totallab
Life Science Analysis Essentials

Product Specification:

TotalLab™ Quant v12.3

1D Analysis Module

General

- Fully automatic, single button press complete image analysis within area of interest if required
- Instant access to refinement of any analysis step
- Alternative step-wise image analysis for each step
- Facility to load and save user preferences, including parameters and display options, prior to analysis
- Automatic PDF report generator
- Ruler options to display lane names, numbers and MWs
- Multiple copies of the program can now be run at the same time to better compare results

Multiplex Analysis

- Create multiplex gels from up to 4 channel images
- Create lanes across all channels
- Measurement results for each channel in all tables
- Propagate Molecular Size results across channels or per channel

Lane Creation

- Automatic lane detection
- Export and import of lane templates
- Manual lane detection
- Multi-tier analysis
- Move, resize and bend multi-box
- Move, resize and bend individual lanes
- Add grimaces to account for band distortion
- Delete lanes

Background Subtraction

- Automatic methods
    - Rolling ball
    - Rubber band
    - Minimum profile
    - Valley to valley
    - Lane edge subtract
- Manual methods
    - Image rectangle
    - Image stripe
    - Manual baseline

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Band Detection

- Fully automatic band detection
- Adjustable peak parameters:
    - Minimum peak
    - Noise reduction
    - % max peak of lane or gel
- Band edge detection methods:
    - Single edge
    - Automatic detection
    - Fixed width
    - % peak
- Manual editing of peak and edge detection in image and lane profile windows
- Snap to peak editing
- Automatic band measurements
- View band measurements in measurements table
- Wide range of data fields to display in measurements table
- Histograms for viewing band data
- View multiple lane profiles either stacked or overlaid
- Export lane profile information
- Edit Band Name and display on Image and in table
- Automatic Dendrogram creation
- New noise reduction option for band detection removes dust from image before detecting (uses Median filter)

Profile Deconvolution

- Fit Gaussian curves to profile
- One Gaussian per band
- Manual adjustments of Gaussian
- FWHM (Full Width Half Max) measurement of bands

Molecular Size / pI Calibration

- Library of standards
- Add new standards
- Edit existing standards
- Automatic assignment of standard bands
- Propagation by Rf between standards
- 6 curve fitting methods
- MWs automatically displayed in measurements table
- pI standards can increase or decrease

Quantity Calibration

- Range of methods to quantify:
    - Selected bands
    - Individual lanes
    - Average of selected bands
    - Total of selected bands
- Manually assign known values to bands
- Range of calibration units
- View interpolated and extrapolated values in measurements table

Toolbox Module

Multiplex Analysis

- Create multiplex images from up to 4 channel images
- Analyse areas across all channels
- Measurement results for each channel in all tables

General

- Analyse an image using generic tools
- Lines category options:
    - Line
    - Polyline
    - Spline
    - Freehand
- Areas category options:
    - Rectangle
    - Polygon
    - Elipse
    - Closed spline
- Grid tool
- Auto trace tool for object detection
- Selection tool for easy shape selection / deselection

Editing

- Hide / display objects
- Simple grouping of multiple objects to be manipulated as single object
- Move handle to new location
- Delete selected feature
- Delete all features

Background Subtraction

- Automatic methods
    - Local average
    - Local median
    - Histogram peak
- Manual method
    - Image rectangle / ellipse

Additional features in Toolbox

- Annotate image
- Objects can be given names and comments
- Wide range of data fields to display in measurements table

Array Analysis Module

Multiplex Analysis

- Create multiplex arrays from up to 4 channel images
- Analyse areas across all channels
- Measurement results for each channel in all tables

Grid Definition

- Automatic grid detection
- Grids can be exported to and imported from a file
- Choice of 3 spot shapes:
    - Circle
    - Square
    - Slot
- Define spot diameter prior to grid creation
- Detects grids up to 1,536 spots
- Standard grid types supplied
- Create new grid formats
- Edit existing grid types
- Resize grids
- Adjust for skewed images
- Delete selected grid

Spot Editing

- Reposition spots
- Resize spots
- Make changes to individual spots, groups of spots or entire grid
- Spot properties dialog
- Spot label field

Spot Measurement

- Volumes automatically calculated following grid detection
- Data displayed in measurements table
- Measurements table can display:
    - Current grid
    - Selected spots
    - All spots
- Dynamic updating of tables
- Wide range of data fields to display in measurements table
- Show/hide spot numbers
- Select spots for negative controls
- Select spots that will not be measured

Background Subtraction

- Automatic methods
    - Spot surface minimum
    - Spot edge average
- Semi-automatic methods
    - Negative control
    - Image rectangle

Normalisation

- Choice of normalisation units
- Single click operation
- Normalise to single or group of spots
- Normalise to spot group average or collective volume

Presence/Absence Flagging

- Automatic flagging based on estimate of threshold
- Manual setting of threshold
- View results in measurements table
- Colour overlay of image to view flagging results

Colony Counting Module

Spot Detection

- Define circular or rectangular area of interest
- Easy control slider bars for sensitivity and operator size
- Initialise sensitivity option
- Advanced parameter settings for sensitivity, noise, operator size and background
- Automatic splitting function
- Total count and spot data automatically displayed in measurements table
- Wide range of data fields to display in measurements table

Editing

- Draw, erase, delete or split features
- Adjustable pen size for drawing or erasing
- Renumber features
- Delete all features

Background Subtraction

- Methods available:
    - Image rectangle
    - Mode of non-spot

Additional Features in TL100

- Supports multiple image formats:
    - .tiff
    - .gel
    - .jpg
    - .bmp
    - .gif
    - .png
    - .img (Fuji format)
- Access to all analysis functions in “wizard-style” interface
- Image editor tool accessible from any module for image manipulation including:
    - Crop
    - Rotate
    - Filter
    - Flip
- Storage of image properties and image edits performed using the image editor
- On-the-fly recalculation after all editing
- Invert intensity measurements facility
- Simple data transfer to Microsoft Excel, clipboard or file
- Comprehensive Help menu and tutorial files
- Context-specific help panes
- Tool tips on all features
- Adjust contrast/brightness/colour of image
- Comprehensive and customisable image annotations
- Customisable image and table display options
- User-definable colour display options
- Zoom control for image viewing
- Magnify tool
- Panning tool
- Print preview

Hardware and Software Requirements

Operating systems: Windows 2000, Windows XP, Windows Vista, Windows 7 and Windows 8

(Please note: you require Administrator privileges for installation. To use the software you do not need Administrator privileges).

Processor: 1.4 GHz

Memory: Minimum 256Mb, recommended 512Mb

Free hard disk space: Recommended 5Gb

- Minimum and recommended specifications are important in order to provide good software performance and reduce installation and operational issues.
- A general rule to note is that with running any software the more RAM a system has the better
- For optimal performance in higher end products or where users may be pushing systems to the limit use the “recommended” specifications