

NOTE

RESEARCH AND RELATORS: THE FALSE CLAIMS ACT AND SCIENTIFIC MISCONDUCT

In an era of heightened concern with waste in government,¹ Congress has given considerable attention to the issue of scientific fraud and misconduct² because of its worries about how researchers and institutions spend federal grant monies.³ The problem is a delicate one, involving the

1. Since 1988, Congress has held four separate hearings in an attempt to define the scope of waste in government and to devise ways for agencies and the scientific community to deal with it effectively. See *Scientific Fraud and Misconduct and the Federal Response: Hearings Before the Subcomm. on Human Resources and Intergovernmental Relations of the House Comm. on Government Operations*, 100th Cong., 2d Sess. (1988); *Fraud in NIH Grant Programs: Hearings Before the Subcomm. on Oversight and Investigations of the House Comm. on Energy and Commerce*, 100th Cong., 2d Sess. (1988); *Scientific Fraud: Hearings Before the Subcomm. on Oversight and Investigations of the House Comm. on Energy and Commerce*, 101st Cong., 1st Sess. (1989); *Maintaining the Integrity of Scientific Research: Hearings Before the Subcomm. on Investigations and Oversight of the House Comm. on Science, Space, and Technology*, 101st Cong., 1st Sess. (1989) [hereinafter *Maintaining the Integrity*]. See also Judith Randal, *Spate of Ethical Breaches Worries the Research Community*, WASH. POST, Dec. 6, 1988, at Z11 (members of Congress and the scientific community worry that medical sloppiness and deception will affect patient care); Jamie Talon, *Fudging Research Science*, NEWSDAY, Dec. 13, 1988, Discovery, at 5; Philip J. Hiltz, *Possible Misconduct Is Seen in Discovery of AIDS Virus*, N.Y. TIMES, Oct. 6, 1990, at 1 (NIH investigates one of this country's most respected AIDS researchers, Robert Gallo, based on allegations that Gallo's lab misappropriated the AIDS virus from a French researcher); Daniel S. Greenberg, *Science Can Ill Afford to Squander the Public's Trust*, CHI. TRIB., Apr. 7, 1991, at 3 (asserting that the scientific community, which depends on public confidence and support, should strive to avoid misconduct); Anthony Flint, *MIT's Vest Urges Restoration of Universities' Values, Goals*, BOSTON GLOBE, May 11, 1991, Metro, at 27 (in response to cases of scientific fraud and other scandals, MIT president said that "Public confidence in our universities must be fully restored."); John Crewdson, *Scientist Denies Charges in AIDS Probe*, CHI. TRIB., Aug. 15, 1991, at 1 (NIH investigates researcher Mikulas Popovic in "the biggest ever investigation of fraud in a government laboratory." Popovic denied that apparently fraudulent assertions published in an article on AIDS were his).

2. See generally WILLIAM BROAD & NICHOLAS WADE, *BETRAYERS OF THE TRUTH* (1982); ALEXANDER KOHN, *FALSE PROPHETS* (1986); Patricia K. Woolf, *Deception in Scientific Research*, 29 JURIMETRICS J. 67 (1988).

3. A number of federal agencies support individual scientists and research institutions. Some of the most prominent include the Public Health Service (PHS), the National Institutes of Health (NIH) (a branch of the PHS), and the National Science Foundation (NSF). In 1987, 15 federal agencies distributed nearly all of the federal research and development money going to colleges and universities. NATIONAL SCIENCE FOUNDATION, *FEDERAL SUPPORT TO UNIVERSITIES, COLLEGES, AND SELECTED NONPROFIT INSTITUTIONS: FISCAL YEAR 1987*, at IX (1989). Total grants that year were \$13,466,552,000. *Id.* at 9. The NSF provided \$1,069,500,000 in academic science/engineering support. *Id.* at 10. The HHS, which includes the PHS and NIH, provided

resolution of important and sometimes opposing interests.⁴

Federal agencies pour large amounts of money into scientific research.⁵ Agencies waste any money they give to fund a project based on false or unreliable data. Granting agencies, thus, have explored ways⁶ to balance the federal government's interest in accounting for its money against the need to preserve the freedom necessary to keep scientific research strong.⁷ With the 1986 amendment to the Federal False Claims Act,⁸ Congress enlarged an alternative avenue for addressing the problem through the use of private plaintiff, also known as *qui tam*, actions⁹ brought by whistleblowers against either scientists or research institutions in the name of the United States.¹⁰

Part I of this Note examines the nature and scope of the problem of scientific fraud. It defines the degrees of misconduct, discusses the corresponding levels of culpability, and considers self-policing methods within

\$4,193,800,000. *Id.* In addition, 2,879 universities and colleges received federal money that year. *Id.* at 121.

4. Even defining misconduct is a complicated issue, because it can vary greatly in its severity. *See infra* notes 19-34 and accompanying text.

5. The federal government spent over \$60 billion on research in 1988 alone. NATIONAL SCIENCE FOUNDATION, FEDERAL FUNDS FOR RESEARCH AND DEVELOPMENT: FISCAL YEARS 1986, 1987, 1988 VOL. XXXVI, at 16 (1987). *See also supra* note 3.

6. *See infra* notes 51-87 and accompanying text.

7. Scientists must be free to explore new areas without the fear of an agency looking over their shoulders. Though the difference between innovation and fraud is immense, imposing unnecessarily strict standards on research could produce a chilling effect on science in general. *See* Robert M. Andersen, *The Federal Government's Role in Regulating Misconduct in Scientific and Technological Research*, 3 J.L. & TECH. 121 (1988). Personal autonomy is a key factor in creative scientists' personalities. RICHARD S. MANSFIELD & THOMAS V. BUSSE, *THE PSYCHOLOGY OF CREATIVITY AND DISCOVERY: SCIENTISTS AND THEIR WORK* (1981). This manifests itself in a need for independence and a rejection of outside influences. Research chemists, physical and biological scientists, and industrial research scientists each display this tendency. *Id.* at 52-53.

8. 31 U.S.C. § 3729 (1986) (amending 31 U.S.C. § 3729 (1982)). *See generally* Richard J. Oparil, *The Coming Impact of the Amended False Claims Act*, 22 AKRON L. REV. 525 (1989).

9. In a *qui tam* action, a private plaintiff, having knowledge of an allegedly false claim which defrauds the government, brings a civil action in the government's name to recover damages for the allegedly false claim. *See infra* notes 88-113 and accompanying text. The principal reason for the 1986 amendment was the increasing accounts of defense contractor fraud. *See infra* notes 108-11 and accompanying text.

10. The Justice Department, having the option of joining the suit under the False Claims Act, recently joined a case that a lab technician brought against a scientist and two major universities. The case is pending in a federal district court in San Diego. *See U.S. Justice Department Joins Civil Fraud Case Against Two Universities*, BUSINESS WIRE, Aug. 21, 1990; Colleen Cordes, *U.S. Enters Lawsuit Accusing Scientist, Institutions of Fraud*, CHRON. OF HIGHER EDUC., Sept. 5, 1990, at A1. This suit alleges some \$1.2 million in damages, which the court may treble under the False Claims Act. *Id.* *See infra* notes 93-94 and accompanying text.

the scientific community. Part II explores present attempts to develop methods to deal with allegations of fraud. Part III examines both the use of *qui tam* actions and the changes wrought by the 1986 amendment. Finally, Part IV concludes that because *qui tam* actions, a powerful tool to combat fraud against the government, are not particularly well suited for addressing the problem of scientific misconduct, Congress must consider alternatives.

I. BACKGROUND: THE SCOPE OF SCIENTIFIC FRAUD

It is essential to examine the nature of scientific misconduct to evaluate the various means used to address it. The context in which scientific misconduct occurs presents regulators¹¹ with a unique problem.

There are varying degrees of scientific misconduct, ranging from blatant forgery to subtle manipulation of data.¹² Misconduct may not be at all obvious.¹³ The researcher's expectations may influence her interpretation of the data collected in an experiment.¹⁴ Additionally, the scientific community has at times forgiven misconduct as time has passed and the community has accepted the researcher's underlying ideas.¹⁵

Trying to define the varying degrees of blameworthiness or culpability involved in scientific misconduct is problematic.¹⁶ Clearly, the outright fabrication of data is something that federal agencies and the scientific community should prevent; but it is difficult both to define the more subtle gradations of scientific misconduct and to attach to such gradations

11. For an examination of federal agency attempts to regulate research, see *infra* notes 51-87 and accompanying text.

12. For examples of the spectrum of scientific misconduct, see *infra* notes 19-36 and accompanying text.

13. There is a fine line between a researcher who intentionally manipulates data and one who may unconsciously do so, at least as it may appear to an outside observer. See *infra* notes 32-34 and accompanying text.

14. See *infra* note 32.

15. Isaac Newton is probably the most surprising example of such a phenomenon. In his classic *Principia*, Newton bolstered some of his theories by manipulating data to more precisely fit his conclusions. Newton's indulgence in the falsification of data demonstrates how even the most principled of scientists may succumb to temptation. Scientists did not discover Newton's alterations for 250 years. BROAD & WADE, *supra* note 2, at 27-29. See also *infra* note 32.

