THE OFFICE OF RESEARCH INTEGRITY®

NEWSLETTER

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In Memorium

ORI mourns the loss of former director, Chris Pascal, who played a major role in the development of the legal framework that implements ORI's authority.

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MESSAGE from the DIRECTOR

It may not be widely known in the research community that the Office of Research Integrity (ORI) is housed in the Office of the Assistant Secretary for Health (OASH), in the US Department of Health and Human Services. Two other offices that reside in OASH that you might be aware of are the Office of Human Research Protections (OHRP) and the Presidential Commission for the Study of Bioethical Issues (PCSBI) – perhaps we should consider ORI as one of the three sisters of ethics and integrity in OASH.

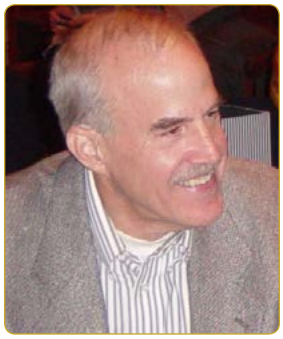
I have enjoyed getting to know more about the mission and the people in OASH, and their commitment to public health. OASH is currently leading the effort to implement Public Health 3.0 across the nation. Public Health 3.0 is a visionary expansion of the scope of public health that includes all factors that promote health and well-being (not just health care), and looks at the holistic ecology of individual well-being. It emphasizes cross-sector collaboration, the use of existing local resources, and the erasure of silos that impact human health and well-being. My favorite catch phrase that highlights the need for initiative is that "our ZIP codes remain a more accurate determinant of health than our genetic codes." Reflecting on Acting Assistant Secretary for Health Karen DeSalvo's excitement about Public Health 3.0, it is easy to envision a parallel with ORI's mission to promote research integrity.

The researchers who study why some scientists turn to research misconduct in response to pressures, while others do not, have made a good case that there exists a healthy ecosystem in which the responsible conduct of research is fostered and research misconduct is prevented. The ecosystem holds our attitudes about authorship and publication, data selection and interpretation, effective mentoring, the vital role of communication in training scientists, the pressures of generating grant dollars, the drive to innovate metered by the discipline to focus on rigor and reproducibility, work-life balance, social responsibility and advocacy in science, as well as the increasing multi-disciplinarity and internationalism of science.

I believe paying attention to all of these facets of a research environment is critical to fostering a healthy and productive environment. In this healthy ecosystem, the next generation of scientist can get outstanding training without succumbing to the temptation to take a shortcut that constitutes falsification, fabrication, or plagiarism. I hope ORI can use the positive energy around Public Health 3.0 in our own work. How do we convert an unhealthy research "ZIP code" to a healthy research environment? I continue to be interested in hearing your thoughts on these and other issues. Please use askORI@hhs.gov to tell me what you think.

Kathryn M. Partin

Chris Pascal Remembered



John Dahlberg, PH.D.

We have recently learned that Chris Pascal, Director of the Office of Research Integrity (ORI) from 2000 to 2009, passed away on March 24, 2016, after a lengthy illness. Chris, who served as chief counsel to ORI from its inception in 1992 to 1995, as director of the Division of Research Investigations (DRI) from 1995 to 1996, and as acting director of ORI from 1996 to 2000, played a major role in the development of the legal framework that provides ORI its authority and credibility in the academic and legal communities. He received his B.A. from Auburn University in 1971, his J.D. from Duke University in 1974, and spent two additional years on a post-doctoral fellowship in psychology and law in the Psychiatry department of Duke.

In 1977 Chris became a staff attorney in the Office of the General Counsel (OGC) in the Department of Health and Human Services, and in 1982 he became chief counsel of the Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA), where he remained for ten years. During this time, he worked on legal issues involving substance abuse and mental health, confidentiality of patient records, employee drug testing, and biotechnology patent issues. Chris also assisted with legal issues involving scientific misconduct in matters handled by ORI's predecessor office, the Office of Scientific Integrity (OSI).

While directing the staff of attorneys initially assigned to ORI in 1992 through 1995, Chris provided ORI with legal advice on federal regulations and policies, as well as on institutional sanctions. During this period, he also supervised the first administrative hearings held before the HHS Departmental Appeals Board (DAB). These initials hearings proved challenging for OGC and ORI, and Chris played a key role, both while serving as chief counsel to ORI, and, more significantly, while working as director of ORI, in ensuring a more rigorous approach to preparing for administrative hearings.

After Lyle Bivens, the first director of ORI, retired in 1996, Chris was asked to become acting director of ORI, a position he held until he became the permanent director in 2000. During this period, ORI substantially improved the timeliness and effectiveness of its handling of research misconduct cases. In 2005, a new regulation, 42 C.F.R. Part 93, went into effect, providing greater specificity for institutional handling of misconduct cases and a greatly improved process for handling appeals of ORI's findings through administrative hearings. Chris played a significant role in the promulgation of this new rule. During this same period, ORI became a major source of guidance and assistance to institutions that were required by NIH to provide training in responsible conduct of research (RCR) to recipients of NIH training grants. RCR training continues to gain adherents, and ORI currently provides a vast array of RCR resources on its web page. Chris also supported an initiative proposed by the Division of Investigative Oversight DIO staff and an ORI consultant, David Wright of Michigan State University, to initiate a training program for officials at institutions responsible for oversight of investigations of allegations of research misconduct. These boot camps for Research Integrity Officers (RIOs) have proved highly successful in enhancing institutional cooperation with a federal regulatory agency.

Chris was not only an able administrator and interpreter of federal policy, but also a scholar. He promoted ORI in frequent talks to a wide variety of local, national, and international audiences, and wrote numerous articles on research misconduct, scientific integrity, responsible conduct of research, and ORI's role in helping to ensure public trust in the scientific endeavor.

Chris, who retired in 2009, was fond of good food and wine, as well as long hikes, particularly on Sugar Loaf Mountain. He is survived by his wife, Karen, and daughter, Lisa.

ORI-LMU meeting attendees representing NIH, NSF, OHRP, OLAW, ORI, and institutions of higher learning in the U.S. and abroad

Successful Inaugural Meeting: Promoting the Responsible Conduct of Research for College and University Leaders

Loyola Marymount University and the Office of Research Integrity (ORI) partnered to offer an inaugural meeting in Marina del Rey, California, April 14–15, 2016. This inaugural meeting convened representatives from NIH, NSF, OLAW, OHRP, and ORI, with senior institutional officials and Research Integrity Officers (RIOs), to engage in discussion around promoting research integrity at the highest institutional level. Dr. John Carfora, Associate Provost of Research Advancement and Compliance and RIO at Loyola Marymount University, noted the meeting was "a huge hit." Dr. Carfora expressed gratitude for the exemplary teaching faculty and nearly 80 attendees from five countries, comprised of vice presidents for research, senior compliance officials, RIOs, institutional counsel, researchers, and federal government representatives. Through roundtable discussion and plenary presentations on topics such as handling allegations of research misconduct, fostering research integrity through incentives and monitoring, misconduct involving human and animal research, and responsible conduct within and beyond the institution, attendees explored creative means of moving beyond the realm of compliance to a higher goal of enhancing a culture of research integrity.

