Overcoming drug resistance with functional mesoporous titanium dioxide nanoparticles combining targeting, drug delivery and photodynamic therapy

Zhaoming Guo,\*a Kun Zheng, a Zhenquan Tan, b Ye Liu, a Ziyin Zhao, a Guang Zhu, a

Kun Ma, <sup>a</sup> Changhao Cui, <sup>a</sup> Li Wang, <sup>a</sup> and Tianyu Kang <sup>a</sup>

<sup>a</sup> School of Life Science and Medicine, Dalian University of Technology, Panjin, Liaoning 124221, China

<sup>b</sup> School of Petroleum and Chemical Engineering, Dalian University of Technology,

Panjin, Liaoning 124221, China

## \* Corresponding author:

School of Life Science and Medicine, Dalian University of Technology, Panjin, Liaoning 124221, China.

Tel: +86-427-2631427. Fax: +86-427-2631889. E-mail address: guozm@dlut.edu.cn (Zhaoming Guo).



Fig. S1. Schematic illustration of the synthesis of ADH-1-HA.



Fig. S2. The UV-Vis spectroscopy of DOX, MTN and MTN/DOX.



Fig. S3. Cell viability of MTN, HA-MTN, ADH-1-HA-MTN in vitro by CCK-8 assay after 24 h incubation with indicated concentrations of different formulations. Data are presented as mean  $\pm$  SD (n = 4). No significant cytotoxicity was observed in the various kinds of formulations treated groups compared with the control.



Fig. S4. Cell viability after different time duration of X-ray irradiation measured by CCK-8 assay. Data are presented as mean  $\pm$  SD (n = 3). No significant cytotoxicity was observed within 30 min of X-ray irradiation.