

Dal-Ré R & Ayuso C**Supplementary Information–1, 2, 3 & 5****Supplementary Information–1****Search strategy**

Retraction Watch database search.

January 14, 2019

Original Paper published between 1/Jan/1970 to 31/Dec/2018

Article types: Case report OR clinical study OR commentary/editorial OR letter OR meta-analysis OR research article OR review article

Nature of notice: Retraction

Subject: **Genetics**

Result: 1584

Subject: **Non-medical genetics** (Genetics AND NOT Medicine)

Result: 892

Subject: Non-medical genetics (Genetics AND NOT Medicine)**n=892**

Original Paper published between 1/Jan/1970 to 31/Dec/2018

Reason for retraction: Falsification/fabrication of data OR Falsification/fabrication of images OR Falsification/fabrication of results OR manipulation of results OR Manipulation of images

Result: 249

27.9

–Subject: Genetics AND NOT Medicine

Reason for retraction: Euphemism for plagiarism OR Plagiarism of article OR Plagiarism of data OR Plagiarism of image OR Plagiarism of text

Result: 77

8.6%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Duplication of article OR Duplication of data OR Duplication of image OR Duplication of text OR Euphemism for duplication

Result: 235

26.3%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Unreliable data OR Unreliable image OR unreliable results

Result: 127

14.2%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Breach of policy by author OR Concerns/Issues about authorship OR Forged authorship OR Lack of approval from author OR Objections by author (s)

Result: 109 12.2%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Investigation company/institution OR investigation by journal/publisher OR Investigation by ORO OR investigation by third party

Results: 275 30.8%

China: 213; Germany: 40; India: 61; Japan: 74; South Korea: 37; UK: 52; USA: 329

Subject: Genetics AND NOT Medicine

n=95

Original Paper published between **1/Jan/1970 to 31/Dec/2000**

Reason for retraction: Falsification/fabrication of data OR Falsification/fabrication of images OR Falsification/fabrication of results OR manipulation of results OR Manipulation of images

Result: 28 29.5%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Euphemism for plagiarism OR Plagiarism of article OR Plagiarism of data OR Plagiarism of image OR Plagiarism of text

Result: 2 2.1%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Duplication of article OR Duplication of data OR Duplication of image OR Duplication of text OR Euphemism for duplication

Result: 10 10.5%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Unreliable data OR Unreliable image OR unreliable results

Result: 15 15.8%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Breach of policy by author OR Concerns/Issues about authorship OR Forged authorship OR Lack of approval from author OR Objections by author (s)

Result: 12 12.6%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Investigation company/institution OR investigation by journal/publisher OR Investigation by ORI OR investigation by third party

Results: 25 26.3%

China: 1; Germany: 8; India: 1; Japan: 11; South Korea: 2; UK: 10; USA: 51

Subject: Genetics AND NOT Medicine

n=122

Original Paper published between **1/Jan/2001 to 31/Dec/2005**

Reason for retraction: Falsification/fabrication of data OR Falsification/fabrication of images OR Falsification/fabrication of results OR manipulation of results OR Manipulation of images

Result: 47 38.5%

–Subject: Genetics AND NOT Medicine.

Reason for retraction: Euphemism for plagiarism OR Plagiarism of article OR Plagiarism of data OR Plagiarism of image OR Plagiarism of text

Result: 4 3.3%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Duplication of article OR Duplication of data OR Duplication of image OR Duplication of text OR Euphemism for duplication

Result: 33 27.0%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Unreliable data OR Unreliable image OR unreliable results

Result: 15 12.3%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Breach of policy by author OR Concerns/Issues about authorship OR Forged authorship OR Lack of approval from author OR Objections by author (s)

Result: 18 14.8%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Investigation company/institution OR investigation by journal/publisher OR Investigation by ORI OR investigation by third party

Results: 50 41.0%

China: 4; Germany: 7; India: 3; Japan: 24; South Korea: 6; UK: 12; USA: 70

Subject: Genetics AND NOT Medicine

n=255

Original Paper published between **1/Jan/2006 to 31/Dec/2010**

Reason for retraction: Falsification/fabrication of data OR Falsification/fabrication of images
OR Falsification/fabrication of results OR manipulation of results OR Manipulation of images