16. Different types of conduct involve varying degrees of fault. Any strategy to curtail scientific misconduct must be flexible enough to take this into account. Federal agencies responsible for the administration of grants for scientific research have attempted to formulate definitions of misconduct. See *infra* notes 58-59 and accompanying text.

degrees of culpability.¹⁷ Because the line between intentional fraud and simple, innocent sloppiness is difficult to discern, any scheme to deal with scientific misconduct must detect and dismiss spurious or groundless claims to avoid seriously damaging an accused researcher.¹⁸

A. *Defining Scientific Misconduct*

Scientific fraud manifests itself in many different ways. Observers note, however, three generally identifiable degrees of possible scientific misconduct: outright fabrication, the "cleaning up" of legitimate data, and self-deception.¹⁹

Outright fabrication is the wholesale forgery of data, the making up of an experiment out of thin air.²⁰ It is the most extreme, probably the rarest, and should be, at least in theory, the most detectable form of misconduct.²¹ However, a number of researchers have successfully fabricated entire experiments for long periods of time.²² For example, in one case, a researcher allegedly engaged in misconduct, including the forging of data, for ten years and continued his behavior beyond the misconduct's initial detection.²³

17. See BROAD & WADE, *supra* note 2, at 20; KOHN, *supra* note 2, at 4; Woolf, *supra* note 2, at 70-71.

18. See Steven G. Olswang & Barbara A. Lee, *Scientific Misconduct: Institutional Procedures and Due Process Considerations*, 11 J.C. & U.L. 51 (1984). In addition, due process considerations most often are present in publicly funded institutions. A faculty member at such an institution has a protected property interest deriving from the employment contract. *Id.* at 58. Moreover, the destruction of a researcher's reputation can form the basis of a liberty interest. *Id.* at 59. See Board of Regents v. Roth, 408 U.S. 564, 573 (1972) ("a person's good name, reputation, honor or integrity" can give rise to protected liberty interests).

19. BROAD & WADE, *supra* note 2, at 20. There are inevitably shades of behavior between these general categories. Broad & Wade hypothesize that a researcher who begins to improve data by making minor alterations may advance gradually to wholesale fabrication. *Id.*

20. KOHN, *supra* note 2, at 4. Some commentators consider scientific plagiarism a form of forgery. *Id.* Plagiarism involves stealing parts or all of someone else's work and presenting it as one's own. *Id.* One well-known instance of suspected plagiarism led to the discovery of other misconduct by the accused researcher, a well-respected assistant professor at Yale. However, it took a year and a half and a substantial amount of persistence on the part of the scientist whose research the plagiarist appropriated to obtain an investigation that exposed the perpetration. BROAD & WADE, *supra* note 2, at 161-78 (case of Vijay Soman).

21. BROAD & WADE, *supra* note 2, at 61. Some researchers believe that science's internal controls will always expose this form of misconduct. *Id.* See *infra* note 37.

22. See generally Woolf, *supra* note 2, at 78. The case of Robert Slutsky involved alleged fabrication that took place from 1974 to 1984. It was not disclosed publicly until 1986. In another case, the alleged misconduct took place from 1975 until 1985. *Id.*

23. *Id.* In this case, the researcher, John Darsee, allegedly engaged in misconduct from 1974 until 1981. *Id.* Colleagues at Harvard Medical School observed him forging data for an experiment.

The perpetrator's culpability in this instance is clear.²⁴ Fraudulent data may taint not only the work of the researcher who engages in the misconduct but also that of any legitimate researcher who bases further work on the published fraudulent data.²⁵ Thus, knowingly falsifying data should and does warrant serious repercussions.²⁶

The second tier of misconduct is somewhat different. Researchers "clean up" data when they intentionally manipulate them to support their thesis more strongly.²⁷ Data "clean up" often involves a researcher who accurately reports the methods she used in carrying out an experi-

He confessed when confronted, and the medical school allowed him to continue working in the laboratory based upon his assertion that only on this occasion had he engaged in such behavior. Darsee subsequently published a number of papers. He left the institution only after other evidence of his misconduct began to surface. KOHN, *supra* note 2, at 84-88.

In another case, a scientist continued his misconduct for a year following its detection. Only three years later did the public learn of the case, though the misconduct took place throughout a ten-year period. See Woolf, *supra* note 2, at 78. Recently, a Nobel prize-winning scientist lent his name to a paper that allegedly contained falsified data. See Philip J. Hiltz, *Nobel Prize Winner Apologizes for Defending Research Paper With Faulty Data*, N.Y. TIMES, May 4, 1991, at 1; *Dealing With Fraud in Science*, CHI. TRIB., Apr. 6, 1991, at 16; Malcolm Gladwell, *Scientist Retracts Paper Amid Allegations of Fraud; Draft Report Finds Researcher Falsified Data*, WASH. POST, Mar. 21, 1991, at A1. In this case, Dr. Thereza Imanishi-Kari included Dr. David Baltimore's name as co-author of a research paper that she wrote and primarily researched. *Dealing With Fraud In Science, supra*. Imanishi-Kari submitted the paper to the prestigious journal *Cell*, which published it. After persistent attempts by Dr. Margot O'Toole to bring the allegedly falsified data to light, the Office of Scientific Integrity, a branch of the National Institutes of Health, launched an investigation into Imanishi-Kari's research. See *infra* note 71. A draft report of the investigation indicated that the charges had some basis. Gladwell, *supra*, at A6. Although the report does not implicate Dr. Baltimore, it prompted him to apologize for his prolonged defense of Imanishi-Kari's work. Hiltz, *supra*.

24. Not only is forgery unethical, but it can have other serious consequences as well. Contrary to the common assumption that scientific fraud is a victimless crime, "the victims may be very obvious: those who remained ill or died because fraud or carelessness diverted research away from the problems that should have been investigated." SIGMA CHI, HONOR IN SCIENCE 6 (1986), reprinted in *Maintaining the Integrity, supra* note 1, at 492.

25. Faulty information introduced into the scientific arena may spur genuine research based on the original, flawed observations. KOHN, *supra* note 2, at 18. Therefore, "the same error is repeated and thus non-existent phenomena confirmed." *Id.* An example of this phenomena, without the occurrence of misconduct, took place in the 1960s. N.N. Fedaykih, a Soviet chemist, announced the discovery of a new type of liquid called polywater. *Id.* at 26. Scientists later determined that polywater was merely the result of impurities present during the experiments in 1964-70. Before scientists debunked the polywater myth, numerous scientists had spent time and resources investigating it. *Id.* at 27-28.

26. Thus, engaging in conduct of this sort may permanently ruin a researcher's reputation, making it extremely difficult, if not impossible, for the researcher to find future employment. See Olswang & Lee, *supra* note 18, at 55. For possible agency sanctions when a researcher has misused grant money, see *infra* notes 63-65 and accompanying text.

27. KOHN, *supra* note 2, at 4. Within this category itself, a wide spectrum of behavior probably exists. False reporting may include a scientist exaggerating the number of trials of an experiment she

ment, but changes the raw data so that a chart or curve of the data appears smoother.²⁸ In one such case, a scientist auditing a researcher recalled how impressed he and others had been at the scientist's apparently "clean" data curves prior to the revelation of misconduct.²⁹

In these cases, the degree of the researcher's culpability is not as clear as it is in the case of outright fabrication. While the cleaning up of data is a thoroughly undesirable practice, both the dishonesty it involves and the damage it causes are probably less than that involved in outright forgery.³⁰ Another difference between forgery and manipulation is that the latter is more difficult to discover.³¹

Self-deception, the final identifiable degree of scientific manipulation, occurs when a researcher's expectations affect the way in which he interprets the experiment's data.³² A researcher's expectations may result in

conducted, or misrepresenting an error margin. *Id.* Other false reporting may involve a scientist omitting from a paper results of experiments that are unfavorable to his thesis. *Id.*

28. *Id.*

29. BROAD & WADE, *supra* note 2, at 173-74. The accused researcher later admitted that he had "smoothed out" the data in order to achieve the graceful curves that often are difficult to produce by legitimate means. The investigation later revealed that the researcher probably also had engaged in wholesale fabrication of experiments. *Id.* See *supra* note 20.

The auditor's reaction can explain failures to detect such misconduct. Researchers who consistently come up with such impressive looking data sometimes arouse not the suspicion, but the admiration of their colleagues. BROAD & WADE, *supra* note 2, at 179. On the other hand, data that are "too good" may arouse suspicion. See Woolf, *supra* note 2, at 87.

30. Cases involving "clean ups" are unlike those when a scientist completely has forged data. KOHN, *supra* note 2, at 4. Because these cases involve manipulated but not wholly falsified data, they likely are based, at least in part, on the truth. *Id.*

31. A reviewing scientist must usually audit a researcher's work to catch such misconduct. See *supra* note 29 and accompanying text. It is difficult to determine, however, when a researcher's work requires an audit, because of the natural variance that occurs between a scientific experiment's trials. BROAD & WADE, *supra* note 2, at 75-77. In cases when the researcher accurately has described the methods he used to arrive at his "cleaned up" data, investigating scientists may repeat the experiment, but they would not be able legitimately to reach the same results and conclusions that the fudged data reflect. *Id.* at 76. Investigating scientists often may attribute such an incongruous result to the initial researcher's perceived skill rather than to any misconduct on his part. *Id.* at 71. In the case of scientist Vijay Soman, for example, *supra* note 29, investigators conducted an audit only after accusations of plagiarism against him came to light. In addition, it took considerable effort on the complaining researcher's part to initiate an inquiry. BROAD & WADE, *supra* note 2, at 161-80. It is only once an investigator commences an audit and learns that the notes of the laboratory data do not match the published data that he or she discovers the researcher's manipulation.