Several attendees said they were inspired to consider research integrity issues in a new light, while others, including Dr. David Hudson, Senior Associate Vice President for Research and RIO at University of Virginia, commended the group's palpable dedication to protecting public trust in science. "Given the huge diversity of audiences, I'm impressed by the similarities in our approaches and the things that I've learned," Dr. Hudson said. "It's great to see the depth in thoughtfulness, spectacular approach, and dedication to these issues." Dr. Jennifer Yucel, RIO at Ohio State University, noted that convening this meeting to discuss research misconduct and involving senior leaders "was a really brilliant idea," and "paid off in a big way." Dr. Yucel noted that seeing the "collaborative and supportive approach" demonstrated by the federal agencies sets a "terrific tone."

Dr. Carfora is working with ORI to ensure follow-up from the meeting that will facilitate future collaborative projects around promoting a culture of integrity at all levels within the research community.

Sequestration Analysis: Collaborative Institutional Approaches & White Collar Concerns

March 30-April 1, 2016
Indiana University, Indianapolis, IN

The Office of Research Integrity (ORI) has been funding conferences to examine issues relevant to the research community and related to our regulations. In March, ORI helped fund the conference

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Upcoming Workshops and Conferences

CSU to Host an ORI-Funded Conference on Misconduct-Related Retractions

Research inherently builds on the work of others, and necessitates a clean "pool" of knowledge. Attend the national conference, Keeping the Pool Clean: Prevention and Management of Misconduct-Related Retractions, July 20 through July 22, 2016 at the Hilton Fort Collins, Colorado, to discuss how to handle fraudulent manuscript submissions, whistleblowing, retraction notices, ethics, roles and responsibilities, good communication practices, institutional incentives, and motives of misconduct that contribute to the problem.

Presentations will be made by sixteen international speakers, including researchers, journal editors, university leadership, research integrity officers, and representatives from ORI, NSF, Science, and Retraction Watch.

Speakers include:

- **Sabine Kleinert** – Executive Editor, The Lancet
- **Monica Bradford** – Executive Editor, Science
- **Eric Hall** – PRE, American Association for the Advancement of Science AAAS
- **Charon Pierson** – Secretary of the Council and Trustee Board, Committee on Publication Ethics

- **Adam Marcus** – Co-Founder of Retraction Watch and the Center for Scientific Integrity
- **Ferric Fang** – Professor of Laboratory Medicine and Microbiology at the University of Washington
- **Brian Martinson** – HealthPartners Research Foundation, Minneapolis VA Medical Center
- **Ken Pimple** – Associate Scholar and Director of Teaching Research Ethics Programs at the Poynter Center for the Study of Ethics and American Institutions
- **Shara Kabak** – Scientist-Investigator in the Office of Research Integrity

$350 Early Bird Registration extended to June 1, 2016. Trainees can register for only $50.

This event is funded by Colorado State University (CSU) and the Department of Health and Human Services, Office of Research Integrity grant #ORIIR150014. For questions, please contact Carolyn Broccardo (Carolyn.Broccardo@colostate.edu).

"[W]e have no evidence to suggest that irreproducibility is caused by scientific misconduct.…Because poor training is probably responsible for at least some of the challenges, the NIH is developing a training module on enhancing reproducibility and transparency of research findings, with an emphasis on good experimental design. This will be incorporated into the mandatory training on responsible conduct of research for NIH intramural postdoctoral fellows later this year."

—Francis S Collins and Lawrence A Tabak. 2014. Nature 505:612-613.

National Cancer Institute RCR Training Course Debut

Cynthia Ricard, PH.D.

The National Institutes of Health (NIH) requires annual, in-person Responsible Conduct of Research (RCR) training by all intramural researchers. In October and November 2015, the National Cancer Institute (NCI) sponsored a six-hour course tailored to NCI/CCR trainees. The goal was to bring trainees up to date with the current requirements by offering this career development opportunity. A combination of didactic and breakout group discussions was presented in the Natcher Center on the Bethesda campus, and repeated at the Frederick, Maryland campus.

The morning session consisted of "Research Integrity—An Intro to RCR," presented by Lawrence Tabak (Principal Deputy Director, NIH Bethesda) and Howard Young (CCR, NCI Frederick), followed by "Data Management, Authorship and Publication," by Christina Bennett (Ethics Manager, The American Physiological Society) in Bethesda, and Jack Collins (ABCC, NCI) in Frederick.

NIH faculty volunteers and Cynthia Ricard, PH.D., from the Office of Research Integrity, facilitated discussion sessions both days.

In four breakout sessions, 60 to 100 trainees discussed case studies on "Mentor/Mentee Relationships," "Ethical Issues in Biomedical Research," "Research Misconduct," and "Conflict of Interest." The breakout sessions were offered four times so that all trainees attended all four sessions. Attendance was taken at each full and breakout session.

When trainees registered, they took a pre-test of RCR knowledge. After the course, another test of RCR knowledge was administered. These test results are being analyzed for the 600 attendees to evaluate the effectiveness of the training.

For more information, please visit the NIH Mandatory Training Inventory (MTI) website.

What is GCP?

Sandra Titus, PH.D.

The Food and Drug Administration (FDA) created the guidance[1] on Good Clinical Practices (GCP) to describe the research standards that clinical researchers need to follow. The guidelines specify requirements of the design, conduct, performance, monitoring, auditing, recording analyses, and reporting of the data. The researcher must also follow ethical standards, training requirements, and principal investigator (PI) requirements, as well as comply with regulations. These standards were created to provide some assurance that the data and results presented to the FDA could be credible and accurate. The standards also involve proper documentation. If one failed to follow and demonstrate the use of these guidelines, then the FDA would not be assured of the data's integrity and could not review the trial to evaluate the drug's safety and efficacy data.

A component of the GCP also specifies the standards and supervisory responsibilities of the investigators. The PI agrees to conduct the study in accordance with the protocol, and personally conducts or supervises the investigations. Supervisory responsibility is further defined to mean the PI is responsible for (1) appropriate delegation of duties, (2) adequate training of staff, and (3) adequate PI supervision.

Adapted from the guidance, the supervisor would also develop a written plan for providing the supervision. The plan might include:

- Routine meetings to review study progress, or any changes to the study
- Review of procedure for documentation of problems
- Reviewing the delegated tasks in a timely manner
- Observation of select components
- Providing independent verification of process
- Assuring that procedures are used to comply with study, such as informed consent
- Procedure for ensuring that source data are accurate, contemporaneous, and original
- Procedure for dealing with data queries and discrepancies identified
- Plan for addressing ethical issues

Applying GCP means developing standards and having someone in authority take responsibility for assuring that the standards are met. The FDA evaluates and enforces these standards.

The guidelines can be applied to all research, and provide a useful reference on how to create standards and enhance validity. In order to assure the data integrity, FDA has also focused on the role of the PI. How many non-clinical labs have a PI who takes responsibility for the entire group's work? How many individuals can a PI supervise? What should happen to the PI when the failure to supervise causes harm or research misconduct?

Applying strong standards requires rigor and enforcement. Without this rigor, research becomes sloppy, unreliable, and useless. We need to adapt more broadly the GCP standards so that research can be reliable and trusted.

References

[1] Guidance for Industry; Investigator Responsibilities — Protecting the Rights, Safety, and Welfare of Study Subjects, U.S. Department of Health and Human Services, Food and Drug Administration, Center for Drug Evaluation and Research (CDER), Center for Biologics Evaluation and Research (CBER), Center for Devices and Radiological Health (CDRH).

Carl Anderson, Patti A. Young, and Ann Berenbaum, C.C.R.C. Food and Drug Administration Guidance: Supervisory Responsibilities of Investigators, Journal of Diabetes Science and Technology, Volume 5, Issue 2, March 2011.