Result: 86 33.7%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Euphemism for plagiarism OR Plagiarism of article OR Plagiarism of data
OR Plagiarism of image OR Plagiarism of text

Result: 23 9.0%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Duplication of article OR Duplication of data OR Duplication of image OR
Duplication of text OR Euphemism for duplication

Result: 85 33.3%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Unreliable data OR Unreliable image OR unreliable results

Result: 37 14.5%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Breach of policy by author OR Concerns/Issues about authorship OR
Forged authorship OR Lack of approval from author OR Objections by author (s)

Result: 34 13.3%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Investigation company/institution OR investigation by journal/publisher
OR Investigation by ORI OR investigation by third party

Results: 86 33.7%

China: 49; Germany: 11; India: 16; Japan: 20 ; South Korea: 8; UK: 18; USA: 107

Subject: Genetics AND NOT Medicine

n=301

Original Paper published between **1/Jan/2011 to 31/Dec/2015**

Reason for retraction: Falsification/fabrication of data OR Falsification/fabrication of images
OR Falsification/fabrication of results OR manipulation of results OR Manipulation of images

Result: 83 27.6%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Euphemism for plagiarism OR Plagiarism of article OR Plagiarism of data
OR Plagiarism of image OR Plagiarism of text

Result: 34	11.3%
-Subject: Genetics AND NOT Medicine	
Reason for retraction: Duplication of article OR Duplication of data OR Duplication of image OR Duplication of text OR Euphemism for duplication	
Result: 78	25.9%
-Subject: Genetics AND NOT Medicine	
Reason for retraction: Unreliable data OR Unreliable image OR unreliable results	
Result: 18	6.0%
-Subject: Genetics AND NOT Medicine	
Reason for retraction: Breach of policy by author OR Concerns/Issues about authorship OR Forged authorship OR Lack of approval from author OR Objections by author (s)	
Result: 34	11.3%
-Subject: Genetics AND NOT Medicine	
Reason for retraction: Investigation company/institution OR investigation by journal/publisher OR Investigation by ORI OR investigation by third party	
Results: 97	32.2%

China:104; Germany: 12; India: 27; Japan:14; South Korea: 17; UK: 11; USA: 79

Subject: Genetics AND NOT Medicine	n=119
Original Paper published between 1/Jan/2016 to 31/Dec/2018	
Reason for retraction: Falsification/fabrication of data OR Falsification/fabrication of images OR Falsification/fabrication of results OR manipulation of results OR Manipulation of images	
Result: 5	4.2%
-Subject: Genetics AND NOT Medicine	
Reason for retraction: Euphemism for plagiarism OR Plagiarism of article OR Plagiarism of data OR Plagiarism of image OR Plagiarism of text	
Result: 14	11.8%
-Subject: Genetics AND NOT Medicine	
Reason for retraction: Duplication of article OR Duplication of data OR Duplication of image OR Duplication of text OR Euphemism for duplication	
Result: 29	24.4%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Unreliable data OR Unreliable image OR unreliable results

Result: 16 13.4%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Breach of policy by author OR Concerns/Issues about authorship OR Forged authorship OR Lack of approval from author OR Objections by author (s)

Result: 8 6.7%

–Subject: Genetics AND NOT Medicine

Reason for retraction: Investigation company/institution OR investigation by journal/publisher OR Investigation by ORI OR investigation by third party

Results: 17 14.3%

China: 55; Germany: 2; India: 14; Japan: 5; South Korea: 4; UK: 1; USA: 22

Civil proceedings: 2 (USA–PNAS–Original 2013; retraction 2017 [23440204](#) . USA–Science–Original 2009; retraction 2011 [19815723](#)) Both research articles

Criminal proceedings: 1 Italy–Cell Death & Disease– Original 2012; retraction 2014 [22932725](#) research article

Subject: Medical genetics (Genetics AND Medicine) n: 692

28 categories were included. The following categories were excluded: Medicine–Alternative, Medicine–Dentistry and Medicine–Nursing

Result: 692–2 (1 Alternative [27729729](#), 1 Dentistry [27659310](#), 0 Nursing)= **690**

Subject: Genetics AND Medicine n=690

Original Paper published between 1/Jan/1970 to 31/Dec/2018

Reason for retraction: Falsification/fabrication of data OR Falsification/fabrication of images OR Falsification/fabrication of results OR manipulation of results OR Manipulation of images

Result: 128 18.6%

–Subject: Genetics AND Medicine.

