



Department of Biotechnology  
Ministry of Science and Technology  
Government of India

**DBT**



National Institute of  
Advanced Industrial Science  
and Technology

**AIST**

**DBT - AIST International Laboratory  
for Advanced Biomedicine**

**DAIILAB**

**Classroom for Advanced & Frontier Education**

**CAFE**

# DAI*i*LAB-CAFE

## Series - 19

Date and Time - March 9, 2017 (16:00~17:00)

Venue - Central 5-41 (2F) Meet Room 1

Speaker – Tatsunosuke TOMITA

Affiliation – National Institute of Advanced Industrial Science and Technology (AIST), Japan

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**Title** -Cell based assay system for monitoring the circadian clock and its application for screening of physiologically active substances from natural products.

Circadian rhythm is an about 24hr cycle of physiological process, observed widely in many creatures from cyanobacteria to mammalian cells. In the molecular level, this phenomenon is mainly controlled by 4 components of clock genes, namely *clock*, *bmal1*, *pers* and *crys*. They comprise the transcriptional and translational feedback loop and control the expression of many genes rhythmically.

We and other researchers developed cell-based assay systems for monitoring circadian clock. These systems are based on the luciferin-luciferase real-time reporter gene assay.

In this talk, I will present on

- 1) Review of the molecular mechanisms of the circadian clock.
- 2) Effective methods for monitoring the molecular clock in the cellular level.
- 3) Application of this monitoring system to screen compounds effective to circadian rhythm from natural products.

Through this session, I would discuss merits of applying the bioluminescence system to monitor the biological clock physiology.

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SERIES - 19

**Thanks for participation!**

**Speaker: Dr. Tatsunosuke TOMITA**

**Topic: Cell-based assay system to monitor the circadian clock and its application for screening physiologically active substances from natural products**

**Date: 9<sup>th</sup> March 2017 (1600-1700 hours JST)**

**Host: AIST, Japan**

National Institute of Advanced Industrial Science & Technology, Japan



Peking University, China

IIT-Delhi, India



University of Sri Jayewardenepura, Sri Lanka



Brawijaya University, Indonesia

Manipal University, India

Hanyang University, South Korea

