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Supported by and Supporting Grants-in-Aid

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From last October, I've been employed at a research institute that is a private foundation, which has increased my access to various types of research funding. Up to then, I had worked for 33 years at universities, during which time 90% of my research funding was supported by Grants-in-Aid. As many of the scientists who have posted in this column recall, I also remember the elation I felt at being recognized as a full-fledged researcher the first time I was selected for a Grant-in-Aid. It was a grant under the category "General Research" (now, "Scientific Research (B)"), which I received at the time I was promoted to associate professor. I can recall as if it was yesterday using that grant to purchase a centrifuge with modified specifications. After that, we organized research teams and applied for funding under various Grant-in-Aid categories. Though team research had been criticized as an "armed convoy," it is with nostalgia that I look back at my participation in it. It was a time when I grew as a researcher, having gotten to know through close proximity the temperament of the senior researchers who were the team leaders as we all lodged in cheap hotels to discuss this thing and that.

For a quarter of a century, my research delved into the dual process of division that cells possess. That is, it was an effort to elucidate the molecular mechanism that controls the switching between mitotic cell division in cell proliferation and meiotic division in sexual reproduction. I advanced this research using fission yeast, a simple organism that possesses this switching process. Over nearly 20 years of carrying out this research, I discovered that when a certain type of RNA-combined protein is activated that cells in the fission yeast would stop mitotic division and start meiotic division. This allowed me to elucidate where that protein exists within the cell and discover a new RNA molecule that combines with it. It was still not at all clear, however, how that protein functioned. That was seven or eight years ago. Trying to unravel this puzzle became the trust of my ensuing work, for which I received several research grants from the government. Though initially filled with self-confidence, I eventually became seized with anxiety wondering if I would be able to solve this biggest riddle before reaching retirement age.

Then, the answer came by way of what I thought to be some unrelated research I was doing on gene expression in meiotic division. I found that in mitotically growing cells, a messenger RNA is transcribed from meiosis-specific genes. Not needed in mitotic cell division, the RNA selectively deactivates just after transcription, suppressing its meiosis-initiating function. What applies the brake in this degradation system, which blocks the onset of meiosis, is I discovered to be that RNA-combined protein which switches between mitosis and meiosis. To this finding, we applied our experimental data, which had been languishing undeciphered in storage, and found it to fit splendidly into the scenario. At that moment, I felt an overwhelming sense of relief that it hadn't been a mistake to devote so much time and effort by many students and staffs to the lengthy pursuit of this research quest.

What made this prolonged research process possible was Grants-in-Aid. I am very grateful to have had the good fortune to have had every year an unbroken string of grants in a sufficient amount to sustain the operation of my laboratory. At one point, I received three grants within a 5-year period. After that, I didn't have to exert further effort to secure research funding. Indeed, Grants-in-Aid were a major, though unseen, factor in allowing our research to succeed.

That said, from my experience is screening applications in virtually all Grant-in-Aid categories, I've come to realize that a lab is very lucky if one grant is able to cover the cost of running its operation. Talking about screening, one person used to conduct document reviews on more than 200 grant applications. I have spent the year-end and new-year holiday doing so. Now, the number of reviewers has been increased so that it no longer necessary to bear a burden that exceeds one's human capacity. Another enhancement to the screening system is the assignment of more reviewers to each application, which improves the impartiality of the process. At the same time, the Grant-in-Aid budget has continuously been augmented and grants made much easier to use. Beyond a doubt, the Grant-in-Aid system has definitely been improved, for which I am very grateful to those whose effort enabled it.

That said, however, there is one ideal enhancement I would like to suggest to the Grants-in-Aid program from the standpoint of a researcher. It is to establish a grant category that could dispel researchers' anxiety of having to apply successfully for a grant every year: That would be to establish a Grant-in-Aid open to researchers of all generations, awarded with just one application submission, and effective over several years; thus, ensuring the researcher needed funding over a sustained period of time. I believe this innovation would add an expanded dimension to the overall Grants-in-Aid program.

With that suggestion I had intended to end this essay when in the process of penning it in mid-January, information began emerging about the fabrication of data in Japanese-authored papers of international acclaim. Though we'll have to wait for the investigation of the subject institutions to be completed to get the facts, I am very disappointed that these incidences should happen at all. It is essential for researchers to exercise freedom in pursuing research. That researchers are granted that freedom and, moreover, receive help from the government in form of Grants-in-Aid owes to public trust in them as being sincerely engaged in the pursuit of their mission to make genuine scientific discoveries and advances. For researchers themselves to violate that trust is beyond contempt, as it erodes public confidence in research and creates an obstacle to advancing science. Trying to analyze this issue would go beyond my purpose for writing this essay; however, it's my acute sense that dealing with it based on just the mentality of individual researchers will not solve the problem. That a time has befallen Japan when we'll need to establish an organization to analyze what precipitates misconduct and to secure scientific authenticity adds to my lament as one who believes in good, old scientific research.