

Misconduct accounts for the majority of retracted scientific publications

F. C. Fang, R. G. Steen and A. Casadevall

- Number of retracted articles due to fraud has increased 10x since 1975
- Office of Research Integrity
- Rate of retraction correlates with impact factor

Office of Research Integrity

U.S. Department of Health & Human Services www.hhs.gov

ORI THE OFFICE OF RESEARCH INTEGRITY Contact Us

Home About ORI News & Events Research Misconduct RCR Resources Programs Policies & Regulations Assurance Program

Annual Assurance Due

Institutions must submit their Annual Report on Possible Research Misconduct by April 30, 2016. [Learn More...](#)

1 2 3

Misconduct Case Summaries

Newsletter

Follow Us on Twitter

PHS Administrative Action Bulletin Board

Annual Report System

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
INSTITUTIONAL ASSURANCE AND ANNUAL REPORT ON POSSIBLE RESEARCH MISCONDUCT

FORM APP...
Period Covered: Jan...
INSTITUTIONA...
INSTITUTIONA...
NAME OF INS...
MAILING AD...
Place mailing label here.

Please make any mailing changes in the space to the right:

ORI Updates [Read More](#) [Subscribe](#)

Social Media
[Twitter](#) [ORI Blog](#)
Tweets by @HHS ORI

Office of Research Integrity

- **Offices:**

- Office of Public Health and Science
- National Institutes of Health.
- The Centers for Disease Control and Prevention
- The Food and Drug Administration
- The Substance Abuse and Mental Health Services Administration
- The Health Resources and Services Administration
- The Agency for Healthcare Research and Quality.
- The Agency for Toxic Substances and Disease Registry
- The Indian Health Service
- Office of Regional Health Administrators

Office of Research Integrity

- **Directors**



Kathy Partin, Ph.D.

Director, ORI



Susan Garfinkel, Ph.D.

**Director, Division of
Investigative Oversight**



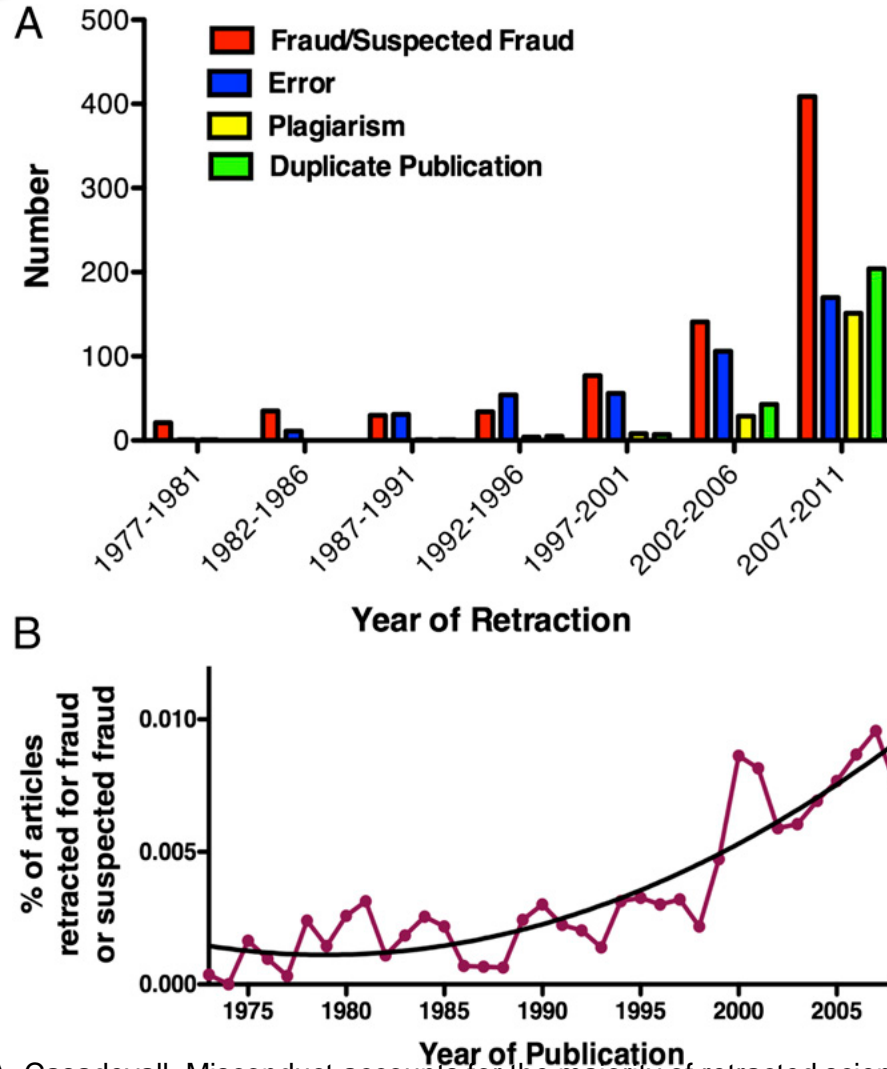
Zoë Hammatt, J.D., M.Phil.