Reason for retraction: Euphemism for plagiarism OR Plagiarism of article OR Plagiarism of data OR Plagiarism of image OR Plagiarism of text

Result: 71 10.2%

–Subject: Genetics AND Medicine.

Reason for retraction: Duplication of article OR Duplication of data OR Duplication of image OR Duplication of text OR Euphemism for duplication

Result: 149 21.6%

–Subject: Genetics AND Medicine.

Reason for retraction: Unreliable data OR Unreliable image OR unreliable results

Result: 69 10%

–Subject: Genetics AND Medicine.

Reason for retraction: Breach of policy by author OR Concerns/Issues about authorship OR Forged authorship OR Lack of approval from author OR Objections by author (s)

Result: 50 7.2%

–Subject: Genetics AND Medicine.

Reason for retraction: Investigation company/institution OR investigation by journal/publisher OR Investigation by ORO OR investigation by third party

Results: 312 45.2%

China: 296; Germany: 35; India: 13; Japan: 52; South Korea: 27; UK: 17; USA: 197

Subject: Genetics AND Medicine n=55

Original Paper published between **1/Jan/1970 to 31/Dec/2000**

Reason for retraction: Falsification/fabrication of data OR Falsification/fabrication of images
OR Falsification/fabrication of results OR manipulation of results OR Manipulation of images

Result: 17 30.9%

–Subject: Genetics AND Medicine.

Reason for retraction: Euphemism for plagiarism OR Plagiarism of article OR Plagiarism of data
OR Plagiarism of image OR Plagiarism of text

Result: 2 3.6%

–Subject: Genetics AND Medicine.

Reason for retraction: Duplication of article OR Duplication of data OR Duplication of image OR
Duplication of text OR Euphemism for duplication

Result: 0 0

–Subject: Genetics AND Medicine.

Reason for retraction: Unreliable data OR Unreliable image OR unreliable results

Result: 10 18.2%

–Subject: Genetics AND Medicine.

Reason for retraction: Breach of policy by author OR Concerns/Issues about authorship OR
Forged authorship OR Lack of approval from author OR Objections by author (s)

Result: 8 14.5%

–Subject: Genetics AND Medicine.

Reason for retraction: Investigation company/institution OR investigation by journal/publisher
OR Investigation by ORO OR investigation by third party

Results: 16 29.1%

China: 0; Germany: 10; India: 1; Japan: 4; South Korea: 1; UK: 1; USA: 30

Subject: Genetics AND Medicine

n=91

Original Paper published between **1/Jan/2001 to 31/Dec/2005**

Reason for retraction: Falsification/fabrication of data OR Falsification/fabrication of images
OR Falsification/fabrication of results OR manipulation of results OR Manipulation of images

Result: 19 20.9%

–Subject: Genetics AND Medicine.

Reason for retraction: Euphemism for plagiarism OR Plagiarism of article OR Plagiarism of data OR Plagiarism of image OR Plagiarism of text

Result: 8 8.8%

–Subject: Genetics AND Medicine.

Reason for retraction: Duplication of article OR Duplication of data OR Duplication of image OR Duplication of text OR Euphemism for duplication

Result: 33 36.3%

–Subject: Genetics AND Medicine.

Reason for retraction: Unreliable data OR Unreliable image OR unreliable results

Result: 14 15.4%

–Subject: Genetics AND Medicine.

Reason for retraction: Breach of policy by author OR Concerns/Issues about authorship OR Forged authorship OR Lack of approval from author OR Objections by author (s)

Result: 7 7.7%

–Subject: Genetics AND Medicine.

