Figure Guidelines

Overview

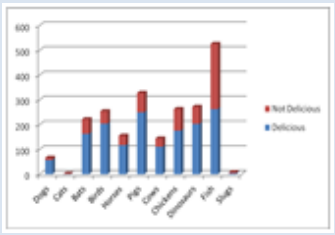
The below tables provide the basic requirements for submitting your manuscript for peer review as well as the more detailed post-acceptance figure requirements.

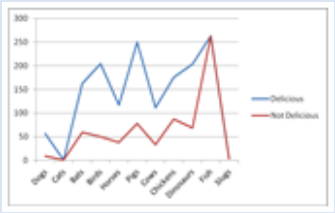
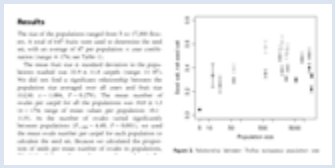
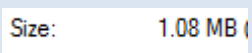
For Peer-Review Submission: Though we encourage authors to send us the highest-quality figures you can, for peer-review purposes we are happy to accept a wide variety of formats, sizes, and resolutions.

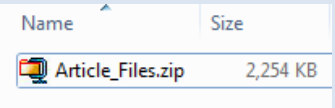
For Post-Acceptance: To enhance the online appearance of your accepted article, the below guidelines will help you to effectively showcase your research.

Important tip! Creating your figures in one of the preferred file types is better than converting an existing figure later on. If you cannot create one of your figures as an EPS, TIFF, or PNG, send us what you are able create and we'll do our best to present it effectively.

For Peer-Review Submission

Element	Description	Example	Preferred	Acceptable
File Types				
	Line art: Line art includes graphs, flowcharts, diagrams, scatter plots, and other text-based figures that are not tables. **Important!** If a figure includes both line art and images, follow the line art guidelines.		• EPS • PDF	Any standard file type. When in doubt, submit a PDF.
	Images: Images include photographs, drawings, imaging system outputs (such as MRIs or ultrasound), and other graphical representations.		• TIFF • PNG • EPS	
Resolution			Preferred	Acceptable

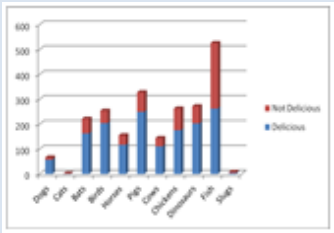
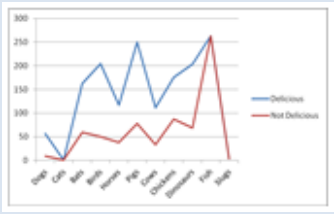
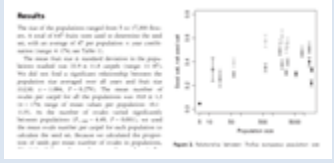
	Line art: Resolution for line art needs to be higher than for images because each individual line must be more precisely rendered. **Tip!** Larger fonts make for easier reading.		600 dpi	As long as it is legible to reviewers.
	Images: Though many web-based images often appear at very low resolutions (72 dpi or lower), readers will only benefit from your research if your images offer hi-resolution detail.		300 dpi	
Image Size			Preferred	Acceptable
	Small: Used for small line art and images that will occupy one-quarter of the page.		80 mm canvas size or Pixel dimensions (width): 1800px minimum	Large enough to support review.
	Large: Used for larger line art and images that occupy a half-page or an entire page. Carefully consider the minimum space necessary for each figure.		180 mm canvas size or Pixel dimensions (width): 1800px minimum	
File Size			Preferred	Acceptable
	Individual files: Individual figures may load slowly or time-out slower systems if they are too large.		Less than 10 MB each.	Large files may impede reviewers.

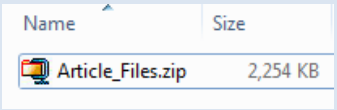
	Complete article files, zipped: Submission systems limit total file size to 500 MBs.		Less than 500 MB total.	EEO limits.
File Name				
	File Naming Convention: to facilitate ease of review, name figure files only with the word "figure" and the appropriate number.	**Figure_1.tiff**	1 figure per file.	All figures in a single PDF, Word document, or as a part of a LaTeX submission.
Legends, and labeling			Preferred	Acceptable
	Figure legends or captions should use Arabic numerals, follow the order in which they appear in the manuscript, and explain any abbreviations or symbols that appear in the figure.	**Figure 1.** A good figure legend succinctly describes the content and enhances understanding with clear labels.	A separate figure legend section in the manuscript, after references.	Anywhere clearly indicating which figure it explains.

Note to print journals: print quality will be drastically reduced, possibly impacting readability, if you do not supply your images in the preferred formats and resolutions.

