



RESPONSIBLE RESEARCH PRACTICES IN A CHANGING ENVIRONMENT

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PASSION, ETHICS AND TRUST

- How can you:
 - Sustain it
 - Foster it
 - Feed it
 - Grow it through others

INTEGRITY CHALLENGES



- Have research ethics and research integrity changed?
- What is “responsible research”?
- Who is responsible for ensuring research integrity?
- Is science self-correcting?
- What about fraud?
- Do legal /government structures and academic administration /freedom conflict?
- Is research academia or a business, or have the two merged?
- What about the broader issue of responsible management of the research enterprise?
- Does its new rules change NSF’s view of institutions having full responsibility for projects?
- How are government oversight /responsibility for funds related to institutional /individual responsibility?



NSF'S EXPECTATIONS

- The **awardee has full responsibility** for the conduct of the project or activity supported under this award and for adherence to the award conditions. Although the awardee is encouraged to seek the advice and opinion of NSF on special problems that may arise, such advice does not diminish the awardee's responsibility **for making sound scientific and administrative judgments** and should not imply that the responsibility for operating decisions has shifted to NSF. (Article 1, GC-1)
- By accepting this award, the awardee agrees **to comply with the applicable Federal requirements** for grants and cooperative agreements and to the **prudent management** of all expenditure and actions affecting the award. (NSF's Grant General Conditions, since 1988)
- **The awardee must report issues related to research misconduct** (NSF's Grant General Conditions, since 1988).

RESPONSIBLE CONDUCT OF RESEARCH

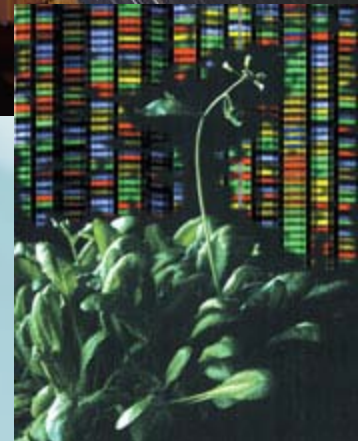
- **Institutional Responsibilities to NSF** (proposals submitted ON or AFTER January 4, 2010)
 - Certify that a Plan exists for RCR and ethical training for undergrads, grad students, and postdocs.
 - Designate person to oversee compliance
 - Institutions must verify that students and researchers have received proper training
- Institutional plans and efforts are subject to review.

WHAT'S IN YOUR RCR TRAINING PLAN?

- ***What's the format?*** On-line?
Face-to-face meetings w/advisor?
Faculty-led courses?
Case studies from real life
<http://www.nsf.gov/oig/closeouts.jsp>
- ***What's the subject matter?*** "9 core elements" (RM policies, authorship and citation practices, data acquisition and sharing*, animal/human subjects protection, IRBs, gov't requirements).
Or issues as determined by risk assessment.
- ***Who participates?*** Only students/postdocs directly funded by an NSF grant?
Foreign-educated?
All?

RESPONSIBLE PROFESSIONAL PRACTICES

- Compliance with rules and regulations
- Peer Review Rules
- Mentor/ Trainee Responsibilities
- Human Subjects Regulations
- Animal Welfare Regulations
- Research Misconduct
 - Fabrication
 - Falsification
 - Plagiarism
- Collaborative Research Practices
- Publication/Authorship Practices



AND SOME MORE

- Data Sharing/ Acquisition/Management/Ownership Practices
- Financial Management
- Conflict of Interests and Commitments
- Grantsmanship
- Patent Issues
- Global Competence: contributing to knowledge, comprehension, analysis, and evaluation in the context of an increasingly globalized world
- Appropriate alternative actions provided by ethical principles and current professional guidelines
- Ethical reasoning
- Long term development of research agenda