Reason for retraction: Investigation company/institution OR investigation by journal/publisher OR Investigation by ORO OR investigation by third party

Results: 23 25.3%

China: 10; Germany: 11; India: 1; Japan: 16; South Korea: 11; UK: 4; USA: 36

Subject: Genetics AND Medicine

n=159

Original Paper published between **1/Jan/2006 to 31/Dec/2010**

Reason for retraction: Falsification/fabrication of data OR Falsification/fabrication of images OR Falsification/fabrication of results OR manipulation of results OR Manipulation of images

Result: 55 34.6%

–Subject: Genetics AND Medicine.

Reason for retraction: Euphemism for plagiarism OR Plagiarism of article OR Plagiarism of data OR Plagiarism of image OR Plagiarism of text

Result: 12 7.5%

–Subject: Genetics AND Medicine.

Reason for retraction: Duplication of article OR Duplication of data OR Duplication of image OR Duplication of text OR Euphemism for duplication

Result: 46 28.9%
 –Subject: Genetics AND Medicine.
 Reason for retraction: Unreliable data OR Unreliable image OR unreliable results

Result: 19 11.9%
 –Subject: Genetics AND Medicine.
 Reason for retraction: Breach of policy by author OR Concerns/Issues about authorship OR Forged authorship OR Lack of approval from author OR Objections by author (s)

Result: 10 6.3%
 –Subject: Genetics AND Medicine.
 Reason for retraction: Investigation company/institution OR investigation by journal/publisher OR Investigation by ORO OR investigation by third party

Results: 71 59.7%

China: 32; Germany: 10; India: 5; Japan: 24; South Korea: 6; UK: 7; USA: 64

Subject: Genetics AND Medicine n=326

Original Paper published between **1/Jan/2011 to 31/Dec/2015**

Reason for retraction: Falsification/fabrication of data OR Falsification/fabrication of images OR Falsification/fabrication of results OR manipulation of results OR Manipulation of images

Result: 33 10.1%
 –Subject: Genetics AND Medicine.
 Reason for retraction: Euphemism for plagiarism OR Plagiarism of article OR Plagiarism of data OR Plagiarism of image OR Plagiarism of text

Result: 36 11.0%
 –Subject: Genetics AND Medicine.
 Reason for retraction: Duplication of article OR Duplication of data OR Duplication of image OR Duplication of text OR Euphemism for duplication

Result: 60 16.4%
 –Subject: Genetics AND Medicine.
 Reason for retraction: Unreliable data OR Unreliable image OR unreliable results

Result: 18 5.5%
 –Subject: Genetics AND Medicine.

Reason for retraction: Breach of policy by author OR Concerns/Issues about authorship OR Forged authorship OR Lack of approval from author OR Objections by author (s)

Result: 27 8.3%

–Subject: Genetics AND Medicine.

Reason for retraction: Investigation company/institution OR investigation by journal/publisher OR Investigation by ORO OR investigation by third party

Results: 182 55.8%

China:222 (68.1%); Germany: 4; India: 3; Japan: 6; South Korea: 8; UK: 4; USA: 57

Subject: Genetics AND Medicine n=59

Original Paper published between **1/Jan/2016 to 31/Dec/2018**

Reason for retraction: Falsification/fabrication of data OR Falsification/fabrication of images OR Falsification/fabrication of results OR manipulation of results OR Manipulation of images

Result: 4 6.8%

–Subject: Genetics AND Medicine.

Reason for retraction: Euphemism for plagiarism OR Plagiarism of article OR Plagiarism of data OR Plagiarism of image OR Plagiarism of text

Result: 13 22.0%

–Subject: Genetics AND Medicine.

Reason for retraction: Duplication of article OR Duplication of data OR Duplication of image OR Duplication of text OR Euphemism for duplication

Result: 10 16.9%

–Subject: Genetics AND Medicine.

Reason for retraction: Unreliable data OR Unreliable image OR unreliable results

Result: 8 13.6%

–Subject: Genetics AND Medicine.

Reason for retraction: Breach of policy by author OR Concerns/Issues about authorship OR Forged authorship OR Lack of approval from author OR Objections by author (s)

Result: 11 18.6%

–Subject: Genetics AND Medicine.

