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

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DAILAB-CAFE

Series - 018

Date & Time - Nov 16, 2016 (3:30 pm~ 4:30 pm)
Venue - Central 5-41; 2F (Conference Room No. 1)

Speaker - Dr. Yuko Takagi
Affiliation - National Institute of Advanced Industrial and Science Technology (AIST), Japan
E-mail: yuko-takagi@aist.go.jp

Title: Unique Gene Expression Strategy of *Trypanosoma* and Its Implication as a Drug Target

Trypanosomes comprise a group of flagellate unicellular parasites called kinetoplastids. Some of the group members cause serious diseases for both human and animals, posing a significant burden to the economy and public health of affected countries. *Trypanosoma brucei* is the causative agent of African sleeping sickness, which is prevalent in more than 30 countries and threats 60 million people to exposure in sub-Saharan Africa. *Tryoanosoma cruzi* causes Chagas disease in Latin America, and the estimated number of chronic patients is staggering 6 to 7 million, according to WHO. Although the situation clearly requires an immediate attention, those infectious diseases have been categorized as "Neglected Tropical Diseases," since pharmaceutical companies historically had not invested much of their resources to develop new drugs due to profit-and-loss arithmetic.

I have been studying the gene expression pathway of Trypanosomes. In this talk, I will go over unique mRNA biosynthesis mechanism of *Trypanosoma brucei* with specific focus on 5' cap formation and degradation. mRNA of Trypanosomes has the most elaborate cap structure among all eukaryotes, and the hypermethylated cap forms exclusively on the spliced leader (SL) RNA. A capped SL RNA then goes through trans-splicing process to be joined to a protein coding sequence to form a mature mRNA. The uniqueness of cap structure and trans-splicing mechanism has attracted a speculation that the enzymes involved in this mRNA biosynthesis pathway could be exploited as drug targets. I will present data that demonstrate some of cap-forming enzymes are indeed essential for the parasite growth. I will also discuss our ongoing effort on drug target discovery against *Trypanosoma cruzi*.

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Abstract

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National Institute of Advanced Industrial Science & Technology, Japan

IIT-Delhi, India

USJP, Sri Lanka

Brawijaya University, Indonesia

Manipal University, India

Speaker: Dr. Yuko TAKAGI
Affiliation: BMRI, AIST
Topic: ***Unique Gene Expression Strategy of Trypanosoma and Its Implication as a Drug Target***
Date: 16th November 2016 (15:30-16:30 hours JST)
Host: AIST, Japan

DAILAB-CAFÉ SERIES - 18

Thanks for participation!