107 - Non-viral, coated nanoparticles as vectors for gene therapy

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Successful non-viral gene therapy is driven by the molecular makeup and architecture of the gene vector. For optimal delivery, consideration must be given to payload packaging/release, vector distribution/stability, cell-specific targeting and the physical properties of the therapeutic.
Our focus is the construction of 'coated' liposomes for the targeted delivery of siRNA and DNA. In this presentation, we show small nanoparticles containing DNA/siRNA can be successfully formulated and coated with polyethylene glycol and other modified polymers. We also demonstrate cell specific targeting on addition of target peptides to the liposome coat.
Furthermore, we demonstrate the role of novel branched, linear and cleavable polycationic peptides in payload packaging and intracellular release within our liposomal system. The chemical synthesis, biophysical properties and *in vitro* transfection efficiencies of these systems will be fully discussed in this presentation.

Tuesday, August 30, 2011 05:15 PM
Current Topics in Biological Chemistry (05:15 PM - 07:15 PM)
Location: Colorado Convention Center
Room: Room 405/407