OMTN, Volume *17*

Supplemental Information

CS-PEI/Beclin-siRNA Downregulate Multidrug Resistance Proteins and Increase Paclitaxel Therapeutic Efficacy against NSCLC

Wangta Liu, Yu-Lun Lo, Chin Hsu, Yi-Ting Wu, Zi-Xian Liao, Wen-Jeng Wu, Yi-Jou Chen, Chieh Kao, Chien-Chih Chiu, and Li-Fang Wang

Supporting Information

CS-PEI/Beclin-siRNA Downregulate Multidrug Resistance Proteins and Increase Paclitaxel Therapeutic Efficacy against Non-small Cell Lung Cancer

Wang-Ta Liu[a#], Yu-Lun Lo[b,c#], Yi-Ting Wu[b], Chin Hsu[c,d], Zi-Xian Liao[e], Wen-Jeng Wu[d,f], Yi-Jou Chen[g], Chieh Kao[h], Chien-Chih Chiu[a,d*], and Li-Fang Wang[b,d,e*]

Figure S1.

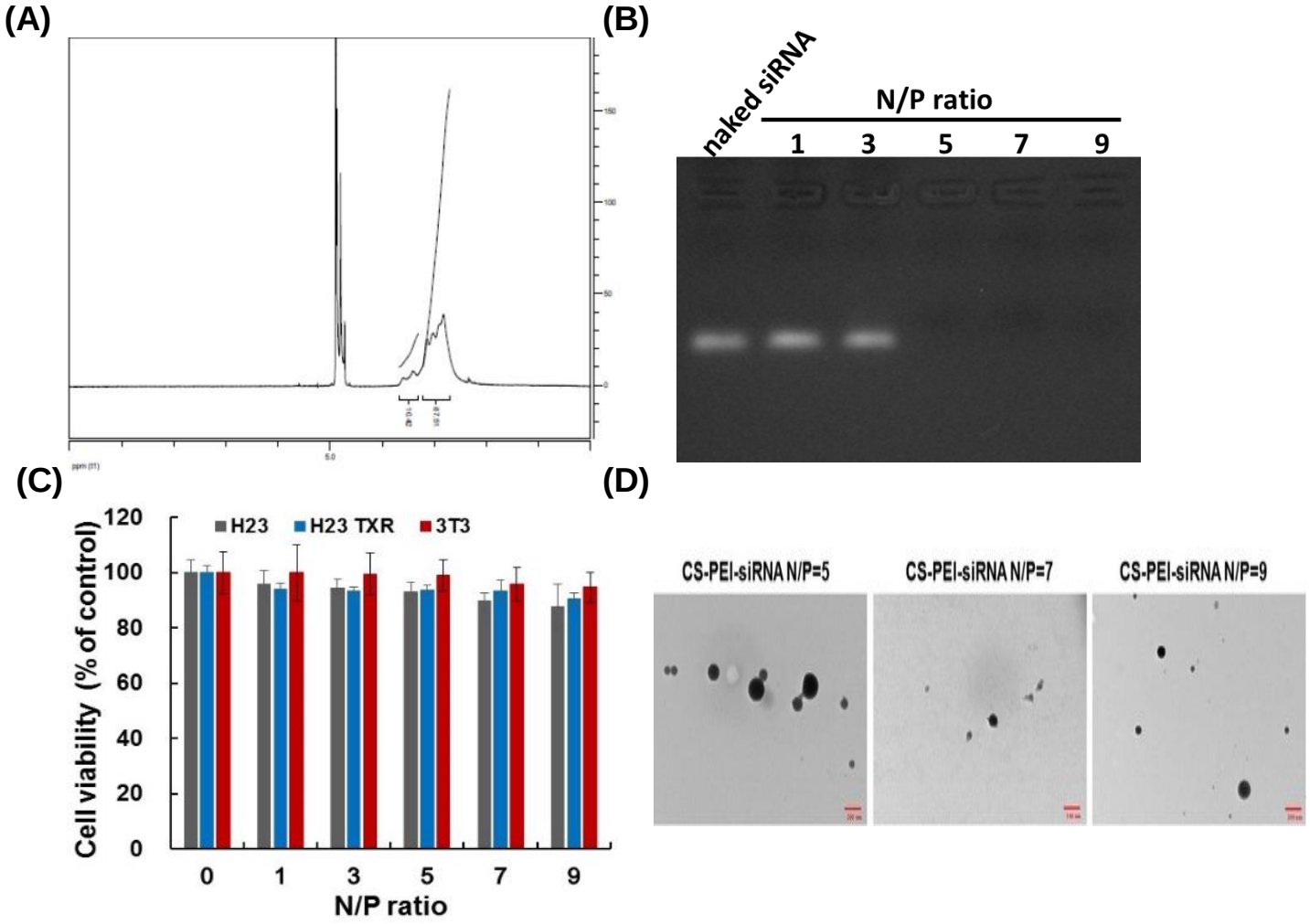

Fig. S1. Characterization of CS-PEI copolymer as a transfection vector. (A) ^{1}H-NMR spectrum of CS-PEI. (B) Agarose gel electrophoresis analysis of siRNA retention complexed with CS-PEI at different N/P ratios. (C) Relative cell viabilities of cells exposed to CS-PEI/siRNA at the N/P ratios of 1-9 for 24 h incubation against NCI-H23, NCI-H23 TXR and 3T3 cells using an MTT assay (n=8). (D) Transmission electron microscopic (TEM) images of CS-PEI/siRNA polyplexes at three N/P ratios. The scale bar is 200 nm.