For Post-Acceptance Articles

Element	Description	Example	Preferred	Acceptable
File Types				

	Line art: Line art includes graphs, flowcharts, diagrams, scatter plots, and other text-based figures that are not tables. **Important!** If a figure includes both line art and images, follow the line art guidelines.		• EPS • PDF	Any standard including: • GIF • JPG • TIF/TIFF • PNG • WMF • DOC • PPT • PSD • AI • PS
	Images: Images include photographs, drawings, imaging system outputs (such as MRIs or ultrasound), and other graphical representations.		• TIFF • PNG • EPS	
Resolution				
	Line art: Resolution for line art needs to be higher than for images because each individual line must be more precisely rendered. **Tip!** Larger fonts make for easier reading.		600-1000 dpi	Must be legible when viewed as an 80 mm or 1800 pixel width, unmagnified.
	Images: Though many web-based images often appear at very low resolutions (72 dpi or lower), readers will only benefit from your research if your images offer hi-resolution detail.		300 dpi	
Image Size				
	Small: Used for small line art and images that will occupy one-quarter of the page.		80 mm canvas size or Pixel	Smaller or larger images will be modified during composition,

			dimensions (width): 1800px minimum	which may result in decreased quality.
	Large: Used for larger line art and images that occupy a half-page or an entire page. Carefully consider the minimum space necessary for each figure.		180 mm canvas size or Pixel dimensions (width): 1800px minimum	
File Size				
	Individual files: Individual figures may load slowly or time-out slower systems if they are too large.		Less than 10 MB each.	Large files may slow a reader's experience.
	Complete article files, zipped: Submission systems limit total file size to 500 MBs.		Less than 500 MB total.	EEO limits.
File Name				
	File Naming Convention: to facilitate ease of review, name figure files only with the word "figure" and the appropriate number.	**Figure_1.tiff**	1 figure per file.	All figures in a single PDF, Word document, or as a part of a LaTeX submission.
Legends, and labeling			Preferred	Acceptable
	Figure legends or captions should use Arabic numerals, follow the order in which they appear in the manuscript, and explain any abbreviations or symbols	**Figure 1.** A good figure legend succinctly describes the content and enhances understanding with clear labels.	A separate figure legend section in the manuscript, after references.	Anywhere clearly indicating which figure it explains.

	that appear in the figure.			

Submission Checklist: Images

Checklist	Figure Preparation Guidelines and Tips for Peer Review Submission: minimum requirements.
□	Are all figures included in your submission as separate files or in an inclusive PDF/Word document/LaTeX suite?
□	Do all figures have an accompanying legend that describes the content and explains any abbreviations or symbols?
□	Are all figures cited in the main text of your article?
□	Are all words or symbols in your figures large enough for easy reading by peer reviewers?
□	Are all figures saved in a acceptable file type? When in doubt, submit a PDF.
□	Is each individual figure file less than 10 MB?

Checklist	Figure Preparation Guidelines and Tips: Preferred standards for peer review and required standards for production.
□	Are all figures included in your submission as separate files or in a single PDF/Word document/LaTeX suite? **Tip!** Single, original, unconverted files are best.
□	Do all figures have an accompanying legend that describes the content and explains any abbreviations or symbols? **Tip!** Include your figure legends as a separate section in your main text file.
□	Are all figures cited in the main text of your article? **Tip!** Ensure all figures are numbered in the order in which they appear.
□	Are all words or symbols in your figures large enough for easy reading by your audience? **Tip!** Closely follow the preferred resolution guidelines for best presentation.
□	Are all figures saved in an acceptable file type? **Tip!** Use the preferred file types for best image quality.
□	Is each individual figure file less than 10 MB? **Tip!** Remove excess white space surrounding figures for smaller file sizes.

□	Were figures created between 80 and 180 mm width? 300 to 600 DPI? **Tip!** Higher quality figures are more useful to readers.
□	Are all figure files named with their appropriate figure number? **Tip!** Using only figure numbers in the file names ensures correct typesetting.

Ethical Considerations

Changes to images can create misleading results when research data are collected as images. It may, however, be legitimate and even necessary to edit images. We ask authors to declare where manipulations have been made.

- Specific features within an image should not be enhanced, obscured, removed, moved, or introduced.
- Original unprocessed images must be provided by authors should any indication of enhancement be identified.
- Adjustments to brightness or contrast are only acceptable if they apply equally across the entire image and are applied equally to controls, and as long as they do not obscure, eliminate, or misrepresent any information present in the information originally captured.
- Excessive manipulations, such as processing to emphasize one region in the image at the expense of others, are inappropriate, as is emphasizing experimental data relative to the control.
- Nonlinear adjustments or deleting portions of a recording must be disclosed in a figure legend.

Constructing figures from different gels, fields, exposures, and experimental series is discouraged. When this is necessary the component parts of composite images should be indicated by dividing lines clearly demarcated in the figure, and described in the legend.