**Safeguarding Integrity While Enabling Collaborations: Not “Either-Or” but “Both-And”**

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**One-Sentence Summary:** Proper collaborations do not entail stealth employment, duplicative funding, undisclosed financial conflicts of interest, or the repeated recitation of lies to institutional or government officials.

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Years ago, a United States (US) university submitted to the National Institutes of Health (NIH) a grant proposal that named as Principal Investigator (PI) a scientist with full-time employment at that university. The proposal was well-received and funded. Several months later a Chinese university that employed the same scientist submitted a nearly identical proposal to a Chinese government science funding agency. The Chinese agency was enthusiastic and, like the NIH, funded it. The following year, the scientist submitted two progress reports which were nearly identical in scientific substance; one was submitted through the US university to the NIH and the other through the scientist’s Chinese employer to the Chinese funding agency. The NIH progress report made no mention of the newly funded Chinese grant, despite a specific question about whether there had been a change in the scientist’s research support.

Fast forward to late 2018: The NIH (with one of us, MSL, as signatory) sent a letter to the US university asking about the scientist’s Chinese employment and grant support. We asked for copies of Chinese documents and, after receiving and reviewing them, established that there had been duplicative funding. The university’s leaders informed us that until we contacted them, they were unaware of the scientist’s employment and funding support in China. They agreed to terminate the NIH grant and to refund in full all monies issued to date. They also informed us that they were taking actions such that we were not going to see that scientist supported on an NIH grant any time soon.

The scientist’s colleagues became aware of the institutional actions, which seemingly happened without warning and without cause. They may have known – in general terms – that their colleague did some work in China, but they thought all approvals were in order. Given the scientist’s Chinese background and the ongoing tensions in US-China relations (*1*), the event was chilling and frightening. It seemed as if the NIH was sending a stern message: do not engage in any collaboration with Chinese scientists or institutions.

How should we all respond to this scenario and others like it? Why did NIH send a letter to institutional officials in late 2018? Was NIH being overly harsh in its oversight? Did the institution do right by removing the scientist from NIH-funded work after many years of productivity? How are other scientists supposed to react, especially when similar events have occurred in many institutions around the country and when other agencies, like the National Science Foundation, have taken similar actions? Should they be worried that any collaboration with China might lead to loss of grant support or, worse, criminal prosecution?

To analyze this scenario, which is based on over 150 real cases that we have addressed (*2*), we need to review the relevant policy and regulatory framework, and then fill in, in the words of the late radio broadcaster Paul Harvey, “the rest of the story.”

**Policy and Regulatory Framework**

On December 28, 2000, US President William Clinton issued Executive Order 13185 (*3*) endorsing the April 1999 report of the National Science and Technology Council “Renewing the Government-University Partnership.” (*4*) That report stated as a Guiding Principle, “The ethical obligations entailed in accepting public funds and in the conduct of research are of the highest order and recipients must consider the use of these funds as a trust. Great care must be taken to ‘do no harm’ and to act with integrity. The credibility of the entire enterprise relies on the integrity of each of its participants.” (*4*) In the setting of NIH research grants, those participants include institutions, which apply for and receive research awards, and PI’s, who are “the individual(s) designated by the recipient to direct the project or program being supported by the grant. The [PI] is *responsible and accountable* to officials of the recipient organization for the proper conduct of the project, program, or activity.” (*5*)

The trust and integrity incumbent upon institutions and PIs consist of at least three expected traits or behaviors. They are: 1) honesty, in part manifest by being truthful when answering questions posed by Federal and/or institutional officials; 2) compliance with terms and conditions of federal awards (*6*), including providing information that is true, complete, and accurate, and providing all requested records in a timely manner (*7, 8*); and 3) development of and adherence to internal controls (*6*). These behaviors enable NIH and institutions to work together to assure public interests, which include 1) sound programmatic and fiscal stewardship, 2) objectivity with mitigation of bias, and 3) assessment and management of conflicts of commitment.

NIH and institutions assure programmatic and fiscal stewardship by avoiding “double-dipping.” As part of routine pre-award assessments, NIH officials review institutional documentation for possible scientific overlap or budgetary overlap with other current or pending awards and for overcommitment on the part of the PI or other key personnel (*9*). If there is possible overlap or overcommitment, NIH officials work with the institution and sometimes with other funding agencies, assuring the public that there is no duplicative or wasteful spending of taxpayer dollars.

Objectivity with mitigation of bias means adherence to financial conflict of interest regulations (*10*). Institutions must develop policies and procedures for learning about all significant financial interests (meaning more than $5000 going to a specific person) and for working with PIs and NIH to manage situations where those significant financial interests may lead to conflicts. PIs have a responsibility to disclose all significant financial interests to their institutions; if they fail to make financial disclosures, institutions cannot even begin to make judgements about conflicts.