32. See BROAD & WADE, *supra* note 2, at 107-25. A particularly extreme example of self-deception, involving an entire scientific community, occurred in France in the early nineteenth century. A French scientist claimed to have discovered what he called N-rays. The French scientific community praised him and many scientists proceeded to publish papers examining the effects of N-rays. Other scientists subsequently showed that N-rays do not exist. There is no evidence that any

her interpreting data in a desired manner, possibly ignoring more probable explanations or interpretations.³³ As a result, the researcher unconsciously alters the data, and it may sometimes appear that she did so intentionally.³⁴ Therefore, it may be difficult to differentiate between cases in which a researcher intentionally has altered data and those in which alterations were unconscious.

The difference between the two in terms of blameworthiness is, however, great. While those who intentionally manipulate data deserve serious sanctions, those who may have done so innocently do not.³⁵ Such instances of self-deception may arise not from an intention to deceive, but rather from the researcher's deep faith in her work, a faith that goes so

one of the scientists knowingly committed fraud in their examination of the N-rays. They were "taken in" by what they wanted and expected to see. *Id.* at 112-13. Broad & Wade explain this occurrence by noting that the French scientific community as a whole felt that it was falling behind other nations' scientific progress. Thus, nationalistic pride played a significant part in the French scientists' response to the "discovery" of N-rays. *Id.* at 114. See also KOHN, *supra* note 2, at 18-34.

Simple sloppiness is a related problem that may occur when a scientist incorrectly performs an experiment, and thus distorts its outcome. KOHN, *supra* note 2, at 18. To an outsider, the flawed outcome may appear to be a case of misconduct. Leon Cooper, a Nobel Prize winning physicist, addressed this type of occurrence:

We are aware that many experiments are extraordinarily difficult to do and the best and most honest can be misled. In addition, as we have seen in recent instances involving high-temperature superconductivity and cold fusion, the normal human desire to appear in the papers, to announce the results first, to hold the first press conference, can lead to sloppy work.

Leon N. Cooper, *The Straw Man of Scientific Fraud*, CHI. TRIB., May 17, 1991, Perspective, at 27. Professor Cooper points out that "one doesn't rush about trying to explain every bizarre result that surfaces." *Id.* His solution to the problem centers around "investigat[ing] what it is that pressures scientists." *Id.*

33. BROAD & WADE, *supra* note 2, at 108. The researcher's desire to believe the results is often at the root of cases of self-deception. *Id.*

34. As in the N-ray case, *supra* note 33, the scientist who thought he had discovered these rays did, in effect, make up the entire thing. BROAD & WADE, *supra* note 2, at 108. Yet the fraud was self-inflicted. He truly believed in his finding's validity and this belief, in turn, impaired his ability to be objective. *Id.* See also Woolf, *supra* note 2, at 71 (sloppiness, which sometimes must reasonably be tolerated in an area of dynamic research, may be confused with intentional misconduct).

35. In their study, Broad and Wade state that "[s]elf deception and outright fraud differ in volition—one is unwitting, the other deliberate." BROAD & WADE, *supra* note 2, at 105. A "double blind" experiment may reduce this problem's occurrence. In this technique, a supervisor conceals the identity of the experimental and control groups from the researcher to prevent the researcher from projecting his expectations onto the research's results. *Id.* at 108-09.

Several agencies that grant research funds define misconduct in such a way as to take into account a particular discipline's prevailing norms. By providing a relative standard against which an observer may judge the degree of negligence, this formulation reduces the chance that the observer will confuse simple negligence with intentional misconduct. See *infra* notes 58-59 and accompanying text.

far as to impede her ability to be objective. Error that self-deception causes results not from the researcher's desire to promote herself, as does intentional misconduct,³⁶ but from her close involvement with her work and ideas. Thus, punishing this behavior as intentional misconduct would not deter intentional misconduct.

B. *The Present System of Checks in Science*

The scientific research process' self-monitoring system has three main components: peer review, a referee system, and replication.³⁷ The peer review system is composed of a group of scientists who advise the government on how to distribute its funds to grant applicants.³⁸ Under the referee system, scientific journals send submitted manuscripts to experts in the field for review.³⁹ Finally, replication involves scientists repeating each other's experiments to confirm the original results.⁴⁰

Commentators have exposed weaknesses in the traditional self-policing methods.⁴¹ Because both the peer review and referee systems involve other scientists' subjective determinations of the worthiness and quality of research, they are limited in their ability to discover and deter misconduct.⁴² Furthermore, replication often does not catch misconduct be-

36. A substantial number of cases of misconduct involve a researcher who tries to advance her career by increasing her research output. BROAD & WADE, *supra* note 2, at 52-53. See also *supra* notes 20 and 23.

37. BROAD & WADE, *supra* note 2, at 61. Some scientists believe that the checks inherent in science itself deal adequately with potential problems. They argue, thus, that any potential external controls are not only unnecessary but likely to damage scientific research. See *Fraud in Biomedical Research: Hearings Before the Subcomm. on Investigation and Oversight of the House Comm. on Science and Technology*, 97th Cong., 1st Sess. 43, 76 (1981) (statements of several leading scientists that a few aberrant individuals are responsible for misconduct and that it is not a general problem). This attitude among scientists may not prove very productive in light of the congressional reaction to it. Several members of Congress were taken aback by their perception that some scientists were indignant that Congress was even conducting hearings on the subject. See BROAD & WADE, *supra* note 2, at 11-13. At least one congressman expressed concern with the prestigious scientists' reluctance to "take these matters very seriously." *Id.* at 11.

38. BROAD & WADE, *supra* note 2, at 11.

39. *Id.* at 62.

40. *Id.* In the traditional self-policing scheme, replication plays the most important role. Thus, scientists expose fraudulent claims when they repeat the researcher's experiment and are unable to achieve the original results in their own laboratories. This system should be foolproof. *Id.* However, this is not always so. See *infra* note 43 and accompanying text.

41. See generally BROAD & WADE, *supra* note 2, at 1-21; KOHN, *supra* note 2, at 1-11.

42. Observers often fail to take the possibility of misconduct seriously. BROAD & WADE, *supra* note 2, at 179. Affiliation with a prestigious institution or a prominent researcher often can virtually immunize a junior researcher from serious scrutiny. The more impressive a person's reputation as a researcher is, the less chance that fellow scientists will investigate any allegations of misconduct. *Id.*

cause reviewing scientists do not replicate as frequently as they should.⁴³

C. *How Prevalent is Scientific Fraud?*

The actual prevalence of scientific fraud is a matter of considerable controversy. Estimates run from one commentator's viewing 99.999% of the research conducted as untarnished, to a report that ninety percent of scientists have personal knowledge of intentional misconduct.⁴⁴ It is certain, however, that recent cases have received a large amount of publicity.⁴⁵

Some commentators blame the scientific research system's structure for imposing demands on researchers that lead to misconduct.⁴⁶ The pressure to publish also diminishes the effectiveness of science's traditional checks.⁴⁷ One influential study describes the problem as having

See generally id. at 161-80. Moreover, a scientist may create the impression of success by engaging in misconduct. Such misconduct can sometimes be self-sustaining. For example, in the Darsee case, *supra* note 23, the researcher acquired a reputation for being incredibly productive. Ironically, this reputation was principally a result of the researcher's scientific misconduct. Due to the scientific community's erroneous perception of the researcher, however, it failed to take criticism of his work seriously. *See BROAD & WADE, supra* note 2, at 13-15. *See also supra* note 29 and accompanying text.

43. *BROAD & WADE, supra* note 2, at 76. Broad and Wade identify three reasons replication serves only as a limited policing mechanism. *Id.* First, if published accounts do not contain all of an experiment's details, other researchers may be unable to duplicate it effectively. Knowing this, other scientists may not attempt to replicate the experiment. *Id.* Second, experiments often require large amounts of resources, both financial and human. Consequently, scientists are unlikely to replicate an experiment unless they expect that it will produce a significant outcome. Finally, there are few incentives for a scientist to replicate another's experiment. Scientists receive very little credit for replicating someone else's findings. The competitive world of science values originality most. *Id.*

44. Woolf, *supra* note 2, at 71.

45. *See supra* note 1 and accompanying text. The publicity of even a few cases creates pressures to "do something" about the problem regardless of disputes as to the extent of the misconduct. *See infra* note 115 (Congress must assure constituents that it is addressing the problem) (statement of Rep. Hayes). Some reporters have used individual cases of misconduct as an opportunity to "demean all quality control mechanisms in science, particularly peer review and experimental replication." Woolf, *supra* note 2, at 89. The press tends to treat misconduct in research as more serious than other types of fraud. *Id.* at 88.

46. Broad and Wade note that the structure of science serves to encourage fraud in several ways. One such aspect of science is the lab chief system, in which junior researchers give the head of a lab partial credit for discoveries the junior researchers make. *BROAD & WADE, supra* note 2, at 213-14. Another aspect is the existence of a "celebrity system" among scientists. *Id.* at 214. According to Broad and Wade, young researchers initially drawn to science in the pursuit of knowledge, may turn cynical when they see that their elders are preoccupied more with the chasing of scientific honors than with the dispassionate examination of nature. *Id.* *See also KOHN, supra* note 2, at 199.

