OMICS Group Conferences
Accelerating Scientific Discovery

4th World Congress on
Bioavailability and Bioequivalence:
Pharmaceutical R&D Summit
May 20-22, 2013 DoubleTree by Hilton, Beijing, China

Quantum dot- conjugated antibodies as diagnostic and therapeutic tools for cancer imaging and treatment

Weiming Xu
London Biotech Ltd., UK

The conjugates of monoclonal antibodies and nanoparticles, including quantum-dot, have offer significant advantages over conventional fluorescent probes to image and study biological processes. The extend stability and low toxicity of QDs are well suited for biological applications. Despite this, the potential of Qdots remains limited owing to the inefficiency of existing delivery methods. By conjugating Qdots with small antibody fragments targeting membrane-bound proteins, such as GRP78, we demonstrated that the Quantum dot- Anti-GRP78 scFv (Qdot-GRP78) retains its immunospecificity and its distribution can be monitored by visualization of multi-color fluorescence imaging both *in vitro and in vivo*(1). Moreover we have shown for the first time that Qdot-GRP78 scFv bioconjugates can be efficiently internalized and possess biological anti-tumour activity in a breast cancer xenograft model. Given in a recent pioneering study using primates for Qdots toxicity study has shown that its nanocrystals to be safe over a one-year period(2), the nanocarrier-conjugated antibody fragment has potential to become a new therapeutic tool for cancer treatment.

weiming.xu@sheffield.ac.uk