

# Effect of Gold Nanosemicubes with and without laser exposure on Oral Squamous Cell Carcinoma cell line

Sara M. Ali <sup>1</sup>, Mohamed H. Elmallahy<sup>2</sup>, Amira M. Gamal-Eldeen <sup>3</sup> and Seham A. Abdel-Ghani <sup>4</sup>

1.Lecturer of Oral Pathology, Faculty of Dentistry, MSA University.

2.Professor of Oral Pathology, Faculty of Dentistry, Ain Shams University.

3.Professor of Biochemistry, Biochemistry Department, National Research Center, Cairo, Egypt.

4.Lecturer of Oral Pathology, Faculty of Dentistry, Ain Shams University.

## Background:

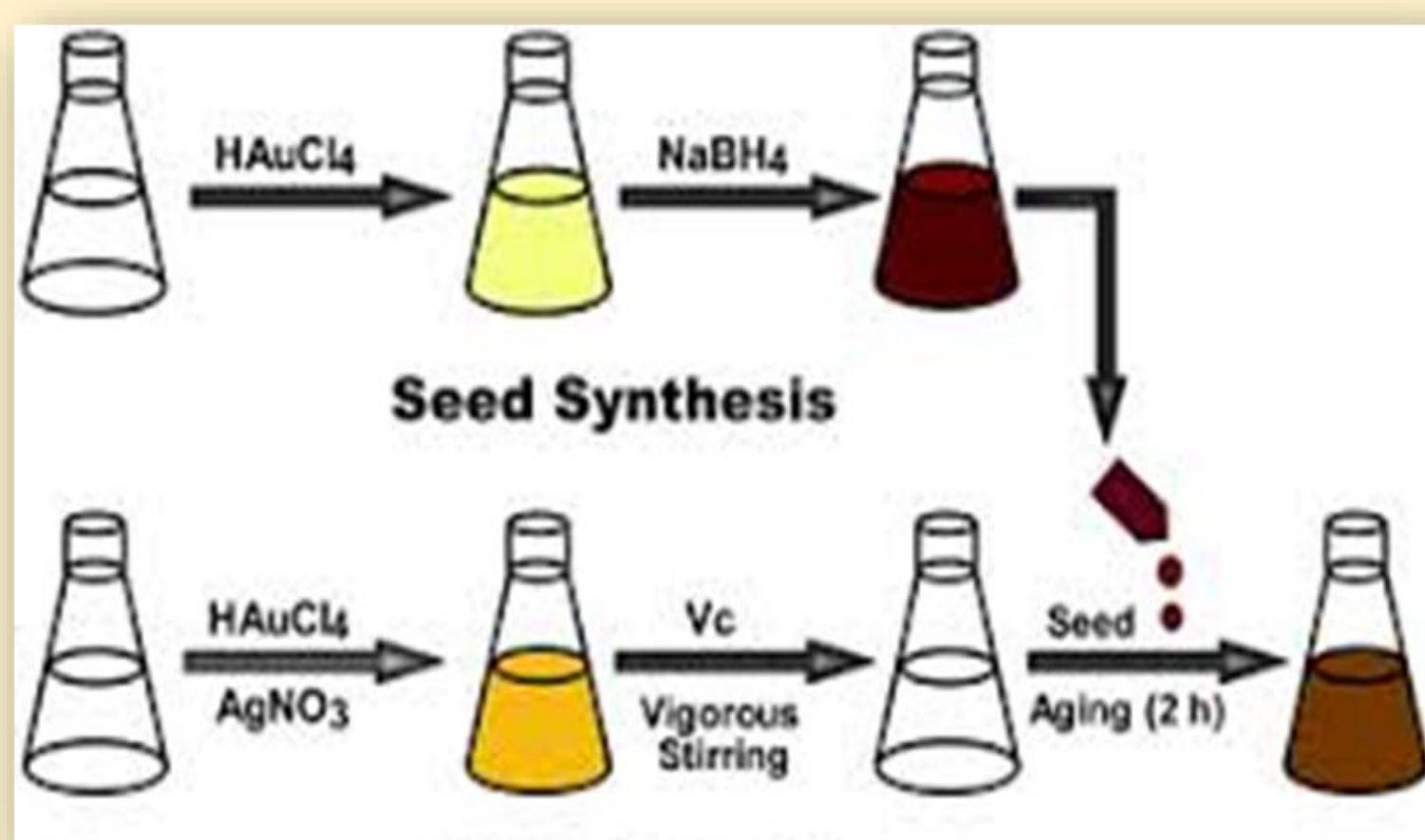
Oral squamous cell carcinoma (OSCC) represents the most common neoplasm affecting head and neck with a percentage of 95%. The unsatisfactory five years' survival rate persists despite constant improvement in conventional treatment modalities. Photothermal properties of gold nanoparticles (GNPs) could be employed as a promising alternative therapeutic modality for cancer.