PROMOTING INDIVIDUAL AND INSTITUTIONAL INTEGRITY

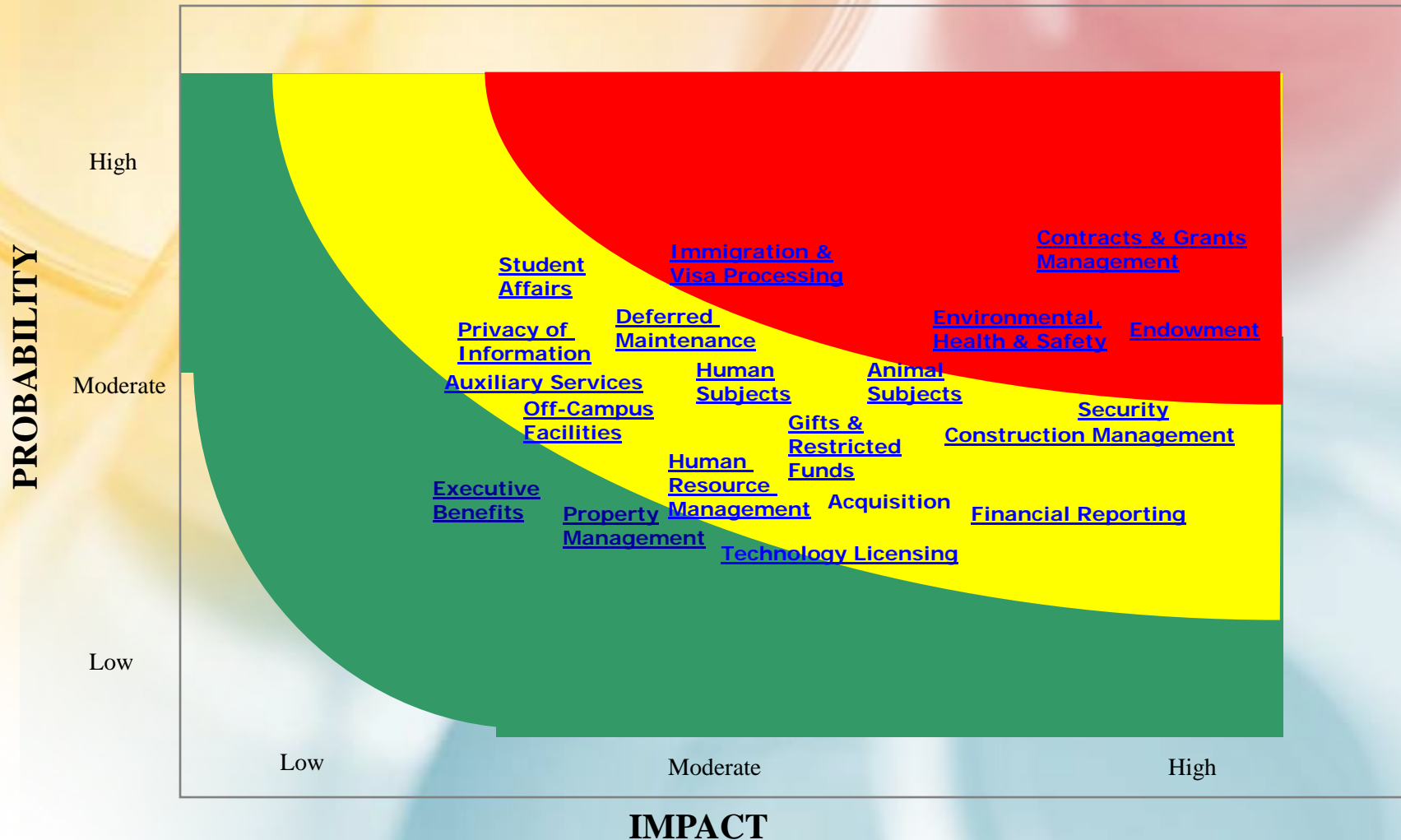
- 1) Establish standards and procedures
- 2) Designate someone to be responsible for the E&C Program
- 3) Care in assigning substantial discretionary authority
- 4) Effectively communicate and train on E&C Program elements
- 5) Establish monitoring and evaluation of E&C Program (risk evaluation)
- 6) Consistently promote and enforce E&C Program
- 7) Respond appropriately to problems

*Federal Sentencing Guidelines, OIG HHS (8 elements), COGR



ONE UNIVERSITY'S RISK ASSESSMENT

HEAT MAP



What is an OIG?