The Office of Science and Technology Policy (OSTP) has defined conflict of commitment as a “situation in which an individual accepts or incurs conflicting obligations between or among multiple employers or other entities...” (*11*) The University of California describes certain “Category 1” activities as “outside professional activities that are most likely to create a conflict of commitment because they are activities related to the training and expertise that is the individual’s qualification for University appointment, but performed for a third party, and/or they require significant professional commitment.” (*12*) These “Category 1” activities include research or administration of a grant at an outside entity, outside employment, founding or co-founding a company, and assuming an outside executive or managerial position. These activities, activities likely to create a conflict of commitment, are not prohibited, but require prior approval by a high-level University official. From the point of view of the NIH, conflicts of commitment are concerning because they often entail financial conflicts of interest (e.g., outside employment involves salary payments and/or signing bonuses) as well create situations in which scientific overlap, budgetary overlap, or overcommitment are more likely. Failure on the part of a scientist to disclose a conflict of commitment to their institution compromises the requirement that PIs function as “responsible and accountable to officials of the recipient organization.” (*5*)

**The Rest of the Story**

Several years before the previously mentioned events, the scientist secured employment at a Chinese university and through that university applied to a prestigious China-based Talent Recruitment program. In addition to information about scientific achievements, the application requested information about the scientist’s ethnicity and political party since the program explicitly preferred ethnic Chinese and those with appropriate “political stances.” (*13*) Following the body of the application, the Chinese university pledged to provide financial, human, and physical resources to build up a laboratory. After a rigorous review, the scientist received a document from the “Central Organization Committee of the Chinese Communist Party” indicating that they were selected and would be promised living and working provisions according to a contract.

That contract was confidential – so confidential that the scientist’s US university never had an opportunity to review it – and included language on objectives (moving the laboratory gradually to China), signing bonus ($150,000), salary (in the tens of thousands of dollars per month), office and laboratory space, laboratory staffing, equipment, housing allowance ($75,000), and other benefits. In return, the scientist was obligated to conduct research, to apply for additional grant support from Chinese funding agencies, to spend at least 3 months each year working in China, to publish in indexed journals with the Chinese institution identified as the primary affiliation of the scientist, and to generate domestic (meaning Chinese) patents. The contract stipulated that intellectual property coming from the work would belong to the Chinese institution and that the scientist’s US employer could only claim a small fraction. The scientist signed the contract and shortly thereafter was notified that the signing bonus and salary payments were deposited in a Chinese bank account.

As per standard procedure, the scientist submitted an annual disclosure to their US university. The university explicitly asked about outside employment and outside research support. The scientist entered, falsely, “None – no outside activities.”

When the NIH asked about external research employment and research grants, the scientist repeated the lies, falsely telling institutional officials that there was nothing to report: the scientist denied outside employment of any kind, denied directing research in a foreign lab, and denied receiving funding support outside of their US employer. When the university showed the scientist the signed contract, the external grant, spreadsheets or emails documenting payments, information on Chinese government and university web pages, and the scientist’s own declarations in published papers (e.g., supported by Chinese grant XYZ to specific scientist), they continued to deny any outside employment or grant support. The university rejected the denials and took actions given the scientist’s demonstrably false statements and violations of institutional conflict of interest and conflict of commitment rules.

While this scenario reflects over 150 real cases that we have seen, there are variations. In some cases, contracts were for full-time work and/or Chinese grants stipulated extensive time commitments (e.g., 6, 8, 9, or 10 months). Some institutions accepted their scientists’ denials, but revised their assessments after we pushed back (typically by citing open-source information that contradicted the denials). Some scientists admitted to being principal investigators on Chinese grants, but they stated that they allowed their name to be used by others. They stated that they never saw grants in which they were designated as PIs and in which they later cited in publications as sources of support. Some arranged for Chinese institutions to write letters indicating, falsely, that there had been no prior employment or grant support; we refer to these as “comfort letters.” Some scientists were, unbeknownst to their US employer, affiliated with Chinese companies as paid advisors, employees, executives, or holders of equity. Some leveraged their service on NIH peer review committees to violate signed attestations with the NIH and to forward confidential US grant materials to Chinese colleagues. Some acknowledged limited work in China (e.g., seminars and informal graduate student advice, holding an “honorary” position) but falsely denied employment or Chinese funding support. Some transferred valuable materials from their US to their Chinese labs without going through required institutional material transfer requirements. And, in some cases, these behaviors did not involve China at all, but involved similar undisclosed activities in other countries. Nearly all these behaviors involved some form of serious, objective dishonesty which ran afoul of NIH requirements and/or institutional rules.

**Historical Considerations**

NIH first started working on foreign interference concerns in May 2016, when the Federal Bureau of Investigation (FBI) informed us of possible breaches of peer review confidentiality. Over the next two years, the FBI worked with us as we learned about the behaviors of dozens of scientists who were possibly involved with Chinese talent recruitment programs (there are hundreds beyond the Thousand Talents Plan). In August 2018, NIH Director Francis Collins sent out a mass mailing describing our concerns and informing institutions that they might be hearing from us (the NIH Office of Extramural Research) regarding specific cases. Our first cases were initiated by notifications from the FBI, but over time most cases came to our attention through institutional self-disclosures or through NIH program staff observing discrepancies between grant records and publications. It is important to note that we began our work well-before the launch of the “China Initiative,” which was an entirely separate effort led by the US Department of Justice (DOJ).

