Date: April 29, 2015 (Wednesday)
Time: 4.00 pm – 5.00pm
Venue: MD9, level 1, Workshop 1 & 2

PLS

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PHYSIOLOGY LECTURE SERIES

Suppression of Tumor Growth and Metastasis Targeted Deprivation of Methionine

Abstract

The concept of using bacteria to eliminate cancer dated back to Ancient Egyptian time, extended through High Medieval Period, and was independently verified by Tanchou and Coley in late 19th and early 20th century. This idea has been revitalized by attenuating the toxicity of certain bacteria strains through genetic engineering in the 21st century. Tumor invasion and metastasis are the major factors affecting the survival rate of late stage cancer patients; however there is very limited option of drugs to tackle this issue clinically. We have recently engineered an attenuated strain Salmonella Typhimurium strain VNP20009 that overexpresses an enzyme that can specifically deprive the certain amino acids. Consequently, the engineered microbe can target aggressive tumors and induce a dramatic regression of tumor growth. Moreover, this drug caused a decrease of tumor cell invasion and migration in vitro, and completely eliminated the spread of tumors in vivo. A series of mechanisms were proposed to explain the functions of this drug. Our study may help to establish a novel treatment strategy for aggressive tumor, such as late stage prostate cancer, pancreatic cancer, and triple negative breast cancer, and may also provide a potential promising therapy for other metastatic cancers.

Biography

Allan Zhao is a Member of National 1000 Plan program in China, and currently serves as a professor and director in the Center of Metabolic Disease Research at Nanjing Medical University, China. He received his Bachelor degree in chemistry from Peking University and Ph.D. from the University of Southern California. After completing his postdoctoral training at the University of Washington, Seattle, he became a tenured professor in Cell Biology and Physiology Department at the University of Pittsburgh. His long-term research interests have been in the pathogenesis and drug discovery of metabolic diseases and cancer.

Convener: A/Prof Shen Han-Ming

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