

# TIPS FOR PRESENTING SCIENTIFIC IMAGES with INTEGRITY

Images should clearly and correctly represent research results. Minor image processing may be acceptable but, as depicted below there's a fine line between enhancing an image and distorting it.

## BE AWARE:

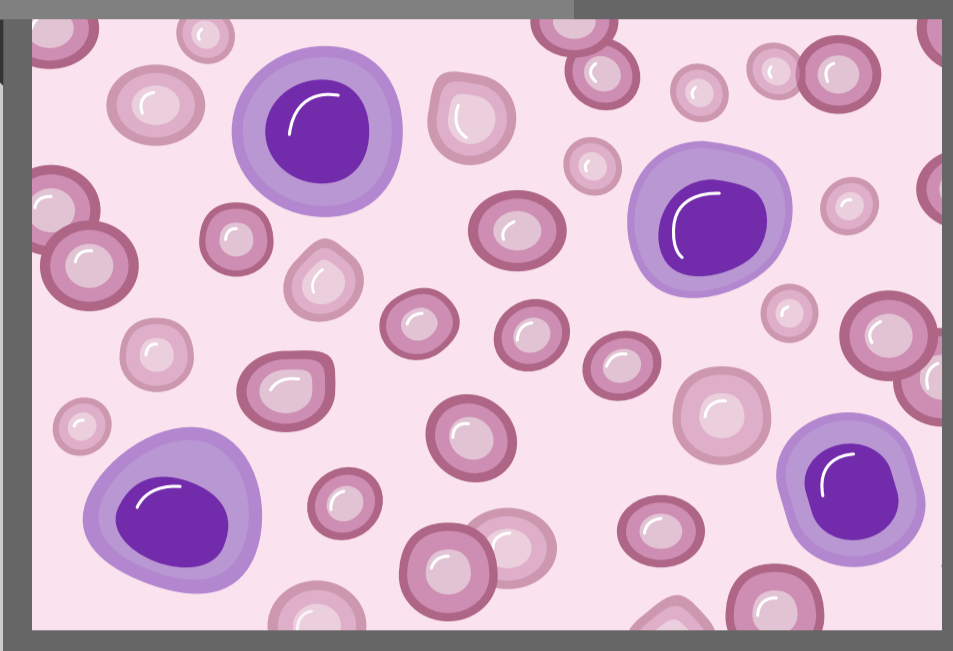
Undocumented image manipulations can lead to accusations of research misconduct.