**Director, Division of
Education and Integrity**

Study design

- Classification
 - documented fraud (data falsification or fabrication)
 - suspected fraud
 - plagiarism
 - duplicate publication
 - error
 - unknown
 - other reasons (e.g., journal error, authorship dispute)

- Pubmed 1940-2012
 - 25 million articles published
 - 2.047 retracted
 - Earliest retracted article in 1973
 - First rise of retractions in 1990s
 - plagiarism and duplicate publication only since 2005



Example 1

- King GL, Hu KQ (1991) Endothelin stimulates a sustained 1,2-diacylglycerol increase and protein kinase C activation in bovine aortic smooth muscle cells. *Biochem Biophys Res Commun* 180:1164.
- **Biochemical and Biophysical Research Communications**
“results were derived from experiments that were found to have flaws in methodological execution and data analysis,” ⇒ error
- **Investigation of Harvard University and NIH**
“many instances of data fabrication and falsification were found”

- King GL, Hu KQ (1989) Endothelin stimulates a sustained 1,2-diacylglycerol increase and protein kinase C activation in bovine aortic smooth muscle cells. *Biochem Biophys Res Commun* 180:1164.
- Retracted 1991,
- cited 70 times, last 2007
- Book published in 1998:
Endothelin: Molecular Biology, Physiology, and Pathology,
edited by Robert F. Highsmith

NCBI Resources How To Sign in to NCBI

PubMed.gov
US National Library of Medicine
National Institutes of Health

PubMed [dropdown] [input] Search

Advanced Help

Abstract [dropdown] Send to: [dropdown]

Biochem Biophys Res Commun. 1989 Jul 14;162(1):381-6.

Endothelin stimulates a sustained 1,2-diacylglycerol increase and protein kinase C activation in bovine aortic smooth muscle cells.

Lee TS¹, Chao T, Hu KQ, King GL.

⊕ Author information

Retraction in
Endothelin stimulates a sustained 1,2-diacylglycerol increase and protein kinase C activation in bovine aortic smooth muscle cells. [Biochem Biophys Res Commun. 1991]

Abstract
Endothelin is a long-lasting potent vasoconstrictor peptide. We report here that in bovine aortic smooth muscle cells, endothelin biphasically increased total cellular diacylglycerol (DAG) content. When cellular DAG was labeled with [14C] glycerol for 48h, endothelin stimulated [14C]DAG formation in a biphasic pattern. Only one prolonged phase of DAG accumulation was observed when cells were labeled with [3H]glycerol for 2 h. Endothelin induced an increase in the membranous protein kinase C (PKC) activities, which lasted for more than 20 min. These data suggest that (i) endothelin stimulates a sustained generation of DAG, (ii) this accumulation of DAG results in a sustained translocation of cytosolic PKC activities to the membrane.