Figure S2

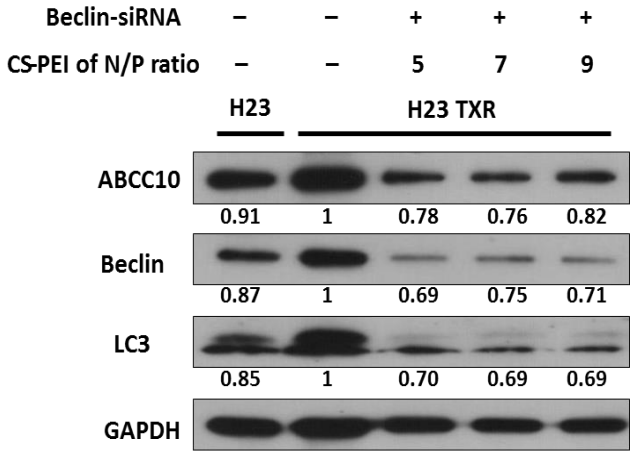

Fig. S2. Western blot analysis of autophagy- and MDR-related protein expression levels of cells transfected with CS-PEI/Beclin siRNA. NCI-H23-TXR cells were transfected with CS-PEI/Beclin siRNA at three different N/P ratios of 5, 7 and 9 for 4 h. Cell lysates were extracted and protein expression was detected by western blot. Protein ratios were calculated from western blot images relative to NCI-H23 TXR cells using ImageJ software. GAPDH was used as an internal control for equal loading.

Figure S3.

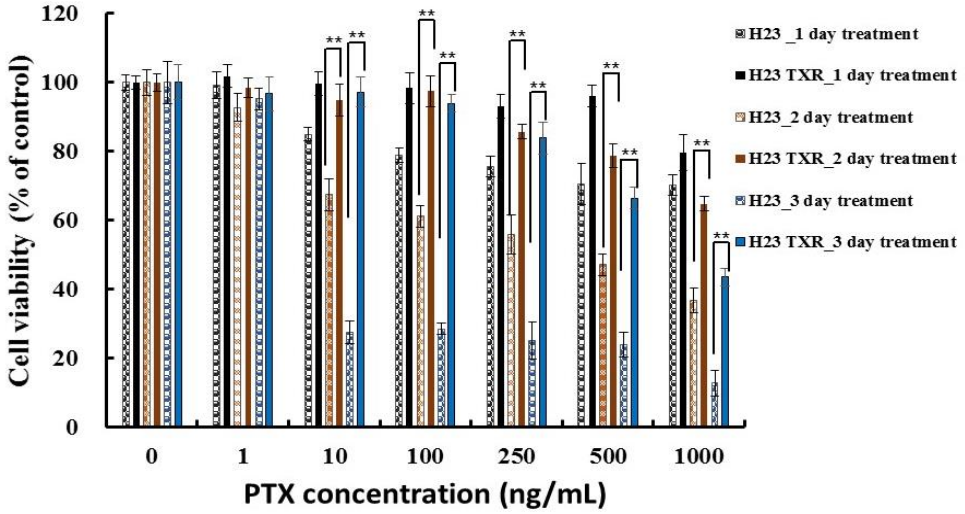

Fig. S3. Relative cell viabilities of NCI-H23 cells and NCI-H23-TXR cells exposed to PTX at various concentrations of 1-1,000 ng/mL for 1, 2 and 3 days of incubation at 37 ºC using an MTT assay. Statistical analysis was performed using the two-tailed Student's t-test. (n=8, *p< 0.05, **p< 0.01)

Figure S4.

