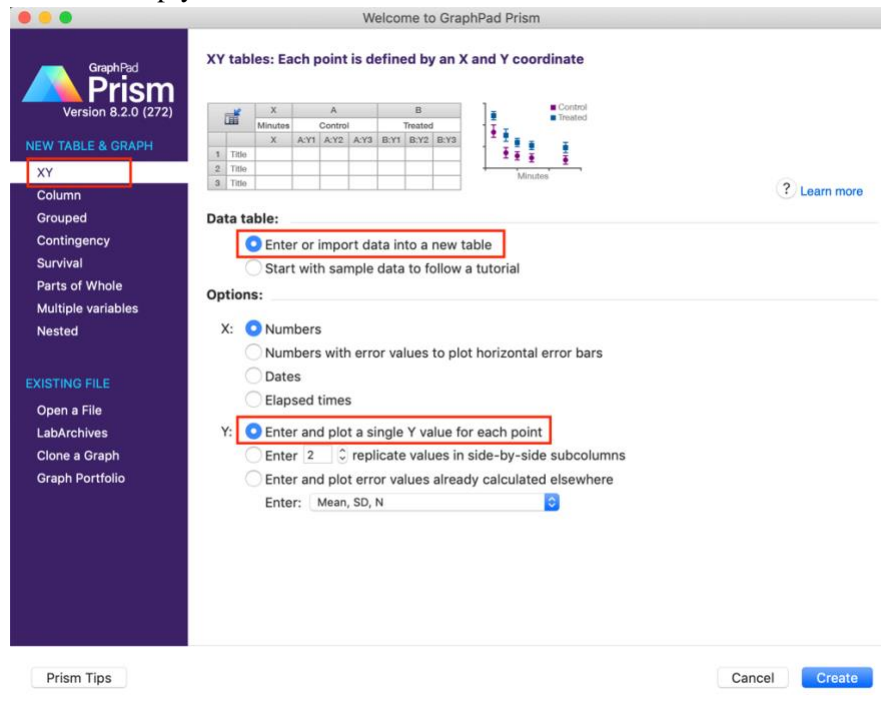


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BCBB/OCICB/NIAID

1. How to create graphs in Prism

When you create a new data table, Prism automatically creates a linked graph. For example, let's create an empty XY table in Prism:



Then Go to the excel file “2.visualization.xlsx” and copy “DATA SET 1”

[illegible]

Go back to the Prism file and **paste**.

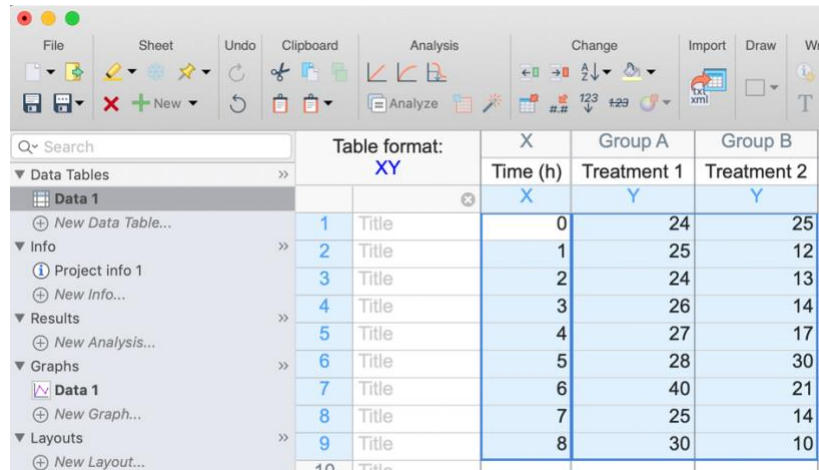
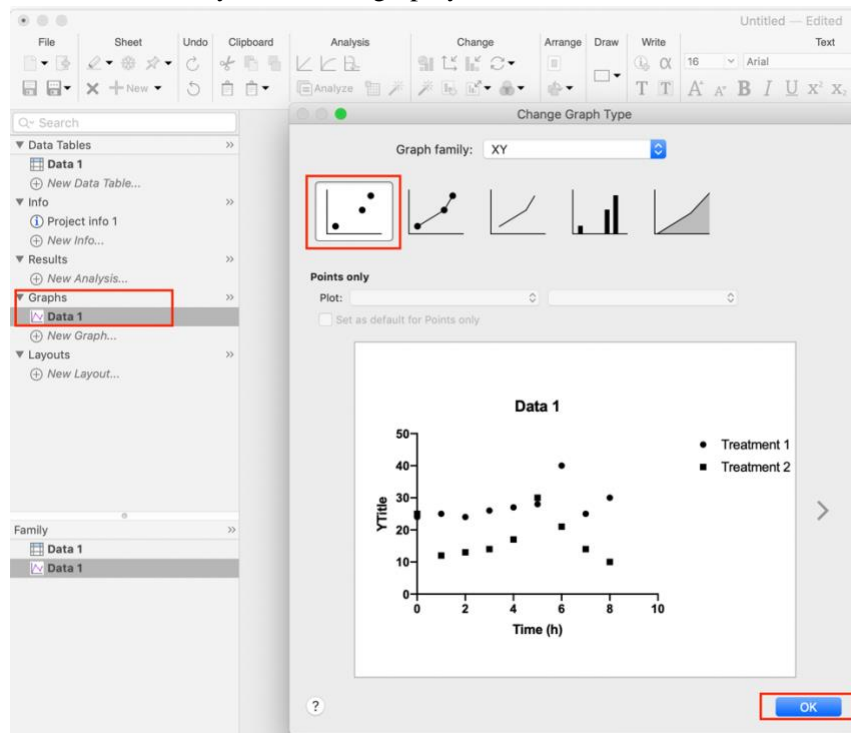
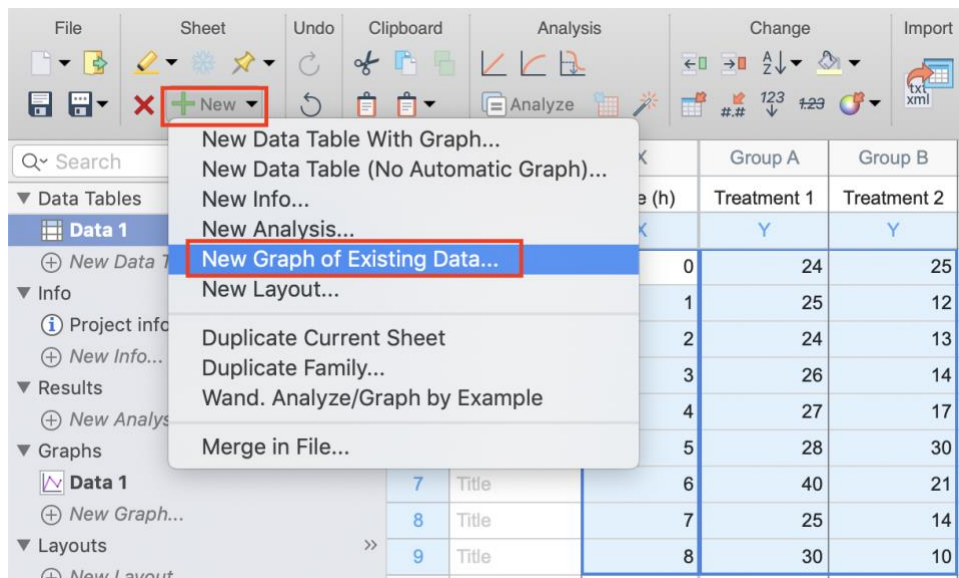