Comment in
Final findings of scientific misconduct. [NIH Guide Grants Contracts. 1993]

PMID: 2665742 [PubMed - indexed for MEDLINE]

[Facebook] [Twitter] [Google+]

Publication Types, MeSH Terms, Substances, Grant Support [dropdown]

Full text links
ELSEVIER
FULL-TEXT ARTICLE

Save items [dropdown]

☆ Add to Favorites [dropdown]

Similar articles [dropdown]

Endothelin stimulates diacylglycerol accumulation and activates p [J Biol Chem. 1989]

Characterization of endothelin receptors and effects of endothelin on diacylgly [Diabetes. 1989]

Mass analysis of 1,2-diacylglycerol in cultured rabbit vascular smooth mus [Hypertension. 1990]

Review Signal transduction in vascular smooth muscle: diacylglycerol seco [Am J Physiol. 1994]

Review Protein kinase C mediation of Ca(2+)-independent contractor [Biochem Cell Biol. 1996]

See reviews...
See all...

Cited by 8 PubMed Central articles [dropdown]

Example 2

- Bois PR, et al. (2007) FOXO1a acts as a selective tumor suppressor in alveolar rhabdomyosarcoma. J Cell Biol 177:563.
- **Author statement: Journal of Cell Biology**
“In follow-up experiments . . . we have shown that the lack of FOXO1a expression reported in figure 1 is not correct”
- **Office of Research Integrity**
“research misconduct by knowingly and intentionally falsely reporting . . . That FOXO1a was not expressed . . . by selecting a specific FOXO1a immunoblot to show the desired result”

- Bois PR, et al. (2005) FOXO1a acts as a selective tumor suppressor in alveolar rhabdomyosarcoma. J Cell Biol 177:563.
- Retracted 2007
- Cited 19 times
- Last citation 2009

JCB: RETRACTION

FOXO1a acts as a selective tumor suppressor in alveolar rhabdomyosarcoma

Philippe R.J. Bois, Kamel Izeradjene, Peter J. Houghton, John L. Cleveland, Janet A. Houghton, and Gerard C. Grosveld

Vol. 170 No. 6, September 12, 2005. Pages 903–912.

The editors of *The Journal of Cell Biology* have been notified by Dr. Gerard C. Grosveld of St. Jude Children's Research Hospital, Memphis, TN, that he and the other authors of the above article wish to retract the paper.

The authors state:

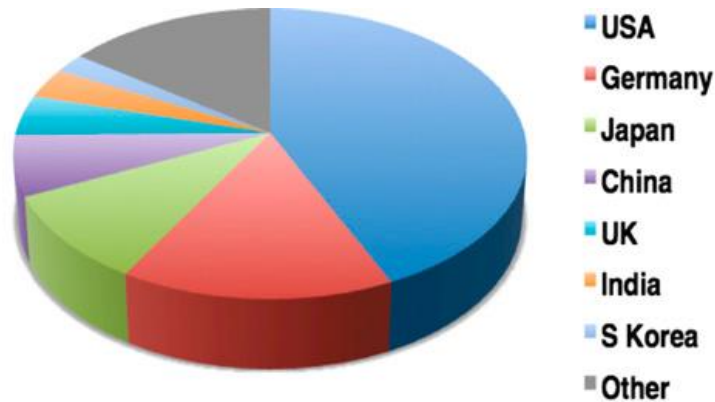
“Figure 1 of this paper was described as reflecting an experiment that showed that the expression of the FOXO1a protein was downregulated in primary tumor samples of alveolar rhabdomyosarcoma patients. In follow-up experiments, however, we have shown that the lack of FOXO1a expression reported in Figure 1 is not correct. We are now certain that primary alveolar rhabdomyosarcoma cells do express FOXO1a protein.

Given that the lack of FOXO1a protein in primary tumors was the basis for proposing that FOXO1a acts as a tumor suppressor in this childhood tumor, we must retract the paper in its entirety.”