## Aim of the study

The objective of this study was to investigate the in vitro photothermal effect of GNPs with and without laser exposure on oral squamous cell carcinoma cell lines..

## Materials and Methods:

### 1- Synthesis and Characterization of Gold Nanosemicubes (GNSCs).



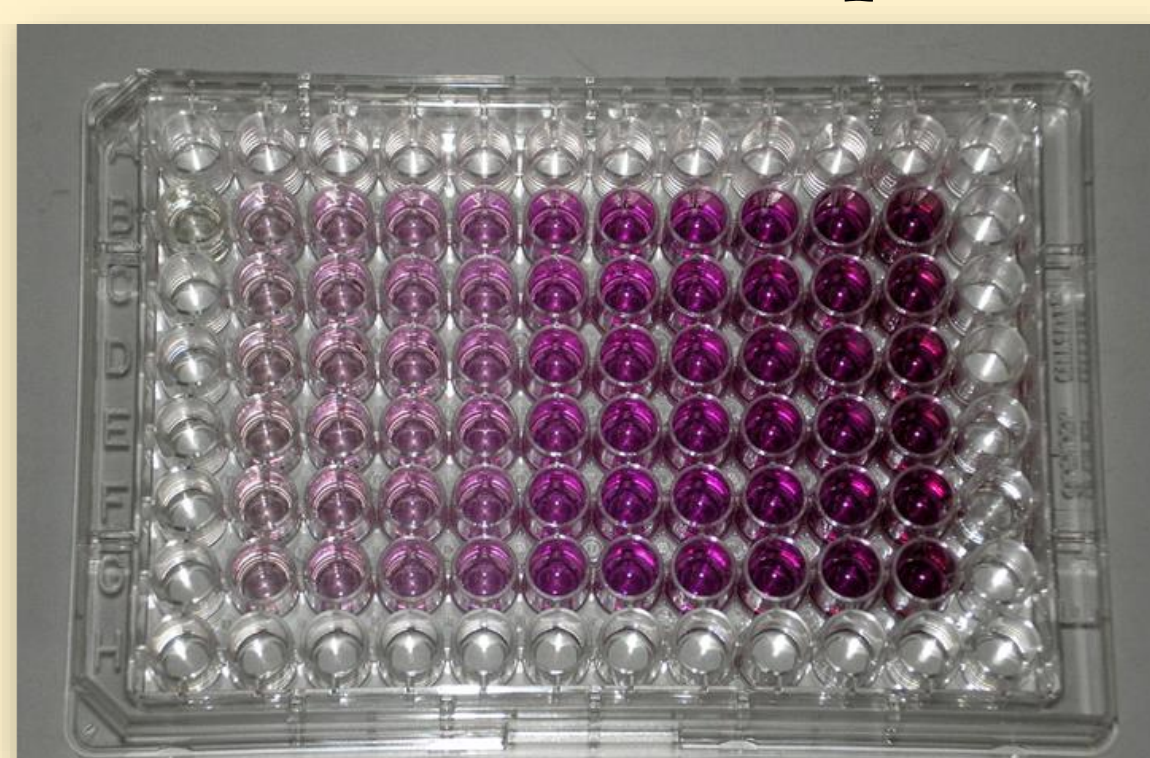
### 2-Cell line and Culture.



