive as EB. The staining protocol for Green Gel Plus™ is similar to that for EB. Compared to EB, known as a strong mutagen, Green Gel Plus™ causes much fewer mutations in the Ames test. In contrast, Green Gel Plus™ has a negative test in mouse marrow chromophilous erythrocyte micronucleus result and mouse spermary spermatocyte chromosomal aberration test. So it is wise to choose Green Gel Plus™ instead of EB for detecting nucleic acid in agarose gels.

Note: 0.5 mL of Green Gel Plus™ is sufficient for 10 L of agarose gel.

PROTOCOL for STAINING by PRECASTING GELS USING TBE :

1. Prepare 100 ml of agarose gel solution using TBE (concentration from 0.8~2%) in a 250 ml flask and mix it thoroughly. Place the flask in the microwave, heat it until the solution is completely clear and no small floating particles are visible (about 2~3 minutes).

2. Add 2 µl of Green Gel Plus to the 100 ml solution.
   Swirl the flask gently to mix the solution and avoid forming bubbles. (In the startup we recommend to use 2 µl. The optimal quantity/volume of Green Gel Plus should be determined by end-users depending on the brightness desired. If you still have some background we recommend to reduce the quantity of Green Gel Plus added to the agarose solution.)

   Instead to a 50 ml solution add only 1 µl of Green Gel Plus. If you still have some background we recommend to reduce the quantity of Green Gel Plus added to the agarose solution.

3. While the agarose solution cools below 50°C, pour it into the gel tray until the comb teeth are immersed about 1/4~1/2 into the agarose gel solution.

4. Allow the agarose gel to cool until solidified. Load samples on the gel and perform electrophoresis.

5. Detect the bands under UV illumination.

NOTES:

1. The thickness of gel should be less than 0.5 cm since thick gels may decrease sensitivity.

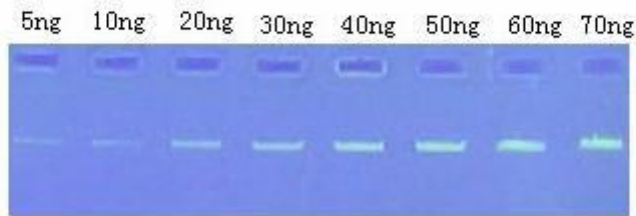
2. Repeated melting of gels containing Green Gel Plus may result in low sensitivity.

3. Although it is noncarcinogenic, Green Gel Plus™ may irritate skin and eyes. Please wear gloves while handling.

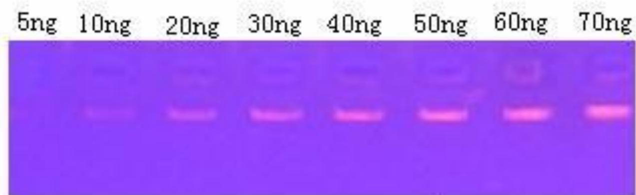
4. We recommend to use TBE or TAE buffers.

5. The DNA fragments prufied from agarose gels, can increase efficiency of subsequent molecular biology manipulations as: DNA cloning, DNA transformation, DNA transcription.

The agarose gel indicates the sensitivity of Green Gel Plus™ FS-GEL01 is equivalent to that of EB.



Sensitivity detection of **Green Gel Plus™** under UV transmission (wavelength 300 nm)



Sensitivity detection of **EB** under UV transmission (wavelength 300 nm)

PROTOCOL ON POLYACRYLAMIDE GEL USING 1X TBE

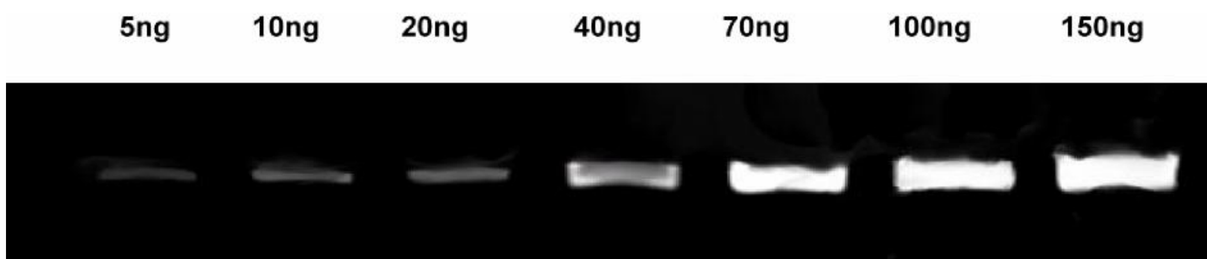
1. Perform electrophoresis on nondenaturing polyacrylamide gel by using 1X TBE (89 mM Tris base, 89 mM boric acid, 1 mM EDTA, pH 8).