Quality Assurance and Reducing Threats to Internal Validity

Sandra Titus, PH.D.

My advisor in graduate school used to say that the most important component in reviewing a paper is not the analysis, but whether the design and methods have controlled or minimized alternative explanations. We thus spent critique seminars focusing on whether the researcher had controlled or minimized threats, and we would then have to write a justification on whether we should trust the findings presented or not.

In the eagerness to do research and publish, it is very easy to fail to overlook ways to control threats to internal validity. In designing and reviewing research, one needs to evaluate the degree that threats to internal validity threaten our interpretation of the relationship between the dependent and independent variable. The application of this rigorous process of minimizing alternative explanations is most apparent in the FDA's gold standard requirement that pharmaceutical research must demonstrate adherence to the FDA's requirement that pharmaceutical research follow good clinical practice guidelines.

A very enjoyable reminder of the need for quality in research methods was written by Monya Baker, a reporter for Nature. In her article "Quality Time," she interviewed faculty who are beginning to pay more attention to improving data standards. Her interviews were conducted with faculty who were applying different quality assurance approaches in various research fields. One of my favorite interviews is with a faculty member who had reluctantly decided to try it out – maybe in the spirit of conducting an experiment. Perhaps he imagined that if he could demonstrate quality in his review group, then he could then discourage further efforts to engage in quality improvement. He decided to examine the data quality in his group, presumably expecting they would have great notebooks. He asked all members to bring their lab books to their seminar and then, having the students select at random one person's book to critique, everyone would provide feedback on potential enhancements the individual could make. Every week they had to come prepared with their updated lab books, and hence they started to pay more attention to the feedback from prior sessions, and the faculty member noticed overall positive changes in the group's standards.

Ms. Baker also interviewed faculty who were beginning to appreciate how the development of quality systems was valuable because they could demonstrate traceability, history, security of files, and standardized and monitored calibration of equipment and refrigeration. It is easy to forget the importance of standardization and validation of measurements and their role in contributing to the internal validity of a study. If you have poor internal validity, you cannot claim that your findings allow you to make external generalizations!

Principal investigators who have not yet employed systematic audits of their primary data need to consider how to do so. Many institutions already have staff to assist; either in the form of a quality assurance manager (frequently housed in a research administration office) or an internal auditor (frequently housed in the business and finance office). Periodic review of primary data is an expectation of PHS funded responsible research.

Ms. Baker's article is very readable, and an enjoyable reminder on how sloppy science is impacting on data integrity and reproducibility. Her opening full image quiz test provided an engaging way to be invited into thinking about and identifying threats to validity in someone else's lab. I appreciated being reminded that all efforts, even small ones, can improve data standards and impact on data integrity. I admit, even though I took my time to study the image, I missed identifying several of them.

Thoughts on Social Responsibility and RCR

Sandra Titus, PH.D.

In 2009, NIH updated the list of RCR training stipulations and directed institutions with training grants to consider developing educational material which would focus on "the scientist as a responsible member of society, contemporary ethical issues in biomedical research, and the environmental and societal impacts of scientific research."

What do you focus on when trying to lead a discussion with students on social responsibility? We will post this question on the ORI blog and hope you will participate with your thoughts on it.

A possible way to discuss it might stem from the recent publication by AAAS Science and Human Rights Commission. They posted research results from an international pilot study on scientists, health professionals, and engineers, which focused on their perceptions and the scope of their responsibilities.

These questions collectively examine the scientific community's views on individual responsibilities to the larger society. Over 2000 professionals evaluated the ten items on a Likert[1] scale and indicated how important each behavior was in their own lives.

The items listed below collapsed the scores into the portion that perceived the item to be of high value, versus those who did not think the item relevant to themselves. This table therefore illustrates the extent to which the items are valuable to some degree; importance ranged from a high of 95.8 to a low of 82.

Those younger felt more concerned about explaining their work to the public, whereas older subjects felt great concern if they suspected research misconduct. There were no gender differences. The responses from the three disciplines were similar to each other; regions of the world had differences with other regions, but those in a region were congruent with others from their region. AAAS plans to do additional research on this topic, and they leave us with several areas to consider:

- How do scientists view minimizing risk versus maximizing benefits?
- What influences perceptions – the impact from public, domestic, legal, disciplinary, institutions?
- How do we establish priorities (if at all) among responsibilities?
- How do views on the cultivation of the next generation influence them, and is this, too, a social responsibility?

Would trainees engage in such a discussion? How would trainees be likely to perceive themselves on this set of values, and how would they compare with the scientists' scoring? Do they think their views will change over time? What are the barriers they see in implementing these values?

%	Item
95.8	Take steps to minimize anticipated risks associated with their work
95.6	Consider the risks of adverse consequences associated with their work
94.1	Report suspected misconduct observed in scientists or engineers
93.7	Explain their work to the public
92.0	Serve in advisory roles in the public arena in their area of expertise
90.4	Publicly disclose risks associated with their work
88.8	Consider the potential of each project to contribute to societal well-being
88.8	Participate in public policy deliberations in their area of expertise
82.6	Engage in public service activities
82.4	Take steps so that their research, findings, or products are not used inappropriately

Please join the discussion on the ORI blog. How have you tried to discuss social responsibility?

[1] Likert scale is used in a survey to learn the intensity of a subject's feelings. The scale anchors the high and low value and asks the individual to indicate his views, which in turn indicates the intensity of his feelings.

Thank you, John Dahlberg

It is odd for ORI staff to come to work now without seeing John Dahlberg. After all, he was involved with ORI for 23 years, and was one of the few links to the pre-ORI Office of Scientific Integrity (OSI). While ORI commemorated his retirement in the office, we wanted to also publicly thank him for all he had done on behalf of ORI. This article is based on a recent, long conversation we had with John. We wanted to gain his perspective, as well as acknowledge his contributions to ORI.

John will be remembered fondly because he was always available to anyone who came to him with a question or sought advice. Often, when you left his office with your question answered, you also left having learned something new about American or world history; John loved to tell us what he was reading, and he loves reading about history and politics!

Before joining ORI, John was a senior scientist for 16 years in the Laboratory of Cellular and Molecular Biology at the National Cancer Institute; he utilized ultrastructural, immunological, biochemical, and molecular biological tools to study retroviruses. He began with research on animal lentiviruses in 1980, several years prior to the discovery of HIV-1, their human counterpart. In1988 he joined a private biotech firm as the director of its R&D program, and developed procedures for testing anti-viral drugs against HIV-1 in mature human macrophage cultures. He told us he believes his 25 years at the bench provided him with a diverse scientific background, which enhanced his credibility with institutional officials, complainants, respondents, and attorneys.

The OSI was created in 1989 by Congress to stop federal resources from being wasted as a result of research misconduct. While Congress created ORI, they had not defined how the office should operate. John recalled how ORI effectively ceased investigating cases and worked for six months between the fall of 1992 and spring of 1993 to develop detailed standard operating procedures for investigators to follow.

In writing this story, we asked John to tell us about issues he handled at ORI for which he took pride in his accomplishment or involvement.

He recalled immediately his first major experience: being assigned to the complicated Imanishi-Kari case and working extensively with others, such as Dr. Mosimann, ORI's biostatistician at the time, and ORI's attorneys, to prepare for an administrative hearing. During the process, he learned that he would have to testify on behalf of the office for several days during the hearing and be cross-examined by Imanishi-Kari's attorneys. Talk about "other duties as assigned!"

