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Thesis Title	**Targeting Cancer Cell by Nano Hybrid Liposome: A new Approach for apoptosis**			
Year	**2015**			
Abstract	**Background: Cancer targeted nanotherapy represent an exciting field in the search for new cancer specific therapies to avoid conventional chemotherapy side effects. Because cancer cells usually have malfunctioning apoptotic machinery which favors survival pathways and drug resistance, cancer cell apoptosis is the favorable event to be induced in any new anticancer agent development. Nanotherapy goals are to elevate therapeutic efficiency, selectivity, and overcome drug resistance as major obstacle in cancer treatment. Hybrid nanoliposomes (nHLs) may fulfill all these features in cancer therapeutics.Hybridnanoliposomes (HLs) composed of L-α-dimyristoylphosphatidylcholine (DMPC) and Polyoxyethylene (23) dodecyl ether ($C12\ (EO)_{23}$) can integrate selectively into the cancer cell membrane inducing cancer cell death.** **Objectives: to assesses the capacity of locally synthesized hybrid nanoliposome to inhibit the growth of cervix cancer cells (HeLa) andrabdomyosarcoma(RD)to confirm the event of apoptosis in HeLa and RD cell lines incubated with in-house synthesized and characterized nHLs.** **Methods: hybrid nanoliposomes(nHLs) synthesized by sonication method from a mixture of DMPC and $C12(EO)_{23}$ in tissue culture media RPMI-1640 for 6 hours at 300W and 40ºC then filtration with 0.2µm filter. Shape and size characterized with scanning electron microscope (SEM) and atomic force microscope(AFM). Viability of HeLacell,RD cell, and normal lymphocytes challenged with HLs were determined using MTT and Crystal violate assay. Induction of apoptosis in the challenged cells was examined by staining with fluorescence dye mix cridine orange/propidium iodide,cell gel electrophoresis, mitochondrial membrane potential disruption, caspase-3 activity and real time PCR.**			

Results: synthesized nHLs were in nanozise range and selectively inhibited HeLa cells proliferation with IC50 of 0.2mM with no effect against normal lymphocytes. Apoptosis was evident ofHeLa cells population and RD was evident of treated with nHLs.All apoptosis detection procedures used gave a clear defined significant indication that nHLs was capable of inducing apoptosis in HeLa and RD cells incubated with the IC50.

Conclusion: synthesized nHLs may considered as promising nanotherapy, this study recommends further inspections for the mechanism of action of nHLs and there capabilities to inhibit other types of cancers both *invitro* and *in vivo*.