47. "The system, with its heavy emphasis on results, on producing papers, on winning the next

roots in the increasing number of "careerists" in the scientific community.⁴⁸ According to this view, the scientific research community measures advancement in terms of the volume of papers a researcher publishes.⁴⁹ This pressure to publish leads some researchers to engage in misconduct to meet the scientific community's considerable expectations.⁵⁰

II. AGENCY ATTEMPTS TO ADDRESS SCIENTIFIC MISCONDUCT

As a result of an increase in concern over scientific fraud,⁵¹ agencies responsible for distributing grant money have been requiring more accountability from researchers.⁵² Most agencies, however, rely on the research institution to police its scientists' activities.⁵³ Therefore, the emerging practice involves a joint effort by the granting agencies and the scientific community itself.⁵⁴ An examination of the policies agencies adopt to review and control research demonstrates the delicacy of the problems and interests involved, and shows to what pains agencies will go to protect those interests.

A. *The National Science Foundation*

The National Science Foundation (NSF) funds science and engineering research at many institutions.⁵⁵ It has promulgated regulations to address misconduct in federally funded programs.⁵⁶ The NSF rulemaking addressed three broad issues: the standards under which scientists should conduct research; the types of procedures institutions should use in identifying, investigating, and addressing misconduct; and the means to protect institutions and individuals in cases of misconduct.⁵⁷

research grant, sets up pressures that favor glory-getting and credit-grabbing over the dispassionate pursuit of truth." BROAD & WADE, *supra* note 2, at 214.

48. *Id.* at 38-59.

49. *Id.* at 56 (while a scientific paper was once a "vehicle for the transmission of scientific truth . . . today its importance has been diminished as it more and more has become a tool of the careerist").

50. *Id.* at 55-56.

51. *See supra* note 1.

52. *See supra* note 1 (congressional hearings); Andersen, *supra* note 7.

53. *See infra* notes 58-61 and accompanying text.

54. *See* Andersen, *supra* note 7, at 147-48. Andersen concludes that institutions' efforts should focus on the ethical education of aspiring young scientists. *Id.* at 148.

55. *Id.* at 122.

56. *See* 45 C.F.R. § 689 (1990) (misconduct in science and engineering research).

57. Andersen, *supra* note 7, at 124. Within the NSF, the Division of Audit and Oversight

The NSF regulations define actionable misconduct as behavior that deviates from accepted scientific practice or violates a legal requirement.⁵⁸ This definition allows for some flexibility in the classification of a particular course of conduct.⁵⁹

Pursuant to NSF regulations, research institutions are primarily responsible for the discovery and investigation of misconduct.⁶⁰ The regulations require the institution to inform the NSF if a matter is sufficiently serious,⁶¹ but if the NSF learns of the allegations first, it may conduct its own inquiry or inform the institution so that it may conduct an internal

(DAO), a division of the NSF's Office of Budget, Audit and Control, handles scientific misconduct. The DAO conducts investigations and generally coordinates activities related to misconduct. 45 C.F.R. § 689.1(f) (1990).

58. The regulation provides: " 'Misconduct' means (1) fabrication, falsification, plagiarism, or other serious deviation from accepted practices in proposing, carrying out, or reporting results from research; (2) material failure to comply with Federal requirements for protection of researchers . . . ; or (3) failure to meet other material legal requirements governing research." 45 C.F.R. § 689.1(a) (1990). See Andersen, *supra* note 7, at 126-27 (noting that this "definition" of misconduct leaves defining the standards governing acceptable practices to the scientific community).

59. The definition permits differences in standards and methods among different areas of science. Some disciplines stress certain aspects of research more stringently than others. For example, disciplines such as physics insist on absolute accuracy in numerical measurements, while a more relaxed standard prevails in many of the social sciences. Andersen, *supra* note 7, at 130.

60. The regulation provides:

(a) Awardee institutions bear primary responsibility for prevention and detection of misconduct. In most instances, NSF will rely on awardee institutions to promptly:

- (1) Initiate an inquiry into any suspected or alleged misconduct;
- (2) Conduct a subsequent investigation, if warranted; and
- (3) Take action necessary to ensure the integrity of research, the rights and interests of research subjects and the public, and the observance of legal requirements or responsibilities.

45 C.F.R. § 689.3(a) (1990).

61. The regulation provides in relevant part:

(b) If an institution wishes NSF to defer independent inquiry or investigation, NSF expects it to:

...

- (3) Notify NSF even before deciding to initiate an investigation or as required during an investigation (i) if the seriousness of apparent misconduct warrants; (ii) if immediate health hazards are involved; (iii) if NSF's resources, reputation, or other interests need protecting; (iv) if Federal action may be needed to protect the interests of a subject of the investigation or of others potentially affected; or (v) if the scientific community or the public should be informed.

45 C.F.R. § 689.3(b)(3) (1990). See Andersen, *supra* note 7, at 132. Andersen describes situations in which, although the regulations do not so require, the NSF will conduct an investigation of its own. The NSF will conduct investigations upon receipt of evidence that the misconduct implicates an institution's high-level officials, if an institution's reports are deficient, if the NSF possesses information that strongly contradicts what the institution has reported, or if an institution unnecessarily delays an investigation. *Id.* at 133.

investigation.⁶²

The regulations call for a variety of sanctions upon the discovery of misconduct.⁶³ For the most serious infractions, the government may debar a researcher from further participating in federally funded programs.⁶⁴ As the government funds most research, this can be a strong

62. The regulation provides that the agency may: "1) Inform the awardee institution of the alleged misconduct and encourage it to undertake an inquiry; 2) Defer to inquiries or investigations of the awardee institution or of another Federal agency; 3) At any time proceed with its own inquiry." 45 C.F.R. § 689.4(d) (1990). Whether an agency or the institution proceeds with the investigation, the agency must provide due process if it sanctions the researcher. Andersen, *supra* note 7, at 141. The agency may alter the procedure it accords an accused researcher depending on the severity of the alleged offenses and the sanctions that would result. *Id.* at 142-43.

63. See generally Andersen, *supra* note 7, at 135-38.

64. The regulation provides:

(a) Possible final actions listed below for guidance range from minimal restrictions (Group I) to the most severe and restrictive (Group III). They are not exhaustive and do not include possible criminal sanctions.

(1) *Group I Actions.* (i) Send a letter of reprimand to the individual or institution.

(ii) Require as a condition of an award that for a specified period an individual, department, or institution obtain special prior approval of particular activities from NSF.

(iii) Require for a specified period that an institutional official other than those guilty of misconduct certify the accuracy of reports generated under an award or provide assurance of compliance with particular policies, regulations, guidelines, or special terms and conditions.

(2) *Group II Actions.* (i) Restrict for a specified period designated activities or expenditures under an active award.

(ii) Require for a specified period special reviews of all requests for funding from an affected individual, department, or institution to ensure that steps have been taken to prevent repetition of the misconduct.

(3) *Group III Actions.* (i) Immediately suspend or terminate an active award under appropriate NSF regulations.

(ii) Debar or suspend an individual, department, or institution from participation in NSF programs for a specified period after further proceedings under applicable regulations.

(iii) Prohibit participation of an individual as an NSF reviewer, advisor, or consultant for a specified period.

(b) In deciding what actions are appropriate when misconduct is found, NSF officials should consider:

(1) How serious the misconduct was;

(2) Whether it was deliberate or merely careless;

(3) Whether it was an isolated event or part of a pattern;

(4) Whether it is relevant only to certain funding requests or awards or to all requests or awards involving an institution or individual found guilty of misconduct.

(c) Interim actions may include, but are not limited to:

(1) Totally or partially suspending an existing award;

(2) Totally or partially suspending eligibility for NSF awards in accordance with debarment-and-suspension regulations;

(3) Proscribing or restricting particular research activities, as, for example, to protect human or animal subjects;

(4) Requiring special certifications, assurances, or other administrative arrangements to ensure compliance with applicable regulations or terms of the award;

(5) Requiring more prior approvals by NSF;

(6) Deferring funding action on continuing grant increments;

sanction.⁶⁵ However, the NSF regulations also seek to protect the rights of accused scientists and the research institutions with whom they affiliate.⁶⁶ Because the publicization of spurious accusations can ruin a career, the NSF regulations are especially concerned with handling allegations carefully.⁶⁷ The regulations require that the investigator handle initial inquiries promptly and discreetly.⁶⁸ In addition, if the accused researcher is in the process of applying for new grant money at the time of such an inquiry, the investigators will not inform those reviewing the application of the ongoing proceedings.⁶⁹

The NSF regulations also take pains to protect those who blow the whistle on researchers engaged in misconduct.⁷⁰ Blowing the whistle on someone can be a trying experience.⁷¹ Therefore, NSF regulations both ensure that investigators keep informers' names confidential and exempt

(7) Deferring a pending award;

(8) Restricting or suspending use of individuals as NSF reviewers, advisors, or consultants.

(d) For those cases governed by the debarment and suspension regulations, the standards of proof contained in those regulations shall control. Otherwise, NSF will take no final action under this section without a finding of misconduct supported by a preponderance of the relevant evidence.

45 C.F.R. § 689.2 (1990).

65. See Andersen, *supra* note 7, at 135-36.

66. See generally *id.* at 138-45.

67. *Id.*

68. The regulation provides: "NSF staff who learn of alleged misconduct will promptly and discreetly inform DAO or refer informants to DAO." 45 C.F.R. § 689.4(a) (1990).

69.

Neither a suspicion or allegation of misconduct nor a pending inquiry or investigation will normally delay review of proposals. To avoid influencing reviews, reviewers or panelists will *not* be informed of allegations or of ongoing inquiries or investigation. However, if allegations, inquiries, or investigations have been rumored or publicized, the responsible Assistant Director may, in consultation with DAO, either defer review or inform reviewers of the status of the matter.

