

Title: A Tumor Homing Peptide Conjugated Zinc(II) Phthalocyanine for Targeted Photodynamic Therapy

Name: YU Ligang
Department of Biomedical Sciences, City University of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong, China

Photodynamic therapy (PDT) is a novel therapeutic modality for the treatment of cancerous and non-cancerous diseases. However, the low selectivity of photosensitizers between normal and tumor tissues severely limits the clinical application of PDT. Zinc phthalocyanines based photosensitizers are promising candidates for PDT. To improve the biocompatibility and tumor selectivity, we employ an epidermal growth factor receptors (EGFRs) binding peptide (named GE11, a 12-amino-acid sequence) as a tumor directing vector for the delivery of zinc phthalocyanine. The GE11 conjugated zinc phthalocyanine (**Pc-GE11**) was easily prepared via solid phase synthesis based on our previous reported 1,4-bis(triethylene glycol)-substituted zinc phthalocyanine, which is a more efficient singlet oxygen generator. The photophysical properties, cellular uptake, in vitro toxicity and in vivo biodistribution of **Pc-GE11** have been evaluated. The uptake of **Pc-GE11** in A431 cells (high EGFRs expression) was higher than that in MCF7 cells (low EGFRs expression). Competitive assay also showed that free GE11 pretreatment inhibited the uptake of **Pc-GE11**. Besides, **Pc-GE11** exhibited exclusive light-activated toxicity towards A431 cells. Furthermore, intravenous administration of **Pc-GE11** showed the photosensitizer mainly accumulated in tumor and liver tissue in A431 tumor bearing mice. The in vivo PDT effect of **Pc-GE11** is under evaluation currently. As such, **Pc-GE11** is a promising EGFRs-targeted PDT agent.

Biography

YU Ligang has completed his master's degree (organic chemistry) from East China Normal University. He is currently a graduate student (PhD Biomedical Sciences) in City University of Hong Kong.

Presenting author details
Full name: YU Ligang
Contact number: 852-3442 6327
Twitter account:
Linked In account:
Session name/ number:
Category: Poster presentation