## Image Manipulation in a Published Article

This flowchart relates only to cases where concerns related to digital photographic images are raised (eg, duplication of parts within an image, or use of identical images to show different things). For wider concerns about potential data fabrication, please consult the flowchart 'Suspected fabricated data in a published manuscript'

READER EXPRESSES SUSPICION OF IMAGE MANIPULATION

## THANK READER AND STATE YOUR **PLAN TO INVESTIGATE**

Consider getting a 2nd opinion from another reviewer



Contact author to explain your concerns but do not make direct accusations

No response Attempt to contact all co-authors (check online. eg, Medline or Google, for emails)

Clear admission of image

manipulation by author

**PUBLISH A RETRACTION** 

(OR A CORRECTION IF THE

MANIPULATION DOES NOT INVALIDATE

THE ENTIRE ARTICLE), CONTACTING

ALL AUTHORS AND TELLING THEM

WHAT YOU PLAN TO DO

Satisfactory explanation

**APOLOGISE** TO AUTHOR. **PUBLISH CORRECTION IF** NECESSARY (EG.

**IF AN HONEST ERROR HAS BEEN DETECTED** THAT DOES NOT **INVALIDATE** CONCLUSIONS)

Consider whether you have sufficient evidence of image manipulation to publish a retraction or a correction (eg, does zooming in show that parts of images are duplicated). Consider using software to analyse images

Unsatisfactory

answer

Response

Unclear/suspected Clear image image manipulation manipulation

Contact author's institution requesting your concern

is passed to author's superior and/or person responsible for research governance, if necessary coordinating with co-authors' institutions

Authors not guilty of image manipulation

APOLOGISE TO

No response or inconclusive reply

CONSIDER

**CONTACTING AUTHORS'** 

INSTITUTION EVERY

3-6 MONTHS

Authors guilty of image manipulation

Inform authors' superior and/or person responsible for research governance at authors' institutions. and inform authors

No response

**AUTHOR. PUBLISH** CORRECTION IF **NECESSARY** (eg, if an honest error

has been detected that does not invalidate

If no resolution, consider contacting the authorities. eg, ORI in US, GMC in UK. Consider publishing an Expression of Concern

INFORM READER OF OUTCOME



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Version 1:



Journal of Cell Biology. Editorial Policies on Data Integrity and Plagiarism. https://bit.ly/2pixmxk Bioscience-scale Automated Detection of Figure Element Reuse. Daniel E. Acuna et al. https://bit.ly/2COyr8N Researchers have Finally Created a Tool to Spot Duplicated Images across Thousands of Papers. Declan Butler. https://go.nature.com/2ES7ORI

At Harvard, Developing Software to Spot Misused Images in Science. Lucy Goodchild van Hilten. https://bit.ly/2n9sBVS

VerifEye. https://bit.ly/2PFqHsD