

# 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:

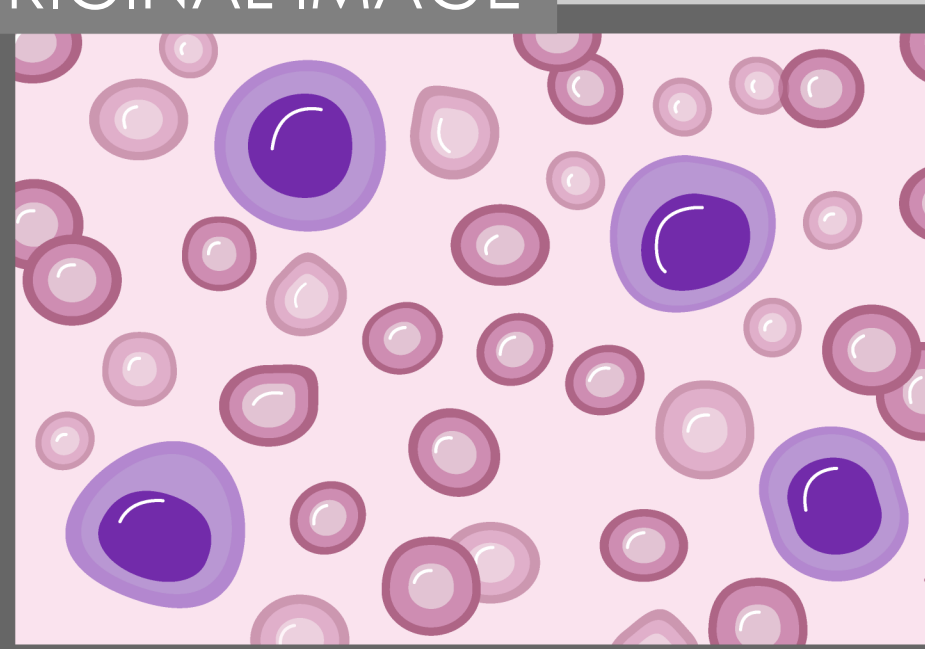
Undocumented image manipulations can lead to accusations of research misconduct.