- **What are Offices of Inspector General?**
 - Provide leadership and coordination to implement policies to:
 - Prevent and detect fraud, waste, abuse
 - Promote economy, efficiency, effectiveness
 - Conduct civil, criminal and administrative investigations,
 - Conduct Research Misconduct investigations
 - Conduct audits, inspections, reviews of agency programs (funded activities), and operations

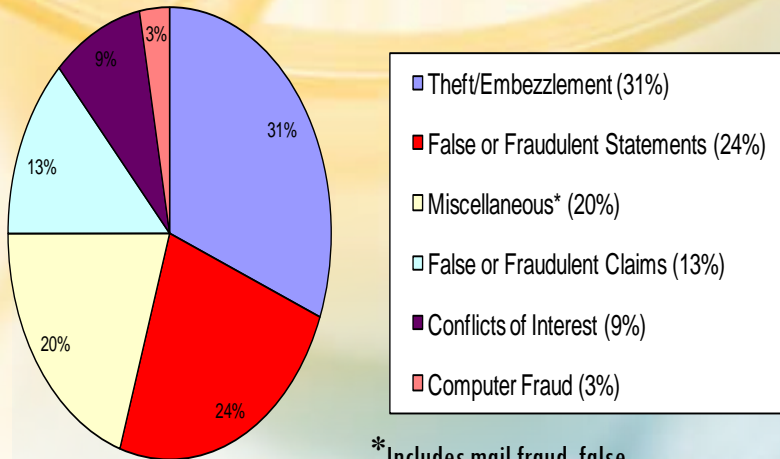
- **Features:**
 - Independent of agency management
 - Jurisdiction (NSF activities, programs, operations)
 - Staff of experts: administrators, attorneys, auditors, criminal investigators, and scientists



WHAT IS FRAUD?

- It's a civil or criminal investigation it is NOT Research Misconduct.

Common Types of Civil/Criminal Allegations



*Includes mail fraud, false identification insurance fraud, impersonating a government officer, and copyright infringement.



