



Department of Biotechnology
Ministry of Science and Technology
Government of India

DBT



National Institute of
Advanced Industrial Science
and Technology

AIST

DBT - AIST

International **L**aboratory
for **A**dvanced **B**iomedicine

DAIILAB

Since Oct. 3, 2013



Newsletter

Volume 2 (January 2015)

Background: The National Institute of Advanced Industrial Science & Technology (AIST), Japan concluded a comprehensive **Memorandum of Understanding (MoU)** with the Department of Biotechnology (DBT) of the Ministry of Science and Technology, India on February 12, 2007 under the Joint Statement towards Japan-India Strategic and Global Partnership, signed by the prime ministers of India and Japan in December 2006. MoU enrolled five years of successful bilateral research collaboration in the field of Bioinformatics, Biomedicine and Glycosciences and joint workshops at both ends. MoU was renewed for second term (2012-2018) along with an establishment of a joint laboratory DAILAB (**DBT-AIST International Laboratory for Advanced Biomedicine**) at Biomedical Research Institute (BRI), Tsukuba campus of AIST, Japan on Oct 3, 2013. DAILAB is the first International laboratory in Life Sciences & Biotechnology of the two institutions. Under the leadership of Dr. Yumoto and Dr. Ohmiya, four senior scientists, Dr. Kaul, Dr. Wadhwa, Dr. Ohnishi and Dr. Doi have joined their strengths to take additional responsibilities to nurture India-Japan S&T relationships and are supported by AIST President's special budget.

Highlights of activities in 2014

Goals of DAILAB are to (i) conduct **basic to applied research** on disease prevention and therapeutics for increasing the Quality of Life (with focus on old age), (ii) offer research training to young International students, (iii) networking among researchers for fundamental and cutting edge research, and (iv) endeavor global frontage of both the institutions. Some research results published in 2014 that have launched DAILAB in International literature include the following publications

1. Ryu *et al.* (2014) J Biol Chem 289: 24832-44
2. Cheung *et al.* (2014) J Biol Chem 289:18258-69
3. Yasunaga *et al.* (2014) Anal Bioanal Chem 406: 5735-42
4. Singh *et al.* (2014) Exp Cell Res 322: 324-34
5. Gao *et al.* (2014) Mol Cancer Therap 13: 2930-40
6. Dhanjal *et al.* (2014) BMC Cancer 14: 775
7. Yasunaga *et al.* (2014) J Biotechnol (in press)
8. Gao *et al.* (2014) J Gerontol A Biol Sci Med Sci (in press)

DAILAB is committed to offer **research training** and **networking opportunities to young talents**, and has initiated the following programs:

◆ **DAILAB-STAR Program** - Since April 2014, DAILAB launched a **STAR (Student Training for Advanced Research)** Program, and has been offering training in an International and highly organized environment for a period of 3 months to a year. Several young researchers are currently enrolled in this program.

- http://www.nature.com/natureevents/science/events/31869-DAILAB_STAR_Program
- <http://www.indiabioscience.org/>
- <https://unit.aist.go.jp/biomed-ri/cie/>

◆ **Networking** - DAILAB is actively engaged in organizing educational seminars on advanced science and technologies on a regular basis in two forms, CAFÉ and PIKNIKH.

- ❖ **CAFÉ (Classroom for Advanced & Frontier Education):** **DAILAB-CAFÉ** is held once in six weeks and provides relaxed CAFÉ-like environment for study and learning. DAILAB-CAFÉ is a Classroom setting rather than a lecture on data presentation. It features an informal CAFÉ like atmosphere and free interaction over tea/coffee and snacks. Frontier topics are selected for CAFÉ talks that are presented on an educational level and are skyped to several overseas institutions.

Six CAFÉs have been successfully held from June through Dec., 2014, and were connected to IIT-Delhi (India); Peking Medical University (China); Hanyang University (Korea) and Brawijaya University (Indonesia). DAILAB acknowledges the Satellite-CAFÉ organizers **Prof. Durai Sundar** (IIT-Delhi, India) **Prof. Chae-Ok Yun** (Hanyang University, Seoul, Korea); **Dr. Nashi Widodo** (Associate Prof. Brawijaya University, Indonesia) and **Dr. Ran Gao** (Principal Investigator, Peking Medical University, China) for their participation and joint efforts.



Time, efforts and cooperation of the following guest speakers were highly appreciated and duly acknowledged.

1. **Dr. Yoshihiro Nakajima** (Biomedical Research Institute, AIST) - A multicolor luciferase assay system for monitoring multiple gene expressions: basics and application.
2. **Dr. Mototada Shichiri** (Health Research Institute, AIST) - Vitamin E and oxidative stress-related diseases.
3. **Dr. Caroline Cheung** (CNRS/INSERM, Montpellier, France) - Cyclin A2 is a novel regulator of EMT.
4. **Dr. Fayaz Ahmad Malik** (Indian Institute of Integrative Medicine, Jammu, India) - Inflammatory circuit and drug resistance in breast cancer: role of cancer stem cells.
5. **Dr. Mahesh K. Kaushik** (International Institute for Integrative Sleep Medicine, University of Tsukuba, Japan) - Prostaglandin D₂: role in seizure suppression and postictal sleep.
6. **Dr. Ryoji Kurita** (Biomedical Research Institute, AIST) - Electrochemiluminescence and surface plasmon resonance-based immunosensors for bio-medical applications.