We have publicized our policies and procedures as well as aggregate data (*2*). We are aware of allegations involving over 600 unique scientists; of these, concerns were serious enough for 246 that we engaged in dialogue with institutional leaders (*2*). Over the last 2-3 years the number of new cases has decreased substantially (Fig. 1). One possible reason may be the extensive outreach and actions taken by professional groups and by institutions to enhance oversight and internal controls.

NIH has been actively engaged in a number of cross-government efforts. These include working with the OSTP on National Security Presidential Memorandum 33 (NSPM-33) implementation (*11*), partnering with other agencies on the development research security programs, participating in National Academies and international programs, and being responsive to audits and Congressional oversight. In FY2022 and FY2023 Congress explicitly allocated $2.5 million to the NIH Office of Extramural Research for work on foreign interference cases.

**Challenges and Moving Forward**

We understand the frustrations stemming from the inherently confidential nature of compliance reviews and institutional human resource (“HR”) actions. However, given our case volume, we can present aggregate data and describe, as we have done here, in a fair amount of detail patterns of objective behaviors (*2*). At the same time, it is important to put matters in perspective; our compliance reviews have identified problems involving less than 1% of all NIH-funded principal investigators (*2*).

A large proportion of our cases involve activities in China and scientists of Chinese origin, raising concerns of racial, ethnic, or political targeting. The disproportionate share may be related to the extensive reach of Chinese talent recruitment programs, which by some estimates may be as high as 15% of Gross Domestic Product (*14*). We previously noted that Chinese talents programs explicitly state preferences for ethnic Chinese scientists (*13*). We are careful to make sure that our compliance reviews are responsive to objective behaviors, irrespective of the demographics of specific scientists. We have seen cases involving countries other than China (even English-speaking countries), and we follow the same policies and procedures in those cases (*2*).

Some argue that even though the problem is real – the dishonest behaviors are concerning, and the infractions are serious – NIH actions may not be worth jeopardizing collaborations with one-quarter of the world’s scientists. In other words, we need to choose between rigorous integrity oversight – which causes collateral damage and erodes trust – and international collaboration. We see this as a false dichotomy. We can think of integrity oversight and international collaboration as a “both-and” rather than an “either-or” conversation. Proper collaborations do not entail stealth employment, duplicative funding, undisclosed financial conflicts of interest, or the repeated recitation of lies to institutional or government officials. Keeping in mind the guiding principle that “the credibility of the entire enterprise relies on the integrity of each of its participants,” we note that these dishonest behaviors have attracted attention from many stakeholders outside academia (*1*), some concerned about whether government agencies like the NIH are assuring proper stewardship over taxpayer monies.

The infractions are not victimless. The NIH grants ecosystem is highly competitive. Every year we receive over 60,000 research applications but are only able to fund about 20% of them. Because of the dishonest behaviors and false representations of a small group of scientists, other scientists who did act with integrity were denied the opportunity to conduct high-quality science supported by NIH. In our opening case of duplicative funding, the government was refunded, but we cannot reverse the fact that, because of a distorted funding decision, an honest scientist who submitted an outstanding proposal lost out. We will never know what great discoveries were not made or how many honest scientists, scientists who acted with integrity, were forced to close their labs, or see their careers derailed for lack of funding.

We are encouraged by constructive steps being taken to develop robust frameworks for international collaboration. Back in 2019 the NSF-commissioned JASON report proposed a set of questions that scientists and institutions should consider when establishing international collaborations (*15*). Scientists should make sure that terms of engagement are made clear in writing and that all participants (including scientists’ domestic employers) are fully informed. Participants should address conflicts of interest, conflicts of commitment, funding, resource and data sharing, reporting requirements, travel expectations, dissemination of results, and engagement termination. Institutional leaders should consider political, civil, and human rights’ risks; intellectual property; export controls; data and publication; misrepresentation risks; risks to community and core values; and risks of not engaging. Very recently, leaders at the Massachusetts Institute of Technology (MIT) published in this venue their approaches, including identifying lines that should not be crossed, one of these being participation in Chinese talent recruitment programs that are designed to transfer technology to China (*1*). Together, stakeholders in diverse sectors should strive to envision a “both-and” framework that secures trust and integrity while enhancing all that robust international collaborations have to offer.

References and Notes

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**Fig. 1.** **Number of foreign interference allegations received and open according to calendar year of first reported to NIH.** The blue (left-sided) bars refer to the number of allegations received, while the orange (right-sided) bars refer to the number of cases still open as of December 2022. Although NIH has received allegations involving over 600 scientists, NIH staff contacted institutions in 246 cases in which internal review suggested a high likelihood of possible problems with scientific or budgetary overlap, overcommitment, or undisclosed financial conflicts of interest.