On the following pages you will find guidelines to help you submit better quality, more consistent figures and images. We provide you with a series of good and bad examples to illustrate that following these few basic rules will ensure the best possible reproduction of your figures and images.
All figures used in this presentation are for representative purposes only.

**Halftone and line art.**

Figure A is a halftone photograph. It is an image composed of tiny dots whose variations in size create the illusion of variations in tone. The reproduction process called screening is done electronically, and is measured in lines per inch (lpi): 65 lpi is coarse and 133 lpi is fine. For best results, continuous-tone photos, not halftones, should be scanned at 300 dots per inch (dpi), produced in grayscale (for black and white) or CMYK mode, and saved as a TIFF.

Figure B is line art. This image requires sharp edges and high contrast between areas with and without ink. These require higher resolution than halftones to create the necessary sharpness. Scanning at 1200 dpi (produced as a bitmap and saved as a TIFF) ensures good quality. Better yet is a digital image created in Adobe Illustrator and saved in EPS format that is resolution independent.
Reproduction quality.

Figure A shows very poor quality. This resulted from using a photocopy (a multiple generation) of the original art. Notice the gray appearance, spots, broken lines.

Figure B is an example of good quality. The original art was used in production. Sharp contrasts between areas with ink and without ink are possible; lines are solid. This can be achieved by using original, clean, camera-ready art or output from a laser printer (not inkjet), with resolution of 1200 dpi.
Proportion.

Figure A is an example of faulty proportions. The labels are many different sizes, and the symbols are too small in proportion to the profiles on the body of the graph. This inconsistency within the figure will produce unsatisfactory results when the figure is reduced for printing. Also, notice the distraction created by the horizontal data lines.

Figure B is the same graph, but the proportions have been corrected. All labels are the same size type, and the symbols have been enlarged to aid in reading and interpreting the data presented. When the size of type and symbols is consistent and not undersized, the ability to reduce the figure and to have an aesthetically pleasing result is ensured.
Scale.

Figure A shows poor scale. The same issues apply here as for proportion. The dots in the scatter diagram are too small. Their small size makes it difficult to interpret the figure. They are also a lighter weight than the lines and type, adding to the difficulty in reading the figure. The type is different sizes, and the decimals contain commas instead of decimal points.

Figure B shows excellent scale. The weight and size of the dots have been increased, all type is sized consistently, and decimal points are used. The figure is now much easier to read.
Shading.

Figure A is an example of poor line art. Not only are the labels different sizes, making satisfactory reduction difficult, but the shading used to define the bars makes it difficult to read the type and hard to differentiate one set of results from another. Further, Figure A demonstrates 72 dpi resolution. Type appears “pixilated” and the demarcation between black and white will not be print quality.

Figure B is a fine example of line art. The bars are either filled with solid black or are hatched. Using patterns instead of shading (without type) facilitates the clear presentation of data. The resolution represented here is 1200 dpi for scanned bitmapped images.
Contrast.

Figure A demonstrates poor reproduction of a micrograph. Tonal contrast is low, and much detail is lost. The scale bar is missing.

Figure B demonstrates good reproduction of a micrograph. The contrasts are high, and the fine details are discernible. A scale bar has been supplied.
Resolution.

Figure A shows poor resolution for the size of the image—too few dots/pixels per inch makes it look “pixilated.” This is an example of a figure reproduced at 72 dpi, in a GIF or JPEG format.

Figure B shows proper resolution for printing—at least 300 dots per inch.