### 3. Laser Source



### 4- MTT assay to Evaluate the Effect of GNSCs On OSCC Cell Line With and Without Laser Exposure.

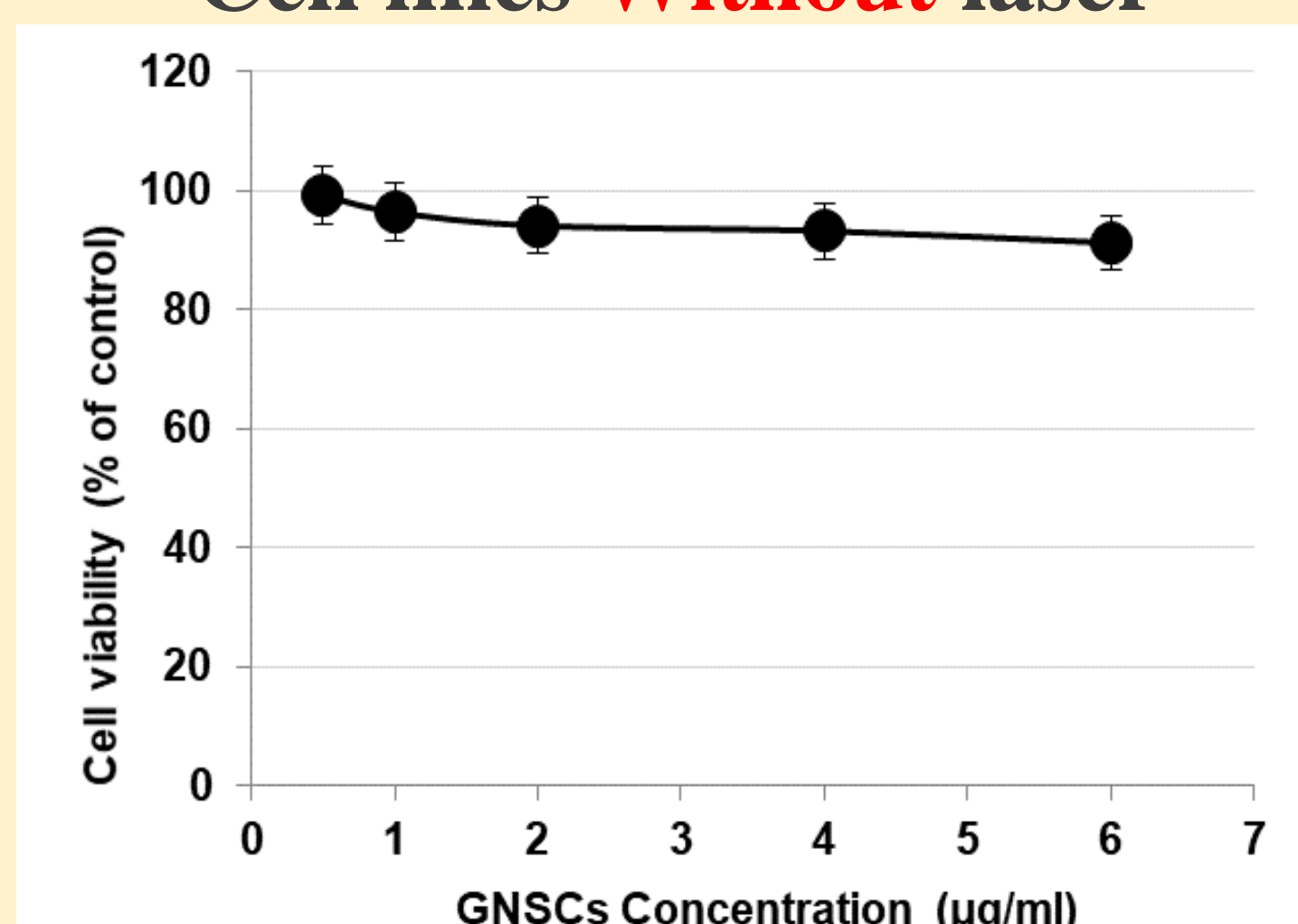


### 5. Statistical Analysis

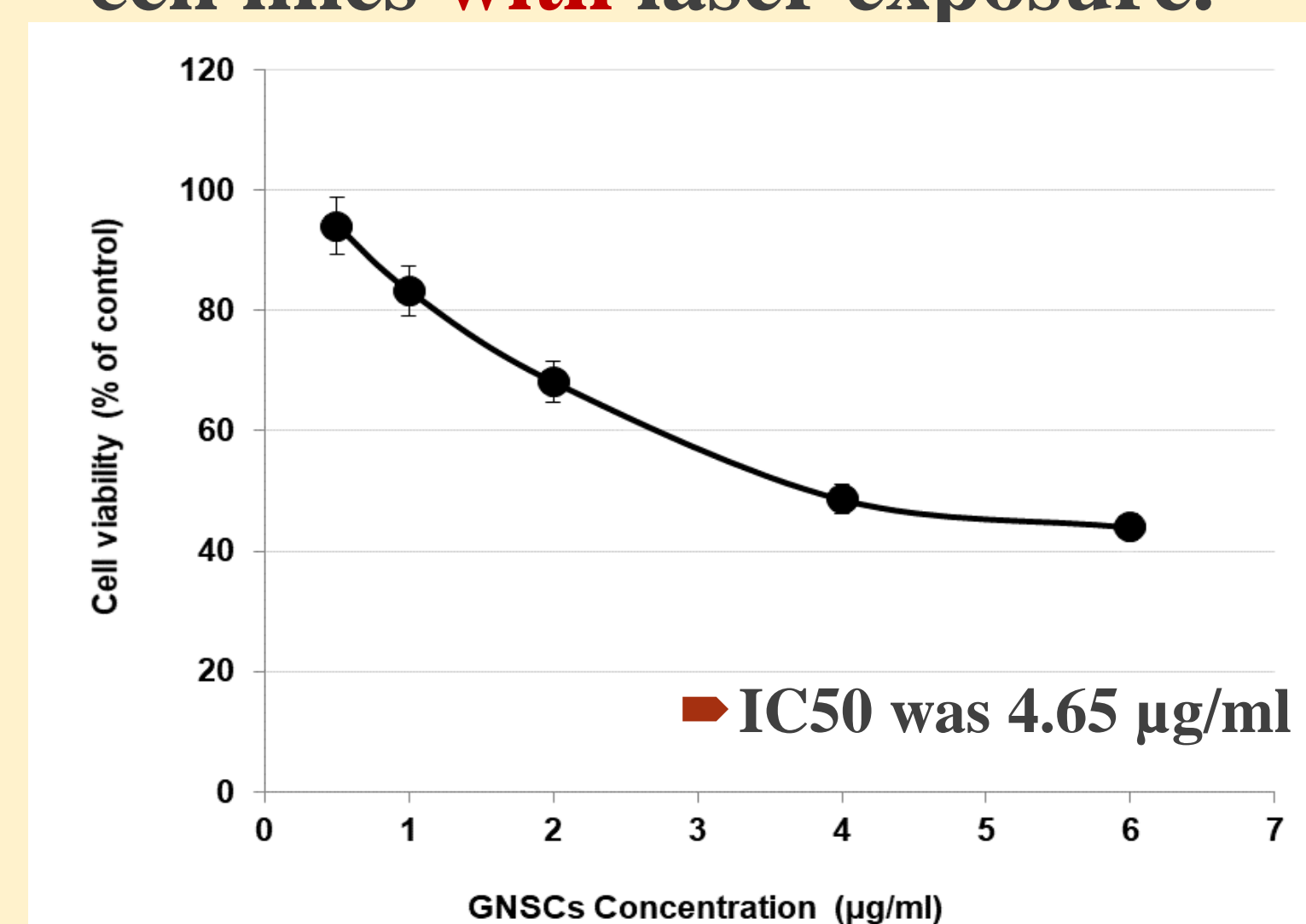