- United States, Germany, Japan, and China accounted for three-quarters of retractions
→ for fraud or suspected fraud
- China and India combined had more cases of plagiarism than the United States

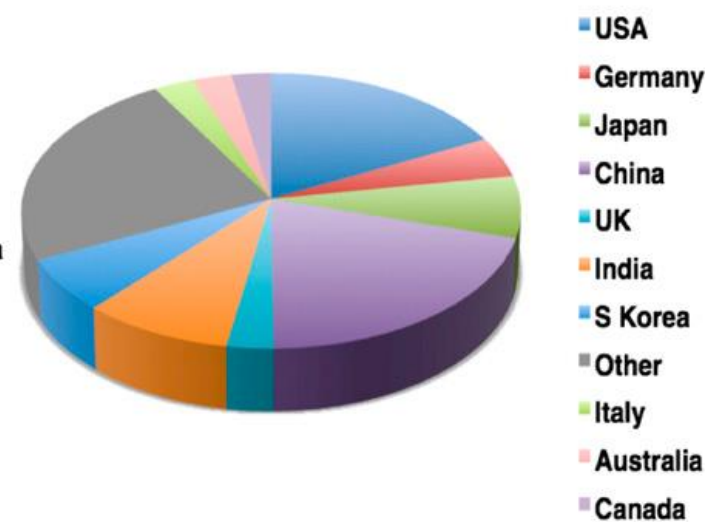
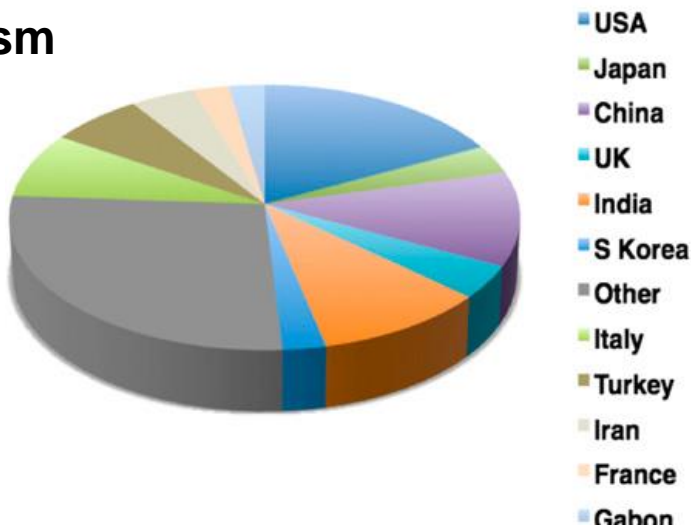
Fraud