	Table format:	X	Group A	Group B
	XY	Time (h)	Treatment 1	Treatment 2
1	Title	0	Y	Y
2	Title	1	24	25
3	Title	2	25	12
4	Title	3	24	13
5	Title	4	26	14
6	Title	5	27	17
7	Title	6	28	30
8	Title	7	40	21
9	Title	8	25	14
10	Title	9	30	10

Prism automatically creates a linked graph. Click **“Data 1”** and a dialog will pop up where you can choose exactly the kind of graph you want. Choose the default one and click **“OK”**



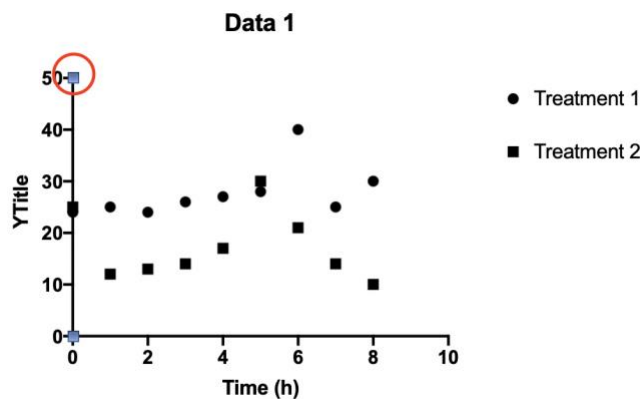
If you would like to create a new graph of existing data, click the **“New”** button and choose **“New Graph of Existing Data”**



2. Eight ways to change a graph

1) Direct Manipulation

Click on an axis to select it. Knobs appear on both ends. Move the mouse over the right knob of the X-axis or the top knob of the Y-axis. Drag the axis to make it longer or shorter. Or grab the middle of the axis and move the entire graph around the page.

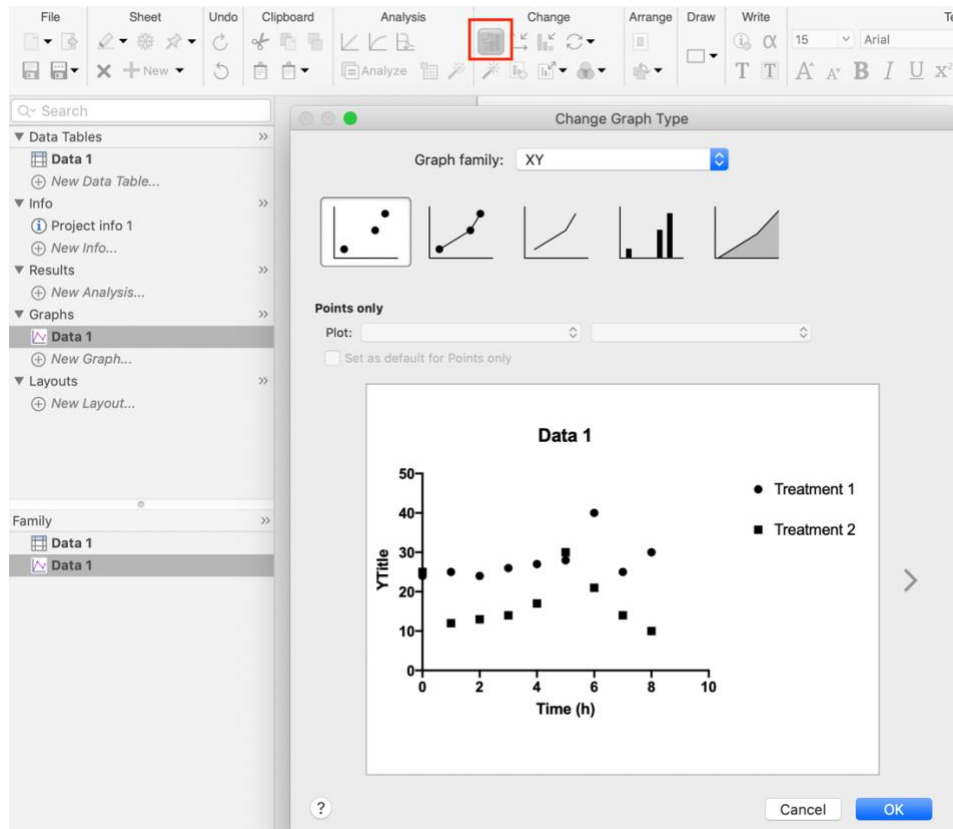


2) Shortcut Menus

Move the mouse over a symbol, title, axis, etc, and right click (control click with Macs). The shortcut menu will give you many choices to format the object.