45 C.F.R. § 689.6(b) (1990) (emphasis in original).

70. See generally Andersen, *supra* note 7, at 145-48. The effectiveness of any attempt to deal with scientific misconduct depends, among other things, on the willingness of those with information to come forward. *Id.* at 145.

71. One researcher, Robert L. Sprague, testified before a House of Representatives committee regarding his attempt to report another researcher's suspected misconduct. *Maintaining the Integrity*, *supra* note 1, at 186-89. Sprague attempted to call the misconduct to the attention of a journal, which had published some allegedly tainted research, but was unable to get the journal to acknowledge the possible misconduct until another publication threatened to publish an account of the matter. *Id.* at 187. In addition, the National Institute of Mental Health delayed and reduced Sprague's grant at the time of his report. *Id.* As a result of these experiences, Sprague felt that "[w]histle blowers . . . who challenge well-known authorities must be protected. If their allegations are substantiated, they should not suffer for their actions." *Id.* at 188. See also KOHN, *supra* note 2, at 200-02; Andersen, *supra* note 7, at 145; Daniel S. Greenberg, *Lab-Scam: How Science Goes Bad*, WASH.

investigation records from freedom of information requests.⁷²

B. *The Public Health Service*

The Public Health Service (PHS) administers many federal grant programs to medical researchers. Like the NSF, it recently has addressed the problem of scientific fraud and misconduct in regulations it promulgated in August 1989.⁷³ Many of the PHS' provisions resemble those of

POST, Apr. 24, 1988, at D3 (Dr. Jerome Jacobstein describing how he was made to feel "as if I were the accused" when he tried to report misconduct).

Recently Margot O'Toole's case has become widely known. See Barbara Carton, *The Price of Principle—Margot O'Toole Blew the Whistle on Her Boss and Paid for Her Courage*, CHI. TRIB., Apr. 28, 1991, at WC 12; Abigail Trafford, *Ivory Tower Whistle-Blowers; Researchers Who Allege Scientific Fraud Pay a Price*, WASH. POST, Mar. 26, 1991, at Z6; *The Price Exacted in Battling Fraud*, S.F. CHRON., Mar. 25, 1991, at A20 [hereinafter *The Price Exacted*]; Joyce Price, *Scientific Whistleblower Cleared After Years of Derision by Peers*, WASH. TIMES, Mar. 22, 1991, at A5. Ms. O'Toole, a junior researcher at MIT, tried unsuccessfully for six years to call attention to alleged fraud in the work of Thereza Imanishi-Kari, a more senior researcher. As a result of her protests, MIT fired Ms. O'Toole. The NIH Office of Scientific Integrity finally vindicated O'Toole when it reported that Imanishi-Kari had falsified data. *Id.* Dr. David Baltimore, a Nobel Prize-winning molecular biologist, co-signed Imanishi-Kari's findings. *The Price Exacted, supra.* See also *supra* note 23 and accompanying text. As a result of O'Toole's claims, Dr. Baltimore apparently attacked her professional reputation. *The Price Exacted, supra.* Dr. O'Toole's report led not only to an investigation, but also to three congressional hearings. *Id.*

72. The regulation provides:

To the extent possible the identity of informants who wish to remain anonymous will be kept confidential. To the extent allowed by law, documents and files maintained by NSF during the course of an inquiry or investigation of misconduct will be treated as investigative files exempt from mandatory public disclosure upon request under the Freedom of Information Act.

45 C.F.R. § 689.4(b) (1990). The regulation classifies such records as investigative reports to immunize them from freedom of information requests. *Id.*

73. See Policies of General Applicability, 54 Fed. Reg. 32,449 (1989). The PHS created the Office of Scientific Integrity (OSI), which oversees PHS policies and procedures regarding scientific misconduct. The OSI thus reviews activities of the National Institutes of Health (NIH), an agency under the aegis of the PHS responsible for the distribution of large grants. *Id.* at 32,446. See Warren E. Leary, *On the Trail of Research Misconduct, "Science Police" Take the Limelight*, N.Y. TIMES, Mar. 25, 1991, at A13 (OSI investigates charges of scientific misconduct brought to its attention).

The OSI conducts investigations under procedures found in an NIH guidebook. See NATIONAL INSTITUTES OF HEALTH, GUIDE FOR GRANTS AND CONTRACTS—POLICIES AND PROCEDURES FOR DEALING WITH POSSIBLE MISCONDUCT IN SCIENCE (1986). A federal district court recently struck down these guidelines because, although they functioned as rules, they failed to conform with the Administrative Procedure Act's notice and comment requirements. *Abbs v. Sullivan*, 756 F. Supp. 1172, 1189 (W.D. Wis. 1990). See 5 U.S.C. § 553(c) (1988) (requiring an agency to allow "interested persons an opportunity to participate in the rulemaking through submission of written data, views, or arguments"). The guidelines had allowed the OSI to "impose permanent sanctions on individuals and institutions found guilty either of engaging in scientific misconduct or permitting it to occur that can result in great damage to the reputations of individuals and institutions." 756 F.

the NSF.⁷⁴

As a condition for a grant application, the PHS requires that an institution formulate a policy to deal with scientific misconduct in biomedical or behavioral research.⁷⁵ This requirement has prompted many institutions to revise their misconduct policies.⁷⁶ PHS regulations require that institutional policies contain several features.⁷⁷ An institution must investigate immediately allegations of misconduct and complete an inquiry within sixty days of its initiation.⁷⁸ The PHS regulations require that the investigator maintain the accused individual's confidentiality to the

Supp. at 1189. The procedures allowed the PHS to take a number of actions before the OSI completed its investigation. *Id.* at 1177. These included suspension of an award, suspension of eligibility for further awards, curtailment of selected research activities, and more restrictive specifications for further grant applications. *Id.* The OSI is working on promulgating new regulations that conform with the APA notice and comment requirements. Robb London, *Judge Voids Rules on Scientific Fraud Inquiries*, N.Y. TIMES, May 3, 1991, at B11.

The court's invalidation of these procedures raised questions about the fairness of OSI methods.

The problem is that the O.S.I. is made up of scientists who are steeped in the academic tradition of collegiality, of taking care of these things internally, free from outside scrutiny. . . . They've been free to apply the scientific model—where a researcher's scientific claims are doubted until he is proven otherwise.

Id. (quoting Robert Charrow, an attorney who is an expert regarding scientific misconduct). See also *The Science Cops*, WASH. POST, June 29, 1991, at A22.

74. See generally Andersen, *supra* note 7.

75. The institution must provide an assurance that it:

- (1) Has established an administrative process, that meets the requirements of this Subpart, for reviewing, investigating, and reporting allegations of misconduct in science in connection with PHS-sponsored biomedical and behavioral research conducted at the applicant institution or sponsored by the applicant; and
- (2) Will comply with its own administrative process and the requirements of this Subpart.

42 C.F.R. § 50.103(a)(1)-(2) (1990). The institution must reassert its assurance annually to the OSI. *Id.* at (b).

The regulations subject to sanctions an institution that does not fulfill its obligations to conduct properly an investigation into an alleged case of misconduct: "In addition to sanctions that the institution may decide to impose, the Department [of Health and Human Services] also may impose sanctions of its own upon investigators or institutions based upon authorities it possesses or may possess, if such action seems appropriate." 42 C.F.R. § 50.104(a)(7) (1990). More generally, the institution "shall foster a research environment that discourages misconduct in all research and that deals forthrightly with possible misconduct." 42 C.F.R. § 50.105 (1990). If an institution fails to do this, it may lose its funding, or the OSI may launch its own investigation. *Id.*

76. See, e.g., Linda R. Monroe, *UCSD Institutes First Formal Policy on Research Fraud*, L.A. TIMES, Oct. 28, 1988, Part 2, at 1.

77. See generally 42 C.F.R. §§ 50.101-.106 (1990). These subparts outline general policies that all institutions receiving funds under PHS programs must follow. *Id.*

78. 42 C.F.R. § 50.103(d)(1) (1990). The institution must write a report detailing the evidence, statements by witnesses, and conclusions arrived at in the investigation. *Id.* Additionally, the institution must provide the party under investigation with a copy of the report. The regulation grants the individual under investigation the right to comment on the report. Those comments become a part of the record. *Id.*

greatest extent possible and grant him an opportunity to respond.⁷⁹ In addition, the institutional policy must allow for a thorough investigation if, after the initial inquiry, the evidence so warrants.⁸⁰ Unlike the NSF,⁸¹ the PHS mandates that institutions report all investigations to the relevant agency.⁸²

C. Research Institution Policies

Since research institutions bear much of the responsibility for policing scientific misconduct, many have formulated policies to address the problem.⁸³ Such a delegation of investigative responsibility raises important questions.⁸⁴ Some critics suggest that research institutions have an inherent conflict of interest when they conduct investigations of misconduct in their own laboratories.⁸⁵ However, others argue that institutions

79. *Id.* at (d)(3). The institution's policies also must protect the whistleblower's privacy "to the maximum extent possible." *Id.* at (d)(2). If the institution proceeds with an investigation, it must notify the OSI's director. *Id.* at (d)(4). In addition, the institution must notify the OSI within 24 hours if "any reasonable indication of possible criminal violations" exists. *Id.* at (d)(5).

