Glossary

Add Bands Mode

The add bands mode is the mouse action mode used to add bands to your gel. (See “The Tools Menu” in Chapter 2.)

Add Land Marks Mode

Add land marks mode is the mouse action mode used to insert landmarks which serve as boundaries in your gel image. (See “The Tools Menu” in Chapter 2.)

Add Lanes Mode

The add lanes mode is the mouse action mode used to select points in a path that a lane is to follow. (See “The Tools Menu” in Chapter 2.)

Area of Interest

The area of interest mode allows you to select a rectangular area from the image on which the program performs data analysis. (See “The Tools Menu” in Chapter 2.)

Bands

Bands are identifying markers within your gel image. You may add or delete bands using the mouse action mode. (See “The Tools Menu” in Chapter 2 and “Searching for Bands” in Chapter 3.)

Band Search Slider

The band search slider is located in the parameters dialog box and controls band searches. (See “The Operations Menu” in Chapter 2.)

Base Color

The base color determines what color is used to replace color entries in the palette when you are operating in clear mode. The base color is white by default, but you may set it to any color from the Color Wheel dialog box. (See “The Display Menu” in Chapter 2.)

Change Params

The change params option is located in the Operations menu and is used to change the parameters associated with the band and lane searching, the default image size, and the number of lanes. (See “The Operations

Menu" in Chapter 2.)

Color Mapping

Color mapping is the process whereby pixel values on the screen are converted to color. In this process, the pixel values are interpreted as an index in the color table and are represented accordingly. (See "Changing the Palette" in Chapter 1.)

Color Table

The color table is a set of hardware registers that determine which of the 16 million colors that the color-equipped Macintosh can display are mapped to each of the 256 possible pixel values. (See "Changing the Palette" in Chapter 1.)

Delete Bands Mode

The delete bands mode is the mouse action mode used to delete bands, single or multiple within the gel image. (See 'The Tools Menu" in Chapter 2.)

Delete Lanes Mode

The delete lanes mode is the mouse action mode used to delete lanes within the gel image by positioning the delete lanes tool on specific lanes and clicking. (See 'The Tools Menu" in Chapter 2.)

Eight-Bit Format

Files displayed in 8-bit format contain data that is scaled onto the values from 0 to 255 and stored in single bytes, one data element per byte. (See "How NCSA Image Reads and Displays Data Files" in Chapter 2.)

Electrophoretic Gel

An electrophoretic gel contains moving colloidal particles that are suspended within a gel. Movement is caused by the application of an electric field. (See "What is NCSA GelReader?" in the Introduction.)

Find Bands

The find bands option is located in the Operations menu and is used to initiate a search for the knots which define all of the lanes. (See "The Operations Menu" in Chapter 2.)

Find Lanes

The find lanes option is located in the Operations menu and is used to search for bands in defined lanes. (See "The Operations Menu" in Chapter 2.)

Histogram

A histogram is a graphic representation of a frequency or relative frequency distribution. It consists of columns whose heights correspond to the magnitude of the values being represented. (See "The Tools Menu" in Chapter 2.)

Histogram Equalization Filter

A histogram equalization filter is used to improve the contrast in an image by flattening the frequency distribution curve for the image. This option is located in the Filters Menu. (See “The Filters Menu” in Chapter 2.)

Invert Image

Invert image is one of two options available in the directory dialog box which allow a user to designate a specific characteristic of a gel value. This option should be selected if bands in a gel are represented by lower rather than higher values.

Knots

A knot is a control point that is located when the program searches an image for variations. GelReader connects knots that are found to be roughly vertical to one another and then defines these lines as lanes. (See “Searching for Lanes” in Chapter 3.)

Landmarks

Landmarks serve as boundaries in a gel image that are used to calculate the percentage of the distance down a lane a fragment has traveled. Landmarks may be inserted using the add land marks tool. (See “The Tools Menu” in Chapter 2.)

Lanes

Lanes are areas in the gel image which are identified as a series of lines between knots and which are found to be roughly vertical to one another. (See “Searching for Lanes” in Chapter 3.)

Lane Profile

A lane profile is the name given to the process of calculating and displaying a histogram of values down a lane. (See “Displaying the Lane Profiles” in Chapter 1.)

