

## 9<sup>th</sup> Yazd International Congress and Student Award on Reproductive Medicine with 4<sup>th</sup> Congress of Reproductive Genetics

### Poster Presentations

**P-148**

#### **Synthesis and optimization of cationic liposomal system for miRNA-15a loading in order to use in prostate cancer treatment**

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**Background:** Prostate cancer is the second most common cancer among men and the fifth leading cause of death in the world. Gene therapy is a new method

for cancer treatment. Liposomes are known as carriers for gene delivery, but microRNA instability and poor translating are important challenges in miRNA delivery.

**Objective:** The aim of this study is to provide an optimized formulation of cationic liposomal system in order to delivery of miRNA-15a as an anti-tumor agent to prostate cancer cell line (PC3).

**Materials and Methods:** In this study, different formulations of the cationic liposomal system with different content of phospholipid (10, 20, 30, 40, 50%) and positive charge were synthesized, its size and charge were determined by Zeta-Sizer (DLS), then the cell viability percentage of PC3 prostate cancer cell line after treatment with various liposomal systems was evaluated.

**Results:** Based on the results of the DLS device, the particle size was below 150 nm and zeta potential was in the range of 0 to +15 mV. The MTT results determined that the viability percentage of cells were between 70 to 90%.

**Conclusion:** The optimal formulation with appropriate size, charge and cells viability percentage which could increase anti-cancer effects of miRNA-15a to PC3 cell line was selected for miRNA-15a delivery.

**Keywords:** Prostate cancer, Gene therapy, Nanocarrier, miRNA-15a, Liposome.