John also recalled a major case which resulted in establishing the innocence of scientists accused of misconduct. In 1994, ORI published findings against a clinician in Montreal who falsified eligibility criteria for at least 99 women with breast cancer to ensure their entry into clinical trials administered by the National Surgical Adjuvant Breast and Bowel Project (NSABP). Several years later, questions were raised about whether Dr. Bernard Fisher and colleagues at the University of Pittsburgh, where NSABP was located, were continuing to include the falsified data from Montreal in subsequent publications. These charges led to Dr. Fisher's removal from the head of NSABP, as well as congressional hearings and

substantial negative publicity. John's 1997 report, based on an analysis of the handful of papers that had actually included subjects from Montreal, and assistance from several statisticians, determined that the NSABP group had not committed research misconduct. The university apologized to Dr. Fisher, he received a substantial financial settlement from the government, and his reputation was restored.

Attendees at ORI conferences have heard John talk about the Poehlman case and ORI's involvement with the Vermont U.S. attorney's office. John's work, aided by Nancy Davidian and Gary Lipshultz,

He also offered words of advice to our new director, Kathy Partin: "Appreciate the fact that you have the capacity to shape science policies both nationally and internationally. And, be cognizant of the fact that promoting research integrity has the support of the Obama Administration and the research community at large who are worried about the reproducibility of research."

helped to demonstrate how Dr. Poehlman, for over a decade, fabricated and falsified data reported in multiple funded and unfunded grant applications and at least ten published papers, describing changes in metabolism associated with aging, menopause, hormone replacement therapy, and Alzheimer's disease. John recalled how he frequently traveled to Burlington, Vermont, to meet with the civil and criminal assistant U.S. attorneys assigned to the case, and to assist with preparing witnesses to go before a grand jury considering possible criminal charges. This was one of a number of cases in which John and other DIO investigators assisted the Department of Justice in *qui tam* and other civil fraud cases.

When John was asked to reflect on important, non-case-related issues, he talked about several themes, such as his role in (1) developing methods to evaluate whether research misconduct had occurred, (2) building and mentoring staff, and (3) promoting collaborations with institutions:

Building Tools

He recalled how several approaches were taken over the years which have aided ORI's ability to evaluate whether research data were fabricated or falsified. John credited the work of two other scientists who also contributed to the effort. James Mosimann, a bio-statistician, created a program that statistically evaluated questioned numbers supposedly obtained from instruments. If authentic, certain digits ought to be uniformly distributed (i.e., approximately equal levels of zeros, ones, twos, and so forth), while numbers made up by the investigator would often exhibit highly unlikely distributions. Dr. John Krueger developed a multitude of approaches for detecting inappropriately manipulated images using open source software from NIH, commercial software, and his own modified applications. Additionally, John developed a number of methodologies to compare raw data to published tables and graphs. Some of these techniques have been described in publications prepared by these three investigators. John is proud of his contribution to the development of the tools that DIO investigators still rely on today to provide evidence for a finding of research misconduct.

Mentoring New Staff

John became the director of DIO in 2006, and he remembers being acutely aware of his responsibilities for planning and hiring staff. He recognized that DIO scientists routinely worked until they retired. He knew there might be considerable turnover in the following few years. Thus, he focused on the administrative hurdle of hiring and then integrating new staff into the DIO family in order to prevent the loss of continuity in procedures.

In this process John realized that selecting scientists with strong and diverse skills was not sufficient; there was still a need to help them learn how to be investigators and communicate with each other. Investigating research misconduct is essentially following a process to determine whether a finding can be made – much like performing research

science. For example, new staff members work in tandem with senior investigators in answering phone queries from complainants and other callers to learn how ORI handles incoming allegations. The highly collaborative atmosphere within DIO fosters this learning process and allows new investigators to quickly appreciate the collective wisdom and backgrounds of the staff. Meetings to discuss case strategy investigators determine the best way to resolve a case. John not only worked at building a new staff, but also waited to retire until he was able to mentor them. ORI benefitted greatly from John's mentoring of the current DIO scientists.

He offered some words of advice to new scientists who join ORI: "Participate with others in the group and you will learn elements of proof; and also expect things to occur that you cannot prepare for and which require being resourceful." Being in DIO is not that different from being in a lab and learning more about other fields of science in order to understand a paper that is being scrutinized for possible research misconduct.

He also offered words of advice to our new director, Kathy Partin: "Appreciate the fact that you have the capacity to shape science policies, both nationally and internationally. And, be cognizant of the fact that promoting research integrity has the support of the Obama Administration and the research community at large who are worried about the reproducibility of research."

Promoting Collaborations with Institutions

ORI's oversight review depends on the robust work of an institution's investigative process to determine whether research misconduct occurred. John was a champion of strengthening this process, and participated in the development of the first research integrity officer (RIO) boot camp, which was developed to help educate institutional RIOs and their legal counsel. He described working with Susan Garfinkel and David Wright to develop a mock case so that the RIOs could gain a clear understanding of the steps required to conduct an investigation that would comply with the regulations of 42 CFR 93. The boot camp was created to open a dialogue with institutional officials, and to help educate them about processes such as interview techniques and evidence handling. The conversation also enabled ORI to better understand the institution's constraints. The program has evolved over time, and 390 individuals have participated in the training so far.

John believes an important future focus for ORI would be the development of ways to strengthen institutional integrity leaders. Specifically, he recommended "that a future ORI conference invite RIOs and RCR people from the same institution so that they could better appreciate each other's contribution in promoting integrity." John also hopes whether RCR actually works at improving researchers' behaviors soon gets resolved.

ORI wishes John a happy and long retirement. He deserves it!

John has been retired for about twelve months now, and in that time he has built some tables, learned how to polish marble, cooked many meals, traveled to Florida, visited Cape Canaveral, and of course, read history books. He is currently engaged on the Eastern front with the Russian army!

Thank you, John! ORI is indebted to you. We hope you are proud of the impact you have had on science and the integrity of it for 46 years!

THE CHALLENGE IN GLOBAL RCR EDUCATION

What is Your Role?

Sandra Titus, PH.D.

In developing the 2016 release, **Doing Global Science: A Guide to Responsible Conduct in the Global Research Enterprise**, a committee organized by the InterAcademy Partnership; which included members from India, Germany, South Africa, the Netherlands, Finland, China, Colombia, and the United States; sought to prepare a focused guide that would challenge and enhance global research integrity practices.

The guide does not appear to be a typical training guide for trainees. It reviews many of the critical research issues trainees need to understand in order to protect data and build collaborative networks; however, this guide's strength is the fact that it is directed to all individuals who participate in the research enterprise. Each reader is challenged to think about his or her role and potential impact on nurturing research integrity and the future of scientific collaborations.

If I were a trainee hoping to become a good scientist, I would likely pay the most attention to the discussions interspersed on bias and how it can interfere and create error in science. As an educator, I might be confronted with the question of whether I was a good mentor and role model. I also wondered, if I were a research administrator or funder, if I would ask myself what I might be able to do to reinforce mentoring and data integrity. The policy maker and funder are also asked to scrutinize what their role is, or what it should be, in setting standards.

Each actor (trainee, faculty, funder, federal regulator, and publisher) is prodded to consider how to put more energy and commitment into integrity education and practices. It is inescapable for the readers to ask themselves what they could do to promote research integrity. The future of integrity, replicability of science, and significant global scientific breakthroughs rely on the multiple and repetitive efforts we all make in defining and enforcing scientific standards.