Fraud or suspected fraud

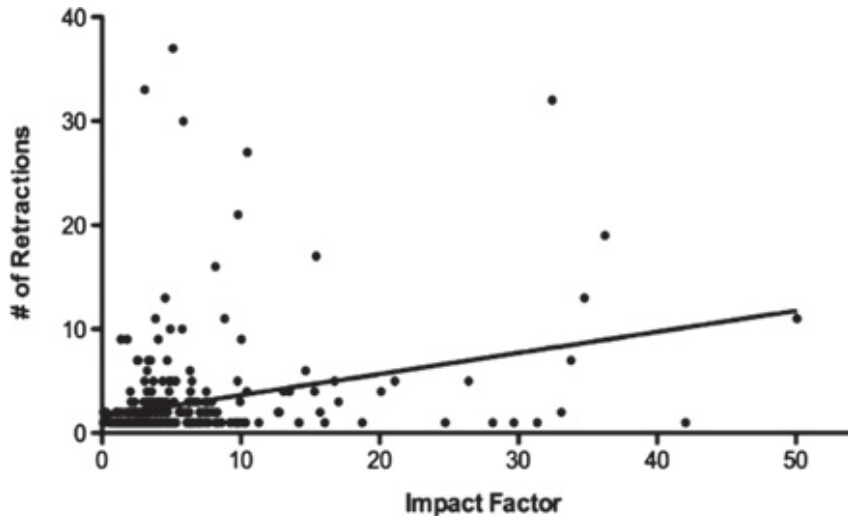


Duplicate Publication

Plagiarism

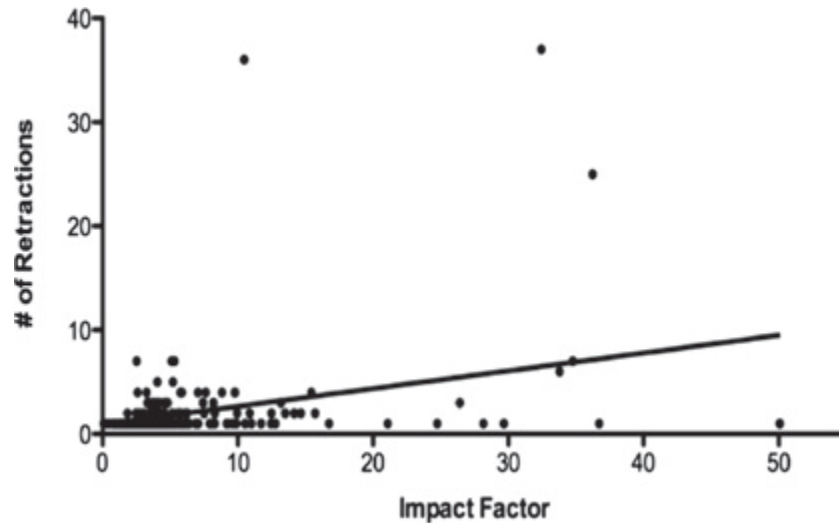


Fraud



- Longest time-to-retraction
- Thirty-eight research groups
≥ five retractions
responsible for 43.9%
(n = 390) of fraud
- n = 889 articles in 324
journals, R² = 0.08664,
- P < 0.0001