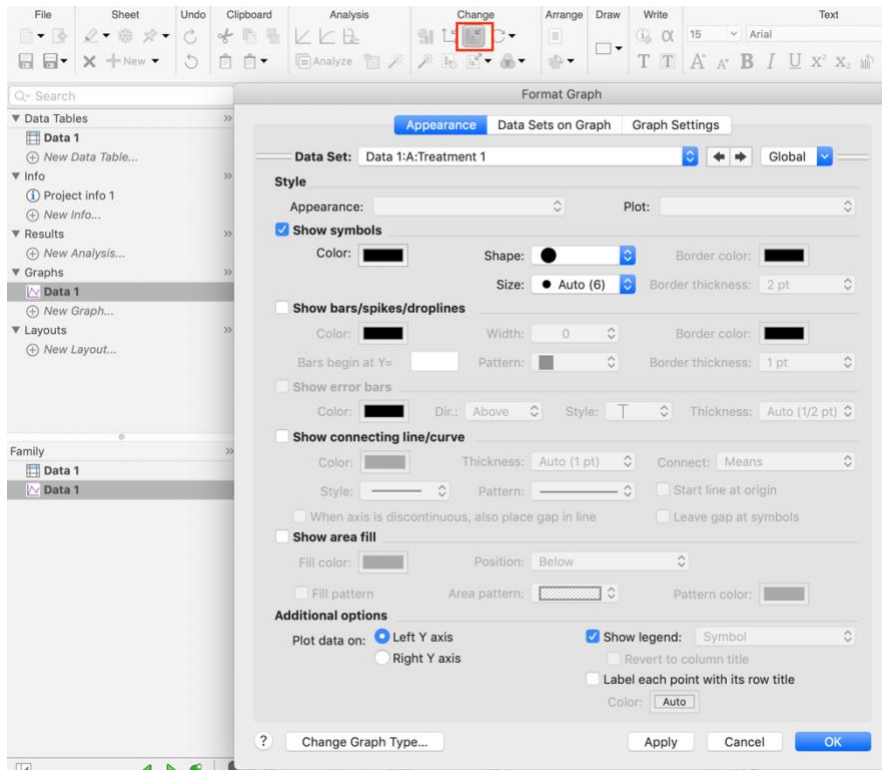
3) Change Graph Type dialog

Click the "Change Graph Type" button then it pops up the same dialog you used to create the graph. This is useful for making large changes in how the graph looks



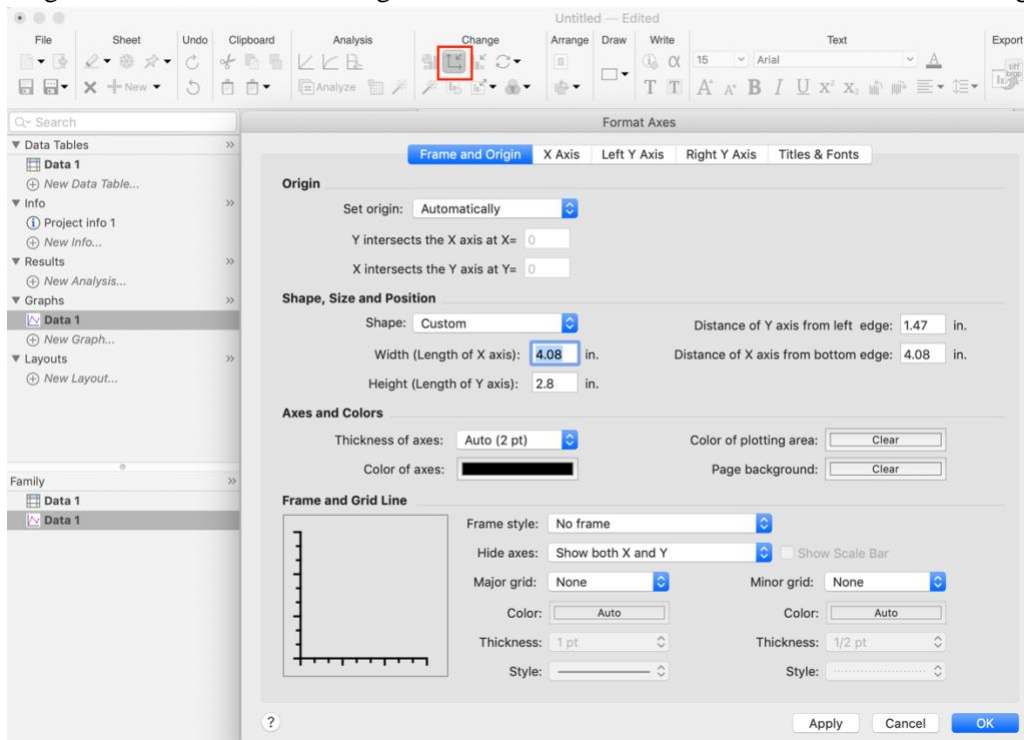
4) Format Graph dialog

Click the “Format Graph” button in the Change section of the Prism toolbar to change symbols, bars, error bars, area fills, legends, etc. OR **double click anywhere on the graph** (except the axes) to bring it up.



