

Abstract Submitted
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Nonlinear Optical Properties of ZnO for Bioimaging Cell and Cell Destruction BEN URBAN, SAMUDYATHA CHAKKI, University of North Texas, OS SENTHILKUMAR, KASILINGAM SENTHILKUMAR, YASUHISA FUJITA, Shimane University, ARUP NEOGI, University of North Texas — As of recent years nanotechnology has been at the forefront of scientific research. It promises to have a broad range of applications from turning unhealthy foods into health foods, making computers faster and curing cancer. We present results on using nonlinear optical processes of ZnO nano-crystals to detect, track and destroy cells. By incorporating ZnO into a hydrophobic nano-hydrogel matrix with trace amounts of H_2O_2 , we can attach antibodies or microRNA for specific cell targeting and, using the heat generating properties of the third order nonlinear process, release H_2O_2 in the cell causing instant cell death. Theoretically, with the appropriate sequence for microRNA or the appropriate antibodies, we could target cancer cells in the body and destroy them. This presentation gives our results until now.

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