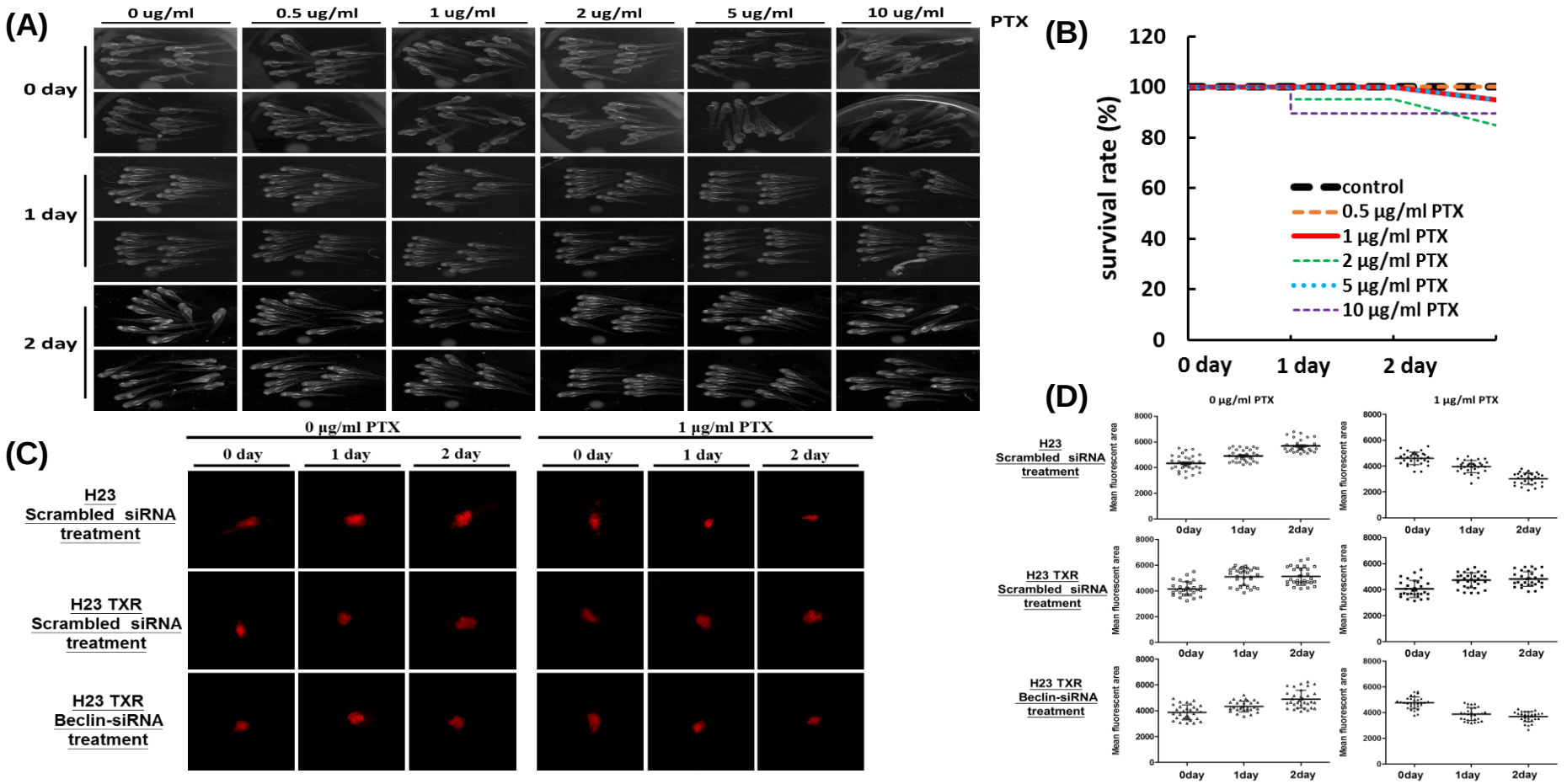

Fig. S4. Tolerated doses of PTX in zebrafish. (A) Microscopic images and (B) survival rate of zebrafish exposed to various concentrations of paclitaxel (PTX) of 0.5-10 μg/mL for 0-2 day. Zebrafish was treated with PTX dissolved in aerated water and kept in an incubator at 28℃. Survival rates were analyzed based on the control group without PTX treatment (n=20) (C) SiRNA-transfected and red fluorescence-labeled cells were transplanted in zebrafish with a single injection of ~850 tumor cells per embryo. Fluorescent images of tumor sites were observed using fluorescent microscopy and analyzed using ImageJ software. (D) Tumor growth inhibition calculated from the fluorescent images of zebrafish shown in (C) was presented in dot plot using Graphpad Prism 5 software. (n=30)