67%

of ORI's closed research misconduct cases involved image manipulation.\*

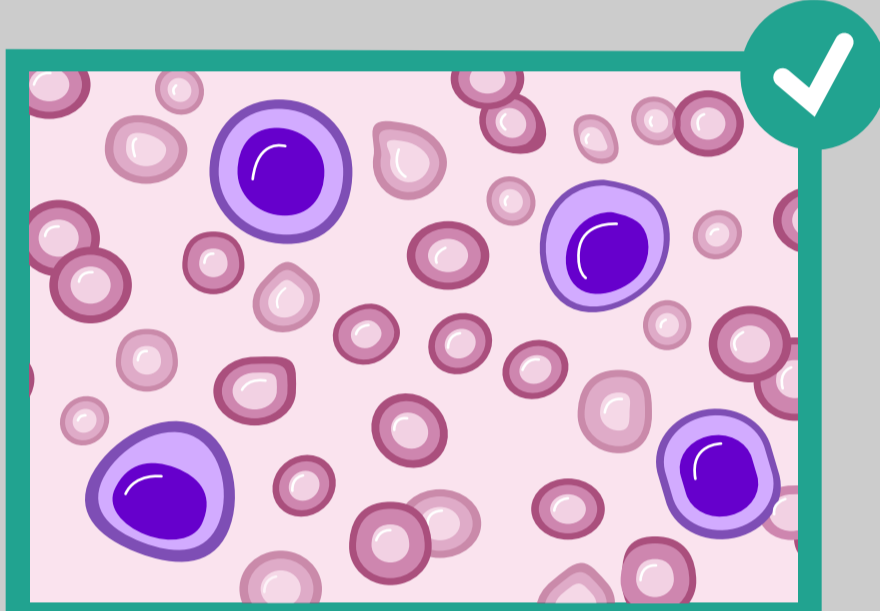
\*between 2011 and 2015

## ORIGINAL IMAGE

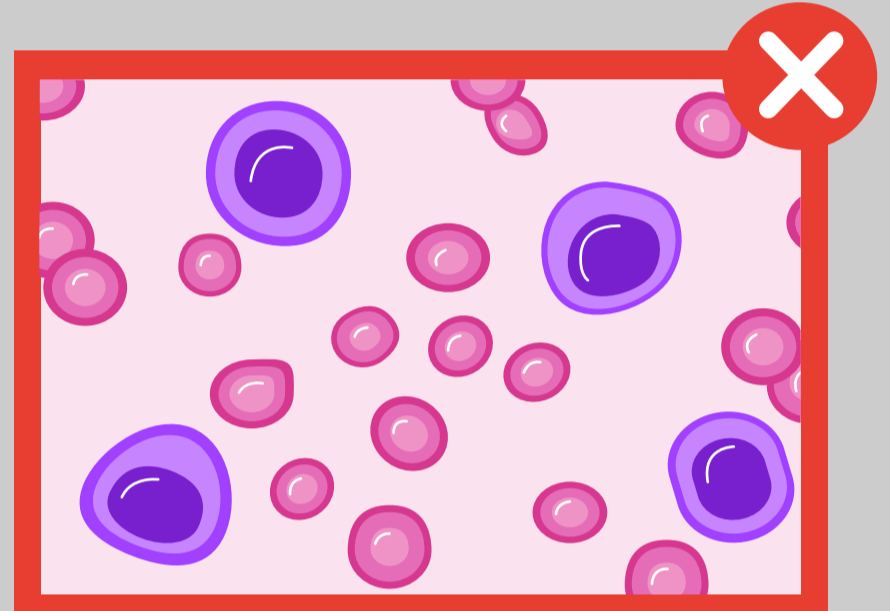


## COLOR ENHANCEMENTS

Changing the contrast, color, or brightness



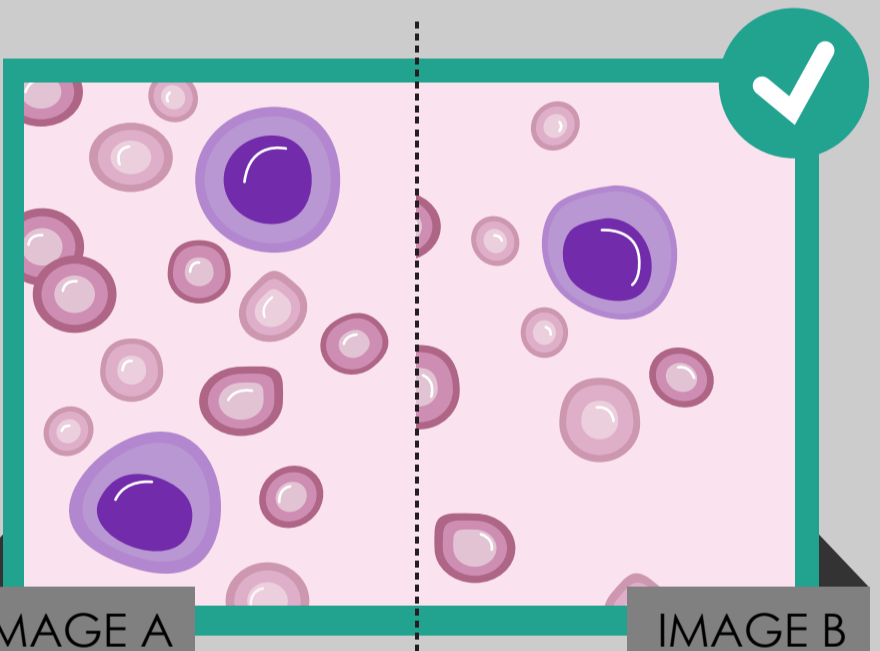
Ensure that the meaning of the image stays the same and fine details are not removed.



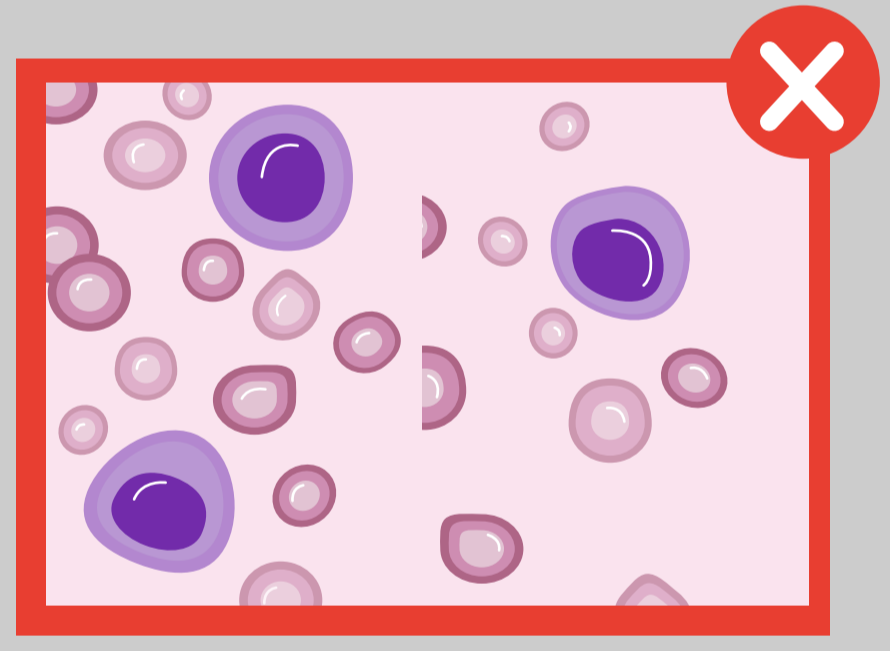
Contrast and saturation were increased causing the background cells to disappear.

