

Visualizing green fluorescent protein using a Syngene image capture system

Introduction

GFP is isolated from the Jellyfish *Aequorea Victoria* and is a member of a family of fluorescent proteins that have become widely used tools in many biological research applications.

GFP is a 27KDa protein which is intrinsically fluorescent and requires no additional substrates for fluorescent expression of the protein. When GFP is introduced into cellular DNA and expressed as a fusion product within a specific protein, the location and translation of that protein can be tracked, due to the intrinsic fluorescence of the fluorescent protein.

Visualization

There are several variants of GFP and these include wild type (wt) and enhanced GFP (eGFP). Wt GFP has an excitation peak of 395nm and it is therefore recommended that mid (302nm) or long (365nm) wave UV excitation is used in combination with the short pass (SP) emission filter. eGFP has an additional excitation peak at 475nm. When excited with blue light eGFP has been shown to be 35 times brighter than wt GFP. It is recommended that the Syngene blue light converter is used in combination with the SG emission filter.

In some instances, GFP may be used on opaque membranes or in plates whereby an epi-excitation light source will be required. In this instance, the darkroom can be further modified to provide epi-long wave UV or a blue wavelength, again depending on the variety of GFP used.

All the Syngene image capture systems are controlled via a computer and are fully motorised, running GeneSnap imaging acquisition software and GeneTools analysis software.

N.B. The option of blue light is not available for the Syngene U:Genius imaging system.

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