

## Methods of Integration of Radio Cu64 label in Luminescent Copper Nano clusters for Pre and Intra operative Imaging and Therapy of Pancreatic Cancer

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Illustrates our attempt to integrate radio imaging modality via incorporating radio cu64 on to luminescent Cu nano clusters synthesized using BSA (Bovine Serum Albumin) and HSA (human serum albumin). The Cu64 [Cu nano clusters] are further conjugated with Erlotinib, a EGFR receptive drug to attribute targeting ability to the tracer cluster towards pancreatic cancer cells. In addition, the radioactive copper moiety cu64 is a dual edged sword by virtue of being a positron as well as electron emitter (deliver a selective cytotoxic dose of beta radiation) there by acting as theranostic agent. Cu nano cluster enveloped by BSA circumvents the challenges created by trans chelation and detachment of cu64. The affinity of the probe on the targets was assessed in invitro studies with PAN C 1 cell lines. The developed integrated imaging dual modality is expected to improve intra - operative assessment of pancreatic tumor demarcation. Cu64 PET probes can be employed for preoperative assessment of pancreatic cancer lesions. PET probes coupled with luminescent copper nano clusters can be employed for enhanced visual imaging modalities which are quite requisite for accurate delineating cancer lesions in the emerging era of robotic surgery.

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