Reason for retraction: Investigation company/institution OR investigation by journal/publisher OR Investigation by ORO OR investigation by third party

Results: 20 33.9%

China:32; Germany: 0; India: 3; Japan: 2; South Korea: 1; UK: 1; USA: 10

Civil proceedings: 2 Spain–Cell Cycle–research article, Original 2012-;retraction 2017 [22185780](#).
USA–Urology–research article–Original 2007; retraction 2012 [17445657](#)

Criminal proceedings: 2 Canada–J Clin Invest–research article–Original 2002; retraction 2015
[11781352](#). Italy–J Clin Invest–clinical study–Original 2007; retraction 2013 [17290307](#)

Other with less than 50 cases in both data sets

Non Medical Genetics (Genetics AND NOT Medicine) 1970–2018:

Limited or no information: 44

Results not reproducible: 81

Conflicts of interest: 8

Contaminations of cell lines, materials or reagents: 0

Error by journal/publisher: 24

Fake peer review: 27

Medical Genetics (Genetics AND Medicine) 1970–2018:

Limited or no information: 46

Results not reproducible: 37

Conflicts of interest: 5

Contaminations of cell lines, materials or reagents: 0

Error by journal/publisher: 9

Fake peer review: 155

Supplementary information–2

Description of all reasons for retraction mentioned in this study (as per Retraction Watch database user guide*)

Reason	Description
Breach of Policy by Author	A violation of the Journal, Publisher or Institutional accepted practices by the author
Civil Proceedings	Non-criminal litigation arising from the publication of the original article or the related notice(s)
Concerns/Issues About Authorship	Any question, controversy or dispute over the rightful claim to authorship, excluding forged authorship
Conflict of Interest	Authors having affiliations with companies, associations, or institutions that may serve to influence their belief about their findings
Contamination of Cell Lines/Tissues	Impurities found within cell lines or tissues
Contamination of Materials (General)	Impurities found within compounds or solutions used in experiments
Contamination of Reagents	Impurities found within compounds or solutions used to drive experimental outcomes
Criminal Proceedings	Court actions that may result in incarceration or fines arising from the publication of the original article or the related notice(s)
Duplication of Article	Also known as “self-plagiarism”. Used when an entire published item, or undefined sections of it, written by one or all authors of the original article, are repeated in the original article without appropriate citation.
Duplication of Data	Also known as “self-plagiarism”. Used when the all or part of the data from an item written by one or all authors of the original article, are repeated in the original article without appropriate citation.
Duplication of Image	Also known as “self-plagiarism”. Used when an image from an item written by one or all authors of the original article is repeated in the original article without appropriate citation.
Duplication of Text	Also known as “self-plagiarism”. Used when sections of text from an item written by one or all authors of the original article, are repeated in the original article without appropriate citation.
Error by Journal/Publisher	A mistake attributed to a Journal Editor or Publisher
Error in Data	A mistake made in the data, either in data entry, gathering or identification
Euphemisms for Duplication	The notice does not clearly state that the authors reused ideas, text, or images from one of their previously published items without suitable citation

Euphemisms for Plagiarism	The notice does not clearly state that the authors reused ideas, text, or images, without suitable citation, from items published by those not the authors
Fake Peer Review	The peer review was intentionally not performed in accordance with the journal's guidelines or ethical standards
Falsification/Fabrication of Data	Intentional changes to data so that it is not representative of the actual finding
Falsification/Fabrication of Image	Intentional changes to an image so that it is not representative of the actual data
Falsification/Fabrication of Results	Intentional changes to results so that it is not representative of the actual finding
Forged Authorship	The fraudulent use of an author name in submitting a manuscript for publication
Informed/Patient Consent – None/Withdrawn	When the full risks and benefits from being in an experiment are not provided to and accepted by the participant, or the participant chooses to later recant their approval
Investigation by Company/Institution	An evaluation of allegations by the affiliations of one or all of the authors
Investigation by Journal/Publisher	An evaluation of allegations by the Journal or Publisher
Investigation by ORI	An evaluation of allegations by the United State Office of Research Integrity
Investigation by Third Party	An evaluation of allegations by a person, company or institution not the Authors, Journal, Publisher or ORI
Lack of Approval from Author	Failure to obtain agreement from original author(s)
Manipulation of Images	The changing of the presentation of an image by reversal, rotation or similar action
Manipulation of Results	The changing of the presentation of results which may lead to conclusions not otherwise warranted
Notice – Limited or No Information	A notice provides minimal information as to the cause of the notice, or the original item is watermarked as retracted or corrected without explanation
Objections by Author(s)	A complaint by any of the original authors or refusal to agree actions taken by the Journal or Publisher
Plagiarism of Article	Used when an entire published item, or undefined sections of it, and not written by one or all authors of the original article, are repeated in the original article without appropriate citation.
Plagiarism of Data	Used when the all or part of the data from an item not written by one or all authors of the original article, are repeated in the original article without appropriate citation.
Plagiarism of Image	Used when an image from an item not written by one or all authors of the original article is repeated in the original article without appropriate citation.