❖ **PIKNIKH (Platform for Innovating Knowledge to International Know Hows):** Keeping in view the importance of direct personal interactions and meetings, DAILAB has initiated a new forum of informal scientific meetings/symposia/sessions to be held in Japan and overseas. Some features of **PIKNIKH** include

- interdisciplinary, enabling thinking and innovating opportunities beyond one's specialization.
- appeal to enroll the concept of three "O"s in research at all levels; from student-training to PIs to organization and science policy makers.
 - i. Output (original research and publications of high value)
 - ii. Outcome (patentable original research and product development)
 - iii. Outreach (outcome of research reaching the society in the form of either knowledge transformed into know-how or commercialization of the product)
- Reach to the remote areas of India and elsewhere in the world.

Keeping with the above goals, DAILAB team (supported by AIST President's Special Budget and Life Science Division Budget) played a leading role in organization of the following events in 2014:

1. **National Workshop on Frontiers in Science & Technology: Integrative Biotechnology and Molecular Biology.** Organized by School of Life Sciences, SIKKIM University, India. May 24-26, 2014
2. **IAN-FAONS Symposium: Imaging Tools for Basic and Interventional Neurodegenerative Research** International Symposium on Translational Neuroscience and XXXII Annual Conference on the Indian Academy of Neurosciences. Organized by NIMHANS, India. Nov 1-3, 2014
3. **The IRAGO Conference 2014** Nov 6-7, 2014 <http://www.iragoconference.jp>



◆ **2nd AIST International Imaging Workshop, December 9-14, 2014:** DAILAB conducted one-week full residential training course for 17 young selected researchers from 8 countries including India, Japan, Singapore, Thailand, Indonesia, Korea, China and Russia. The program involved intensive training including (i) lectures by experts in the field from AIST, Tokyo and Osaka universities, (ii) hands-on microscope training. The training from the basic to high-end super-resolution imaging instructed by AIST experts with assistance from Nikon, Olympus, Zeiss and ATTO corporations, (iii) visit to microscope facility at Leica Microsystems Experience Lab in Tokyo, (iv) participants' presentation & selection of the best three for awards, and (iv) interactions and networking over meals and stay at AIST guest house. Informal settings including (i) the welcome dinner where organizers inaugurated the workshop by cutting a cake decorated with candles from participants representing different countries, (ii) "Make-Your-Own-Sandwich" that catered multiple food preferences of the participants, (iii) luncheon seminar, (iv) farewell, and (v) personal attention were highly appreciated and enjoyed. The trainees commented that this training was a great experience technically as well as conceptually; besides the world-class technologies in AIST, they were also moved with Japanese hospitality and hard work. Many of the participants commented that the workshop was so enjoyable that they have changed their concept of doing science and hope to spread the positivity, excitement to their colleagues and respective home institutions.



◆ Cherished moments

The essence of DAILAB has been to train young talents to do science with cheerfulness and full heart. They believe to enjoy and value every little moment of happiness, and its only the happy hearts that pump enough blood to brain to enable thoughts that underline the big discoveries in science.

DAILAB is delighted to list some of the cherished moments during the last one year.

- Signing ceremony by Prof. VijayRaghavan, Secretary DBT (India) and Dr. Ryoji Chubachi, AIST President (Japan)
- Signing ceremony honored by the presence of the Ambassador of India to Japan, Her Excellency Ms Deepa Gopalan Wadhwa
- DAILAB was included in the Joint Statement on the occasion of Official Visit of the Prime Minister of Japan to India (January 25-27, 2014)
- Visit of Dr. R. Chidambaram, Principal Scientific Adviser to the Government of India
- Signing of MOA between BRI-AIST, Japan and Regional Center of Biotechnology (RCB), India on March 4, 2014
- Visit of Mr. Shinichi Higuchi, First Secretary (S&T), Embassy of Japan, New Delhi on May 15, 2014
- DAILAB scientists meeting Mr. Narendra Modi, Hon'ble Prime Minister of India, during his visit to Japan (Aug. 31- Sept. 3, 2014) and getting his autograph on DAILAB Newsletter (Vol. 1)
- Visit of Dr. T. Madhan Mohan, Adviser, DBT, India and meeting on the present and future activities of DAILAB (Nov. 8, 2014)
- Appreciating comments of the participants of CAFÉ, PIKNIKH, STAR Program and Imaging Workshops
- Networking and motivating the young talents for science career.



• DAILAB Executive Team

- Patron - N. Yumoto, Vice President, AIST
- Executive Director - Y. Ohmiya, Director, Biomedical Research Institute (BRI)
- Coordinator - S. Kaul, Chief Senior Research Scientist, BRI
- Leader - R. Wadhwa, Prime Senior Research Scientist, BRI
- Fellow - Y. Onishi, Group Leader, Physiologically Active Substances Research Group, BRI
- Fellow - M. Doi, Group Leader, Molecular Neurobiology Group, BRI

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