## SPLICE & PASTE

Combining multiple images into one image



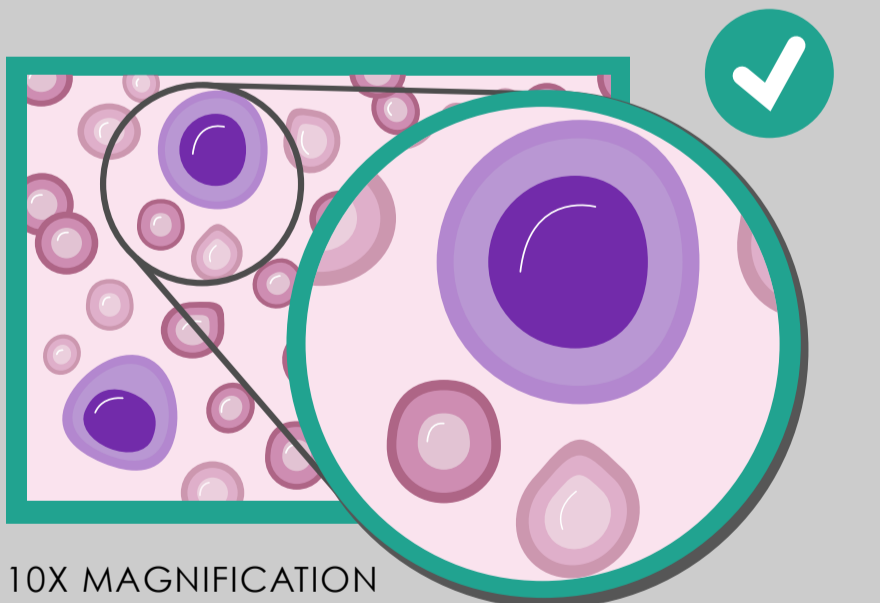
Clearly indicate where two images were joined using a dividing line and labels.



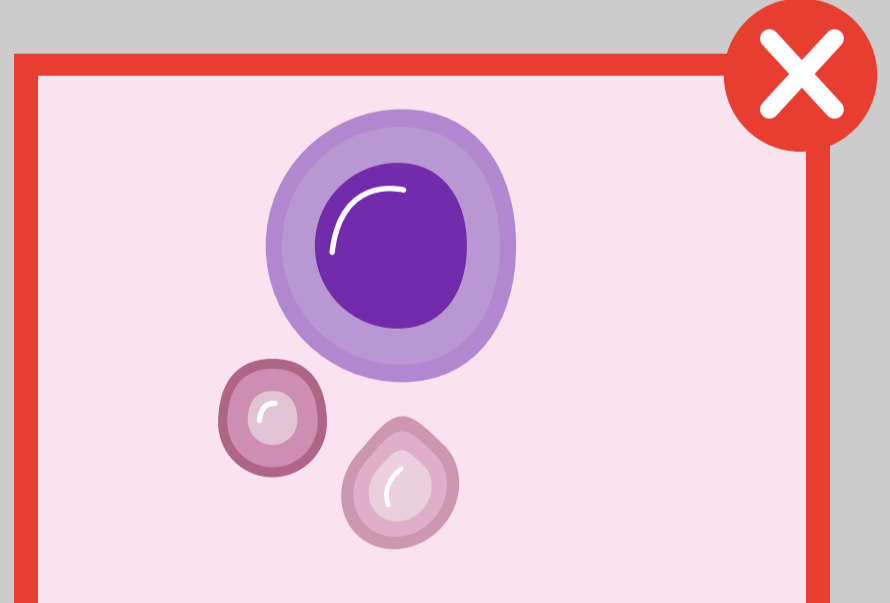
Two images were combined causing them to look like new data.

## CROP

Cutting out components and resizing



Use a magnification panel to highlight desired visual data.



Reference information was selectively removed from the image causing loss of data.

## WHAT ELSE MUST YOU DO?

- ✓ Clearly document all changes made to an image.
- ✓ Retain the unprocessed image for your records.
- ✓ Follow journal guidelines for permissible processing.

LEARN MORE ABOUT IMAGE PROCESSING:

<http://ori.hhs.gov/ImageProcessing>