

CAN YOU SPOT RESEARCH MISCONDUCT?

INVESTIGATING IMAGE MANIPULATION

OBJECTIVE

See if you can detect the research misconduct in this sample results section.

METHODS

Thoroughly review the images below to determine what was falsified or fabricated.

RESULTS

Check your findings with the explanations in the discussion section.

FIGURE 1. COMET ASSAY

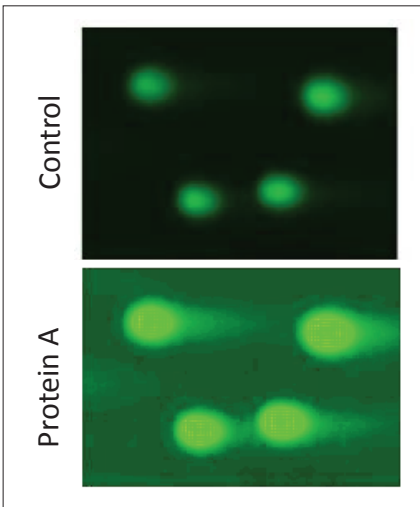


FIGURE 2. IMMUNOFLUORESCENCE COLOCALIZATION ASSAY

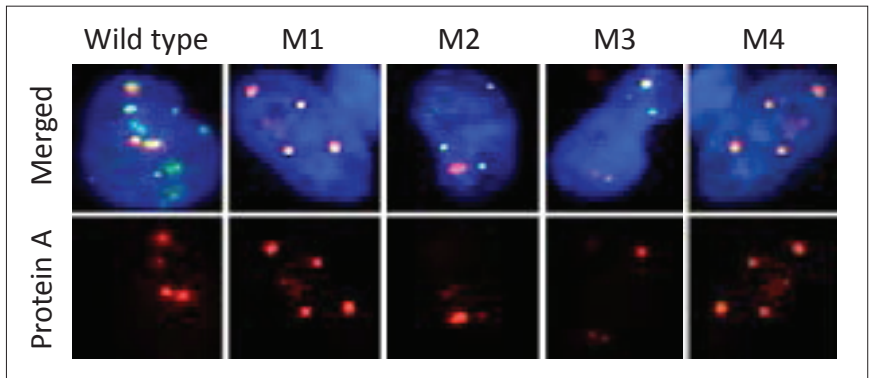


FIGURE 3. WESTERN BLOT

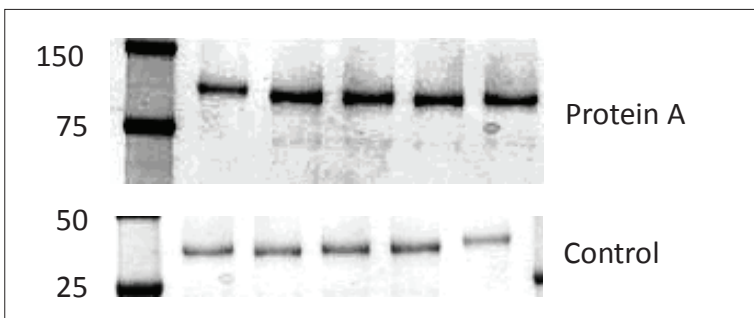
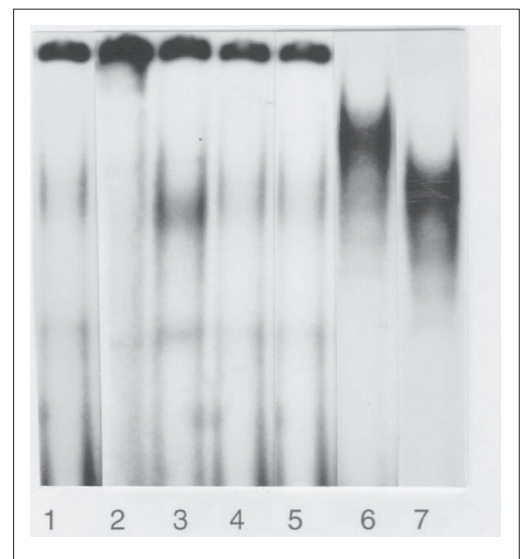


FIGURE 4. GEL SHIFT ASSAY



DISCUSSION

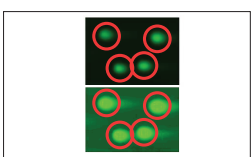


FIGURE 1. COMET ASSAY

The control image was cropped and relabeled as the image for Protein A. It was also intentionally lightened to make the "tails" appear longer.

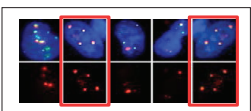


FIGURE 2. IMMUNOFLOURESCENCE COLOCALIZATION ASSAY

M1 and M4 are the same image but flipped vertically.

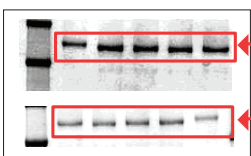


FIGURE 3. WESTERN BLOT

The top panel and bottom panel of Figure 3 are from the same source image. The Protein A blot image has been flipped horizontally and represented as the control blot image.

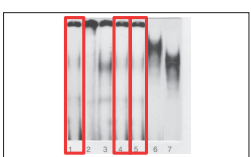


FIGURE 4. GEL SHIFT ASSAY

Lanes 1, 4, and 5 are from the same image source and were relabeled and reused to represent different experimental conditions.

CONCLUSION

Readers play an important role in detecting image manipulations. If you think you see research misconduct, make your concerns known to your institutional Research Integrity Officer.

DID YOU SPOT IT?

Learn more about image processing at: <http://ori.hhs.gov/ImageProcessing>