67%

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

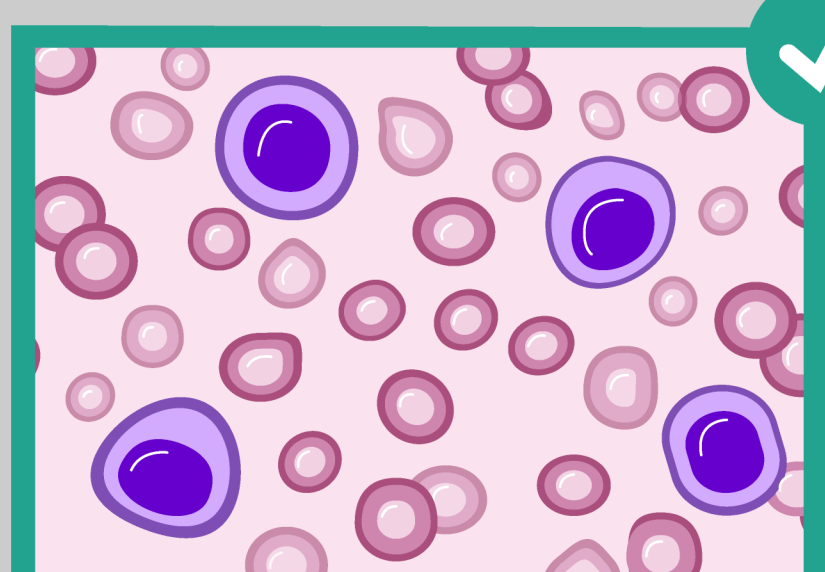
\*between 2011 and 2015

## ORIGINAL IMAGE

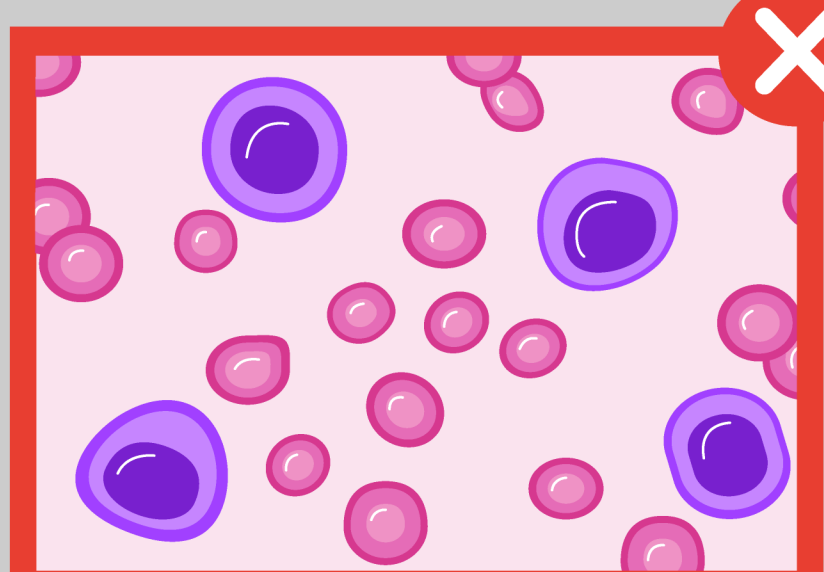


## COLOR ENHANCEMENTS

*Changing the contrast, color, or brightness*



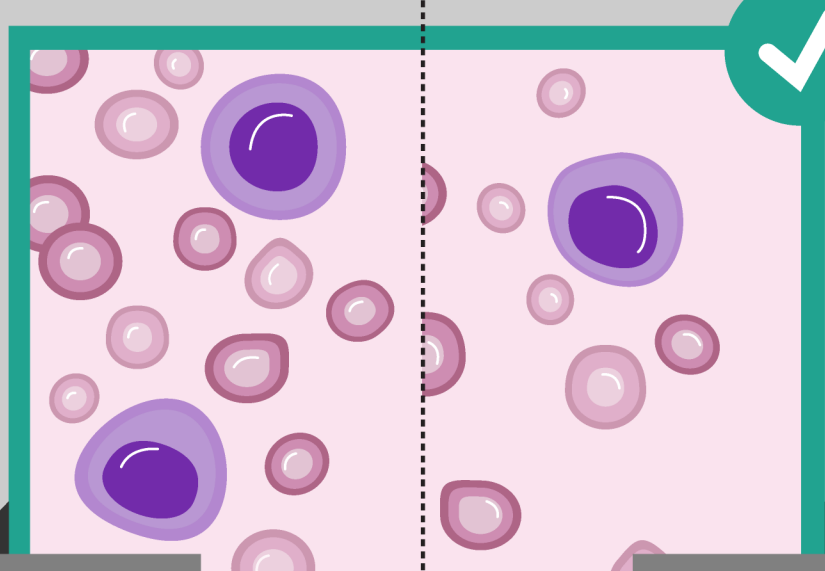
Ensure that the meaning of the image stays the same and fine details are not removed.



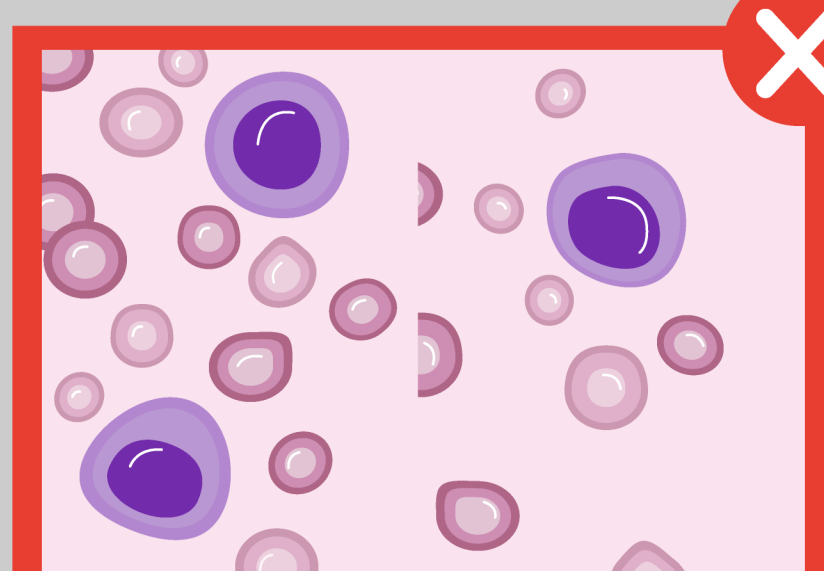
Contrast and saturation were increased causing the background cells to disappear.