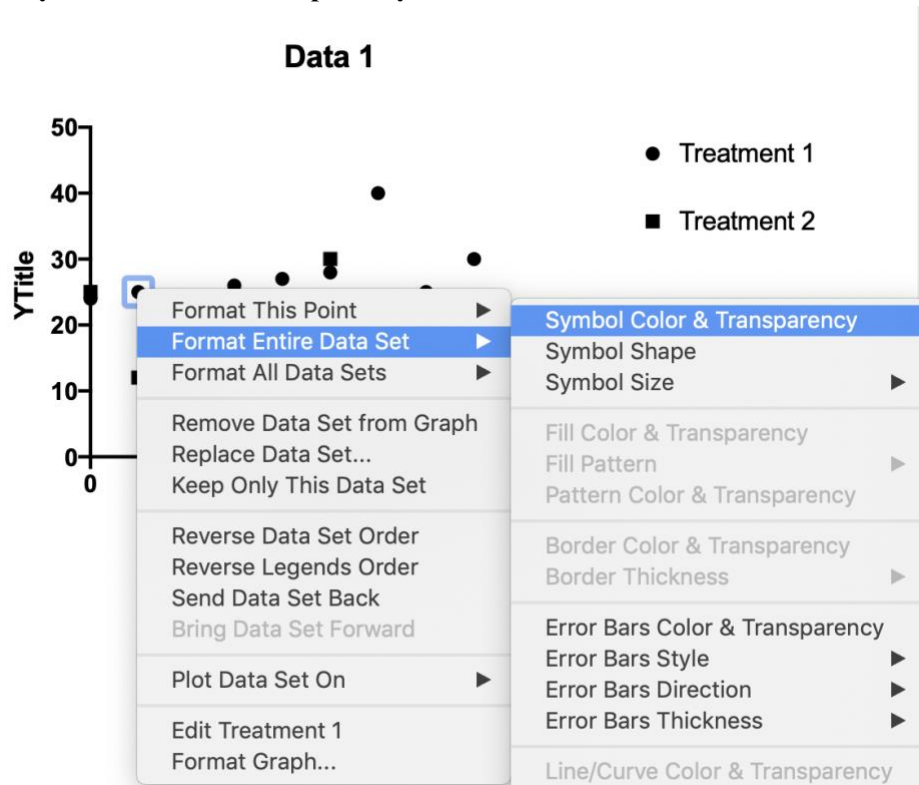
5) Format Axes Dialog

Click the **“Format Axes”** button in the Change section of the Prism toolbar to change the range, interval, scale, numbering, etc. of the axes. OR double-click on an axis to bring it up.

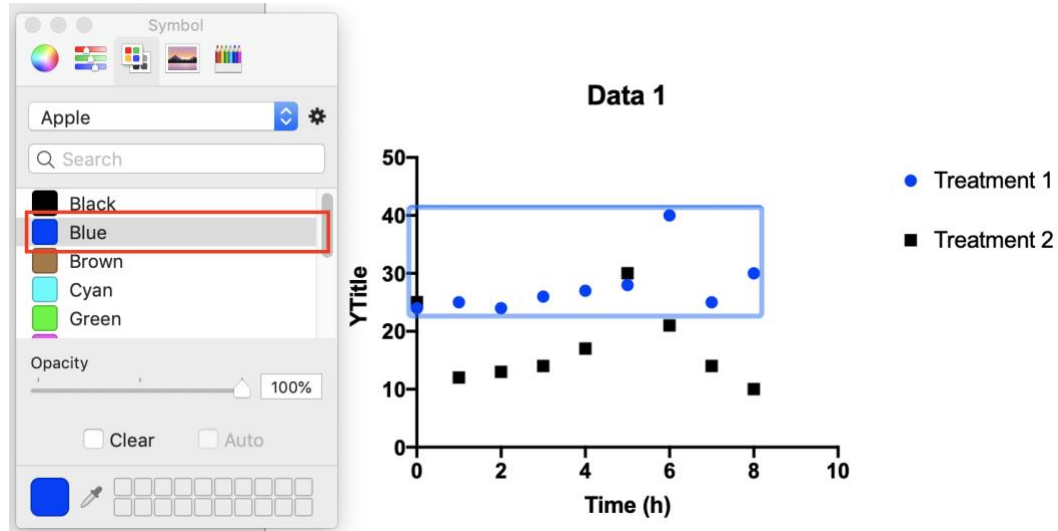


- 6) Select a range of points on a data table, and change how corresponding points are graphed. Select a cell or a block of cells, right (control) click, and choose Format Points. You'll be able to change the color, size, symbol, border, etc. of the points or bars that correspond to the selected cells.

For example, **right click the first dot** of treatment 1. Choose **“Format Entire Data Set”** then **“Symbol Color & Transparency”**.

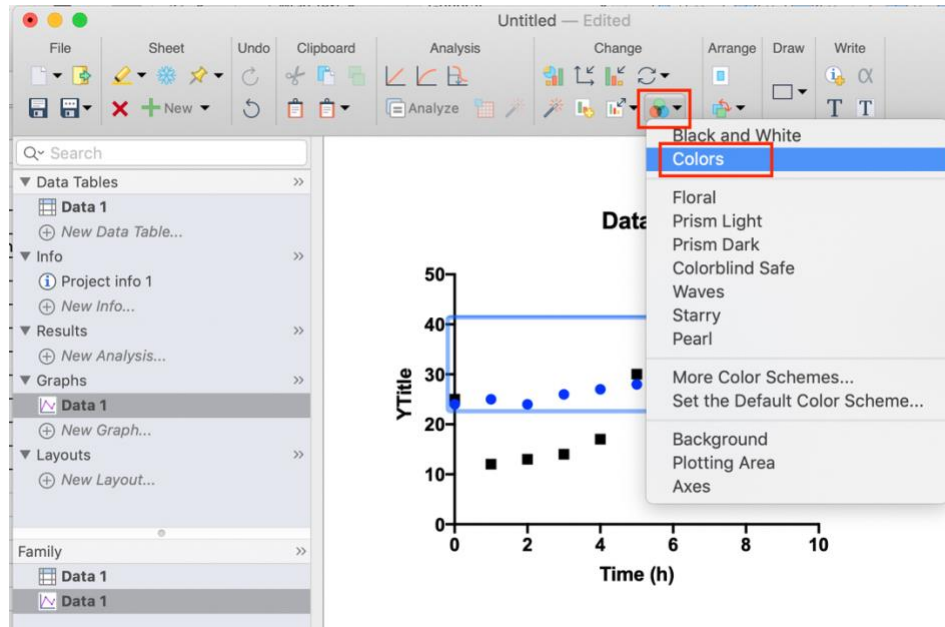


If we **choose “Blue”** from the Symbol dialog, all the dots of treatment 1 will become blue.