This guide prodded me to consider what I could do as well.

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CASE SUMMARIES OF RESEARCH MISCONDUCT FINDINGS

John G. Pastorino, PH.D., Rowan University School of Osteopathic Medicine

Based on an assessment conducted by Rowan University School of Osteopathic Medicine (RUSOM), the Respondent's desire to conclude the matter, and analysis conducted by ORI in its oversight review, ORI found that Dr. John G. Pastorino, Associate Professor, Department of Molecular Biology, RUSOM, engaged in research misconduct in research supported by National Institute on Alcohol Abuse and Alcoholism (NIAAA), National Institutes of Health (NIH), grant R01 AA012897 and National Cancer Institute (NCI), NIH, grant R01 CA118356.

ORI found that Respondent engaged in research misconduct by intentionally falsifying and/or fabricating data reported in the following eight (8) published papers, one (1) unpublished manuscript, and one (1) NIH grant application:

- *J. Cell Sci*. 123:894-902, 2010 (hereafter referred to as "*J. Cell Sci*. 2010a")
- *J. Cell. Sci*. 123:4117-4127, 2010 (hereafter referred to as "*J. Cell Sci*. 2010b")
- *J. Cell. Sci*. 125:2995-3003, 2012 (hereafter referred to as "*J. Cell Sci*. 2012")
- *J. Cell. Sci*. 126:274-288, 2013 (hereafter referred to as "*J. Cell Sci*. 2013")
- *J. Cell. Sci*. 127:896-907, 2014 (hereafter referred to as "*J. Cell Sci*. 2014")
- *Biol Open*. 1-11:10;bio.014712, 2015 (hereafter referred to as "*Biol Open*. 2015")
- *BioChim Biophys Acta*. 1827:38-49, 2013 (hereafter referred to as "*BioChim Biophys Acta*. 2013")
- *J. Biol. Chem*. 289:26213-26225, 2014 (hereafter referred to as "*J. Biol. Chem*. 2014")
- *J. Cell Science*, Submitted manuscript, 2015 (hereafter referred to as "*J. Cell Sci*. manuscript 2015")
- R01 HL132672-01, "Regulation by Sirtuin-3 and Mitoneet of the Permeability Transition Pore in Heart during Ischemia/Reperfusion Injury," John Pastorino, PH.D., Principal Investigator

ORI found that Dr. Pastorino falsified and/or fabricated Western blot data for mitochondrial function related to cell/tissue injury, in fifty-eight (58) blot panels included in forty-two (42) figures in eight (8) publications, one (1) unpublished manuscript, and one (1) grant application. In the absence of valid Western blot images, the Respondent fabricated and/or falsified quantitative data in associated bar graphs, statistical analyses presented in figure legends, and related text.

Specifically, ORI found that Respondent duplicated images, or trimmed and/or manipulated blot images from unrelated sources to obscure their origin, and relabeled them to represent different experimental results in:

- Figures 2A, 2C, 3B, 5A, 7B, and 8A in *J. Cell. Sci*. 2010a
- Figures 2B, 5A, 6A, and 6B in *J. Cell. Sci*. 2010b
- Figures 1A, 2A, 2B, 4C, 5A, 5B, 6A, 7A, 7B, and 7C in *J. Cell. Sci*. 2012
- Figures 4F, 5H, and 6A in *J. Cell. Sci*. 2013
- Figures 1B, 2B, 2C, 3A, 3B, and 4D in *J. Cell. Sci*. 2014
- Figures 3A and 6B in *Biol. Open* 2015
- Figure 2A in *BioChim Biophys Acta*. 2013
- Figures 1B, 3A, 4D, 5E, and 6C in *J. Biol. Chem*. 2014
- Figure 3A in *J. Cell. Sci*. manuscript 2015
- Figures 3, 8A, 12, and 13A in R01 HL132672-01 NIH grant application

Dr. Pastorino has entered into a Voluntary Exclusion Agreement (Agreement) and has voluntarily agreed for a period of five (5) years, beginning on April 27, 2016: (1) to exclude himself from any contracting or subcontracting with any agency of the United States Government and from eligibility or involvement in nonprocurement programs of the United States Government referred to as "covered transactions" pursuant to HHS' Implementation (2 C.F.R. Part 376 *et seq*) of OMB Guidelines to Agencies

on Governmentwide Debarment and Suspension, 2 C.F.R. Part 180 (collectively the "Debarment Regulations"); (2) that he will neither apply for nor permit his name to be used on any application, proposal, or other request for funds to the United States Government or any of its agencies, as defined in the Debarment Regulations; Respondent will further ensure that during the period of the voluntary exclusion, he will neither receive nor be supported by funds of the United States Government and its agencies made available through grants, subgrants, cooperative agreements, contracts, or subcontracts, as discussed in the Debarment Regulations; and (3) to exclude himself from serving in any advisory capacity to the U.S. Public Health Service (PHS) including, but not limited to, service on any PHS advisory committee, board, and/or peer review committee, or as a consultant.

Kenneth Walker, PH.D.
University of Pittsburgh

Based on the admission of the Respondent, ORI found that Dr. Kenneth Walker, former postdoctoral fellow, Department of Pediatrics, University of Pittsburgh (UP), engaged in research misconduct in research supported by National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), National Institutes of Health (NIH), grant R01 DK081128.

ORI found that Respondent engaged in research misconduct by falsifying and/or fabricating data that were included in the following two (2) publications, one (1) submitted manuscript, and two (2) grant applications submitted to NIDDK, NIH:

- "Deletion of fibroblast growth factor receptor 2 from the peri-wolffian duct stroma leads to ureteric induction abnormalities and vesicoureteral reflux." *PLoS One* 8(2):e56062, 2013 (hereafter referred to as "*PLoS* 2013")
- "Fgfr2 is integral for bladder mesenchyme patterning and function." *Am J Physiol Renal Physiol*. 308(8):F888-98, 2015 Apr 15 (hereafter referred to as "AJPRP 2015")
- Unpublished manuscript submitted to *PLoS One* (hereafter referred to as the "Manuscript")
- R01 DK104374-01A1
- R01 DK109682-01

Specifically, ORI found that Respondent falsified and/or fabricated quantitative real-time polymerase chain reaction (qPCR) data to demonstrate a statistically significant or "trend" of statistical difference in the expression of renal or bladder urothelium and muscle developmental markers between control and experimental (mutant) mice, when there was none. The false qPCR data were reported in:

- *PLoS 2013*: Figure 2E
- *AJPRP* 2015: Figures 1E, 4C, 7G, 7J, 8F, 12A
- Manuscript: Figures 1C, 4C
- R01 DK104374-01A1: Figure 14E and text on pages 41, 42, 45
- R01 DK109682-01: Figures 10G and 11 and text on pages 43 and 45

Dr. Walker has entered into a Voluntary Settlement Agreement (Agreement) and has voluntarily agreed: (1) to have his research supervised for a period of three (3) years, beginning on April 14, 2016; Respondent agrees that prior to submission of an application for U.S. Public Health Service (PHS) support for a research project on which the Respondent's participation is proposed and prior to Respondent's participation in any capacity on PHS-supported research, Respondent shall ensure that a plan for supervision of Respondent's duties is submitted to ORI for approval; the supervision plan must be designed to ensure the scientific integrity of Respondent's research contribution; Respondent agrees that he shall not participate in any PHS-supported research until such a supervision plan is submitted to and approved by ORI; Respondent agrees to maintain responsibility for compliance with the agreed upon supervision plan; (2) Respondent agrees that he shall not participate in any PHS-supported research until such a supervision plan is submitted to and approved by ORI; Respondent agrees to maintain responsibility for compliance with the agreed upon supervision plan; (2) Respondent

agrees that any institution employing him shall submit, in conjunction with each application for PHS funds, or report, manuscript, or abstract involving PHS-supported research in which Respondent is involved, a certification to ORI that the data provided by Respondent are based on actual experiments or are otherwise legitimately derived and that the data, procedures, and methodology are accurately reported in the application, report, manuscript, or abstract; (3) to exclude himself from serving in any advisory capacity to PHS including, but not limited to, service on any PHS advisory committee, board, and/or peer review committee, or as a consultant for period of three (3) years, beginning on April 14, 2016; and (4) to the retraction and/or correction of the *PLoS* 2013 and *AJPRP* 2015 publications, as determined by the corresponding author.