## SPLICE & PASTE

*Combining multiple images into one image*



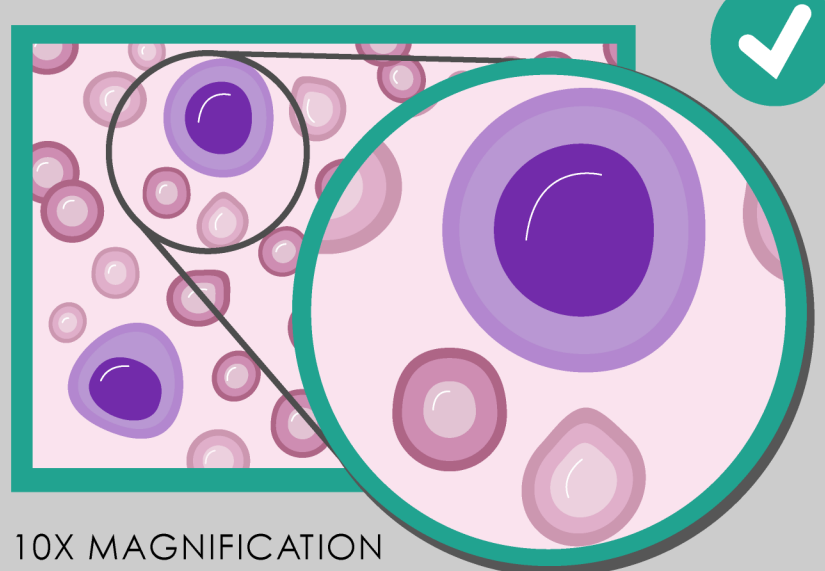
Clearly indicate where two images were joined using a dividing line and labels.



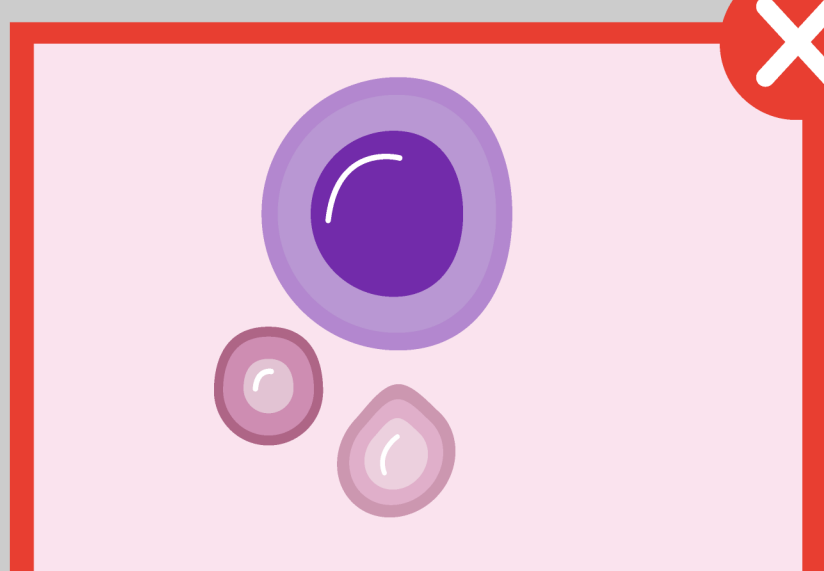
Two images were combined causing them to look like new data.

## 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>