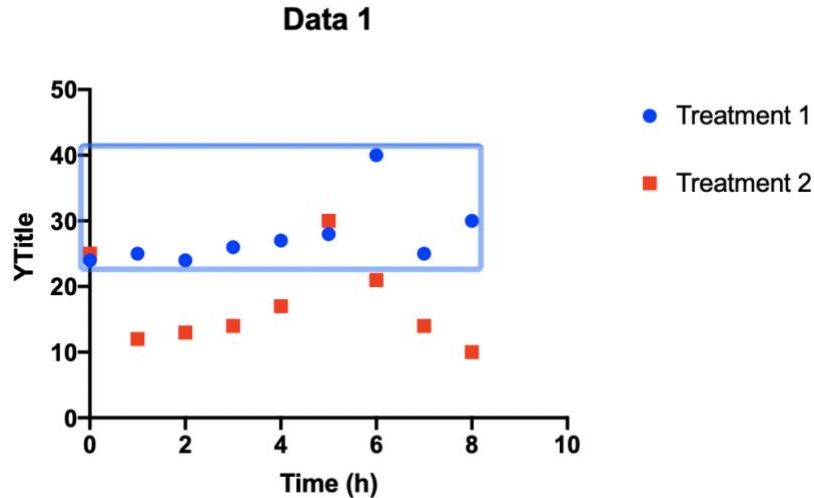


7) Color Schemes

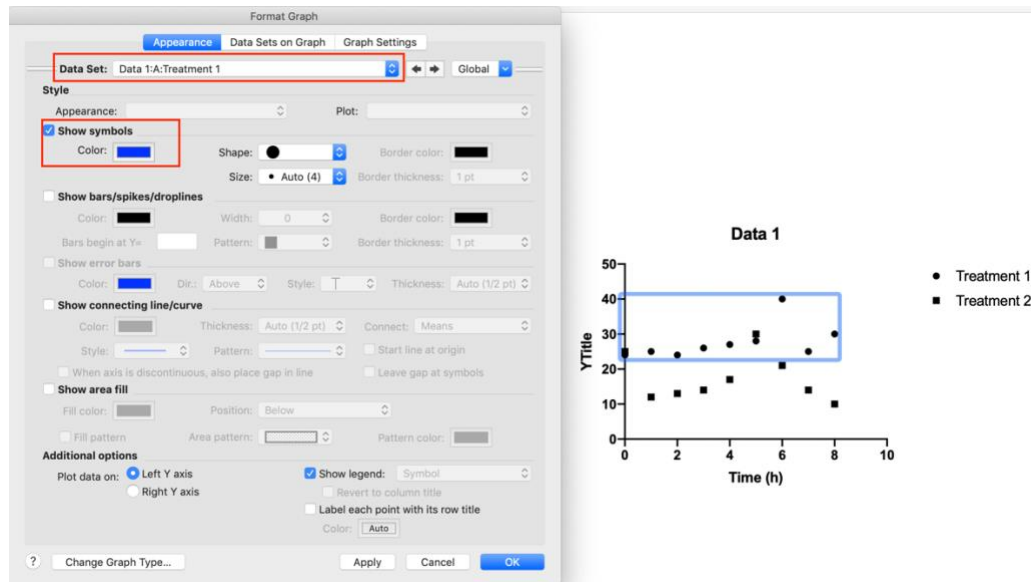
Click the color scheme in the Change section of the Prism toolbar to change all colors at once



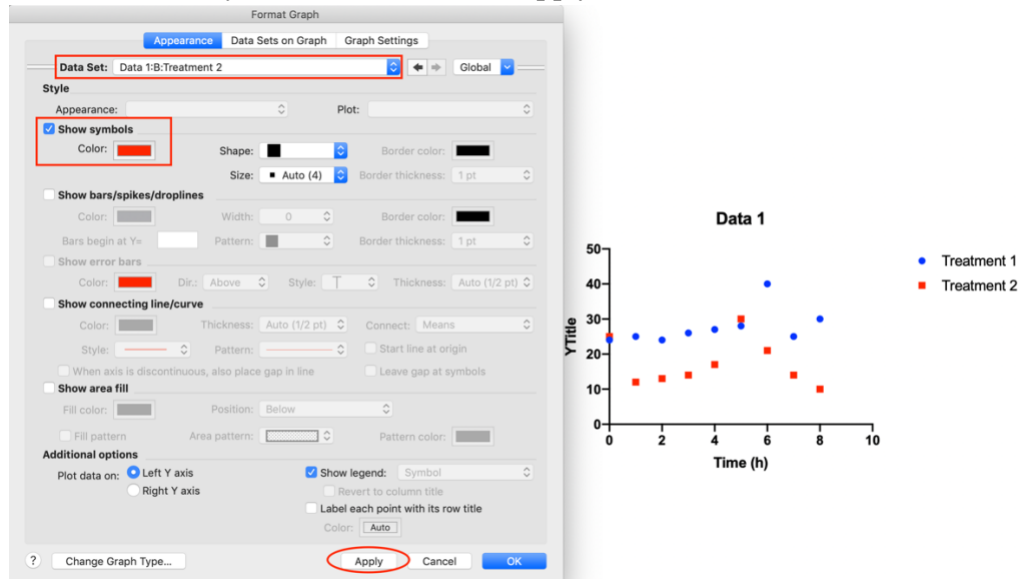
Then Prism assigns different colors to different treatment groups respectively.



