

# FIGURE, IMAGE, TABLE CHECKLIST

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## 1. BEFORE PREPARING YOUR FIGURE

- Use a copy of the raw data, not the original file, for figure preparation, publication, and presentation.
- Identify which author/s is responsible for creating figures and reviewing them for accuracy, clarity, and precision.
- Review journal requirements for the file format(s) required for submission, number of figures and tables permitted, the number of panels that can be included in a single figure, how data should be presented, and table formatting.

## 2. CREATING A FIGURE

- Save the original files. Images and data in figures should be clearly traceable to the raw data. Raw data must be retained in an unprocessed form. [\[ORI, 2\]](#)
- Treat images as you would any other data. Image acquisition parameters and permitted adjustments to images should be recorded in lab notes and disclosed in figure legends and in the Methods section of a publication. [\[ORI, 2\]](#)
- Images must be minimally processed and accurately reflect the raw data. Simple adjustments to the entire image or cropping an entire image are usually acceptable but must be done with care.
- Any allowable adjustments of digital images must only be carried out on a copy of image; the original, unmanipulated version must be retained in its original form.
- Make only permissible, simple adjustments. Any adjustments to brightness, contrast, or color balance should be made to entire images and must not obscure, eliminate, or misrepresent information in the original image. [\[ORI, 2\]](#) Prohibited image manipulations include:
  - A. Selectively enhanced, erased, or altered images including misrepresentation of any information in the original image, including background.
  - B. Re-use of images. This prohibition also applies to re-use of control data across multiple figures without use of express statements justifying the re-use in figure legends in the Publication.
  - C. Image manipulations that are specific to one area of an image and not performed in other areas in such image.
  - D. Cloning or copying
- Lossy compression degrades data. Avoid use of lossy compression for file size reduction. [\[ORI, 2\]](#)
- Intensity measurements must be performed on uniformly processed image data and image data calibrated to a known standard. [\[ORI, 2\]](#)

- If it is necessary to crop and splice related data from different blot gels, splice sites must be clearly marked with either white space or boxes. Retain the full, uncropped gel images. Any non-linear adjustments should be disclosed in the figure legends and in the methods section.
- To make figures accessible to readers with color vision deficiencies, avoid using red and green to indicate meaningful contrasts, including in heatmaps and fluorescence images. It is usually acceptable to adjust fluorescence images to use green and magenta.
- Axes, bars, lines, and arrows should all be clearly labeled.
- Text on figures should be in a color and font that will be legible when reproduced in the journal.
- Legends should explain all abbreviations and symbols on the figure.

### **3. CITING AND ATTRIBUTION**

- Obtain permission to reuse previously published data, figures, charts, graphs, etc. Document permission so it can be referred to upon request.
- Cite previously published images, data, etc. in the figure legend and other locations where they are described.
- Acknowledge funding sources that supported the collection of data in the acknowledgements section of the final publication.
- Disclose tools used to create or adjust images in the Methods section, legends, or acknowledgments section as required by the journal.

### **4. BEFORE MANUSCRIPT SUBMISSION**

- Use [ImageTwin](#) prior to submission to detect possible duplicate images or image manipulation. Email [RML-Help@mdanderson.org](mailto:RML-Help@mdanderson.org) for an account.

#### **Resources and Policies**

1. [Tools and Services for Creating Scientific Images](#) [Support for MD Anderson authors]
2. [ORI Guidelines for Best Practices in Image Processing](#) [Education materials]
3. [MD Anderson Scientific Publication Policy](#) [Inside Page]
4. [MD Anderson Research Misconduct Policy](#) [Inside Page]
5. [Research Foundations: Use of Images in Publications and Presentations](#) [Inside Page]