80. *Id.* at (d)(7). The investigation must proceed:

within 30 days of the completion of the inquiry, if findings from that inquiry provide sufficient basis for conducting an investigation. The investigation normally will include examination of all documentation, including but not necessarily limited to relevant research data and proposals, publications, correspondence, and memoranda of telephone calls. Whenever possible, interviews should be conducted of all individuals involved either in making the allegation or against whom the allegation is made, as well as other individuals who might have information regarding key aspects of the allegations; complete summaries of these interviews should be prepared, provided to the interviewed party for comment or revision, and included as part of the investigatory file.

Id. The investigation must also include "necessary and appropriate expertise to carry out a thorough and authoritative evaluation of the relevant evidence." *Id.* at (d)(8). The institution must provide adequate documentation to substantiate its findings, *id.* at (d)(10), and it must keep the OSI informed during, *id.* at (d)(12), and upon completion of the investigation. *Id.* at (d)(15). If no evidence confirms the allegations, the institution must undertake "diligent efforts . . . to restore the reputations of persons alleged to have engaged in misconduct." *Id.* at (d)(13).

81. See *supra* notes 60-61 and accompanying text.

82. 42 C.F.R. § 50.104(a)(1) (1990). The institution must report to the OSI. *Id.*

83. See *supra* note 76.

84. See generally Andersen, *supra* note 7, at 132-35; Woolf, *supra* note 2, at 83-89. See also Benjamin Weiser, *How Well Do University Researchers Police Themselves; A Case at Georgetown Raises the Question*, WASH. POST, Jan. 22, 1991, at Z10 (raising questions about the early dismissal by a university scientific misconduct committee of an inquiry into the activities of a prominent researcher).

85. Some who have reported misconduct feel that research institutions are biased against them. Andersen, *supra* note 7, at 133. Substantial criticism derives from the "inherent conflict of interest whenever [an institution] performs an investigation of one of its researchers or faculty members," because if the investigation reveals misconduct it will damage the institution's reputation. *Id.*

have a self interest in preventing all misconduct.⁸⁶ Furthermore, the individual institution is best situated to design procedures, guided by the granting agency's basic requirements,⁸⁷ that most effectively protect those involved.

III. THE USE OF THE *QUI TAM* PROVISION OF THE FALSE CLAIMS ACT

Congress developed the private plaintiff, or *qui tam*, action⁸⁸ primarily to address fraud in government contracts.⁸⁹ Congress amended the False Claims Act in 1986 to encourage individuals to bring *qui tam* suits to prevent fraud against the government.⁹⁰ The amendment provided greater incentives for private plaintiffs to bring such suit.⁹¹ Congress in-

86. *Id.* at 134-35. Furthermore, sound investigative and detection methods should deter such conduct from occurring in the first place. Some commentators argue that the institution is poised best to investigate and punish misconduct. Moreover, an institution can determine best whether and to what degree a researcher has violated the institution's policies or accepted practices of the field. *Id.* Some propose that institutions should take care to prevent potential conflicts of interest by ensuring that the members of investigative panels are free from bias. *Id.* at 134. Nonetheless, the NSF regulations do not provide for such screening. *Id.*

87. *Id.* See also *supra* notes 73-82 and accompanying text.

88. 31 U.S.C. §§ 3729-30 (1988).

89. Congress initially created the *qui tam* action in 1863 to combat contractor fraud against the Union Army during the Civil War. Oparil, *supra* note 8, at 526. See also S. REP. NO. 345, 99th Cong., 2d Sess. 8 (1986), reprinted in 1986 U.S.C.C.A.N. 5266, 5267-73.

90. See generally *False Claims Act Amendments: Hearings Before the Subcomm. on Administrative Law and Governmental Relations of the House Comm. on the Judiciary*, 99th Cong., 2d Sess. (1986); *Overview of False Claims and Fraud Legislation: Hearing Before the Senate Comm. on the Judiciary*, 99th Cong., 2d Sess. (1986); John Moore, *Citizen Prosecutors*, 22 NAT'L J. 2006 (1990). Fraud in defense contracts was a hot topic at the time Congress passed the amendments to the False Claims Act. See generally *Defense Procurement Fraud Law Enforcement: Hearing Before the Subcomm. on Administrative Practice and Procedure of the Senate Comm. on the Judiciary*, 99th Cong., 1st Sess. (1985); James K. Gordon, *Defense Dept. Has Debarred 322 Contractors in Fiscal 1986*, AVIATION WEEK AND SPACE TECHNOLOGY, Oct. 6, 1986, at 69; Charlie Gofen, *Crying Foul Over Defense Spending: Poll of Hawks, Doves and Others Shows Perception of Waste and Fraud*, WASH. POST., Aug. 19, 1986, at A15 (poll shows that 65% of U.S. citizens believe fraud in defense spending is higher now than it has been in last two decades); *19 Tied to Defense Industry Indicted in Kickback Schemes*, WASH. POST., July 15, 1986, at A7; *One General the Defense Department Can't Fire*, U.S. NEWS & WORLD REP., Dec. 16, 1985, at 7 (Defense Department suspended General Dynamics for allegedly charging the Department \$7.5 million in cost overruns); Michael Weisskopf, *Air Force Bought Tools it Didn't Need or Use; GAO Says Contractor Got Blank Check*, WASH. POST., Sept. 22, 1985, at A6 (overcharges to the Air Force included an \$8,832 tool that did not work; the contractor later reduced the price to \$370); Tony Kaye, *It's Waste as Usual at the Pentagon*, 240 THE NATION 721, June 15, 1985 (General Electric suspended for allegedly overcharging the Air Force for labor costs in the sum of \$800,000).

91. See Oparil, *supra* note 8, at 555; Moore, *supra* note 90, at 2008.

creased the possible sum awarded to private plaintiffs, or relators, providing for a floor of twenty-five percent and a ceiling of thirty percent of the suit or settlement's proceeds.⁹² Furthermore, the 1986 amendment provides for treble damages⁹³ compared to the earlier law, which allowed only for double damages.⁹⁴

A *qui tam* suit has a number of prerequisites, some of which are jurisdictional.⁹⁵ The most important of these is the requirement that the per-

92. 31 U.S.C. § 3730(d)(2) (1988). The plaintiff is eligible for the maximum award if the Justice Department decides not to join the suit and the plaintiff prosecutes the case alone. If the Justice Department takes over the suit, however, the private plaintiff may receive between 15% and 25% of the proceeds. *Id.* at (d)(1). The earlier version of the False Claims Act defined the private plaintiff's return as a reasonable amount not to exceed 25% of the proceeds. 31 U.S.C. § 3730(c)(2) (1982). *See also* Oparil, *supra* note 8, at 558. Under certain circumstances, the court may reduce the private plaintiff's award. This may occur, for example, when the plaintiff affirmatively is involved in the misconduct. 31 U.S.C. § 3730(d)(3) (1988). The court may award attorney's fees and expenses to a prevailing defendant if the plaintiff continues the action without the government's participation and the court concludes that the action was "clearly frivolous, clearly vexatious, or brought primarily for purposes of harassment." *Id.* at (d)(4).

In addition, the amendments protect the private plaintiff against retaliation by his or her employer:

Any employee who is discharged, demoted, suspended, threatened, harassed, . . . because of lawful acts . . . in furtherance of an action under this section . . . shall be entitled to all relief necessary to make the employee whole. Such relief shall include reinstatement with the same seniority status such employee would have had but for the discrimination, 2 times the amount of back pay, interest on the back pay, and compensation for any special damages sustained as a result of the discrimination, including litigation costs and reasonable attorneys' fees.

Id. at (h).

93. 31 U.S.C. § 3729(a) (1988). In addition to the treble damages, the court may find a defendant liable for penalties additional to actual damages. These penalties may run from \$5,000 to \$10,000. *Id.* *See also* Oparil, *supra* note 8, at 555. Others who face liability include: "Any person who: . . . (2) knowingly makes, uses, or causes to be made or used, a false record or statement to get a false or fraudulent claim paid or approved by the Government; (3) conspires to defraud the Government by getting a false or fraudulent claim allowed or paid." 31 U.S.C. § 3729(a)(1)-(7) (1988).

94. 31 U.S.C. § 3729 (1982).

95. Section (e) lists certain actions barred:

. . . .

(2)(A) No court shall have jurisdiction over an action brought under [the Act] against a Member of Congress, a member of the judiciary, or senior executive branch official if the action is based on evidence or information known to the Government when the action was brought.

. . . .

(3) In no event may a person bring an action under [this Act] which is based on allegations or transactions which are the subject of a civil suit or an administrative civil money penalty proceeding in which the Government is already a party.

(4)(A) No court shall have jurisdiction over an action under this section based upon the public disclosure of allegations or transactions in a criminal, civil, or administrative hearing, in a congressional, administrative, or [GAO] report, hearing, audit, or investigation, or

son bringing the action be the “original source.”⁹⁶ The relator must have “direct and independent knowledge of the information” forming the basis of the action.⁹⁷ The potential plaintiff also must offer the information to the government before bringing suit.⁹⁸

Once the relator has brought suit, the Justice Department may join it.⁹⁹ The Act also allows the government to dismiss the suit once it notifies the relator.¹⁰⁰ The court may limit the individual plaintiff’s control over the litigation upon a government showing that the case so warrants.¹⁰¹ For example, a case may so warrant when the private plaintiff’s participation unduly burdens the defendant or when the government suspects that the private plaintiff brought the suit to harass the defendant.¹⁰²

The 1986 amendment makes the *qui tam* provision of the False Claims Act a very powerful weapon;¹⁰³ so powerful that even the Justice Department expressed reservations about the wisdom of the added incentives.¹⁰⁴ These reservations stemmed from a concern about possible private plain-

from the news media, unless the action is brought by the Attorney General or the person bringing the action is the original source of the information.

