

Making good figures

What makes a good figure depends on the purpose. A simple classification could be

(a) exploratory figures:

For **quick** view of data. These should take at maximum a few hours and should have no graphical 'bells and whistles'. They should however, have clear labels and titles so they are useful. These will be used to make decisions on experiments, early data interpretation and to find issues in the data. These go into your lab notes!

(b) internal presentations

These figures should have a minimal level of graphical consistency, clear labeling and be understandable to people other than you. Labels should be large enough to read. They can be simple, single panels.

(c) Figures for papers and external presentations

These should have a coherent graphical concept (consistent colors, styles, labels) and be pleasant to look at. Panel ordering needs to follow the text of the paper, and they can contain non-plot elements such as schematics, photos etc. Typically, these are multi-panel figures. Each figure should tell a clear story. The best way to tell is if you can come up with a 'topic statement' that encompasses the main conclusion the reader should take from the data shown in the figure.

Rules for any figure

1. Do not mislead - comparisons between data only work if the axes are on the same scale and range
2. generally start axes at the origin (0,0)
3. if you show examples, they have to be representative of the whole dataset
4. Larger labels (yes, much larger than you think!)
5. Be sure and double-check that you are plotting the correct variables/conditions/...
6. Any microscopy image needs a scale bar
7. Any axis needs units

Graphics

See Dropbox/Visualizations for a presentation on clear visual communication with helpful links: *Visualizations/Effective scientific visualization.pdf*

Here is a matplotlib style sheet that can be customized to set plotting defaults to a pleasant

aesthetic. *Visualizations/Matplotlib stylesheet*

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