Ricky Malhotra, PH.D.
University of Michigan and University of Chicago

Based on the Respondent's admission to committing research misconduct at the University of Michigan (UM) and subsequently at the University of Chicago (UC), the reports of separate investigations conducted by UM and UC, and additional analysis conducted by ORI in its oversight review, ORI found that Dr. Ricky Malhotra, former Research Assistant Professor, Department of Internal medicine, UM, from 2005-2006, and Research Assistant Professor, Department of Surgery, UC, from 2007-2011, engaged in research misconduct in research supported by National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health (NIH), grants K08 HL081472 and R01 HL107949.

ORI found that falsified and/or fabricated data were included in the following three (3) NIH grant applications, one (1) NIH grant progress report, one (1) publication, seven (7) presentations, and one (1) image file:

- R03 AG029508-01
- R21 AG030361-01
- R01 HL102405-01
- K08 HL081472-05 Progress Report
- *J Biol Chem*. 285(18):13748-60, 2010 Apr 30 (hereafter referred to as "JBC 2010")
- Presentation: Autophagy Pathway.ppt, MKK4 expression after UV.ppt, Oct PPt.ppt, RicDec.ppt, Ricky Presentation 06.ppt, Ricky STC.ppt, and RM.ppt
- Image file: Final LC 3.jpg

ORI found that Respondent reused and falsely relabeled Western blot gel images, falsified the related densitometry measurements based on the falsified Western blots, and falsified and/or fabricated data for experiments that were not performed. Respondent continued this falsification at UC, after the UM research misconduct investigation was completed. Specifically:

- While at UM, Respondent falsified and/or fabricated images in R03 AG029508-01 and three (3) presentations, where:
  - R03 AG029508-01, Figure 2, represented Western blots for phosphorylated p53 (Ser15) and ß-actin expression in normal and Snell dwarf mice fibroblasts (mN/SF) treated with the DNA alkylating agent methyl methanesulfonate (MMS), when the same images were duplicated to represent different proteins and treatments in the presentations Autophagy Pathway.ppt and RM.ppt.
  - R03 AG029508-01, Figure 3, represented Western blots for p16Ink4a and ß-actin expression in mN/SF, when the same images were duplicated to represent different proteins and treatments in the presentations Autophagy Pathways.ppt, RicDec.ppt, and RM.ppt.
- While at UM, Respondent fabricated data in R21 AG030361-01 and supporting data for the grant application in the research record, where:
  - R21 AG030361-01, Figure 2, represented a Western blot for phosphorylated c-Jun-N-terminal kinase (JNK) expression in mN/SF exposed to cadmium, when the experiment was not performed.

CASE SUMMARIES OF RESEARCH MISCONDUCT FINDINGS

- The research record contained ninety (90) Western blot images and ninety (90) densitometry measurement files for 45 experiments that examined phosphorylated JNK or Mitogen-activated protein kinase 4 (MMK4) expression in mN/SF exposed to UV light, H2O2, cadmium, or anisomycin, when the experiments were not performed.
- The research record contained densitometric analyses for an additional twenty-eight (28) experiments that examined phosphorylated JNK or MMK4 expression in mN/SF exposed to UV light, H2O2, cadmium, or anisomycin, when the quantifications were based on experiments that were not performed.

- While at UM, Respondent falsified and/or fabricated Western blots for phosphorylated and total Rac1/cdc42 expression in mN/SF, total JNK expression in mN/SF treated with anisomycin, phosphorylated JNK expression in Snell dwarf mice fibroblasts treated with cadmium, ß-actin expression in mN/SF, ß-actin expression in Snell dwarf mice fibroblasts treated with or without MMS, ß-actin expression in normal mice fibroblasts treated with cadmium, and ß-actin expression in mN/SF treated with H2O2 in the presentations Autophagy Pathway.ppt, Oct PPt.ppt, RicDec.ppt, Ricky Presentation 06.ppt, Ricky STC.ppt, and RM.ppt, and the image file Final LC 3.jpg, when the images were duplicated and falsely relabeled Western blots of unrelated experiments.
- While at UM, Respondent falsified twenty-four (24) Western blots for phosphorylated JNK or MMK4 expression in mN/SF exposed to UV light, H2O2, cadmium, or anisomycin in the seven (7) presentations and twenty-six (26) data files in the research record, when the images were duplicated and falsely relabeled Western blots of unrelated experiments.
- While at UC, Respondent falsified and/or fabricated Western blots by using images from unrelated experiments and the related densitometric analyses that were based on falsified Western blots in the following:

- R01 HL102405-01 for:
  - Figure 1A for phosphorylated Rhodopsin (Rho) expression in neonatal rat ventricular cardiac myocytes (NRVCM) subjected to stimulation with Angiotension II (Ang II)
  - Figure 1A for G protein-coupled receptor kinase-2 (GRK2) expression in NRVCM subjected to cyclical mechanical stretch
  - Figure 1B for densitometric analysis of GRK2 activity
  - Figure 2A for phosphorylated Rho and GRK2 expression in NRVCM subjected to mechanical stretch
  - Figure 2B for densitometric analysis of GRK2 activity
  - Figure 3A for phosphorylated Rho expression in NRVCM after mechanical stretch and treatment with protein kinase C (PKC) inhibitor chelerythrine (lanes 5 and 6)
  - Figure 3B for densitometric analyses of GRK2 activity after PKC inhibition via chelerythrine treatment
- K08 HL081472-05 Progress Report for:
  - Figure 1A for phosphorylated Rho and GRK2 expression in NRVCM subjected to mechanical stretch
  - Figure 1B for densitometric analyses of GRK2 activity after PKC inhibition via chelerythrine treatment
- *JBC* 2010 for:
  - Figure 1B for phosphorylated Rho expression in NTVCM subjected to stimulation with Ang II
  - Figure 1B for GRK2 expression in NRVCM subjected to cyclical mechanical stretch panel
  - Figure 1C for densitometric analysis of GRK2 activity
  - Figure 2A for phosphorylated Rho expression in NRVCM after mechanical stretch and

treatment with the Ang II type 1 (AT1) receptor antagonist Irbesartan (lanes 5 and 6)

- Figure 2B for densitometric analyses of GRK2 activity after PKC inhibition via Irbesartan treatment
- Figure 4C for phosphorylated Rho and GRK2 expression in NRVCM subjected to mechanical stretch
- Figure 4D for densitometric analysis of GRK2 activity after RNAi treatment

Dr. Malhotra has entered into a Voluntary Settlement Agreement with ORI, in which he voluntarily agreed to the administrative actions set forth below:

(1) Respondent agreed that he had no intention in applying for or engaging in U.S. Public Health Service (PHS)-supported research or otherwise working with PHS. However, if within five (5) years of the effective date of the Agreement (May 6, 2016), Respondent receives or applies for PHS support, Respondent agreed to have his research supervised for a period of ten (10) years beginning on the date of his employment in a position in which he receives or applies for PHS support and to notify his employer/institution(s) of the terms of this supervision.