2. Dilute the stock Green Gel PlusTM 1:20,000 in 1X TBE buffer.

3. Cover the gel with staining solution and incubate at room temperature for 10–15 minutes in a plastic container. Protect the staining container from light by covering it with aluminum foil or placing it in the dark. Agitate the gel gently at room temperature. No destaining is required. The staining solution may be stored in the dark (preferably refrigerated) for a week or more and reused up to four times.

4. Acquire the image by UV Transilluminator.

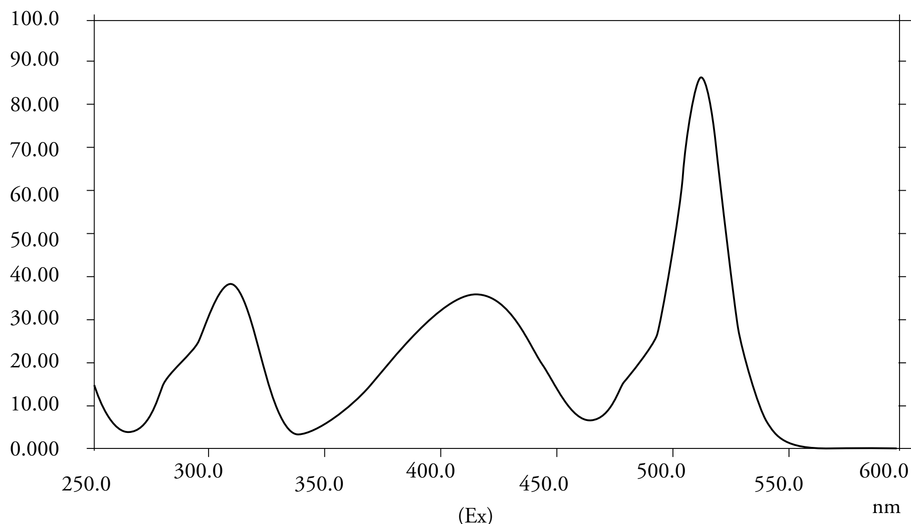
5. A double strand DNA was electrophoresed in 6% polyacrylamide gels. The gel shown was stained for 15 minutes with *** 1.HH6r* HCr6CXV**™ nucleic acid gel stain (using a 1:20,000 dilution of the stock reagent) and not destained. The *** 1.HHkr* HCr6CXV**™ stained gel was photographed by using UV trans-illumination AutoAquire.



Research Group:

Prof. Vito Iacobazzi ± Dr. Paolo Convertini ± Dr. Alessio Menga - Department of Pharmaco-Biology, University of Bari; **Dr. Vittoria Infantino** - Department of Chemistry, University of Basilicata.

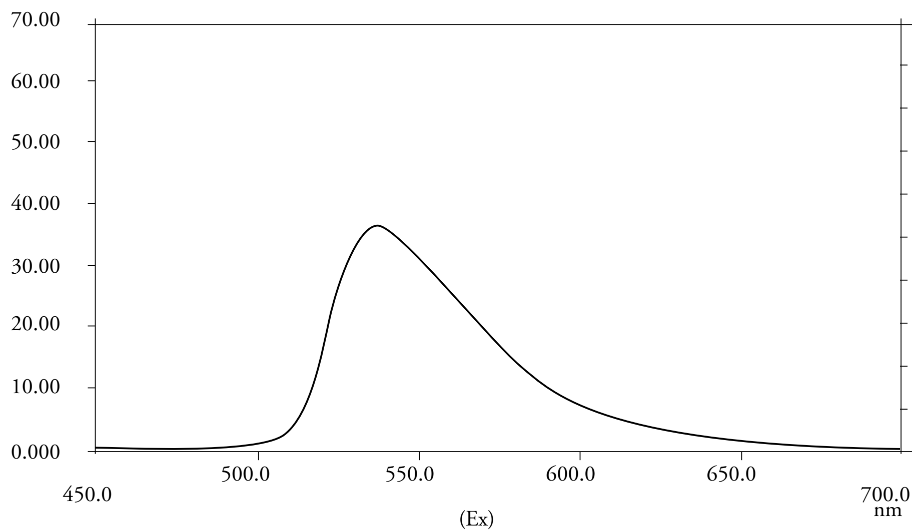
Peak Data



Sample :
Comment :
EM: 540.0 nm
Data Mode: Fluorescence
Scan Speed: 2400 nm/min Slit (EX/EM): 5.0 nm/5.0 nm
PMT Voltage: 400 V Response: Auto
Shutter Control

No.	WL (nm)	Peak	No.	WL (nm)	Peak
1	308,8	38.17	2	419.2	35.93
3	513.8	87.06			

Peak Data



Sample :
Comment :
EM: 416.0 nm
Data Mode: Fluorescence
Scan Speed: 2400 nm/min Slit (EX/EM): 5.0 nm/5.0 nm
PMT Voltage: 400 V Response: Auto
Shutter Control

No.	WL (nm)	Peak	No.	WL (nm)	Peak
1	537.2	36.26			