Abstract Preview of 'Bile Acid Modified Lipopolymers' (63DWYR)

This is a summary of your **2012 95th Canadian Chemistry Conference** webHermes abstract. Once you have verified that it is correct you should **save** and **print** a copy for your records.

Prepared by	Bramhanand Dube *brahmanand.dube@gmail.com*
Preferred Division	Biological / Medicinal Chemistry
Preferred Symposium	Applied Nanomaterials
Invited Speaker	No
Preferred Presentation	Poster
Grad. Student Award	I wish to be considered for a Graduate Student Award
Undergrad. Student Award	No
Audio/Visual	

Preview of your abstract

Cholic Acid Modified Novel Lipopolymers: An Efficient Transfecting Agents **Bramhanand Dube**[a,b] and **Hasan Uludag***[$], [a]Chemical and Materials Engineering, U. of Alberta, Canada, T6G 2G6; **Krutika Sawant**, [b]TIFAC-CORE in NDDS, Department of Pharmacy, The M S University of Baroda, India; **Basak Sahin** and **Cezary Kucharski**

The bottleneck for treatment of genetic disorder is lack of an efficient and safe non-viral carrier for genes. The bile acids and their derivatives are known to interact and destabilize the membranes (cell and endosomal membrane) owing to their amphiphilic characters. In the present work, we synthesized novel nonviral vectors for gene delivery by conjugating the cholic acid to cationic polymers and explored their performance for in vitro transfection in two cell lines (293T cells and human cord blood mesenchymal stem cells). Cholic acid (CA) was conjugated with polyethylenimine (PEI, 2kDa) and polyallylamine (PAA, 15kDa) using carbodiimide chemistry at 4 different substitution ratios and characterized by 1H-NMR spectra along with their DNA binding capacities. The binding results showed a reduced binding as a result of cholic acid substitution. In vitro transfection results in 293T cells are promising as PEI 2K-CA shows several hundred times more transfection efficiency as compared to native PEI 2kDa and significantly more than PEI 25 kDa, whereas PAA-CA did not show significant increase in transfection efficiency as compared to native PAA. On the other hand, the synthesized polymer conjugates showed less cytotoxicity than PEI 25kDa in the same cell line as evaluated by MTT assay.
Based on our findings it can be concluded that mere conjugation of bile acid to cationic polymer is not only responsible for increased transfection efficiency but also the polymer should have some structural and functional qualifications.

No text (if any) below this line will be printed in the abstract book.