(2) Respondent certified that he is not currently engaged in or receiving PHS support. Respondent agreed that prior to the submission of an application for PHS support for a research project on which the Respondent's participation is proposed and prior to the Respondent's participation in any capacity on PHS-supported research, Respondent shall ensure that a plan for supervision of Respondent's duties is submitted to ORI for approval. The supervision plan must be designed to ensure the scientific integrity of Respondent's research contribution as outlined below. Respondent agreed that he shall not participate in any PHS-supported research until such a supervision plan is submitted to and approved by ORI. Respondent agreed to maintain responsibility for compliance with the agreed upon supervision plan.

(3) The requirements for Respondent's supervision plan are as follows:

i. A committee of senior faculty members and officials at the institution who are familiar with Respondent's field of research, but not including Respondent's supervisor or collaborators, will provide oversight and guidance for ten (10) years. The committee will review primary data for Respondent's PHS-supported research on a quarterly basis setting forth the committee meeting dates, Respondent's compliance with appropriate research standards, and confirming the integrity of Respondent's research.

ii. The committee will conduct an advance review of any PHS grant application (including supplements, resubmissions, etc.), manuscripts reporting PHS-funded research submitted for publication, and abstracts. The review will include a discussion with Respondent of the primary data represented in those documents and will include a certification that the data presented in the proposed application/publication is supported by the research record.

(4) If within five (5) years from the effective date of the Agreement, Respondent receives or applies for PHS support, Respondent agreed that for a period of ten (10) years beginning on the date of his employment that any institution employing him shall submit, in conjunction with each application for PHS funds, or report, manuscript, or abstract involving PHS-supported research in which Respondent is involved, a report and certification to ORI at six (6) month intervals that the data provided by Respondent are based on actual experiments or are otherwise legitimately derived and that the data, procedures, and methodology are accurately reported in the application, report, manuscript, or abstract.

(5) If no supervisory plan is provided to ORI, Respondent agreed to provide certification to ORI on a quarterly basis for a period of five (5) years, beginning on May 6, 2016, that he has not engaged in, applied for, or had his name included on any application, proposal, or other request for PHS funds made available through grants, subgrants, cooperative agreements, contracts, subcontracts, supplements, awards, fellowships, projects, programs, small business technology transfer (STTR) and small business innovation research (SBIR) programs, conferences, meetings, centers, resources, studies, and trials, without prior notification to ORI.

(6) Respondent agreed to exclude himself voluntarily from serving in any advisory capacity to PHS including, but not limited to, service on any PHS advisory committee, board, and/or peer review committee, or as a consultant for a period of five (5) years, beginning on May 6, 2016.

(7) As a condition of the Agreement, Respondent agreed to the retraction of JBC 2010.

Karen M. D'Souza, PH.D.
University of Chicago

Based on the report of an investigation conducted by the University of Chicago (UC) and additional analysis conducted by ORI in its oversight review, ORI found that Dr. Karen M. D'Souza, former Research Professional Associate, Department of Surgery, UC, engaged in research misconduct in research supported by National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health (NIH), grants K08 HL081472 and R01 HL107949.

ORI found that falsified and/or fabricated data were included in the following one (1) funded NIH grant, two (2) publications, two (2) posters, and one (1) presentation:

- R01 HL107949-01
- *J Biol Chem*. 285(18):13748-60, 2010 Apr 30 (hereafter referred to as "JBC 2010")
- *J Biol Chem*. 286(17):15507-16, 2011 Apr 29 (hereafter referred to as "JBC 2011")
- Gordon Conference 2006 poster: "Regulation of Myocardial ß-Adrenergic Receptor Signaling By Protein Kinase C" (hereafter referred to as "GC2006")
- Huggins 2010 poster: Gαq-mediated activation of GRK2 by mechanical stretch in cardiac myocytes; the role of protein kinase C" (hereafter referred to as "HP2010")
- Cardiac Research Day 2009 presentation: "Regulation of G protein-coupled receptor signaling by mechanical stretch in cardiac myocytes" (hereafter referred to as "CR2009")

ORI found that Respondent reused and falsely relabeled and/or falsely spliced Western blot images, falsified the related densitometry measurements based on the falsified Western blots, and falsified and/or fabricated data for experiments that were not performed or from unrelated experiments.

Specifically, Respondent falsified and/or fabricated data in the following:

- R01 HL107949-01 for:
  - Figure 1B for Western blots of α-smooth muscle actin (α-SMA), Vimentin, Collagen I and Glyceraldehyde 3-Phosphate Dehydrogenase (GAPDH) expression in human cardiac fibroblasts isolated from failing left ventricles (HF) and non-failing heart controls (CF)
  - Figure 2A for Western blots of G protein-coupled receptor kinase-2 (GRK2) and GAPDH expression in HF and CF, and the related densitometric analysis
- JBC 2011 for:
  - Figure 1A for a Western blot of Vimentin expression in HF and CF, and the related densitometric analysis
  - Figures 1D and 2D for Western blots of GAPDH expression in HF and CF, and the related densitometric analyses
- JBC 2010 for:

CASE SUMMARIES OF RESEARCH MISCONDUCT FINDINGS

- Figure 7A for Western blots of phosphorylated Rhodopsin (Rho) and GRK2 expression in non-transgenic (NTG) (lanes 1–4) and Protein Kinase Cα cardiac-specific activation (PKCαAC) transgenic (lanes 5-6) mice, and Figure 7B for the related densitometric analysis
- GC2006, Figure 7, HP2010, Figure 5, and CR2009, Slide 15 for:

- Western blots of phosphorylated Rho and GRK2 expression in NTG and PKCαAC transgenic mice, and the related densitometric analysis
- HP2010 for:
  - Figure 5 for a Western blot of GRK2 expression in NTG and PKCαAC transgenic mice, and the related densitometric analysis

Dr. D'Souza has entered into a Voluntary Settlement Agreement with ORI, in which she voluntarily agreed to the administrative actions set forth below:

(8) Respondent agreed that for two (2) years beginning on May 6, 2016, any institution employing her shall submit in conjunction with each application for U.S. Public Health Service (PHS) funds, or report, manuscript, or abstract involving PHS-supported research in which Respondent is involved, a supervision plan to ORI. Respondent agreed that prior to the submission of an application for PHS support for a research project on which the Respondent's participation is proposed and prior to Respondent's participation in any capacity on PHS-supported research, any institution employing her shall ensure that a plan for supervision of her duties is submitted to ORI for approval. The supervision plan must be designed to ensure the scientific integrity of Respondent's PHS-supported research contribution and include the specific elements as outlined below. Respondent agreed that she shall not participate in any PHS-supported research until such a supervision plan is submitted to and approved by ORI. ondent agreed to maintain responsibility for compliance with the agreed upon supervision plan.

