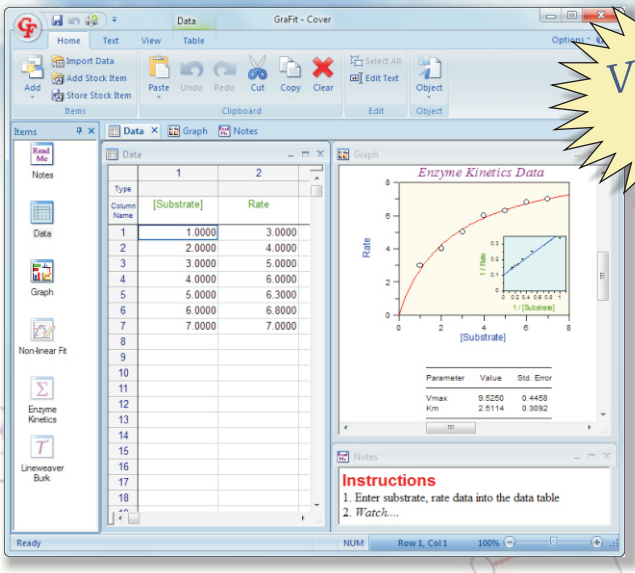
GraFit

Scientific Graphs and Curve Fitting

Version 7



by Robin J. Leatherbarrow

Use GraFit to analyze your experimental data, generate reports of your analyses and plot publication quality graphs. Fit your data to one or more theoretical models by linear, non-linear or polynomial regression. Over 35 pre-defined equations and 60 pre-defined transformations are supplied with the program, and the built-in equation editor allows you to add or customize equations as needed.

GraFit graphs, charts and histograms can incorporate various scaling options; multiple overlaid data sets; error bars; best-fit curves; multiple independent *x* and/or *y* axis scaling; and split graph axes. Any number of individually editable and positionable graphs or charts are allowed on each graph page. Graphs and results can be exported to other Windows applications via the Clipboard, and embedded or linked into your documents using OLE.

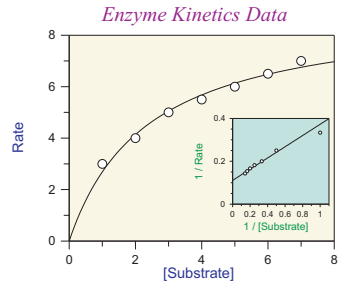
Supplied equations include:

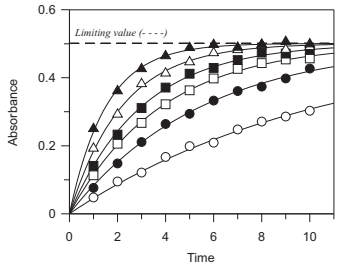
- ❑ Enzyme Kinetics
- ❑ Ligand Binding
- ❑ Radioimmunoassay
- ❑ Exponential Analysis
- ❑ Enzyme Inhibition
- ❑ pK_a determination
- ❑ Dose Response (IC_{50}) Curves
- ❑ Rate Equations

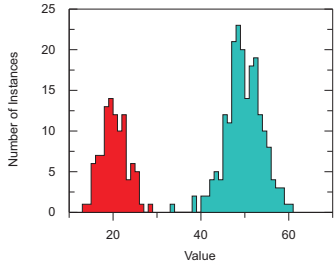
Graph Drawing

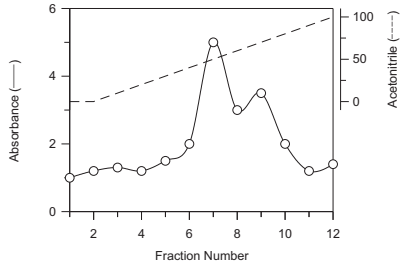
GraFit creates publication quality graphs to show your data and fitted results.

