

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Fabrication of ZnPc/Protein Nanohorns for Double Photodynamic and Hyperthermic Cancer Phototherapy MINFANG ZHANG, AIST, JST, TATSUYA MURAKAMI, Fujita Health Univ., KUMIKO AJIMA, JST, KUNIHITO TSUCHIDA, Fujita Health Univ., ATULA S. SANDANAYAKA, OSAMU ITO, Tohoku Univ., SUMIO IJIMA, AIST, NEC, Meijo Univ., MASAOKO YUDASAKA, AIST, JST, NEC — We developed double photodynamic and hyperthermic phototherapy systems [1] by loading zinc phthalocyanine (ZnPc) on single-wall carbon nanohorns (SWNHs). A protein of bovine serum albumin (BSA) was also attached to the surface of SWNHs. ZnPc performed photodynamic therapy (PDT) effect and SWNH had photohyperthermic (PHT) effect. BSA endowed hydrophilic property to the system. Previous results in vitro showed that the efficiency of phototherapy using ZnPc-SWNH-BSA was higher than that of ZnPc or SWNHs. We show in this report that mouse tests also exhibited the similar tendency. ZnPc-SWNH-BSA was locally injected in tumors subcutaneously transplanted on mice. And the laser (670 nm) was irradiated for 15 minute everyday for 10 days. By this phototherapy, the tumors completely disappeared. The phototherapy using ZnPc or SWNHox-BSA exhibited weaker antitumor effects, and the tumors continued to grow. [1] Zhang et al. PNAS, **2008**, 105, 14773.

Minfang Zhang
AIST, JST

Date submitted: 25 Nov 2008

Electronic form version 1.4