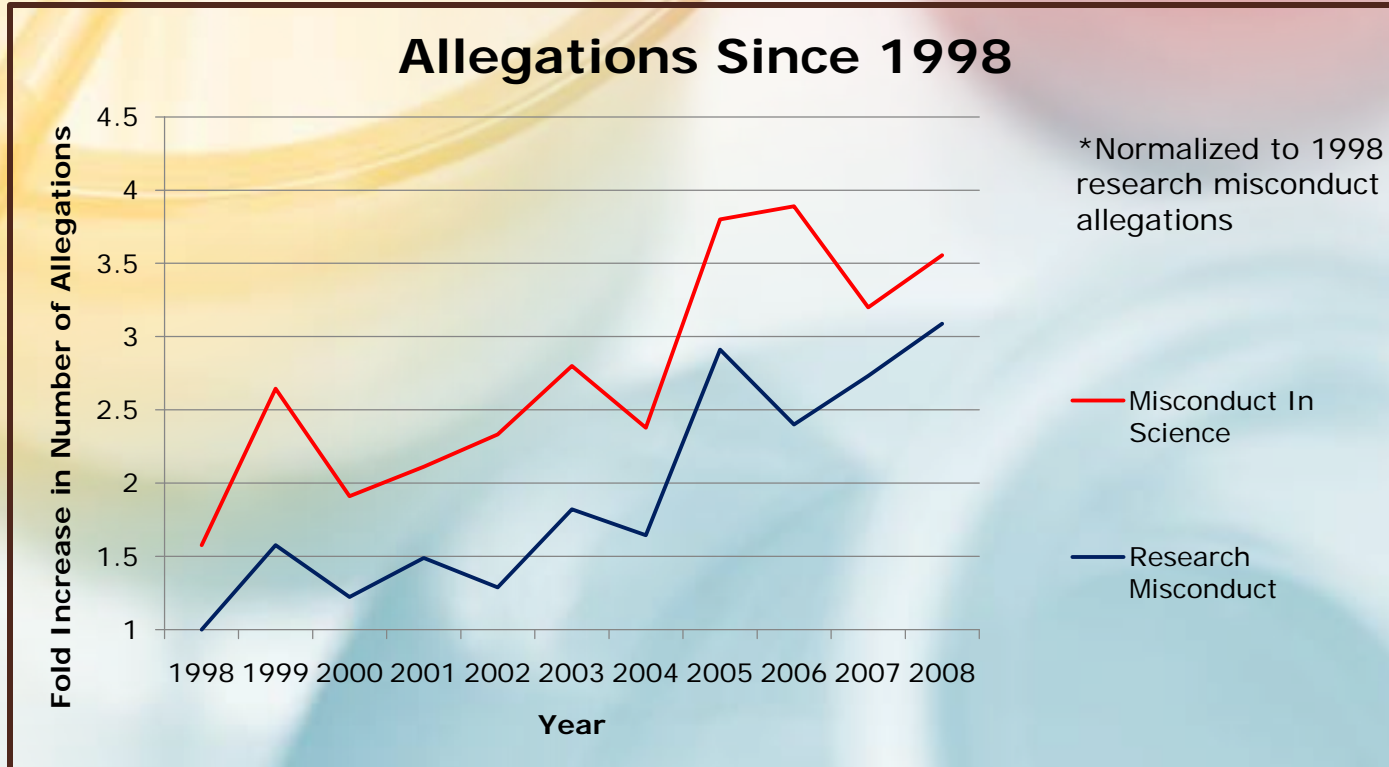
Grant money used for rent and tuition

Individual fraud on an NSF Grant

- Fraudulent final report submitted to NSF by professor
- NSF grant money used for personal expenses
- NSF: Professor's grant was suspended and he had to repay almost \$200,000
- Criminal result: Professor pled guilty and was fined \$15,000 and faced 5-years probation

WHAT IS RESEARCH MISCONDUCT

- From 1998-2008, NSF has observed a 3-fold increase in RM allegations



CONSIDER OUR CASES

- Student fabricates data in 3 papers and one manuscript because uninterested in project
 - Undetected for extended period of time.
 - 3 year debarment, certs, assurances, ethics training
- Student fabricates “curb stoning” data presented in manuscript; lied to committee, mislead professor
 - Undetected until thesis
 - 3 year debarment
- Student fabricates data in Master’s thesis, claims in part not taught how to record data correctly
 - Undetected until thesis submitted
 - 3 year debarment, certs, assurances
- New Faculty member plagiarizes 4 pages and one figure into proposal;
 - no mentoring; Institution improves training
 - RM finding; certs, assurances, training
- Foreign trained student steals data, papers
 - No mentoring: Institution improves training, rm investigation process
 - 5 year debarment
- Faculty member plagiarizes 3 pages of a proposal he peer reviewed
 - Incomplete investigation; Institution agrees to improve its investigation
 - 1 year debarment