## Results:

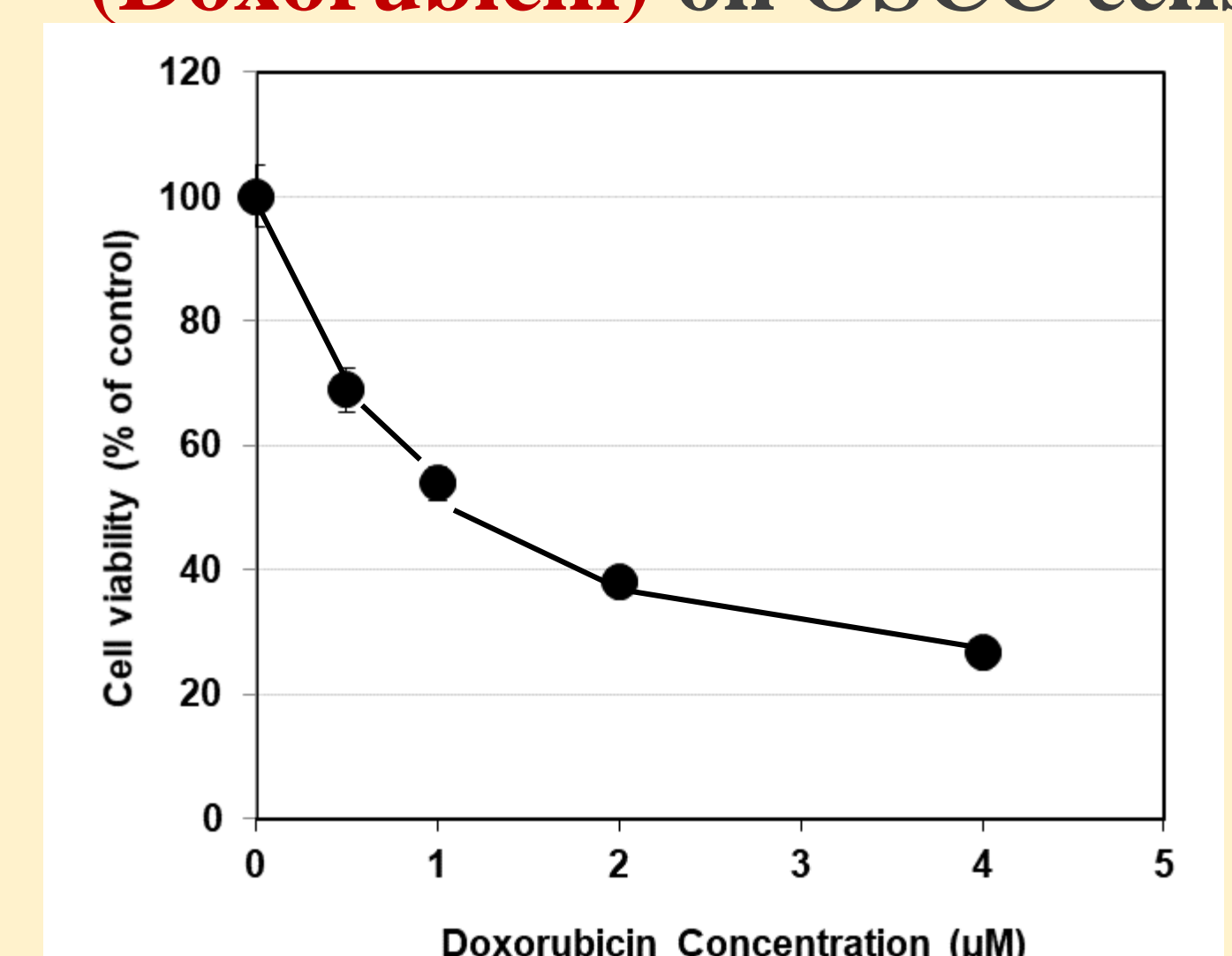
### ➤ 1. Effect of GNSCs on OSCC Cell lines **Without** laser



### ➤ 2. Cytotoxicity of GNSCs on OSCC cell lines **with** laser exposure.



### ➤ 3. Cytotoxicity of positive control (**Doxorubicin**) on OSCC cells.



## Conclusion

GNPs accompanied by laser exposure have cytotoxic effect on oral squamous cell carcinoma cell line, while it has no noticeable effect without laser exposure.