(9) The requirements for Respondent's supervision plan are as follows:

i. A committee of senior faculty members and officials at the institution who are familiar with Respondent's field of research, but not including Respondent's supervisor or collaborators, will provide oversight and guidance for two (2) years beginning on May 6, 2016. The committee will review PHS-supported primary data from Respondent and submit a report to ORI at six (6) month intervals, setting forth the committee meeting dates, Respondent's compliance with appropriate research standards, and confirming the integrity of Respondent's PHS-supported research.

ii. The committee will conduct an advance review of any PHS grant application (including supplements, resubmissions, etc.), manuscripts reporting PHS-funded research submitted for publication, and abstracts. The review will include a discussion with Respondent of the primary data represented in those documents and will include a certification that the data presented in the proposed application/publication is supported by the research record.

(10) Respondent agreed that for two (2) years beginning on May 6, 2016, any institution employing her shall submit, in conjunction with each application for PHS funds, or report, manuscript, or abstract involving PHS-supported research in which Respondent is involved, a certification to ORI at that the data provided by Respondent are based on actual experiments or are otherwise legitimately derived and that the data, procedures, and methodology are accurately reported in the application, report, manuscript, or abstract.

(11) Respondent agreed to exclude herself voluntarily from serving in any advisory capacity to PHS including, but not limited to, service on any PHS advisory committee, board, and/or peer

review committee, or as a consultant for a period of two (2) years, beginning on May 6, 2016.

As a condition of the Agreement, Respondent agreed to the retraction of the *JBC* 2010 publication.

Meredyth M. Forbes
Albert Einstein College of Medicine

Based on an assessment conducted by the Albert Einstein College of Medicine (AECM), an admission from the Respondent, and additional analysis conducted by ORI in its oversight review, ORI found that Ms. Meredyth M. Forbes, former Graduate Student, AECM, engaged in research misconduct in research supported by National Institute of General Medical Sciences (NIGMS), National Institutes of Health (NIH), grants R01 GM089979, T32 GM007491, R01 GM55101, and R01 GM88202 and National Institute of Child Health and Human Development (NICHD), NIH, grant T32 HD007502.

ORI found that Respondent engaged in research misconduct by intentionally falsifying and/or fabricating data reported in the following three (3) published papers and four (4) meeting presentations:

- *Development*. In press, published online, Dec 23, 2015; doi:10.1242/dev.129023 (hereafter referred to as the "December 2015 *Development* paper")
- *Cell Reports* 12:49-57, 2015 (hereafter referred to as the "*Cell Reports* paper")
- *Development* 142(15):2704-18, 2015 Aug 1 (hereafter referred to as the "August 2015 *Development* paper")
- "Maternal dazap2 regulates germ granules via counteracting Dynein in zebrafish primordial germ cells." Laboratory Presentation, January 28, 2015 (hereafter referred to as the "*Lab Presentation* 2015")
- "Maternal dazap2 regulates germ granule formation in zebrafish primordial germ cells." Presented at the Germ Cells, Cold Spring Harbor, NY, October 2014, NYC-Wide Stem Cell Event, "Stem Cells in the City," NY, November 2014, Mid-Atlantic Regional Zebrafish Meeting, PA, November 2014, and New York Metropolitan Zebrafish Meeting, Cornell, NY, January 2015 (hereafter referred to as "*Poster 1*, 2014-2015")
- "Cytoskeleton, microtubules, centrosomes, germline cyst, Bucky ball, oocytes." Poster presented at the Mid-Atlantic Regional Zebrafish Meeting, Bronx, NY, July 2015 (hereafter referred to as "*MARZ* 2015")
- "Bucky ball associates with the centrosome and promotes microtubule cytoskeleton rearrangements to establish oocyte polarity in zebrafish." Poster presented at the American Society for Cell Biology (ASCB) Meeting, San Diego, CA, December 2015 (hereafter referred to as "*ACSB* 2015")

ORI found that Respondent intentionally falsified and/or fabricated data for germ-cell development in zebrafish Dazap2 maternal-effect mutants (MDazap2) in one (1) paper and two (2) presentations when the mutants were not produced nor the data derived from them.

Specifically, Respondent:

- falsified thirty-eight (38) fluorescent image panels by drawing staining in PhotoShop and falsely labeling them in Figures 1F, 1G, 2A, 2C, 2E, 2F, 2G, 3A, 3D, 4A, and S2A in the Cell Reports paper and included some of the same images in seven (7) figures in *Lab Presentation* 2015 and in six (6) figures in *Poster 1* 2014-2015
- fabricated numbers for data presented in ten (10) graphs in Figures 1L, 2B, 2D, 2H, 3B, 4B, 4C, S2B, S2C, and S3B in the Cell Reports paper and included some of the same graphs in seven (7) figures in *Lab Presentation* 2015 and in six (6) figures in *Poster 1* 2014-2015

ORI found that Respondent intentionally fabricated and/or falsified data for zebrafish embryogenesis and oocyte polarity in two (2) papers and two (2) presentations when the data were not obtained from actual experiments.

Specifically, Respondent:

- falsified twenty-four (24) fluorescent image panels by drawing staining in Photoshop and

falsely labeling them in Figures 5B, 5C, 5D, 5E, 7A, 7B, 7D, 8A, 8B, 9A, and 9B in the August 2015 Development paper and included some of the same images in four (4) figures in the ASCB 2015 poster and in two (2) figures in the *MARZ* 2015 poster

- fabricated numbers for data presented in eight (8) graphs and one (1) illustration in Figures 5F, 7C, 7E, 8C, 8F-I, 9C, and 9D in the December 2015 Development paper and Figure 2F in the August 2015 Development paper and included some of the same graphs in four (4) figures in the *ASCB* 2015 poster and in two (2) figures in the *MARZ* 2015 poster

Ms. Forbes has entered into a Voluntary Exclusion Agreement (Agreement) and has voluntarily agreed for a period of three (3) years, beginning on May 6, 2016: (1) to exclude herself from any contracting or subcontracting with any agency of the United States Government and from eligibility or involvement in nonprocurement programs of the United States Government referred to as "covered transactions" pursuant to HHS' Implementation (2 C.F.R. Part 376 *et seq*) of OMB Guidelines to Agencies on Governmentwide Debarment and Suspension, 2 C.F.R. Part 180 (collectively the "Debarment Regulations"); (2) that she will neither apply for nor permit her name to be used on any application, proposal, or other request for funds to the United States Government or any of its agencies, as defined in the Debarment Regulations; Respondent will further ensure that during the period of the voluntary exclusion, she will neither receive nor be supported by funds of the United States Government and its agencies made available through grants, subgrants, cooperative agreements, contracts, or subcontracts, as discussed in the Debarment Regulations; and (3) to exclude herself from serving in any advisory capacity to the U.S. Public Health Service (PHS) including, but not limited to, service on any PHS advisory committee, board, and/or peer review committee, or as a consultant.

As a condition of the Agreement, Respondent agreed to the retraction of *JBC* 2010.

SEQUESTRATION ANALYSIS

(continued from page 4)

entitled "Sequestration Analysis: Collaborative Institutional Approaches & White Collar Concerns" at Indiana University. The goal of the meeting was to provide practical tools and resources to successfully implement the content developed in this innovative and interactive conference.

In academia, the sequestration process is vital to conducting a successful analysis of an allegation of research misconduct. Indiana University's goal was to enhance the research integrity community's understanding of the importance and effects of the role of sequestration in research misconduct allegations through a multi-disciplinary approach involving national subject matter experts. Individual presenters included IT forensic specialists, general counsel and legal representatives, research integrity officers and staff, compliance and safety personnel, campus security, and counseling services.

BACK