

5<sup>th</sup> International Conference on

# CURRENT TRENDS IN MASS SPECTROMETRY AND CHROMATOGRAPHY

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### **The hope of greatly reducing cancer fatality is getting to be realized**

In 2006, El-Sayed's group published the first journal article on the photo-thermal therapy of cancer cells using gold nano-rods. In 2007-2008, we published the first successful treatment of a cancer tumor-bearing mouse using this photo-thermal treatment. Since then, we have applied this technique successfully on different types of animals; mice, cats and dogs. During these studies, we observed that animals with induced or spontaneous tumors have been effectively cured, interestingly, with no reoccurrence or metastasis. The recent discoveries of nanoparticles' effect on inhibiting cancer cell migration or metastasis has drawn the attention of many researchers. Our recent study discovered that nuclear-targeting gold nanoparticles (Au NPs) could increase nuclear stiffness and greatly decreases cancer cell motility. Furthermore, our data shows that integrin-targeting Au NPs can cause cytoskeletal remodeling and inhibit cancer cell migration. These results lead to our central hypothesis that rationally designed nanoparticles could effectively inhibit cell migration. The exact mechanism and the protein involvement are active studies.

### **Biography**

B.Sc., Ain Shams U. Cairo, Egypt; Ph.D Florida State University; Postdoctoral Fellow, Yale University (1958-59), Harvard University (1959-60), California Institute of Technology (1960-61) Faculty, UCLA Department of Chemistry and Biochemistry (1961-94) Julius Brown Chair and Regents Professor at Georgia Institute of Technology Department of Chemistry and Biochemistry (1994-present). Professor El-Sayed's research group is housed in the Laser Dynamics Laboratory (LDL). LDL houses the most recent lasers and laser spectroscopic equipment for time-resolved studies in the femto-to-millisecond time scale. Professor El-Sayed is an Elected Member of the National Academy of Sciences, Elected Fellow of American Academy of Arts and Sciences, Elected Associate Member of Third World Academy of Sciences; Inaugural Fellow of the American Chemical Society, the American Physical Society, Elected Fellow of the American Association for the Advancement of Sciences.

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