**Size dependent cytotoxicity measurements of ZnS Nanoparticles**

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**Abstract**

ZnS is one of the most promising semiconductor material with large band gap of approximately 3.54 eV and 3.91 eV for Cubic Zinc blende and Hexagonal Wurtzite structure respectively. It shows several favourable properties and potential applications in Transistor, sensors, LEDs, biology and medicine etc. [1]. In this work ZnS nanoparticles of different sizes were synthesized using Co-precipitation Technique to investigate the influence of their size on cytotoxicity, using HEK293 cells.

Currently other nanosystems like core shell quantum dots with CdS or CdSe as one among the component is being used. However, due to the high level of toxicity of cadmium, a cadmium free alternative will have better potential to be used for bio imaging system. Current investigation shows the potential of ZnS QDs in cellular/bio imaging and hence the assessment of their toxicity becomes essentially important [2].

**Keywords: ZnS Nanoparticles, Surface Plasmon Resonance, HEK**

**References**

1. W.T. Yao, and S.H. Yu, *Adv. Funct.Mater.* 18-21 3357-3366 (2008).
2. Moghimi SM, Hunter AC, Murray JC. Nanomedicine: current status and future prospects. FASEB J 2005;19: 311–30.