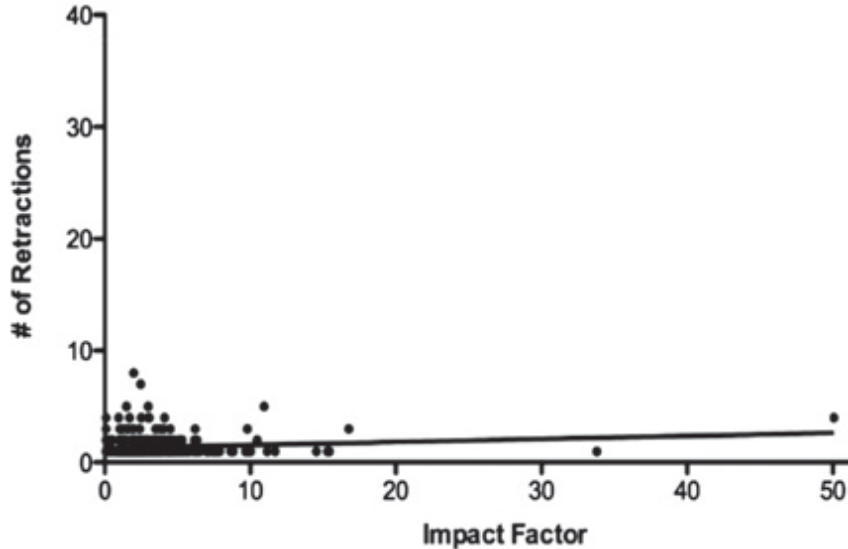
Error

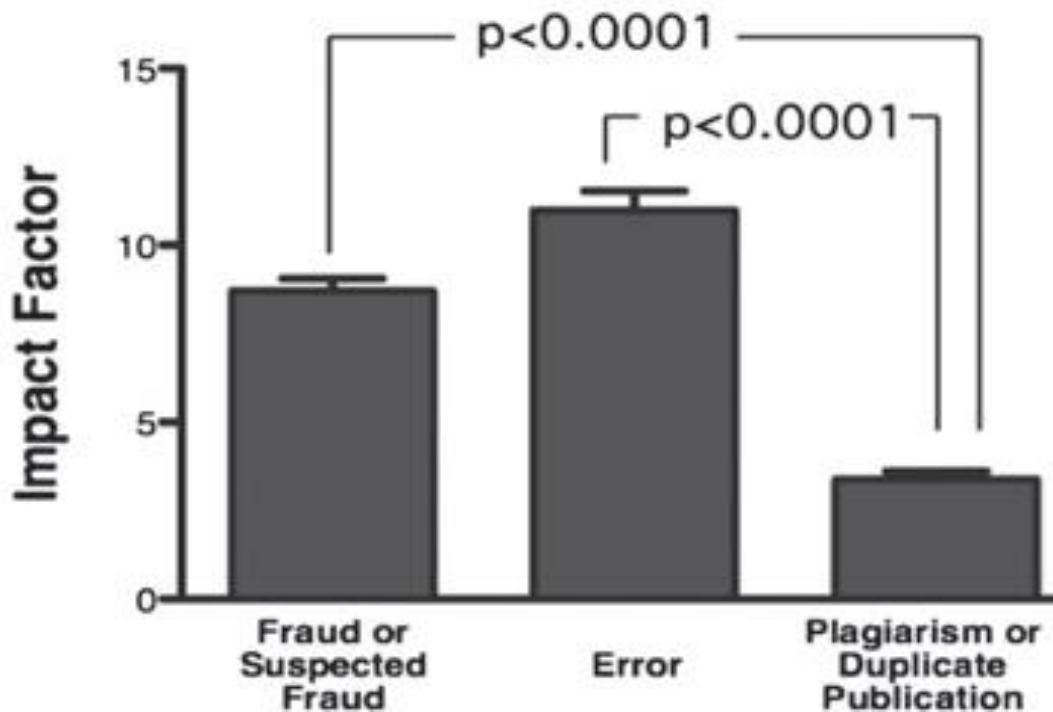


- $n = 437$ articles
- 218 journals
- $R^2 = 0.1142$,
- $P < 0.0001$

Plagiarism

- $n = 490$ articles
- in 357 journals
- $R^2 = 0.01420$
- $P = 0.0243$

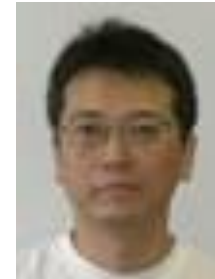




Journal	Retracted	Impact factor
Science	70	32,45
Proceedings of the National Academy of Sciences	69	10,47
The Journal of Biological Chemistry	54	5,12
Nature	44	36,24
Anesthesia & Analgesia	40	3,07
The Journal of Immunology	34	5,86
Blood	28	9,79
The Journal of Clinical Investigation	23	15,43
Cell	22	34,77
Biochemical and Biophysical Research Communications	18	2,52
The New England Journal of Medicine	16	50,08
The EMBO Journal	15	8,83
Journal of Hazardous Materials	15	4,55
Molecular and Cellular Biology	15	5,77
Infection and Immunity	14	4,06

Naoki Mori

- Retraction. Sawada S, Ishikawa C, Tanji H, Nakachi S, Senba M, Okudaira T, Uchihara J-N, Taira N, Ohshiro K, Yamada Y, Tanaka Y, Uezato H, Ohshima K, Sasai K, Burgering BMT, Duc Dodon M, Fujii M, Sunakawa H, Mori N.
- Overexpression of caveolin-1 in adult T-cell leukemia. Blood. 2010; 115(11):2220-2230.
- Followed of retraction of 30 articles
- Fired at University of the Ryukyus
- 10-year publishing ban from the American Society of Microbiology (ASM)
- Honokiol induces cell arrest and apoptosis via inhibition of survival inhibition of survival signals in adult T-cell leukemia
- in Biochimica et Biophysica Acta 2012

