

3rd International Summit on TOXICOLOGY & Applied Pharmacology

October 20-22, 2014 DoubleTree by Hilton Hotel Chicago-North Shore, USA

Comparison of the cytotoxic effects of silver sulfide quantum dot coated with 2-mercaptopropionic acid and meso-2,3-dimercaptosuccinic acid in V79 cells

Deniz Ozkan Vardar¹, Ibrahim Hocaoglu², Havva Funda Yagci Acar² and Nurşen Başaran³ ¹Hitit University, Turkey ²Koc University, Turkey ³Hacettepe University, Turkey

Quantum dots are semiconductor nanocrystals (~2–100 nm) with unique optical and electrical properties currently applied in biomedical imaging and electronics industries. One of the most valuable properties of QDs is their fluorescence spectrum, which renders them optimal fluorophores for biomedical imaging. The information about their effects in the cellular environment and their cytotoxic effects are still lacking. So the aim of this study was to assess and compare the *in vitro* cytotoxicity of silver sulfide quantum dots coated with 2-mercaptopropionic acid and Meso-2,3-dimercapto succinic acid. For this purpose Chinese Hamster Lung Fibroblast cell lines (V79) were treated with Ag2S-(2-mercaptopropionic acid) and Ag2S-(Meso-2,3-Dimercapto Succinic acid) quantum dots in the concentration range of 5-2000 µg/mL for 24 h. Cellular responses and their effects were characterized. The assays used are based on different modes of detection like MTT metabolism and neutral red uptake. Neutral red (3-amino-m-dimethylamino-2-methyl-phenazine hydrochloride) has been used previously for the identification of vital cells in cultures. This assay quantifies the number of viable, uninjured cells after their exposure to toxicants; it is based on the uptake and subsequent lysosomal accumulation of the supravital dye, neutral red. Another parameter used as the basis for colorimetric assays is the metabolic activity of viable cells. Tetrazolium salts are reduced only by metabolically active cells. Thus, 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) can be reduced to a blue colored formazan. Quantum dots showed different cytotoxicity profile in a dose manner in both tests.

Biography

Deniz Ozkan Vardar has completed his bachelor's and master degree at Gazi University. She is PhD student in Department of Nanotechnology and Nanomedicine, Hacettepe University. Her academic work is focused onnanotoxicology especially nanogenotoxicology. She has published 2 papers about genotoxicity. She has worked for more than 5 years in the Departments of Health Programs, Hitit

denizozkantr@gmail.com