HALL OF EXCUSES

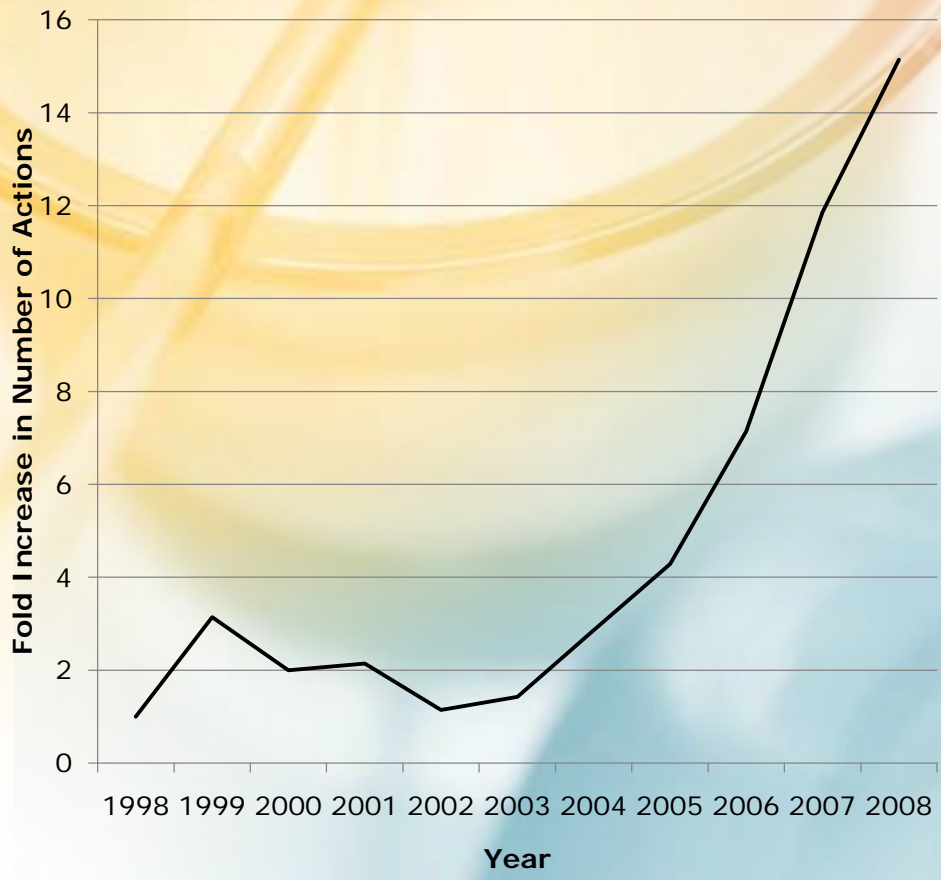
- I didn't do it. My grad student/undergraduate/postdoc/grant writer/faculty colleague/secretary/Co-PI/SRO/AOR/VP of Research/Dean/spouse wrote that section.
- It's only background/introductory material (or it had no technical merit).
- The reviewers are smart enough to know what is my work and what is someone else's.
- It's in the public domain.
- It's not plagiarism; it's just bad citation.
- I used the same words, but I meant something different.
- There's no other way to say that.
- I didn't have space for all the citations
- "It's only a proposal. It's not like it's a publication"
- "Fastlane removed all the quotation marks"
- "My English teacher told me it's not plagiarism if I change every 7th word."
- "I was told that having between 70-80 citations in a proposal was enough.
- Anymore and I would look like I wasn't proposing to do something new."
- "If that was done by me, it was not intentional, and if I did it, I was not aware that I was doing it, and if I did it, it stopped."
- A bird distracted me.
- I was suffering from severe acid reflux.

