

How to Enhance your Image in GeneSnap

Introduction Enhancement and Annotation

All tool icons are present on one screen. For more information and help on enhancement and annotation tools please use the on-line help

The **Zoom** toolbar enlarges or decreases the image. This is an electronic manipulation and if the image is enlarged it will become pixelated. If close-up views are required, then maximum resolution is achieved by utilising the zoom lens during capture. The zoom function may be used whilst live.



Zoom toolbar

Enhancement

The **Histogram** tool is very useful for optimising the contrast within the image. By clicking on the histogram icon, a graph is revealed which illustrates the distribution of grey shades within the image. For convenience, the histogram will be docked at the bottom of the acquisition window.

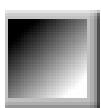
For an 8 bit image the scale is 0-255, for a 12 bit, 0-4095 and for a 16 bit or EDR image it is 0-65535. By grabbing and moving the red lines at either side of the histogram plot you alter the grey shades displayed in the image.

In the case of visible light images such as, protein gels this can drastically improve contrast. For DNA gels or chemiluminescent images, the user can brighten up the bands dramatically. Adjusting the histogram therefore can vastly improve the appearance of an image but without sacrificing linearity, GLP or the ability to quantify.



Histogram tool

Other enhancement tools present on the right hand side of the image include **false colour**, **brightness**, **invert** and **gamma**.



False colour



Brightness



Invert



Gamma



Image toolbar icon

To adjust brightness, contrast and gamma (the curve between black and white) grab the slider bars or click on the arrows at the top and bottom. Return to the default settings by clicking on the icons. By selecting the false colour icon the following menu will appear.



False Colour icon

Reading from left to right the second icon will generate green bands, the third icon yellow bands, the fourth icon orange bands and the fifth and sixth icons will generate a blue and pink background respectively.

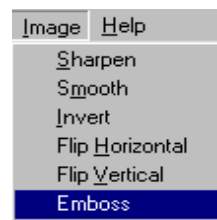
For more options click the false colour icon again and the following menu will appear.



These icons may be used to better illustrate faint bands or simply to produce more interesting images for slide production etc.

By attaching a Syngene colour dye-sublimation printer the user can produce professional coloured photos which are accurate reproductions of the genuine sample.

To **Emboss the image** simply select 'Emboss' from the Image menu to produce an embossed view of the image. This may assist the user in the visualisation of faint bands.



Image

To view the image toolbar, click on the appropriate icon



Sharp Knife Icon- Click on this to apply a sharpening filter to your image. Band edges should become more pronounced but you may also see an increase in graininess of the image.



Blunt Knife icon- Click on this to apply a smoothing filter to your image. This is useful if your image has specks of dust or bubbles, but will make bands appear less sharp.



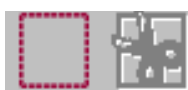
Speckle Correction- is used for the removal of white speckles or dust from the image.



Black and white icon- this will reverse the image to give black bands on a white background or vice versa. This can be useful when trying to visualise faint bands.



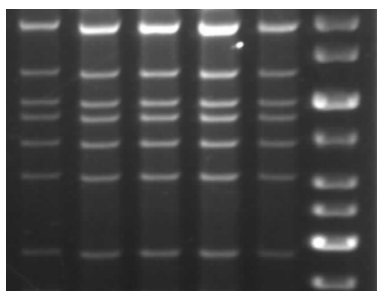
Flip vertical/ horizontal icons- this icon will rotate or mirror the image. Useful if sample has been placed in the cabinet the wrong way round.



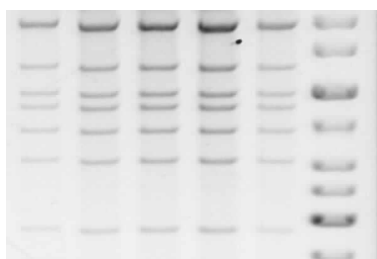
Dotted red square and scissors icons- are used respectively to select and crop an area of interest within the captured image. This reduces the image size.

Multiple icons can be used on the same image but effects are variable.

N.B. If at any time you wish to revert back to original image settings select 'View Original Image' from the View menu.



Unaltered cropped image



Cropped, sharpened and inverted image

Figure1- Comparison of an unaltered image and an enhanced image

Annotation

To view the annotation toolbars, click on the appropriate icon



The **Annotation toolbar** is comprised of a number of self-explanatory icons.



Click on the appropriate icon to draw **lines, rectangles, circles, freehand** or **arrows**. These may be drawn as hollow or filled by toggling the **infill** key. Select any drawn shape by clicking on it.

To change the **colour** use the **Colours toolbar**.

N.B. When using the black and white thermal printer it is best to use white annotation for clarity.



To produce **text**, click on the 'A' icon, and then click on the image where you wish to write. Now you can type your text directly onto the image. To edit text, double click on it this enables the selection of **font, size, style** and **orientation**. The text box can be dragged around the screen as can all the annotations. Click and drag around various items to **link** them together. To ungroup the items, simply double click on the individual components.

The style of annotated objects i.e. line thickness and type can be altered using the **Style toolbar**. This will help to differentiate between drawings even when using the black and white thermal printer.



Use the **Edit** menu or key controls to **Copy** (Ctrl C), **Paste** (Ctrl V) or **Delete** (Ctrl X).

Once an annotation pattern has been designed it can be saved using the command 'Export Image' from the File menu. The annotation pattern can then be used as a template for future images by choosing the 'Merge Annotation' command from the File menu.

The **'UNDO' Function** enables the user to undo the last action performed

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