

## The NIBB Internship Program

The NIBB Internship program is a hands on learning experience started in 2009 as a way to promote NIBB with overseas students and to build connections through providing education to the people who will form the core of future research networks. At the same time, this program aims to internationalize the graduate students of the Graduate University for Advanced Studies (SOKENDAI), giving them the opportunity to get to know students and interns with various cultural customs.

To participate in this program, applicants who would like to experience research at NIBB must supply the name of the lab they would like to visit as well as their reasons for choosing it and a letter of recommendation. Based on this information applicants are chosen to spend set periods of time participating in specific research activities in the lab they applied for. Round trip airfare and housing expenses are provided by the NIBB Internship Program.

In FY 2012 there were 26 applicants, of which seven interns were selected. These interns were from universities located in 3 countries (India, Germany and China) and spent periods ranging from 1 week to two months experiencing life as a member of a research team.

### Report from a participant Ji Zhongzhong Capital Normal University, China

From Sep. 1st to 30th, I joined Prof. Hasebe's laboratory as an intern and focused on roles of a single transcription factor, STEMIN, in the reprogramming of differentiated cells to stem cells. To address how STEMIN induces reprogramming, I investigated spatiotemporal expression patterns of STEMIN in excised leaf cells using the GUS knock-in line and changes in expression of genes involved in reprogramming after the STEMIN induction with advanced techniques.

I successfully completed the work described above and obtained some experimental data. On the last day of my internship program, I gave a short talk about these results and discussed them with Prof. Hasebe and his lab members. It helped me to understand plant stem cell formation.

During my stay at NIBB, everything went well; everyone here was friendly, enthusiastic and accommodating, I felt very lucky for joining Prof. Hasebe's lab. NIBB offered many seminars for students and staff, it is a good platform and helpful for enhancing communication and opening the mind to research here.



## The 7<sup>th</sup> Bio-Imaging Forum “Innovation of the Microscope”

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The 7<sup>th</sup> Bio-Imaging Forum was held on the theme of “Innovation of the Microscope,” as a collaboration with the NINS Program for Cross-disciplinary Study by Young Researchers. This NINS Program includes two projects from NIBB: “The establishment of observation techniques for plant cells, utilizing adaptive optics developed for astronomical observation,” (lead by Dr. Tamada) focusing on the application of adaptive optics to biological microscopic imaging, and the “Development of 3D optogenetics utilizing new femtosecond ultrashort pulse lasers” project (lead by Dr. Hiyama), focusing on the development and application of new methodologies within the rapidly expanding optogenetics field. For this year's Bio-Imaging Forum, we provided a shared venue for presenting the results of these research projects, and also invited 16 researchers to give lectures on the effects of direct, visual observation in microscopy that adaptive optics provides, the new paradigm shift from “observation” to “manipulation” and the related new potentialities for microscopy made possible by optogenetics, as well as expected future research and developments that may come from these two fields of study.

The forum had 60 participants, with 39 coming from outside of NIBB, including 10 participants from optics-related industries (Olympus, Nikon, Hamamatsu Photonics, Sigma-Koki), and 3 participants from the field of astronomy (National Astronomical Observatory of Japan (NAO), Hawaii Observatory, Subaru Telescope). As a cross-disciplinary gathering of researchers, the forum was host to lively academic exchange, with topics ranging from basic questions about unfamiliar fields, through to rigorous, in depth discussions focusing on specialty research. This exchange continued on into the evening's get-together dinner, with industry affiliated participants providing technical advice and tips, and scientists giving ideas and requests for possible future industrial research. At the end of the forum Professor Ueno also introduced the Center for Novel Science Initiative's (CNSI) Department of Imaging Science stressing the importance of furthering imaging research in the future. Through this year's forum, the necessity of further uniting the field of imaging, and its research, was made clear. It is our hope that the Bio-Imaging Forum will continue to play an active role in bringing the field of imaging research closer together, as well as promoting new front-line imaging research.

(Yasuhiro Kamei)