INDIVIDUAL CONSEQUENCES

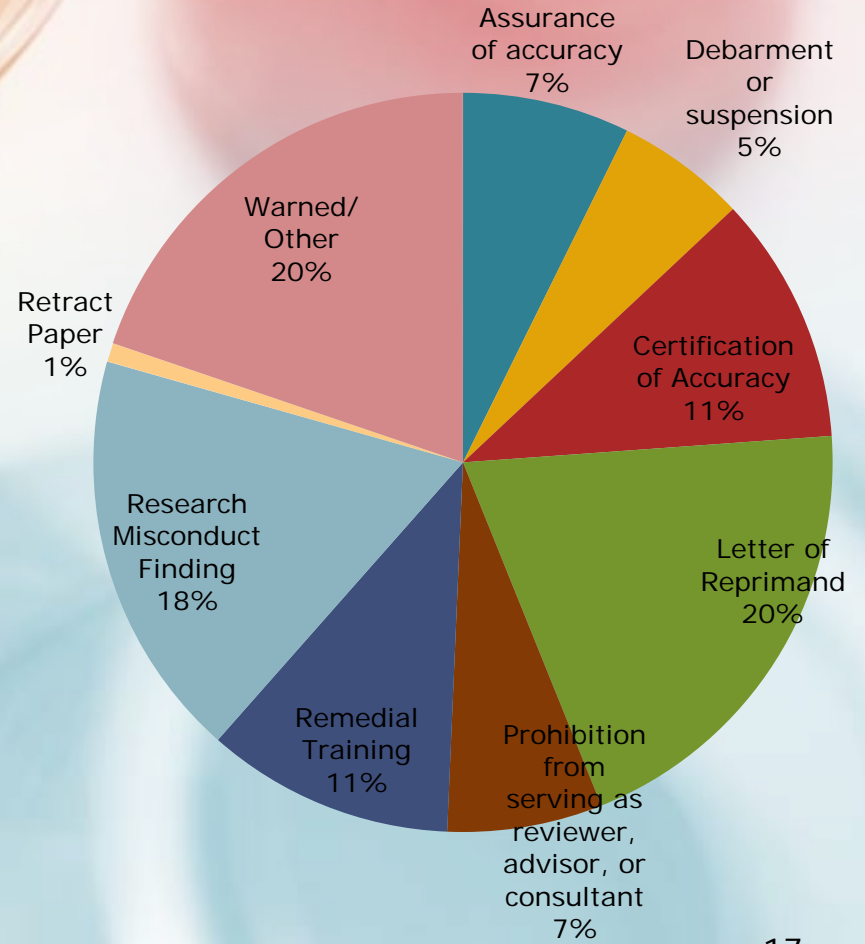
- Reprimand
- Denial of tenure or termination
- Loss of salary
- Suspension or termination of awards
- Retraction of Papers
- Added review of published works, grant proposals
- Restrictions on numbers of students
- Ethics classes (attend or teach)
- Ban from serving as a reviewer
- Certifications by subject
- Assurances by supervisors or institution official
- Federal-wide debarment
- Civil, Criminal case and actions (probation, fines / restitution)
- Public disclosure of actions



Research Misconduct Actions Since 1998



Research Misconduct Actions Since 1998



NEW GLOBAL CONSIDERATIONS

- For the U.S. to support international S&E partnerships, there must be accountability, research integrity, and minimal bureaucratic overhead from many sources. Common standards for research integrity among participants in international S&E partnerships must be created. . . (**National Science Board 08-4**)
- **Global Science Forum (science policy group of government delegates under Organization for Economic Co-operation and Development - OECD)**
 - **Best Practices for Ensuring Scientific Integrity and Preventing Misconduct** <http://www.oecd.org/dataoecd/37/17/40188303.pdf>
 - **Co-ordinating Committee for Facilitating International Research Misconduct Investigations** <http://www.oecd.org/dataoecd/29/4/42713295.pdf>

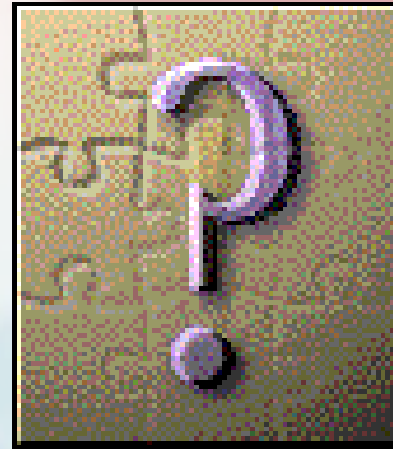
INTERNATIONAL RESEARCH: BASIC RESEARCH TO ENABLE AGRICULTURAL DEVELOPMENT (BREAD)

- **Special Information and Supplementary Documentation**
 - Sharing of Results and Management of Intellectual Property
 - Project Management Plan
 - Subawardee Oversight Plan
 - Ensuring financial accountability, describe past experiences in dealing with subawards to foreign institutions,
 - Ensuring compliance with regulations (rDNA, microbes, transgenic organisms, vertebrate animals)
 - Ensuring compliance with US Agricultural Bioterrorism Act of 2002
 - Adherence to common principles for the responsible conduct of research and the investigation of research misconduct allegations
 - Dissemination of Project Outcomes Plan
 - Postdoctoral Mentoring Plan
 - Undergraduate and Graduate Student Mentoring Plan

RESEARCH IS EXCITING

- Ethics Programs in your laboratory, your department and institution can:
 - create a safe environment of integrity for passion and inquiry to thrive
 - excite the next generation
 - allow us to adapt to the new challenges the science community faces

QUESTIONS, THOUGHTS??





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