OR the color options could also be made at the Format Graph dialog: **Double-click** any point in the graph then it pops up a “Format Graph” window. Change the “color” under the “Show symbols” to **blue**.



Select “**Data 1:B:Treatment 2**” from the drop-down list of “Data Set”. Change the “color” under the “Show symbols” to Red. Click “Apply”.



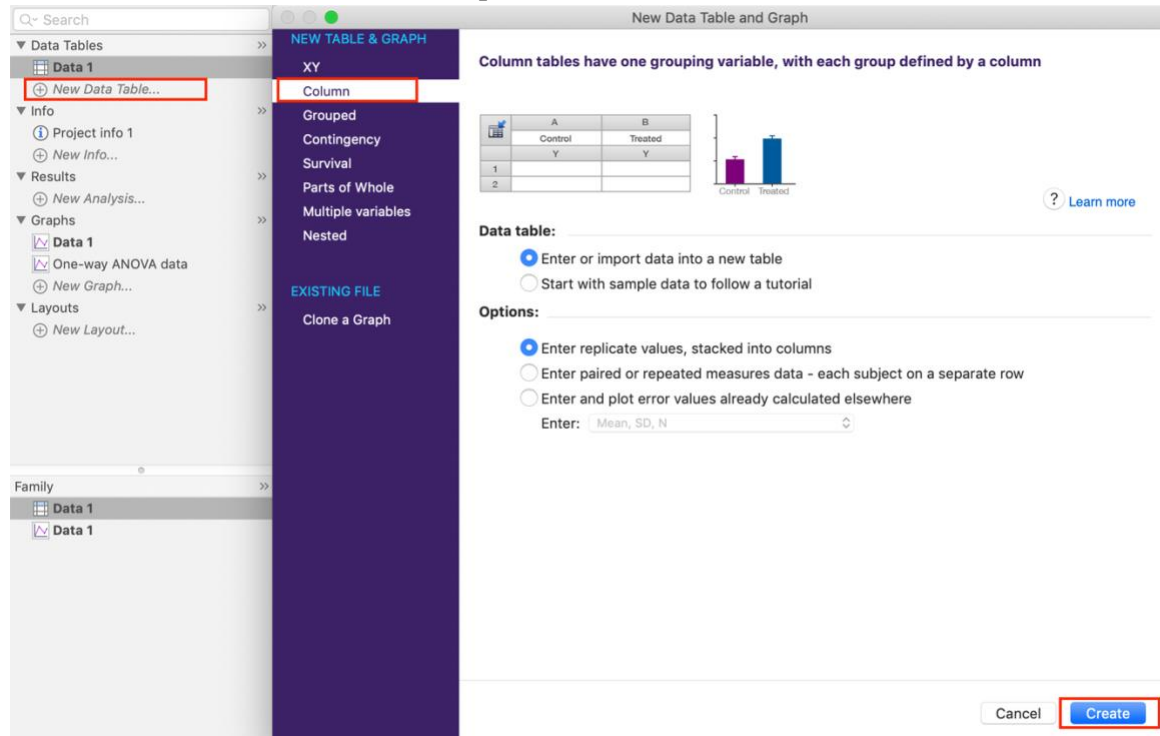
Obviously, the plot on the right assigned different colors to different treatment groups respectively.

8) Magic – Make Graphs Consistent

The Prism Magic tool makes one (or more) graph look like another. It is a huge time saver. More details could be found at [Prism Magic](#).

3. Rotating, flipping, reversing

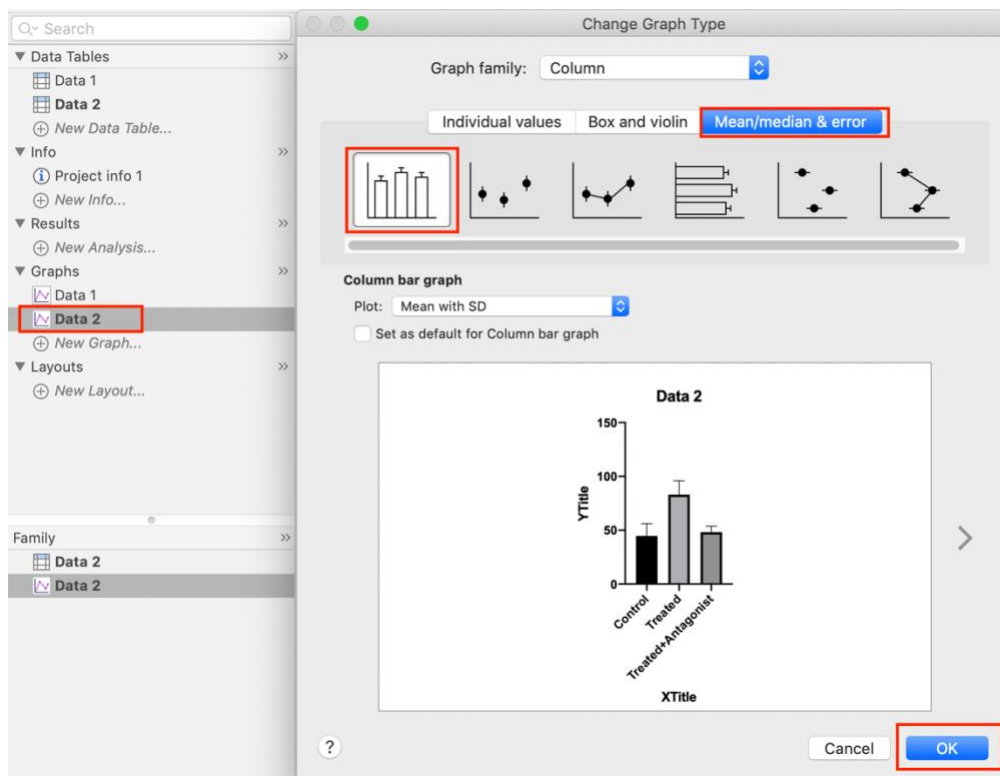
Create a new dataset by clicking the “New Data Table...” on the data tables list. Then choose “Column” data table and “Enter or import data into a new table”. Click “Create”.



