

*Grants-in-Aid and I*

*—My Career as Supported by Priority-Area Grants-in-Aid—*

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Upon a recommendation by my mentor Prof. Saburo Tamura, in 1970 I was offered a position as a research associate under the Applied Agricultural Science Chair (later named the Bioorganic Chemistry Chair) in the Department of Agricultural Chemistry, Faculty of Agriculture, University of Tokyo. Having been employed at a corporate research institute after graduation, I had no academic track record to speak of. This event was to alter my life.

The Chair in Bioorganic Chemistry was held by Prof. Tamura until 1977, when it was succeeded by Prof. Akinori Suzuki. At that juncture, the group's research, conducted from a chemistry perspective, was directed at isolating biologically active agents that control various types of biological phenomena and elucidating the structure of those agents. The focus of my research was on microorganisms, plants and insects. It was around 1980 that I learned about a very interesting study on self-incompatibility in mustard family plants being conducted by Prof. Kokichi Hinata of the Faculty of Agriculture at Tohoku University. A specialist in plant breeding genetics, Prof. Hinata was a forerunner in self-incompatibility research advanced in Japan. I was given the opportunity to participate in that study as a chemist.

Carried out between FY 1985 and 1987, a joint research project between botanists and chemists from Tohoku University and the University of Tokyo was funded under a priority-area research Grant-in-Aid for "Plant Breeding at Cellular and Molecular Levels" (headed by Prof. Emeritus Manemon Takahashi of Hokkaido University). Being allowed to conduct my research at this high-priority level was very valuable to me not only in advancing my own work but also because of the opportunity it afforded me to meet people doing plant research from the different vectors of agricultural and physical science, with whom I may not otherwise have crossed paths. That I was able to develop myself as a specialist in botany and agricultural science owes greatly to the friendship extended me by those fellow scientists. Even today, they remain my most valued asset.

In 1996, I was offered a position at the newly established Nara Institute of Science and Technology. This again was eventuated by the acquaintances I had made in the 1980s. The origin of Prof. Takahashi's research could be traced back to two priority-area projects funded under large-scale Grants-in-Aid for bioproduction research led by Prof. Tamura from the mid-1970s to early 1980s. It was the young researchers who participated in those priority-area Grant-in-Aid projects who would go on to pioneer and advance many fields of agricultural and botanical science over the ensuing twenty years. This is a typical example of how research projects carried out under the priority area category of Grants-in-Aid can contribute significantly to fostering talented young scientists. I remain full of admiration for Prof. Tamura being so ahead of his time in both concept and initiative.

My joint project with Prof. Hinata gained recognition as an important research field following Prof. Takahashi's two priority-area research projects on the reproductive systems of plants (conducted with Professors Hinata and Hiroshi Harada), and was incorporated into their planning research. At the time, I had transferred to the Nara Institute of Science and Technology. Thanks to the laboratory system set up by the Institute and the funding received from it for priority research, we were able to make rapid progress in our work. During the period from FY 1999 to 2003, I received a small-scale Grant-in-Aid with which I headed a priority-area research project on the "Self-Incompatibility of Plants," thereby carrying forward the joint research I had conducted with Prof. Hinata. Through that study, we were able to elucidate basic premises of the pollen factor in self-incompatibility. After completing the initial study, I received a Grant-in-Aid for Creative Scientific Research, which allowed me to wrap-up this research with a goal of passing its advancements on to the next generation.

Over the past 25 years, I have been able to pursue my research on the self-incompatibility of plants thanks to the various priority-area Grants-in-Aid that I have received. I count myself as having been very fortunate to be given these opportunities. This is particularly so as this area of research is extremely competitive, attracting keen interest from fellow scientists around the world. Through my research, I was able to elucidate molecular mechanisms of self-incompatibility in the brassica family, achieving results that enjoyed high appraisal within the international scientific community. Without the priority-research Grants-in-Aid for Professor Takahashi's and the other researchers' work, I could not have advanced my research this far.

First described by Darwin in the mid-19<sup>th</sup> century, self-incompatibility of plants has been the subject of numerous studies on the surprising quality that plants possess to prevent self-fertilization. It has also been discovered in recent years that hermaphroditic animals, such as ascidians, have a similar mechanism to inhibit self-fertilization. A Grant-in-Aid for Scientific Research on Innovative Areas has now made it possible to advance a joint research project on “Self/Nonsel Recognition,” a basic mechanism of sexual reproduction common to both animals and plants. Through their participation in this project, I hope to see young scientists gain formative experience while honing expertise in related fields.

Having benefitted so much in my own career development from the Grant-in-Aid program, I felt it only natural to repay this debt by cooperating in the program’s application screening and other administrative processes. I, therefore, accepted a post as the first senior program officer of the Agricultural Sciences Group in JSPS’s newly established Research Center for Science Systems. Over the past decade, I have seen the Grants-in-Aid system become more in tune with researcher demands and increasingly user-friendly, thanks to the efforts of a wide group of science administrators, program officers and staffs. On the down side, the overall Grants-in-Aid budget has, unfortunately, not been increased significantly in recent years.

The importance of Grants-in-Aid as bottom-up competitive research funding will become ever-more pressing in years to come. Peer review is used to ensure fairness in the allocation of competitive funds under that Grant-in-Aid program. Under the procedure, both the applicants and reviewers are researchers themselves. Naturally, those who use the grants are also researchers. As such, the legitimacy and effectiveness of the Grants-in-Aid system can only be assured if grant application, evaluation and usage are properly conducted by individual researchers and research institutions. As one whose growth as a researcher has been fostered by Grants-in-Aid, I feel an equally important obligation to foster the growth of the Grant-in-Aid program.