



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

DAILAB-CAFE

Series - 028

Date & Time: June 11, 2018 / 3:30 pm (JST)

Venue: Central 5-41; 2F (Conference Room # 1)

Speaker: Arum YOON

Title: **Antitumor Effect and Safety of Systemically Delivered Oncolytic Adenovirus Complexed with EGFR-targeted PAMAM Dendrimer**

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Abstract: Adenovirus (Ad)-mediated cancer gene therapy has been proposed as a promising alternative to conventional therapy for cancer. However, success of systemically administered naked Ad has been limited due to the immunogenicity of Ad and the induction of hepatotoxicity caused by Ad's native tropism. In this study, we synthesized an epidermal growth factor receptor (EGFR)-specific therapeutic antibody (ErbB)-conjugated and PEGylated poly(amidoamine) (PAMAM) dendrimer (PPE) for complexation with Ad. Transduction of Ad was inhibited by complexation with PEGylated PAMAM (PP) dendrimer due to steric hindrance. However, PPE-complexed Ad selectively internalized into EGFR-positive cells with greater efficacy than either naked Ad or Ad complexed with PP. Systemically administered PPE-complexed oncolytic Ad elicited significantly reduced immunogenicity, nonspecific liver sequestration, and hepatotoxicity than naked Ad. Furthermore, PPE-complexed oncolytic Ad demonstrated prolonged blood retention time, enhanced intratumoral accumulation of Ad, and potent therapeutic efficacy in EGFR-positive orthotopic lung tumors in comparison with naked Ad. We conclude that ErbB-conjugated and PEGylated PAMAM dendrimer can efficiently mask Ad's capsid and retarget oncolytic Ad to be efficiently internalized into EGFR-positive tumor while attenuating toxicity induced by systemic administration of naked oncolytic Ad.



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Series 28

Speaker: A-Rum Yoon

Topic: Antitumor Effect and Safety of Systemically Delivered Oncolytic Adenovirus Complexed with EGFR-targeted PAMAM Dendrimer

Date: 11th June, 2018
(15:30-16:30 h JST)

Host: DAILAB@AIST,
Japan



University of Sri Jayewardenepura, Sri Lanka



Manipal University, India

Thanks for participation!