

[Kakenhi Essay]

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Some Impressions of Grants-in-Aid for Scientific Research

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I am honored to have been asked to write an essay for this Kakenhi series. The list of contributing essayists to date includes many prominent scholars, starting with Professor Makoto Kobayashi (Nobel Laureate in Physics), then serving as JSPS Director when he penned his essay for the inaugural issue. Although I don't feel that I quite measure up by comparison, I would still like to put some of my thoughts and general impressions on paper.

First, many researchers believe that acquiring a grant for scientific research is proof that one has "made it" as a full-fledged researcher. In particular, with the expansion of frameworks that provide independence and financial assistance to young researchers, the notion of becoming settled into the class system and leaving the challenges of research to senior faculty members has lost its hold. However, some researchers from my own generation fret that when they were young, most research grant funding typically went to older professors, but now that they are in that age group, their younger colleagues have the advantage. It's probably the same frame of mind that comes from doing everything for one's mother-in-law in years past but now having the task of ensuring that the daughter-in-law is always in a good mood as well.

The first time I received a grant for research, I shared it with a senior faculty member and for that reason, don't have a solid recollection of all the details. However, it is difficult to forget the feeling I gained—one more of relief than joy—the first time I received grant funding as a project leader. In itself, obtaining a grant-in-aid for scientific research indicates that the recipient already has a certain measure of research experience, has firmly established future research goals, and is capable of articulating the approaches or methodologies that will be applied to attain those goals. To have those processes assessed in that way is much the same as the relief one probably feels upon obtaining a passport. I am thus full of gratitude for the uninterrupted flow of grant funding I have received over the past 25-odd years for projects I have pursued in

the categories of the Grant-in Aid for Scientific Research and the Grant-in-Aid for Scientific Research on Priority Areas. Even today, I clearly remember how thankful I felt for the research grants I obtained immediately after setting up my own laboratory. Success in obtaining grant funding is a matter of life and death to a researcher with supervisory responsibility for a laboratory. Even though I am optimistic by nature, I was tormented by concerns about whether I would be able to continue doing high-quality research. Through this period, I was almost exclusively engaged in research aimed at elucidating the function of phospholipid metabolism in cell proliferation and differentiation. As one outcome of that research, I demonstrated that anomalies of this metabolic process are involved in the occurrence of cancer, skin disease, and a variety of other illnesses. Today, I am thankful that I was able to pursue sustained research in this area with the support of grant funding for scientific research. At the same time, as an exit strategy, I want to continue striving to make contributions to the treatment of disease.

To date, I have had opportunities to serve on various committees drawn up by the Ministry of Education, Culture, Sports, Science and Technology and participate in screening candidate projects for large-scale research funding. That experience proved extremely valuable in providing me with multifaceted insights into grants-in-aid for scientific research. In the interest of improving access to grants, committee discussions covered the ideas of providing assistance with the startup of research operations and creating grant fund. That the Grant-in-Aid Fund has actually been established is, in my view, a major step forward. The committee experience also afforded me insights into the types of information that project application referees want to see and the writing styles they consider easy to comprehend. Additionally, I had opportunities to admire the quality of well-written research prospectuses. Although younger generations of researchers appear to have benefited from the knowledge in books that detail how to write applications for grants-in-aid funding, I think they can also learn something from the research prospectuses of peers who have had experience of doing screening. Even I have given advice on the no-no's of application preparation. That said, in recent years I conversely have had many things to learn from the younger generation in return. In some cases I have been in awe of young researchers that excel to the point of sheer brilliance.

For research expenditures, I believe it important to strike a balance between base funding and competitive funding. Because the JST and other sources of large-scale research funding provide forms of competitive funding that place emphasis on merit or ability, it may appear that such funding is relatively convincing. However, applicants that expend an inordinate amount of time

attempting to write competitive applications and documents for review may suffer serious setbacks if they are unable to allocate the time they should to actual research. Note, moreover, that the excessively intense levels of competition tend to be focused in research funding for projects at a select few of the top universities. In Japan, the top 10 universities account for a heavy concentration of that research funding. To cultivate creative research undertakings by members of the next generation, it will be exceptionally important to expand the level of funding available to institutions other than those in the top-rank category. To that end, I believe a somewhat different set of judgmental criteria also should be applied when projects are chosen to receive grant funding on a large scale. Selecting projects on the basis of regional quotas or quotas for private institutions would also be worthwhile. Furthermore, in my view, we should implement strict curbs against redundant funding. I am aware that implementing stronger restrictions against redundant funding may be a controversial topic but as I see it, providing a single researcher with funding on a large scale for multiple projects should be discouraged even if those projects are all devoted to different themes. In the final analysis, researchers are already limited in their ability to effectively manage the limited amounts of time at their disposal. I would not deny their right to engage in large-scale research on an organized basis but at the same time, they must not ignore the need to sow seeds that can spur originality commensurate with their own laboratory scale. In that respect, I think priority should be given to the Grant-in-Aid for Scientific Research (fundamental research) category because it is based on a bottom-up approach that serves the needs of individual researchers.

Even now, as I write this essay, cases of misconduct with research funding and the fabrication or falsification of research data are in the news. It is a shameful situation. As factors in the background, researchers that receive large-scale levels of research funding conceivably face pressure to produce comparatively impressive results while young post-doc instructors face uncertainty in maintaining their positions within their institutions. Pressure is not always a bad thing and in a competitive society, it is unavoidable. I recently spotted a newspaper headline noting that the JST planned to mandate ethics training for researchers. Due to the unethical behavior of a small minority of researchers, various systems and frameworks have been put into place to thwart acts of misconduct. As a consequence, regulatory procedures have become even more cumbersome and many researchers will have to increase their workloads to deal with that. In the interest of maintaining the public's trust and contributing to strategies for the advancement of science, I would hope that all researchers continue to demonstrate an attitude of honesty and integrity.