Supporting Information for:

Erythrocyte membrane nano-capsules: biomimetic delivery and controlled release of photothermal-photochemical coupling agents for cancer cell therapy

Shihao Li, Lin Zhang*

Department of Biochemical Engineering and Key Laboratory of Systems Bioengineering of the Ministry of Education, School of Chemical Engineering and Technology, Tianjin University, Tianjin 300072, China

*Corresponding author: Lin Zhang
E-mail: linzhang@tju.edu.cn; Tel.: +86 22 2740 3389; Fax: +86 22 2740 3389
**Fig. S1.** Optical microscope image of red blood cells which were co-cultured with a) PBS and b) a small amount of tween-80, then treated with UV irradiation for 15 min, cells were dyed by 2% Giemsa dye.
**Fig. S2.** TEM images of Au/TiO$_2$@RBC a) negatively stained with phosphotungstic acid and b) without stain. (scale bar = 100 nm), c) TEM image of Au/TiO$_2$, d) mean diameter distribution of particles.
**Fig. S3.** TEM image of Au/TiO$_2$@RBC after UV irradiation for 12 min (scale bar = 100 nm).
Fig. S4. Mean diameter of a) RBC-vesicles after treated with UV irradiation b) Au/TiO$_2$@RBC after treated with laser irradiation.
Fig. S5. Stability of Au/TiO$_2$@RBC nanoparticles in 1× PBS and 100% FBS over 5 days.
**Fig. S6.** Fluorescence absorption of a) free Au NRs and b) Au/TiO$_2$@RBC after being treated with UV irradiation for various time periods.