

Advanced Bioimaging Support (ABiS)

In the field of life science, the demand for bioimaging has increased in recent years. However, due to advances in imaging technologies, i.e., the diversification and specialization of imaging equipment and increasingly complex operations, increased costs of equipment and running costs, and the growing need for image data analysis, individual research institutes and universities have encountered increasing difficulties related to the introduction, maintenance, and operation of imaging equipment.

ABiS was launched as one of the “Platforms for Advanced Technologies and Research Resources” in fiscal year (FY) 2016 under the new framework of the Grant-in-Aid for Scientific Research on Innovative Areas (Leader: Prof. Masanobu KANO, NIPS/The University of Tokyo). This program aims to contribute the further development of academic research in Japan through providing cutting-edge equipment and methodologies to individual KAKENHI (Grants-in-Aid for Scientific Research) research by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) under the Grant-in-Aid for Scientific Research on Innovative Areas (FY2016-FY2021).

ABiS provides cutting-edge instruments for light microscopy, electron microscopy, magnetic resonance imaging, and other methods through the network in cooperation with domestic partner organizations that own and operate multiple types of advanced specialized imaging equipment, in order to provide comprehensive support for advanced imaging in the field of life science. NIBB together with NIPS contribute as core institutes to the ABiS network. Of the various ABiS support activities, NIBB is in charge of the following:

■ Light microscopy

- 4D microscopy by Prof. Toshihiko FUJIMOIRI
- IR-LEGO microscopy by Assoc. Prof. Yasuhiro KAMEI
- DSLM by Assoc. Prof. Shigenori NONAKA

■ Imaging analysis

- Development of image processing/analysis algorithms for biological data by Prof. Naoto UENO and Assist. Prof. Kagayaki KATO

■ Training

- Training for image analysis by Assist. Profs. Yoshitaka KIMORI and Hiroshi KOYAMA

To organize and coordinate ABiS activities, two secretariat offices were established in NIBB (Assoc. Prof. Shoji MANO) and NIPS, respectively, under the control of the general support group (The persons in charge in NIBB; Director-general Prof. Masayuki YAMAMOTO, Prof. Naoto UENO, Prof. Shinji TAKADA, Assoc. Prof. Shoji MANO). General support includes the budget planning and management of ABiS activities. In particular, we promote ABiS activities via the website and other media so that KAKENHI researchers make full use of the ABiS platform to accelerate their research projects. In addition, we organize technology training sessions, workshops, and symposia to disseminate advanced imaging technologies and share information about them. We also coordinate with the other three platforms

(Platform of Supporting Cohort Study and Biospecimen Analysis, Platform of Advanced Animal Model Support, and Platform for Advanced Genome Science) to provide multi-disciplinary and international support.

The 1st ABiS Symposium “Towards the Future of Advanced Bioimaging for Life Sciences”

February 19 (Sun) ~ 20 (Mon), 2017

Sponsored by: Advanced Bioimaging Support

■ Co-sponsored by:

National Institutes of Natural Sciences
National Institute for Physiological Sciences
National Institute for Basic Biology
Center for Novel Science Initiatives
Grant-in-Aid for Scientific Research on Innovative Areas ‘Resonance Bio’
Grant-in-Aid for Scientific Research on Innovative Areas ‘The Birth of New Plant Species’
Grant-in-Aid for Scientific Research on Innovative Areas — Platforms for Advanced Technologies and Research Resources “Committee on Promoting Collaboration in Life Sciences”

■ Participants: 151

■ Oral presentation: 18

■ Poster presentation: 54

The 1st ABiS symposium was held in Okazaki to exchange information on the state-of-the-art technologies for imaging. This symposium was open to researchers who are interested in imaging techniques in addition to researchers involved in the ABiS network. In this symposium, we introduced ABiS activities and the research results of the support. In addition, two research groups of ‘Grant-in-Aid for Scientific Research on Innovative Areas’ in which bio-imaging is a core methodology, and two foreign programs, Global Bioimaging promoted by Euro-Bioimaging and Center for Bioimaging Sciences in National University of Singapore, introduced their activities related to the promotion of imaging sciences.

