**Introduction**

Lung cancer is the leading cause of cancer deaths (1). Among lung cancer cases, non-small cell lung cancer (NSCLC) is more common. It is reported that 65-90% of NSCLC express epidermal growth factor receptors (EGFR) and for this phenotype, monoclonal antibodies (mAbs) such as Panitumumab and Cetuximab that target EGFR are treatment options (2-4). We have shown an EGFR targeting nano-delivery system developed through modification of poly(ethylene oxide) poly (benzyl carboxylate–caprolactone) (PEO-PBCL) micelles with GE11 peptide, modestly increase the interaction of polymeric micelles with EGFR expressing colorectal cancer models when compared to polymeric micelles with a mock peptide (HW12) modification (5).

**Methods**

1. **Micelle Preparation**
   Maleimide-PEO-PBCL polymers were prepared and mixed with methoxy PEO-PBCL at 1:1 ratio.
   Both block copolymers or their mixture were self assembled to nanostructures by a co-solvent evaporation method. Micellar size and polydispersity index (PDI) were assessed.

2. **Panitumumab Attachment**
   Panitumumab was thiolated through reaction with 2-iminothiolane (Traut’s reagent). Then thiolated panitumumab was reacted with maleimide micelles. This was followed by reaction with 2-mercaptoethanol to neutralize remaining free thiol groups on the antibody.

3. **Purification**
   By using size exclusion chromatography, the obtained micelles were purified. Through elusion from Sepharose® CL-6B column by PBS and fraction were collected. The eluted fractions were characterized by dynamic light scattering and absorption spectroscopy at 280 nm.

**Results**

The conjugation efficiency of panitumumab to micelles is 8% based on antibody amount detected by UV absorbance.

**Conclusion**

The results show successful development of panitumumab attached micelles to targeted EGFR positive NSCLC.

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**References**