

Supplemental Information

Table S1. Reasons for retraction from the Retraction Watch Database recoded into 12 categories.

Reasons for Retraction	Count (%)
1. Data and Results Issues	6160 (28.8)
1. Unreliable Results	1234 (5.8)
2. Concerns/Issues About Data	1132 (5.3)
3. Error in Data	633 (3.0)
4. Original Data not Provided	481 (2.2)
5. Unreliable Data	431 (2.0)
6. Error in Results and/or Conclusions	376 (1.8)
7. Error in Analyses	333 (1.6)
8. Error in Methods	322 (1.5)
9. Results Not Reproducible	308 (1.4)
10. Concerns/Issues About Results	267 (1.2)
11. Error in Text	74 (0.3)
12. Error in Materials (General)	54 (0.3)
13. Error in Cell Lines/Tissues	37 (0.2)
14. Contamination of Cell Lines/Tissues	34 (0.2)
15. Contamination of Materials (General)	18 (0.1)
16. Contamination of Reagents	2 (0.1)
17. Manipulation of Results	17 (0.1)
18. Unreliable Image	98 (0.5)
19. Error in Image	309 (1.4)
2. Authorship and Ethical Concerns	1918 (9.0)
1. Concerns/Issues About Authorship	292 (1.4)
2. Misconduct by Author	504 (2.4)
3. Ethical Violations by Author	194 (0.9)
4. False/Forged Authorship	253 (1.2)
5. Conflict of Interest	50 (0.2)

6. Lack of Approval from Author	123 (0.6)
7. Lack of Approval from Company/Institution	64 (0.3)
8. Lack of Approval from Third Party	62 (0.3)
9. Informed/Patient Consent - None/Withdrawn	39 (0.2)
10. Author Unresponsive	312 (1.5)
11. False Affiliation	25 (0.1)
3. Plagiarism and Duplication	
1. Duplication of Image	1465 (6.8)
2. Duplication of Article	671 (3.1)
3. Duplication of Data	270 (1.3)
4. Duplication of Text	178 (0.8)
5. Plagiarism of Article	425 (2.0)
6. Euphemisms for Plagiarism	351 (1.6)
7. Plagiarism of Text	303 (1.4)
8. Plagiarism of Image	131 (0.6)
9. Plagiarism of Data	107 (0.5)
10. Euphemisms for Duplication	184 (0.9)
4. Image Manipulation and Fabrication	4085 (19.1)
1. Manipulation of Images	444 (2.1)
2. Concerns/Issues About Image	439 (2.0)
3. Falsification/Fabrication of Image	209 (1.0)
5. Investigations and Findings	3588 (16.8)
1. Investigation by Journal/Publisher	1273 (5.9)
2. Investigation by Company/Institution	948 (4.4)
3. Investigation by Third Party	813 (3.8)
4. Misconduct - Official Investigation/Finding	465 (2.2)
5. Investigation by Office of Research Integrity	89 (0.4)
6. Peer Review and Editorial Issues	985 (4.6)
1. Fake Peer Review	740 (3.5)
2. Rogue Editor	232 (1.1)
3. Concerns/Issues with Peer Review	6 (<0.1)
4. Taken via Peer Review	7 (<0.1)
7. Misconduct and Fraud	1288 (6.0)

1. Paper Mill	650 (3.0)
2. Falsification/Fabrication of Data	558 (2.6)
3. Falsification/Fabrication of Results	37 (0.2)
4. Misconduct by Third Party	11 (0.1)
5. Misconduct by Company/Institution	2 (0.1)
6. Euphemisms for Misconduct	10 (<0.1)
7. Randomly Generated Content	1 (<0.1)
8. Ethical Violations by Third Party	19 (0.1)
8. Procedural and Legal Issues	70 (0.3)
1. Legal Reasons/Legal Threats	20 (0.1)
2. Criminal Proceedings	29 (0.1)
3. Civil Proceedings	7 (<0.1)
4. Nonpayment of Fees/Refusal to Pay	4 (<0.1)
5. Publishing Ban	10 (<0.1)
9. Withdrawal and Retraction Notices	763 (3.6)
1. Withdrawal	85 (0.4)
2. Retract and Replace	74 (0.3)
3. Temporary Removal	2 (<0.1)
4. Date of Retraction/Other Unknown	226 (1.1)
5. Notice - Limited or No Information	153 (0.7)
6. Notice - Lack of	12 (0.1)
7. Notice - Unable to Access via current resources	12 (0.1)
8. Upgrade/Update of Prior Notice	269 (1.3)
9. Updated to Retraction	4 (<0.1)
10. Notice - No/Limited Information	2 (<0.1)
10. Complaints and Objections	418 (2.0)
1. Objections by Third Party	232 (1.1)
2. Objections by Author(s)	131 (0.6)
3. Objections by Company/Institution	10 (<0.1)
4. Complaints about Author	39 (0.2)
5. Complaints about Third Party	4 (<0.1)
6. Complaints about Company/Institution	2 (<0.1)
11. Institutional and Policy Issues	643 (3.0)

1. Breach of Policy by Author	131 (0.6)
2. Lack of IRB/IACUC Approval	136 (0.6)
3. Concerns/Issues about Third Party Involvement	84 (0.4)
4. Concerns/Issues about Referencing/Attributions	257 (1.2)
5. Concerns/Issues about Human Subject Welfare	1 (<0.1)
6. Cites Retracted Work	34 (0.2)
12. Miscellaneous	412 (1.9)
1. Copyright Claims	101 (0.5)
2. Error by Journal/Publisher	48 (0.2)
3. Error by Third Party	6 (<0.1)
4. Duplicate Publication through Error by Journal/Publisher	49 (0.2)
5. Bias Issues or Lack of Balance	12 (0.1)
6. Doing the Right Thing	41 (0.2)
7. Salami Slicing	9 (<0.1)
8. Miscommunication by Author	32 (0.1)
9. Miscommunication by Journal/Publisher	6 (<0.1)
10. Miscommunication by Company/Institution	3 (<0.1)
11. Miscommunication by Third Party	4 (<0.1)
12. Retract and Replace	74 (0.3)
13. Taken from Dissertation/Thesis	24 (0.1)
14. Not Presented at Conference	1 (<0.1)
15. Withdrawn to Publish in Different Journal	2 (<0.1)
16. Sabotage of Materials (Miscellaneous)	0 (0)
17. Sabotage of Methods (Miscellaneous)	0 (0)
