



*By Dr. Mitiko Go, President, Ochanomizu University*

As a researcher, my experience has shown support provided by Grants-in-Aid for Scientific Research to be not only helpful but indispensable. I have availed myself of this support for more than 30 years. Every year, the wafting breezes of autumn have reminded me that it's time to begin preparing my grant application. After spending three years in the United States doing postdoctoral research, I became a research associate at the Department of Biology, Faculty of Science, Kyushu University. With the same fervor as preparing the curriculum for a new course, I would work hard to concentrate both my mind and time writing the grant application. In October, a half year before the start of the new fiscal year, I drafted an outline of my upcoming research activities and a detailed plan for carrying them out.

I was fortunate in that the mathematical biology group I belonged to allowed its research associates to freely set their research themes independent from the professors and associate professors. I was blessed with an exceptionally liberal research environment, one in which I was given time to actively pursue my own research. Then, Japan's School Education was amended in FY 2006. Whereas it had stipulated that associate professors were to "assist" professors and research associates to "assist" associate professors, it deleted the term "assist," allowing faculty at all levels to do independent research.

That created an ideal research environment for research associates; however, access to funding was anything but free. How funds allocated to the group were to be used was determined by its research council whose members included graduate students. One had to apply to the council for funding which, if approved, was disbursed in scanty amounts from which research equipment was purchased and travel to conferences covered.

For me, this was a time when rapid advances were being made in molecular biology; the group I belong to was doing research on themes of population genetics and molecular evolution. It was of critical importance for young researchers who aspired to do cutting-edge work in this field to participate in scientific conferences, where they could learn about the latest research advances, and in camp-in type research meetings, where they could report and discuss research topics with colleagues. At the time, there was a thrust forward in the area of molecular evolution—research projects were being advanced under the Grant-in-Aid for Scientific Research on Priority Areas and Grant-in-Aid for Co-operative Research grant-in-aid category [categories]. New techniques were being rapidly developed for determining amino acid sequences. Even in proteins having the similar function, it was demonstrated that amino acid sequences differed by organism. This gave birth to the new research field called Molecular Evolution. To that point, I had been a researcher in the field of theoretical computer science investigating protein folds using statistical mechanics. Working to build foundations in that area of investigation, I was attracted by this new and different field. It was after attending a research meeting on molecular evolution that I became absorbed in that field. That I was able to pay for my travel to that research meeting was, as I look back now, a gift from the principal investigators of a project being carried out under the grant-in-aid category Grant-in-Aid for Scientific Research on Priority Areas and Grant-in-Aid for Co-operative Research. That funding literally made it possible for a young researcher to discover a new field of enduring interest.

After that, my discovery that proteins are made up of modules and that there is a close interrelationship between those modules and the exon structure of protein coding genes was received wide recognition. It was a time when computer graphics hadn't made their way to Japan yet. The only research tool available was the mainframe computer in the university's computer center. Selected for a grant-in-aid under the category Grant-in-Aid for General Scientific ResearchC, I was able to purchase a small-size computer capable of graphic processing and display. It was the most advanced computer of its kind at that time. I'll never forget the excitement I felt when in just a few minutes after entering our data a protein distance map appeared on the screen in front of us.

Several years later, I was fortunate enough to be given the opportunity to establish my own research group. That the head of a prestigious embryology research lab, which had fostered many excellent researchers, should shift to computer-aided molecular bioresearch surprised many members of the faculty. Getting rid of the experimental equipment and chemicals in the lab, the only device we needed to put in the emptied room was a graphics computer. Without it, we would not be able to make dynamic observations of module configuration, which was at the heart of our research. The following year, I was awarded another grant-in-aid, this time under the category Grant-in-Aid for General Scientific Research A . With it, I purchased a computer graphics system for the lab at a price that in today's market would be unthinkable high. With cheers for having obtained the computer we wanted still reverberating in lab, the members vied for time on it. Each wanted to use its computer-graphic functions for as long a time as possible, so I established an hour-by-hour system of reservations, which had to be made the day before.

For me, Grants-in-Aid for Scientific Research opened the gate to a new research path. Being able along the way to participate in research across various fields, I've been blessed to receive encouragement and, equally valuable, constructive criticism from outstanding front-runners in those fields. Besides helping to purchase the equipment I've needed to advance my research, another benefit I've derived from Grants-in-aid has been the opportunity to engage in the valuable interactions and discussions that have enabled me to grow as a researcher. If it hadn't been for those grants-in-aid, I should not have become the researcher I enjoy being today.