31 U.S.C. § 3730(e) (1988).

96. *Id.* at (e)(4)(A)-(B). The “original source” is “an individual who has direct and independent knowledge of the information on which the allegations are based and has voluntarily provided the information to the Government before filing an action under this section which is based on the information.” *Id.* at (B).

97. *Id.*

98. *Id.*

99. *Id.* at (b)(2). The court seals the complaint in camera for at least 60 days while the Justice Department decides whether it will intervene. *Id.*

100. *Id.* at (c)(2)(A). The government may also settle the action on its own if the court determines after a hearing that the proposed settlement is fair, adequate, and reasonable under all the circumstances. *Id.* at (c)(2)(B).

101. *Id.* at (c)(2)(C)-(D).

102. *Id.* at (c)(2)(D).

103. See *supra* notes 91-94 and accompanying text for a description of the increased incentives and greater penalties.

104. Richard K. Willard, Assistant Attorney General, articulated these concerns to a Senate Committee conducting a hearing into false claims and fraud legislation in 1986. *Overview of False Claims and Fraud Legislation, supra* note 89, at 5 (statement of Richard K. Willard, Assistant Attorney General, Civil Division, Department of Justice). Willard stated that “[b]ecause of the demonstrated, consistent misuse of the current *qui tam* statute to bring frivolous, politically-motivated lawsuits, the Justice Department has strong reservations about any effort to further liberalize this provision.” *Id.* at 12. Although changes in the original bill allayed these fears somewhat, Willard noted that the Justice Department continued to have reservations about the *qui tam* action. *Id.* See also Moore, *supra* note 89, at 2009. Some in the Justice Department would prefer to see a system of incentives that rewards whistleblowers financially, leaving enforcement efforts solely under the control of the Justice Department. *Id.* at 2010.

tiff misuse of the cause of action.¹⁰⁵ In several instances, evidence suggests that a private plaintiff used the *qui tam* action to harass a rival or to serve political goals.¹⁰⁶ Although the Justice Department will dismiss cases brought for improper motives, many times the defendant must retain counsel before the Department dismisses the suit.¹⁰⁷

Furthermore, the legislators' overriding concern in designing the new amendment was to respond to a perceived increase in fraud by companies under contract to the government, most often in defense fields.¹⁰⁸ In de-

105. See Moore, *supra* note 89, at 2010.

106. The Department of Justice submitted a letter to a congressional hearing on the False Claims Acts Amendments describing a number of cases private plaintiffs brought, some of which "appear to have purposes other than or in addition to the collection of money for the United States." See *False Claims Act Amendments*, *supra* note 90, at 170. In one case brought under the False Claims Act, the claimant sought to recover funds from a university that allegedly wrongfully denied him tenure. The plaintiff claimed that, because the university received government contract and research grant funds, the denial of tenure came within the scope of the False Claims Act. *Id.* at 171 (describing the *United States v. University of Colorado*, Civil No. 82-M-806 (D. Colo.)).

The Justice Department's letter cited a number of other cases in which political or other motives may have underlain the action. *Id.* at 170-71 (citing *United States ex rel. Martin-Trigona v. Gerald Ford*, Civil No. 76-1374 (D.D.C.) (suit brought against presidential candidates for accepting matching funds against allegedly illegal campaign contributions); *United States ex rel. Thompson v. Pendergast*, Civil No. 76-7006 (D.D.C.) (suit brought against the Sergeant-at-Arms of the House of Representatives for accepting pay and performing no House duties in return for assisting the Democratic Campaign Committee); *United States ex rel. U.S.-Namibia Trade & Cultural Council, Inc. v. South West Africa People's Org.*, 585 F. Supp. 632 (S.D.N.Y. 1984) (action against apparently rival organization for receipt of United Nations funds in alleged violation of the False Claims Act)).

107. *False Claims Act Amendments*, *supra* note 97, at 172 (letter from John R. Bolton, Assistant Attorney General, to the subcommittee chairman).

108. Representative Glickman discussed the purposes of the amendments to the False Claims Act at the opening of the House hearings on the subject. *Id.* at 1-3 (opening statement of Rep. Glickman, subcommittee chairman). He noted that "legislative movement in this area has been spurred by reports of fraudulent activities involving Pentagon contracts—and I might also mention HHS contracts as well—but the fact of the matter is that the legislation we are considering will impact Government contracts across the board." *Id.* at 2. See also *supra* note 90. Congress further explained the need for legislative action:

Evidence of fraud in Government programs and procurement is on a steady rise. In 1984, the Department of Defense conducted 2,311 fraud investigations, up 30 percent from 1982. Similarly, the Department of Health and Human Services has nearly tripled the number of entitlement program fraud cases referred for prosecution over the past 3 years. . . . While fraud is obviously not limited to any one Government agency, defense procurement fraud has received heightened attention over the past few years. In 1985 . . . 45 of the 100 largest defense contractors, including 9 of the top 10, were under investigation for multiple fraud offenses.

S. REP. NO. 345, *supra* note 89, at 5267. Rep. Howard Berman, a co-author of the 1986 amendments, explained that they "will serve as a major new tool to encourage direct citizen action against contractors who defraud the government." Statement of Rep. Berman, *quoted in* Weinstein, *New Whistle-Blower Law Hailed; Berman Calls it a Major Tool Against Contract Fraud*, L.A. TIMES, Nov. 4, 1986, at 24. Most of the testimony in the congressional hearings preceding the amendments

fense fields, a whistleblower faces grave consequences as a result of informing on an employer.¹⁰⁹

Fraud in defense and similar fields is of a different nature, however, than that carried on in the scientific arena. In science, it is by no means a practice that has the acquiescence of the community as a whole as might be the case when a defense contractor systematically defrauds the government.¹¹⁰ As a result of this acquiescence, each of a contractor's individual employees is under extreme pressure not to inform.¹¹¹ Congress meant to address this problem through the added incentives to the *qui tam* provision.

The most likely plaintiff in a scientific misconduct case would be a fellow researcher or a laboratory technician. Such individuals are most likely to have firsthand knowledge of misconduct and to recognize it as such.¹¹² They would not face the extreme pressure to refrain from divulging such information that a defense contractor's employee would experience, however, because the scientific community as a whole does not support misconduct in any way.¹¹³

concerned defense contract fraud. S. REP. NO. 345, *supra* note 89, at 5269-71. Congress saw defense contract fraud as pervasive. *Id.* at 5268. The Department of Justice estimated its losses from fraud in 1985 at between one and ten billion dollars. *Id.*

109. S. REP. NO. 345, *supra* note 89, at 5270-71.

110. In some instances, defense contractors defrauded the government with the company supervisors' knowledge and encouragement. A whistleblower in that case most likely would be a worker caught up in a "conspiracy of silence." The legislative history stated that "[t]he Committee believes changes are necessary to halt the so-called 'conspiracy of silence' that has allowed fraud against the government to flourish." *Id.* at 5271. The cost of betraying this conspiracy might be a worker's job and livelihood. *Id.* at 5270. The legislative history noted that one worker "concluded not only from his own experience but from talking to his fellow workers that there is 'absolutely no encouragement or incentive' for individuals working in the defense industry to report fraud." *Id.*

111. *Id.* One employee who finally did inform described the reaction of his supervisors:

They reacted angrily, calling me anti-management, anti-Rockwell, and a pain in the ass. . . . Gradually, I was squeezed out of the work I was doing. I was stripped of my confidential security, my access to documents was limited, I was excluded from meetings and was put to work doing menial tasks outside my job description, such as sweeping, making coffee, and cleaning a 50 gallon coffee pot.

Id. at 5270 (quoting *False Claims Reform Act: Hearings on S. 1562 Before the Subcomm. on Administrative Practice and Procedure of the Senate Comm. on the Judiciary*, 99th Cong., 1st Sess. 81 (1985)).

112. One commentator found that in 22 of 26 reported cases of misconduct, one of the primary factors in the detection of the misconduct was reports by present or former co-workers. Woolf, *supra* note 2, at 82. See also Olswang & Lee, *supra* note 18, at 55 ("In most cases, allegations of scientific misconduct are lodged by co-workers or technical support staff who either witness the fraudulent recording of data or identify discrepancies when comparing data collected.").

113. Rather, agencies and institutions have been unwilling to investigate allegations. See BROAD & WADE, *supra* note 2, at 213-15. This, rather than a motivation to seek revenge against the

IV. ANALYSIS AND PROPOSAL

Fraud in scientific research is a potentially serious problem that granting agencies must confront effectively. Any method of dealing with scientific misconduct that has the potential to sacrifice the free exchange of ideas is not, however, worth its cost. In coordination with federal agencies, the scientific community must develop methods that balance the government's legitimate interest in keeping track of its money and ensuring that institutions spend that money on worthwhile projects, with the preservation of an atmosphere conducive to scientific pursuits.

