



## Visualising SYBR Gold™ Using a Syngene Image Capture System

### What is SYBR Gold™?

SYBR Gold™ from Invitrogen (Molecular Probes) is a more sensitive fluorescent dye compared to ethidium bromide in the visualisation of nucleic acids. SYBR Gold binds directly to ss and ds RNA and DNA in electrophoretic gels. This stain penetrates thick gels easily for fast and even staining. Upon excitation with an appropriate light source, a green light is emitted that can be imaged and quantified.

There are two main reasons for the use of SYBR Gold in the laboratory. The first is that it is less mutagenic than ethidium bromide. However, users often over estimate its safety. Although less mutagenic, SYBR Gold is still a very dangerous chemical that should be handled with extreme care. As SYBR Gold is considerably more expensive than ethidium bromide, the main reason it is used is for its much enhanced sensitivity. Under ideal conditions, SYBR Gold is greater than 10-fold more sensitive than ethidium bromide in the detection of DNA and RNA in denaturing gels.

### Visualisation

SYBR Gold can be visualised extremely well using all Syngene image capture systems. There are a number of configurations that can be used, and the user should experiment and determine which works best for them.

SYBR Gold has two excitation peaks, 300 and 495nm and as such mid wave UV (302nm) and blue light, respectively, can be used for excitation. For UV illumination best results will be achieved by using the short pass filter. When utilising the Syngene blue light converter a SG emission filter should be purchased. In this case the short pass filter cannot be used, as there will be an overlap between the excitation and emission spectra. Please consult Syngene for details of the SG filter and see Application Note 10.

Filters may be screwed directly onto the camera in the DigiGenius system. In the darkroom based systems, motorised filter wheel or filter slider options should be utilised. In the GeneFlash and InGenius the filters may be interchanged in the filter drawer.

