



**SERIES - 34**

## **Thanks for participation!**

Speaker: Dr. Yoshio Kato

Topic: Protein delivery into cells for altering the genomic DNA sequence

Date: February 14<sup>th</sup>, 2019 (15:30-16:30 hours JST)

Host: AIST Tsukuba, Japan

Manipal Univ. India



Dr. Kato

AIST Japan



IIT-Delhi, India

GNDU, India



ILAS China

Brawijaya Univ., Indonesia



Hanyang Univ. Korea



# DAILAB-CAFE

## Series - 34

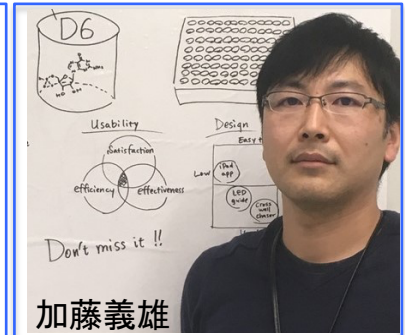
Date and Time: **Feb.14, 2019 (3:30 JST)**

Venue: Central 5-41 2F (Meeting Room -1)

Speaker: **Yoshio KATO**

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## **Title: Protein delivery into cells for altering the genomic DNA sequence.**

Targeted genome manipulation by artificial nucleases or recombinases has become a powerful technology for basic research and genetic engineering. The development of safe and effective delivery methods is highly demanded, since the deficiencies of gene-delivery systems may hinder the advancement of this technology. To address this problem, we have developed simple delivery systems by investigating the direct delivery of purified proteins to cells. We previously aimed to deliver zinc-finger nucleases (ZFNs) as a form of protein into cells. Direct administration of ZFN proteins targeted against CCR5, an HIV co-receptor, showed genomic DNA modifications in cultured cells. Of note, targeted disruption with protein delivery showed almost the same efficiency but off-target effect was less than half compared with the plasmid DNA transfection, suggesting that the direct delivery of proteins is suitable for genome-editing applications in which minimizing cellular toxicity or maintaining genetic integrity.