Lane Profile Mode

The lane profile mode is used to display lane profiles by creating histograms of the lanes which utilize the colors from the original image. (See “The Tools Menu” in Chapter 2.)

Lane Tracking Slider

The lane tracking slider is located in the parameters dialog box and controls the resolution of the lane tracking algorithm from less sensitive to more sensitive. (See “Loading an Image” in Chapter 1 and “The File Menu” in Chapter 2.)

Macro

A macro is a word that is used in place of a list of molecular weights. Macros may be defined, listed, or purged by entering them along with various commands in the Notebook window. (See “Macro Commands” in

Chapter 3.)

MacroName

MacroName is the name of the menu item that can be selected to specify a standard for interactive assignment to lanes in a gel image. (See “Standards Commands” in Chapter 3.)

Mouse Action Mode

There are eight mouse action modes: trim edges, add land marks, delete lanes, add lanes, delete bands, add bands, histogram of lane, and select standards. The active mouse action mode determines the effects of performing mouse actions in the gel image and palette windows. (See “The Tools Menu” in
Chapter 2.)

Notebook Window

You may use the the notebook window to enter the molecular weights for standard lanes or create macros. It appears as a typical text window and is chosen from the Operations menu. (See “Using the Notebook” in Chapter 1, “The Operations Menu” in Chapter 2, and “Notebook Window” in Chapter 3.)

Palette

A palette is a group of data used by the computer to determine how the data in an image file is to be mapped to the set of available colors. (See “The Display Menu” in Chapter 2.)

Peak

A peak is any value found when calculating a histogram that is greater than the local minimum by a value that the user selects by adjusting the band tracking sensitivity.

PICT Files

PICT files, which store digitized images of a gel, can be easily read by the GelReader program. GelReader can also read images stored in raw binary format. (See “PICT Files” in Chapter 3.)

Pixel

A pixel is an 8-bit value indexed to a color table entry and a point on your monitor. Each pixel can represent a data value in your dataset. (See “Raw Binary Files” in Chapter 3.)

Raw Binary Files

Raw Binary Files are a stream of raw, 8-bit binary data arranged in row-major order. Each 8-bit byte corresponds to a pixel in the image. (See “Raw Binary Files” in Chapter 3.)

Raw Palette Files

Raw palette files are saved in raw palette format and consist of 768

bytes—256 bytes of red, 256 bytes of green, and 256 bytes of blue. (See "Raw Palette Files" in Chapter 3.)

Report

A report is a standard text file containing information on your gel image and which may take one of two forms: (1) It may consist of the molecular weights of all the bands in the lanes that aren't standards, or (2) it may only consist of the percentage of the distance down a lane a fragment has traveled. (See "Generating a Report" in Chapter 1 and "Generating Reports" in Chapter 3.)

Report Distances

Report distances is one of two options available in the directory dialog box which allow a user to designate a specific characteristic of a gel value. This option is used to indicate the type of report form generated. Once checked, only the percentage of the distance down the length of the lane for each band is reported. (See "Loading an Image" in Chapter 1.)

Revert

The revert option reverses the effects of the filters provided with the GelReader program. Both the filters and the revert option are located in the Filters Menu. (See "The Filters Menu" in Chapter 2.)

Row-Major Order

Row-major order refers to the arrangement of data in a file in rows. Files created in C are generally organized in row-major order. To properly display data arranged in a file in row-major order, an application must read the data horizontally. (See "Raw Binary Files" in Chapter 3.)

Select Standards Mode

The select standards mode is the mouse action mode used to select lanes in your gel to be standards. (See "The Tools Menu" in Chapter 2.)

Shadowing Filter

A shadowing filter is used to highlight the bands in an image by adding a pseudo-3D perspective to them. This option is located in the Filters Menu. (See "The Filters Menu" in Chapter 2.)

Standard Lane

A standard lane is a lane that contains a set of DNA fragments for which molecular weights are known. Lanes are contained and configured within GelReader's notebook. (See "Using the Notebook" in Chapter 1 and "Standards Commands" in Chapter 3.)

Trim Edges Mode

The trim edges mode is the mouse action mode used to trim unnecessary or "garbage" information from the edges of your digitized gel. (See "The Tools Menu" in Chapter 2.)