Jin Chang, Pharm Anal Acta 3:1
doi: http://dx.doi.org/10.4172/2153-2435.S1.08

OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference on
Pharmaceutics & Novel Drug Delivery Systems

20-22 February 2012 San Francisco Airport Marriott Waterfront, USA

TITLE

Preparation of pH Sensitive Calcium Phosphate/ SiO2 Core-shell Nanoparticle for Drug Delivery

Jin Chang
Tianjin University, China

How to escape from the endosome and release the drugs in the cytoplasm is one of many problems demanding prompt solution during the drug delivery procedure. In our group, pH-sensitive calcium phosphate / silicon dioxide core-shell nanoparticle was synthesized successfully, that based on calcium phosphate core with drug release kinetics within the endosomal pH range and silicon dioxide shell with slow drug release property. Our strategy, which utilized a single step for drug encapsulation, enhanced endosome escaping efficiency and reduced cytotoxicity relative to some positively charged vesicles, such as polyethyleneimine (PEI) and poly-L-lysine (PLL). The results show that calcium phosphate / silicon dioxide core-shell nanoparticles with spherical shape and small size are prepared successfully in a simple, inexpensive, one-step procedure. The calcium phosphate core can dissolve rapidly at acid condition causing the endosome bursting. The silica shell can slow down the drug release protecting the drug from being degradated. The pH-sensitive core-shell nanoparticles may be efficient drug carriers without the drawback of cytotoxicity, in comparison with some positively charged vesicles.

Biography

Prof. Jin Chang has completed his. M.D. from Tianjin Medical University and Ph.D from Nankai University. He is the director of the Institute of Nanobiotechnology, School of Materials Science and Engineering, Tianjin University and vice president of Tianjin Society of Biomedical Engineering. He has published more than 150 papers in reputed journals and serving as an editorial board member of International Journal. of Biomedical Engineering and Journal of Biomedical Engineering and Clinical Medicine.