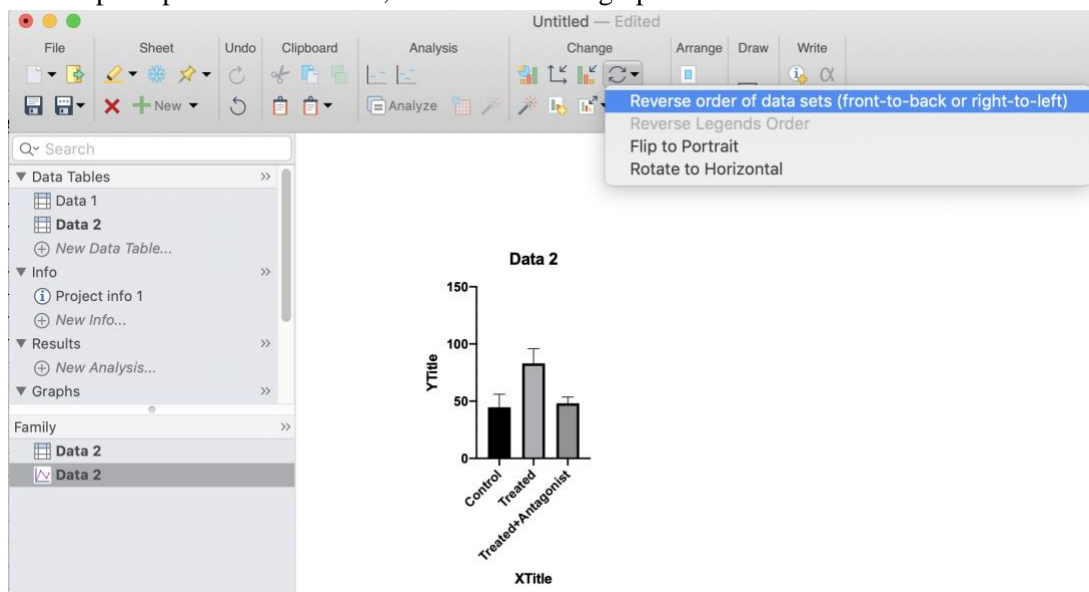
Go to the excel file “2.visualization.xlsx” and copy “DATA SET 2” then paste it to the empty Prism data table.

		Group A	Group B	Group C
		Control	Treated	Treated+Antagonist
		Y	Y	Y
1		54	87	45
2		23	98	39
3		45	64	51
4		54	77	49
5		45	89	50
6		47		55
7				
8				
9				
10				
11				
12				

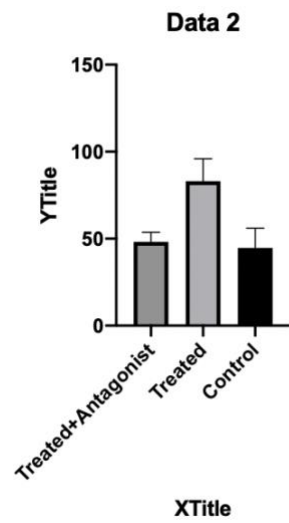
Click the graph “Data 2”. In the Change Graph Type dialog, choose “Mean/median & error” then the first bar chart then click “OK”.



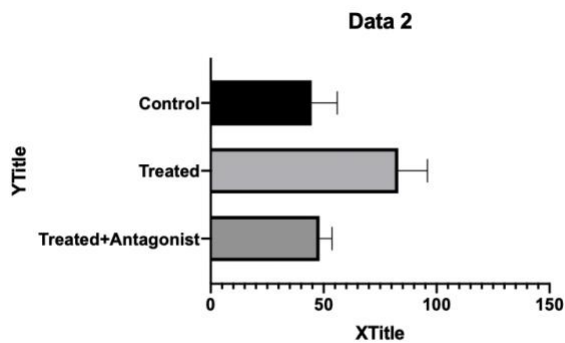
Click the Rotate/Flip button in the Change section of the Prism toolbar drops a menu with four choices. You can reverse the order of datasets on a graph, flip the page settings between landscape or portrait orientation, or rotate column graphs from vertical to horizontal.



Click “Reverse order of data sets (front-to-back or right-to-left)”:

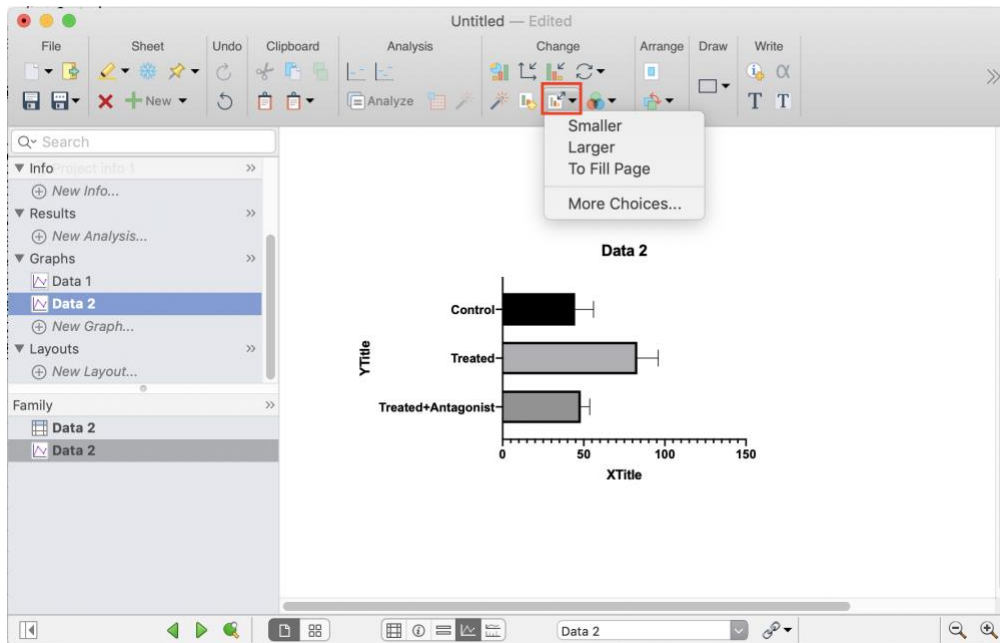


Click “Rotate to Horizontal”:

