

BioSyM Seminar Series 2017

Targeting cell-surface GRP78 for anticancer therapy

Prof. GE Ruowen

Department of Biological Sciences, National University of Singapore

Email: dbsgerw@nus.edu.sg

Date : 10th April 2017, Monday
Time : 4 pm to 5 pm
Venue : CREATE Tower, Level 2, Theatrette



Abstract

Anticancer drugs need to selectively kill cancer cells while sparing the healthy cells. In addition, cancer growth and metastasis depend on angiogenesis, the formation of new blood vessels. Both cancer cell selective as well as cancer blood vessel endothelial cell selective molecules are attractive targets for anticancer drugs. One emerging target is glucose regulated protein 78 kDa (GRP78), a stress-response chaperone protein overexpressed in cancers and promotes tumor growth, angiogenesis and metastasis. GRP78 is preferentially present on the surface of both cancer cells and cancer endothelial cells. We identified a novel extracellular proapoptotic ligand of cell-surface GRP78 named Isthmin (ISM). ISM potently suppressed tumor growth in mice by inducing cancer cell death and suppressing cancer angiogenesis. Based on ISM, we further designed small cyclic peptides that also potently suppressed tumor growth in mice. Hence, ISM and its derivative peptides are potential lead molecules for anticancer drug development.

Short Biography

Prof. Ge Ruowen obtained her PhD in Molecular Cell Biology from University of Pennsylvania, USA. She is currently a tenured Associate Professor at the Department of Biological Sciences, National University of Singapore. Her lab (Molecular Angiogenesis Lab) mainly focuses on the studying of novel endogenous angiogenesis inhibitor proteins and exploring their biomedical applications for human diseases such as cancer. She has published about 80 research papers in SCI journals and holds 3 patents. She is currently an editorial board member of Scientific Reports (Springer Nature) and Cancers (MDPI). She is a scientific co-founder of a Singapore biopharma company ProTherapeutics Pte. Ltd.