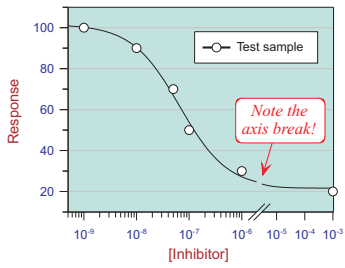
- ❑ Multiple graphs can be included on each graph page, each of which can be individually sized and positioned
- ❑ Unlimited data sets can be displayed on each graph
- ❑ Multiple *x* and *y* data axes allow data of different ranges to be plotted together
- ❑ Split *x* or *y* axes can be used to display data that are not uniformly spaced
- ❑ Scatter (*x*/*y*) graph, bar charts, column charts and histogram styles are available
- ❑ Choose from a large variety of data point and line styles
- ❑ Data points can optionally be joined by lines, spline or Bezier curves
- ❑ Error bars can be added to the *x*, *y* or both axes. A single error value can be used for all data points, or individual + and – error values assigned.
- ❑ Fitted curves can be drawn using user-defined equation definitions.
- ❑ Transformed data and/or curves (e.g. Lineweaver Burk plots) can be displayed by applying a user-defined transformation definition to your data.
- ❑ Data fitting results can be listed on the graph page, allowing results and graphs to be combined into a single report.
- ❑ Text with multiple fonts/styles/colors can be edited included.
- ❑ Text can be rotated to any angle.
- ❑ Graphs are dynamically linked to their data and update automatically when data or fits are changed.
- ❑ Graphs can be embedded or linked into other applications such as Microsoft Word. This allows you to update your graph just by double-clicking on the pasted image.
- ❑ OLE objects can be incorporated onto the graph page and edited "in-place"











Curve Fitting

GraFit uses non-linear or linear regression to fit your data to one or more different equations. Equations are provided to cover a wide range of experimental situations, but in addition you can add your own equations using the built-in equation editor. Features include:

- Uses the efficient Marquart algorithm for the fastest analysis.
- Robust weighting may be selected to eliminate the effects of outliers.
- Data are stored in a spread-sheet-like format. The number of data points and columns is limited only by available memory, and multiple data sheets may be present.
- Data can be entered direct, imported from ASCII, CSV or DIF format files, or pasted in via the Clipboard.
- Equations can include any number of unknown parameters to be solved by non-linear regression. Any equation that can be written in the form
- $y = ...$
- may be analyzed. Arbitrarily complex expressions including a full range of mathematical functions may be included.
- A full range of data manipulation options are available. These include calculation of derivatives, combination of columns of data (addition, subtraction etc.), smoothing and sorting of data.
- Calculated curves may be used as standard curves from which unknown data values can be read. These unknowns may be read off the *x* or *y* axes; the results are collected into a report format.
- Any number of independent variables (*x*-axes) may be included in an equation. This allows multidimensional data sets to be fitted directly, so that global analyses to be performed..
- Multiple data sets can be fitted in one operation.
- Data fitting operations are performed using background recalculation. This allows data fitting to occur as data values are entered.
- Repeated analysis procedures can be automated using templates.

Requirements

GraFit version 7 requires Windows 2000 or later and is fully compatible with Windows Vista and Windows 7. Any computer that is capable of running the Windows operating system in use is suitable. GraFit can be downloaded from our web site with a 14 day evaluation period.

Check out
http://www.erithacus.com/grafit for
the latest information

Templates make data fitting simple...

1. Select the data fitting template

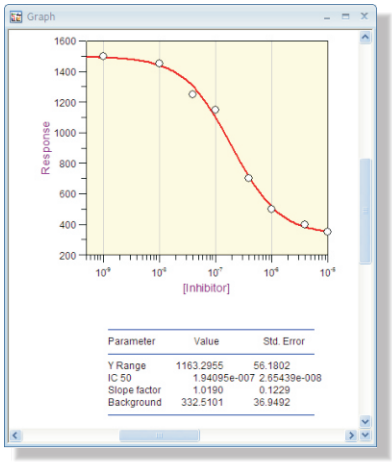
Various data fitting templates are provided with GraFit, or you can make your own custom templates. Data fitting templates allow graphs, fitted results and transformed plots to be generated quickly and easily.

2. Enter your data

Type your data into the data table, paste it in from another Windows application or import it from a data file (ASCII, CSV or DIF formats are supported).

3. Sit back and watch...

GraFit calculates your results and plots your graphs in the background while you enter your data. Entered a value incorrectly? Just correct it and GraFit will automatically redo the calculation and update the graphs. Seconds later your data have been fitted and your graphs drawn. Transformations such as Scatchard or Lineweaver-Burk plots can be generated automatically.



Your fitted results and graphs can now be printed or copied into any other Windows application such as Microsoft Word. GraFit is an OLE-compatible program, which means that your pasted graph can be re-edited at any time by just double-clicking.

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