Plagiarism of Text	Used when sections of text from an item not written by one or all authors of the original article, are repeated in the original article without appropriate citation.
Results Not Reproducible	Experiments conducted, using the same materials and methods, that fail to replicate the finding of the original article
Unreliable Data	The accuracy or validity of the data is questionable
Unreliable Image	The accuracy or validity of the image is questionable
Unreliable Results	The accuracy or validity of the results is questionable

*<https://retractionwatch.com/retraction-watch-database-user-guide/retraction-watch-database-user-guide-appendix-b-reasons/> Accessed 6 May 2019

Supplementary information–3

Genetic retracted articles

Logistic and lineal regression analyses

Logistic regression analysis

Medical genetics vs non–medical genetics logistic regression analysis for the reasons for retraction and investigation. 1970–2000 was taken as the reference period.

Reason for retraction		OR (95% CI)	p-value
Fabrication / falsification ^a	1970–2000	1	
	2001-2005	1.08 (0.69, 1.72)	0.736
	2006-2010	1.22 (0.82, 1.84)	0.340
	2011-2015	0.57 (0.38, 0.86)	0.007
	2016-2018	0.12 (0.05, 0.25)	0.000
Plagiarism ^b	1970–2000	1	
	2001-2005	2.16 (0.73, 7.84)	0.191
	2006-2010	3.36 (1.31, 11.4)	0.024
	2011-2015	4.47 (1.81, 14.9)	0.004
	2016-2018	6.57 (2.49, 22.6)	0.001
Duplication ^c	1970–2000	1	
	2001-2005	6.41 (3.30, 13.7)	<0.001
	2006-2010	6.54 (3.49, 13.6)	<0.001
	2011-2015	4.12 (2.21, 8.57)	<0.001
	2016-2018	3.90 (1.94, 8.55)	<0.001
Unreliable information ^d	1970–2000	1	
	2001-2005	0.79 (0.44, 1.42)	0.424
	2006-2010	0.78 (0.47, 1.33)	0.349
	2011-2015	0.31 (0.18, 0.53)	<0.001
	2016-2018	0.78 (0.42, 1.43)	0.420
Authorship issues ^e	1970–2000	1	
	2001-2005	0.88 (0.47, 1.66)	0.687
	2006-2010	0.78 (0.45, 1.39)	0.380
	2011-2015	0.73 (0.43, 1.28)	0.256
	2016-2018	0.77 (0.39, 1.51)	0.442
Investigation ^f	1970–2000	1	
	2001-2005	1.35 (0.85, 2.15)	0.206
	2006-2010	1.62 (1.08, 2.47)	0.022
	2011-2015	1.98 (1.34, 2.97)	0.001
	2016-2018	0.71 (0.42, 1.18)	0.188

The reasons for retraction and investigation as per the Retraction Watch database's nomenclature:

(a) Falsification/fabrication of data, images and of results, and manipulation of results and of images; (b) Euphemism for plagiarism and plagiarism of article, data, images or text; (c) Duplication of article, data, image and of text and euphemism for duplication; (d) Unreliable data, image or results; (e) Breach of policy by author, concerns/Issues about authorship, forged authorship, lack of approval from author, breach of policy by author and objections by author; (f) Investigation by company/institution, journal/publisher, US Office of Research Integrity or by third parties;

Linear regression analysis

Medical genetics vs non-medical genetics logistic regression analysis for the time to retraction of scientific misconduct reasons. 1970–2000 was taken as the reference period.

