

A Comparative Study between Antibody and Peptide Conjugated Gold Nanoparticles for *In Vivo* Targeting of EGFR in Pancreatic Cancer Bearing Mice Models

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Abstract:

Pancreatic cancer is the fourth leading cause of cancer related deaths in the United States due to its severe aggressiveness and lethal malignancy. Epidermal Growth Factor Receptor (EGFR) is over expressed in more than 95% of human pancreatic cancer patients. A number of peptides and monoclonal antibodies have been developed to target the EGFR in pancreatic cancer. Our research has focused on developing EGFR targeting biomolecule conjugated gold nanoparticles for the diagnosis and staging of various cancers. In this study, we synthesized a series of Antibody EGFR and EGFR-peptide conjugated AuNPs. We investigated the *in vivo* EGFR targeting characteristics of these conjugates in pancreatic tumor bearing SCID mice models. Our investigation establishes that the peptide conjugated AuNPs have high *in vivo* mobility and targets pancreatic tumor effectively. We have also established that EGFR-peptide – AuNP conjugates act as better X-ray contrast agents for early detection of pancreatic cancer in mice models. The details of this comparative study will be presented in this poster.