

# 2<sup>nd</sup> International Conference on Pharmaceutics & Novel Drug Delivery Systems

20-22 February 2012 San Francisco Airport Marriott Waterfront, USA

## TITLE

### Biophysical characterization of Gold Nanoparticles Loaded Liposomes

**Mohsen Mahmoud Mady**

King Saud University, Saudi Arabia

Gold nanoparticles were prepared and loaded into the bilayer of dipalmitoylphosphatidylcholine (DPPC) liposomes, named as gold-loaded liposomes. Biophysical characterization of gold-loaded liposomes was studied by transmission electron microscopy (TEM) and Fourier transform infrared (FTIR) spectroscopy as well as turbidity and rheological measurements. FTIR measurements showed that gold nanoparticles made significant changes in the frequency of the CH<sub>2</sub> stretching bands, revealing that gold nanoparticles increased the number of gauche conformers and create a conformational change within the acyl chains of phospholipids. The transmission electron micrographs (TEM) revealed that gold nanoparticles were loaded in the liposomal bilayer. The zeta potential of DPPC liposomes had a more negative value after incorporating of Au NPs into liposomal membranes. Turbidity studies revealed that the loading of gold nanoparticles into DPPC liposomes results in shifting the temperature of the main phase transition to a lower value. The membrane fluidity of DPPC bilayer was increased by loading the gold nanoparticles as shown from rheological measurements. Knowledge gained in this study may open the door to pursuing liposomes as a viable strategy for Au NPs delivery in many diagnostic and therapeutic applications.

#### Biography

Dr Mohsen Mady has completed his Ph.D at the age of 32 years from Cairo University, Egypt. He is Associate Professor in Physics and Astronomy Department, College of Science, King Saud University. He has published more than 25 papers in reputed journals and serving as a reviewer in many international journals within the scope of her research interest.