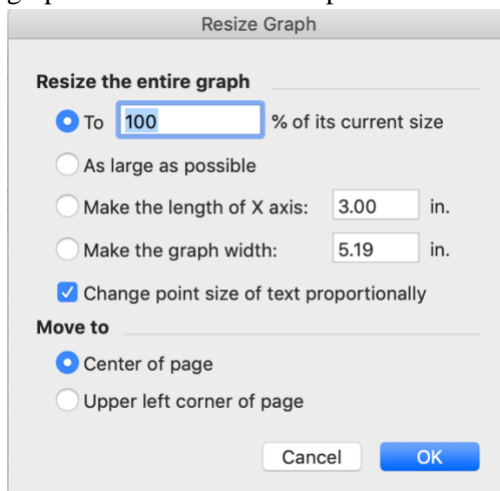


4. Changing a graph’s shape and size

Click the **Resize Graph** button in the Change section of the Prism toolbar. This button enlarges or shrinks both the graph and also the graph's symbols and fonts. In contrast, resizing by stretching an axis doesn't change symbol or font size.



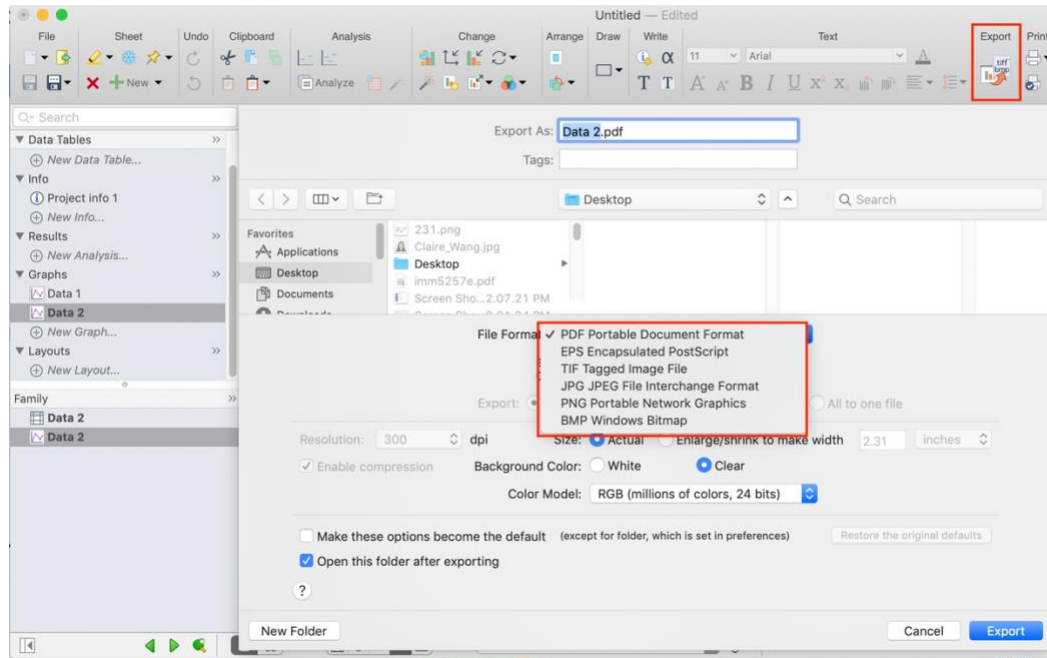
If you click More Choices, a dialog lets you pick the exact size you want and lets you resize the graph without changing font size. This can be useful when the journal specifies both the exact graph size it wants and the point size of fonts.



5. Exporting images from Prism

- 1) If your goal is to send graphs to a colleague who doesn't own Prism, consider sending a Prism file. He or she can then open the file using Prism itself, or the free Prism trial (which expires in 30 days but then becomes a free Prism viewer that never expires).
- 2) If your goal is to place graphs into a Word document or PowerPoint presentation, you can **copy-and-paste** or **use the one-click send buttons** rather than exporting.
- 3) If you do want to export Prism images. **Click the Export button** on the Prism toolbar to bring up the Export Graph dialog. Alternatively, **drop the File menu and choose Export**. You can also use the Send-to-PowerPoint or Send-to-Word buttons. Or the Print button.

Choose the [export format](#), and also choose the location and name of the exported file.



The comparison between PDF and TIFF/TIF formats:

Export Formats	PDF	TIFF / TIF
Advantages	File can be stretched to any size with no loss of quality	Tend to be trouble-free when submitted to journals
Disadvantages	<ol style="list-style-type: none"> 1. Few Windows programs import pdf images 2. Few Journals accept them. 	You need to choose resolution and size

Conclusion

It is really complicated to create a graph template to be applied to all situations. It is better to think about what you would like to include in your graph and how you would like to present them. The best way might be checking how other people present their results in this area.

If you are still have any question about visualization, please feel free to contact me (qinlu.wang@nih.gov) or our BCBB (bioinformatics@niaid.nih.gov)

Reference:

[GraphPad Prism Tutorial 2 - Making XY Graphs](#)
[Graphs](#)