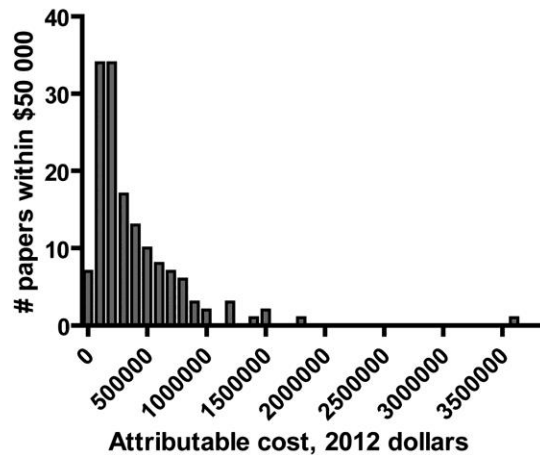


Costs 1992-2012

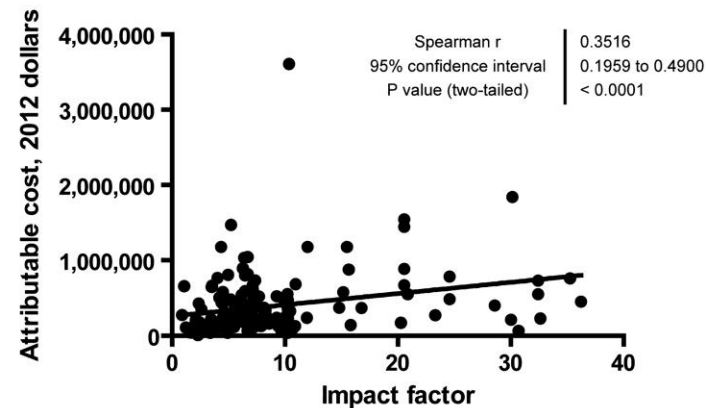
A

	All Retracted Papers	NIH-Funded Only
Total	\$58,494,718.60	\$18,278,131.46
Median	\$239,381.06	\$361,905.44
Minimum	\$7,061.95	\$38,853.65
Maximum	\$3,608,713.94	\$1,544,145.88
Mean	\$392,582.00	\$425,072.82
Standard Deviation	\$423,256.39	\$329,083.42
N	149	43

B

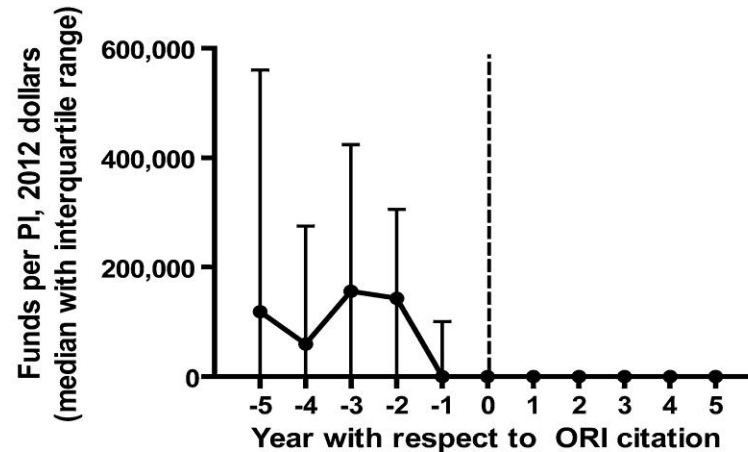


C

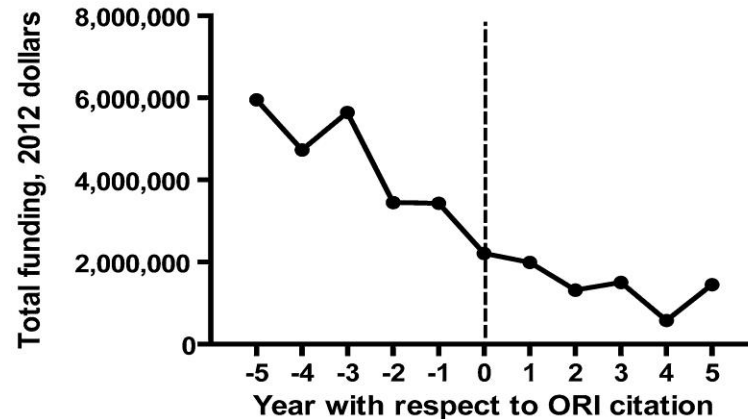


Costs 1992-2012

A



B



Conclusio

- Analysed 2,047 retracted articles in biomedical and life-science research
- 21.3% retracted due to error
- 67.4% retracted due to misconduct
 - 43.4% fraud
 - 14.2% duplication
 - 9.8% plagiarism

**THANK YOU FOR YOUR
ATTENTION!**