sci-vis

What the research was showing, and why you could not see it

Pre-submission figure checklist

26 things to check before a figure goes with a manuscript. The first four sections are what a journal will notice. The last one is what it will not ask about and a reader will.

Before you draw

- [ ] Decide the column width now. Set type and stroke weights so they are right at the printed width, not at the width you are drawing.
- [ ] Pick the encoding for the judgement you want the reader to make. Position along a common scale is read more accurately than length, angle or area.
- [ ] If n is small, show every point. A bar of a mean carries the visual authority of a large sample whatever n actually is.

In the figure

- [ ] No text smaller than 8 pt at final printed size.
- [ ] Check your tool's default stroke weight rather than trusting it. Observable Plot's is 0.75 pt; journals commonly ask for more.
- [ ] Colour is never the only difference between two series. Add shape, a dash pattern, or a direct label.
- [ ] Six categorical colours at most. A seventh series is a facet, an "other", or a second figure.
- [ ] No rainbow or jet colourmap. Sequential is one hue light to dark; diverging is two hues with a neutral middle.
- [ ] Bars and areas start at zero. If the baseline has to be cut, use a mark whose position rather than length carries the value.
- [ ] One value axis. Two scales on one plot are two figures.
- [ ] Direct labels rather than a legend wherever there are six series or fewer.
- [ ] A scale bar on every micrograph, and a channel key on every multi-channel image.

In the caption

- [ ] What is shown, and in whom or what.
- [ ] n, and what n counts: cells, animals, or independent experiments.
- [ ] What the error bars are. Standard deviation, standard error and confidence interval are three different claims.
- [ ] The test used, and what was compared with what.
- [ ] The value of the scale bar.
- [ ] Every abbreviation, symbol and panel letter.

The file

- [ ] Vector for anything drawn: PDF, EPS or SVG. Raster only for photographs and micrographs.
- [ ] Resolution applies to raster only. Rasterising a chart to hit a dpi number throws away the thing that made it sharp.
- [ ] Fonts embedded or converted to outlines.
- [ ] The format, dimensions and file size your journal asks for, read from their own author guidelines rather than from a summary of them.

What your journal probably did not ask

Production specifications are a floor. These are the checks that decide whether the figure can be read, and most guidelines do not mention them.

- [ ] View it in greyscale. Does the figure still work?
- [ ] Put it through a colour-vision simulation. Roughly one man in twelve has a red-green deficiency.
- [ ] Print it at final size and read it at arm's length.
- [ ] Text contrast of at least 4.5:1 against whatever sits behind it.

sci-vis.com/checklist

Hannah Isles takes on figure and manuscript work through Hannah Isles Editorial.