Reason for retraction		Coef. (95% CI)	p-value
Falsification or fabrication ^a	1970–2000	1	
	2001–2005	-0.97 (-2.46, 0.52)	0.203
	2006–2010	-3.20 (-4.52, -1.88)	<0.001
	2011–2015	-6.42 (-7.78, -5.06)	<0.001
	2016–2018	-8.18 (-11.0, -5.40)	<0.001
Plagiarism ^b	1970–2000	1	
	2001–2005	-5.97 (-8.49, -3.45)	<0.001
	2006–2010	-8.26 (-10.56, -5.95)	<0.001
	2011–2015	-8.98 (-11.22, -6.73)	<0.001
	2016–2018	-9.97 (-12.31, -7.64)	<0.001

Supplementary information-5

Medical genetics vs Non-Medical genetics retracted articles

Odds ratio. Non-medical genetics was taken as the reference group

Reason for retraction	Period	OR (95% CI) ¹	p-value
Falsification or fabrication ^a	1970-2018	0.59 (0.46, 0.75)	0.000
	1970-2000	1.07 (0.52, 2.2)	1.000
	2001-2005	0.42 (0.23, 0.79)	0.009
	2006-2010	1.04 (0.68, 1.58)	0.941
	2011-2015	0.3 (0.19, 0.46)	0.000
	2016-2018	1.66 (0.43, 6.42)	0.482
>Plagiarism ^b	1970-2018	1.21 (0.86, 1.7)	0.300
	1970-2000	1.75 (0.24, 12.82)	0.624
	2001-2005	2.84 (0.83, 9.75)	0.154
	2006-2010	0.82 (0.4, 1.71)	0.732
	2011-2015	0.97 (0.59, 1.6)	1.000
	2016-2018	2.12 (0.92, 4.86)	0.115
Duplication ^c	1970-2018	0.77 (0.61, 0.97)	0.033
	1970-2000	NC	
	2001-2005	1.53 (0.85, 2.75)	0.197
	2006-2010	0.81 (0.53, 1.25)	0.408
	2011-2015	0.64 (0.44, 0.94)	0.030
	2016-2018	0.63 (0.28, 1.41)	0.350
Unreliable information ^d	1970-2018	0.87 (0.63, 1.2)	0.447
	1970-2000	1.19 (0.49, 2.86)	0.880
	2001-2005	1.3 (0.59, 2.84)	0.654
	2006-2010	0.8 (0.44, 1.45)	0.553
	2011-2015	0.92 (0.47, 1.8)	0.940
	2016-2018	1.01 (0.41, 2.52)	1.000
Authorship issues ^e	1970-2018	0.75 (0.54, 1.04)	0.094
	1970-2000	1.18 (0.45, 3.09)	0.934
	2001-2005	0.48 (0.19, 1.21)	0.171
	2006-2010	0.44 (0.21, 0.91)	0.036
	2011-2015	0.71 (0.42, 1.21)	0.255
	2016-2018	3.18 (1.2, 8.4)	0.030
Investigation ^f	1970-2018	1.85 (1.51, 2.28)	0.000
	1970-2000	1.15 (0.55, 2.41)	0.859
	2001-2005	0.49 (0.27, 0.88)	0.025
	2006-2010	1.59 (1.06, 2.38)	0.034
	2011-2015	2.66 (1.92, 3.68)	0.000
	2016-2018	3.08 (1.46, 6.48)	0.005

The reasons for retraction and investigation as per the Retraction Watch database's nomenclature:

(a) Falsification/fabrication of data, images and of results, and manipulation of results and of images; (b) Euphemism for plagiarism and plagiarism of article, data, images or text; (c) Duplication of article, data, image and of text and euphemism for duplication; (d) Unreliable data, image or results; (e) Breach of policy by author, concerns/Issues about authorship, forged authorship, lack of approval from author, breach of policy by author and objections by author; (f) Investigation by company/institution, journal/publisher, US Office of Research Integrity or by third parties;