A. *Qui Tam Actions Are Inappropriate in the Scientific Fraud Arena*

The use of private-plaintiff actions to expose dishonest researchers and regain misused government funds inflicts much greater costs than it ultimately saves. Congress never envisioned that private-plaintiff actions would apply to scientific misconduct. During hearings on scientific misconduct, one congressman emphasized that Congress should not introduce the "liability explosion" into research and development.¹¹⁴ Congress also was concerned that observers not view the hearings as adversarial, but rather as a cooperative effort to ensure the integrity of research.¹¹⁵

whistleblower, made it difficult for whistleblowers to come forward with claims of misconduct. *See supra* notes 20, 70. Overcoming this hurdle will allow whistleblowers to make complaints. However, this is not to say that a whistleblower in the scientific community has an easy task. *See supra* note 70, for examples of difficulties that a whistleblower faces. As whistleblowers begin to come forward, the system should take their complaints more seriously. However, unlike the defense contracting field, the scientific community does not accept misconduct tacitly. *See Maintaining the Integrity, supra* note 1, at 14 (testimony of Dr. Lyle W. Bivens, Acting Director, Office of Scientific Integrity Review, HHS).

114. During hearings on scientific misconduct, Representative Ritter raised concerns of abuse: "But we need to be careful here. . . . We are seeing a liability explosion in America, and the entire field of retractions and corrections of scientific papers is ripe for some serious libel litigation, and [we should not] bring the liability explosion deeply into the process of research and development." *Maintaining the Integrity, supra* note 1, at 7 (statement of Rep. Ritter).

115. Representative Hayes made the following statement at the opening to a hearing, referring to the scientific community:

[W]hat we ask of you is not a confrontational hearing where we are calling names and hunting witches, but instead we are asking you to give us the assurance of a mechanism. . . . [W]ith the assurance not that we will create a perfect world, not that we will have no instances whatsoever of wrongdoing, but that I can go home . . . and assure those people that the dollars that we spend on research . . . are well spent.

Id. at 7-8. Implicit in this remark is the idea that the scientific community has primary responsibility for dealing with misconduct among its ranks. *See also id.* at 12 (statement of Rep. Valentine)

Because of the possibilities for abuse,¹¹⁶ heavy liability,¹¹⁷ and inevitable publicity that accompany False Claims Act suits,¹¹⁸ its use in alleged instances of scientific misconduct is inappropriate. Congress designed the Act to address a different type of problem.¹¹⁹

Since many federal agencies distribute grant money to scientists through the institutions in which they work,¹²⁰ institutions risk liability in *qui tam* suits.¹²¹ The treble damage and civil penalty provisions¹²² of the False Claims Act could lead to a multimillion-dollar judgment against a university.¹²³ While such sanctions might be appropriate when a profit-generating corporation defrauds the government,¹²⁴ they go beyond what the circumstances call for when applied to a university that serves as a host institution.¹²⁵

(noting that the proceedings are not adversarial and that, rather than trying to "meddle," Congress is inquiring into what the scientific community is doing to police itself).

One Congressman phrased his concerns this way:

I know that the scientific community is actively seeking ways to prevent misconduct and to promote responsible research practice, as well as ways to improve the way it investigates allegations of misconduct, but they do not need congressional truth police descending into labs and creating confusion. Such an initiative would be yet another example of Congress actively destroying science.

Id. at 8 (statement of Rep. Walker).

116. *See supra* notes 104-07 and accompanying text.

117. *See supra* notes 92-94 and accompanying text.

118. *See supra* note 1.

119. *See supra* notes 88-113, 104, 108-10 and accompanying text.

120. An institution can apply for a grant itself. 42 C.F.R. § 52.3(a) (1991). Some grants may only be applied for by agencies or institutions. *See* 42 C.F.R. § 52a.3 (1991).

121. An institution to which Congress has granted funds "assumes legal and financial accountability for the awarded funds and for the performance of the supported activities." 42 C.F.R. § 50.102 (1991).

122. *See supra* notes 92-94 and accompanying text.

123. In the Darsee case, the accused scientist worked in the lab of an eminent researcher who received more than \$3 million in grants from the National Institutes of Health. While the head researcher was not at fault in that case, the amount of the grant demonstrates the institution's potential liability. *See supra* note 23. In a pending case, *supra* note 10, a plaintiff named a scientist and two universities as defendants in a *qui tam* suit for alleged scientific misconduct. The plaintiff claims \$1.2 million in damages. If the plaintiff wins, the court could treble the damages and add an additional \$5,000 to \$10,000 civil penalty. *Id.*

124. *See supra* notes 108-11 and accompanying text. The False Claims Act amendments' legislative history points out the difficulty of prosecuting large, profitable corporations. It noted that "when large, profitable corporations are the subject of a fraud investigation [they are] able to devote many times the manpower and resources available to the Government." S. REP. NO. 345, *supra* note 89, at 5273.

125. While the use of the False Claims Act may in fact work to prevent some misconduct, the real question is what will be lost in the process. The chilling effect of such liability outweighs whatever benefit it realizes. *See supra* note 114.

In addition to these concerns, scientific misconduct's very nature makes it unsuited for the use of private plaintiff actions. The varying degrees of blameworthiness involved in scientific fraud not only make it difficult to impose the same liability on all scientists guilty of some form of misconduct,¹²⁶ but also may result in the imposition of the False Claims Act's devastating liability upon a researcher innocent of intentional misconduct.¹²⁷ The treble damage and penalty provisions apply without regard to the violation's seriousness.¹²⁸

The nature of a civil action, an adversarial proceeding in a public forum, might destroy or seriously impair the accused scientist's career.¹²⁹ It is, thus, necessary to stop spurious claims at an early stage.¹³⁰

For these reasons, Congress should disallow the use of private plaintiff actions in the prosecution of scientific misconduct claims. If Congress is unwilling totally to ban the use of these suits, it should require that private plaintiffs exhaust administrative remedies before they bring suit. At a minimum, courts should not hear such suits without being certain that the private plaintiff has notified the agency responsible for the grant and has given the agency a sufficient chance to address the charges.¹³¹ Furthermore, the Justice Department should readily exercise its option to dismiss such a suit¹³² when a chance exists that the proceedings will unduly prejudice the defendant or when the private plaintiff's motive is to harass. If the Department is unwilling to dismiss a suit, it should nonetheless make use of the Act's provisions that allow it to control the suit closely.¹³³

126. See *supra* notes 19-36 and accompanying text.

127. See *supra* notes 92-94 and accompanying text.

128. There is little discretion available in the determination of the penalty under the False Claims Act. See *supra* notes 92-94 and accompanying text.

129. See *supra* note 26.

130. Both the NSF and the PHS allow the research institutions to make initial inquiries to determine whether the complaint warrants further action. This allows for the quick and relatively painless dispatch of unfounded claims. See *supra* notes 66-69, 78-79 and accompanying text. The filing of a suit in federal court pursuant to the False Claims Act compels the accused to retain counsel and inevitably will gain a considerable amount of publicity. See, e.g., *supra* note 23. Even if the court promptly dismisses the case, a shadow may always remain on the accused researcher's career.

131. The False Claims Act requires a plaintiff to inform the government of the claim before bringing suit. See *supra* note 98 and accompanying text.

132. See *supra* note 100 and accompanying text.

133. See *supra* note 101 and accompanying text.

B. *Alternative Agency Regulations*

The agencies responsible for administering grants have recognized the delicate balance of interests involved in the arena of scientific misconduct and are developing new ways to deal with such misconduct.¹³⁴ These agencies have gone to great pains to maintain confidential investigations. Thus, they recognize the serious nature of the dangers involved.¹³⁵ Furthermore, these policies currently are evolving and must develop further in light of experience.¹³⁶

However, agencies should take additional steps to improve the effectiveness of their schemes. For example, one commentator has suggested that agencies should require research institutions to screen the panels investigating charges of misconduct both to discern bias and to guarantee neutrality.¹³⁷ A scheme would thus protect an accused scientist during the investigation following a charge of misconduct while also ensuring that reviewing panels adequately investigate charges.¹³⁸

V. CONCLUSION

The maintenance of a vigorous and dynamic scientific community is of paramount interest to the entire Nation. Congress should not inject the fear of liability into the scientific research process. Congress instead should encourage the maintenance of America's rich tradition of scientific innovation in an atmosphere conducive to the free exchange of ideas. The current system may well be far from perfect. Observers must judge any additions to that system not only from the standpoint of the fraud

134. See *supra* notes 55-87 and accompanying text.

135. See *supra* notes 66-69 and accompanying text.

136. The NSF regulations have been in force since 1987 and the PHS regulations since 1989. Therefore, the effect of these regulations, in all probability, has not yet been fully felt. See Andersen, *supra* note 7 (recognizing the ongoing nature of funding agencies' attempts to develop methods of dealing with scientific misconduct).

137. *Id.* at 134.

138. *Id.* Concerns such as these arose recently when a university committee investigating charges of scientific misconduct dismissed the charges at an initial stage. Weiser, *supra* note 83. In this case, the committee appears to have readily accepted their colleague's defense. Upon receiving complaints from the initial relator and another researcher, the NIH launched its own investigation into the matter. *Id.*

A panel of the National Academy of Sciences recently proposed improving the safeguards against scientific misconduct. The panel suggested the establishment of an independent body to create unified ethical standards and to monitor scientific misconduct cases throughout the country. See Philip J. Hiltz, *Panel Urges Independent Body to Set Ethical Standards in Science*, N.Y. TIMES, Mar. 28, 1991, at D21. The standards would provide independent researchers and institutions with universal standards by which to judge alleged instances of scientific misconduct. *Id.*

such additions may prevent, but also from the harm they may cause. From this perspective, the use of *qui tam* provisions has little to contribute to the prevention of scientific fraud.

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