Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Cancer cell membrane coated gold nanorods for photothermal therapy and radiotherapy on oral squamous cancer

Qiang Sun[1,2#], Jinggen Wu[3#], Lulu Jin[4 #], Liangjie Hong[4], Fang Wang[1,2], Zhengwei Mao[4*], Mengjie Wu[1,2*]

[1] The Affiliated Stomatology Hospital, School of Medicine, Zhejiang University, Hangzhou, People's Republic of China

[2] Key Laboratory of Oral Biomedical Research of Zhejiang Province, School of Stomatology, Zhejiang University, Hangzhou, People's Republic of China

[3] Department of Reproductive Medicine Center, Department of Urology and Andrology, Women's Hospital, School of Medicine, Zhejiang University, Hangzhou, People's Republic of China

[4] MOE Key Laboratory of Macromolecular Synthesis and Functionalization, Department of Polymer Science and Engineering, Zhejiang University, Hangzhou 310027, People's Republic of China;

# These authors contribute equally.

* Corresponding authors:

wumengjie@zju.edu.cn (M. W.)

zwmao@zju.edu.cn (Z. M.)

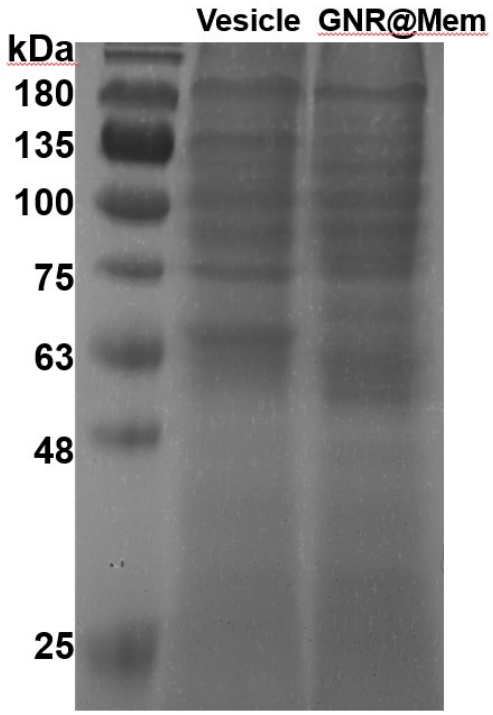

Figure S1. SDS-PAGE protein analysis of cancer cell membrane vesicles and GNR@Mem.

For protein characterization by SDS-PAGE, all samples were prepared at a final protein concentration of 1 mg/mL in lithium dodecyl sulfate (LDS) loading buffer (Thermo Fisher) as measured by a BCA assay. GNR@Mem were purified by centrifugation at 12,000 × g to pellet the coated particles but not free vesicles or protein. Samples were heated to 70 °C for 10 min and 10 μL of sample was loaded into each well of a 10-well minigel (Bio-rad). Protein staining was accomplished using coomassie brilliant blue (Thermo Fisher) and de-stained in water overnight before imaging.

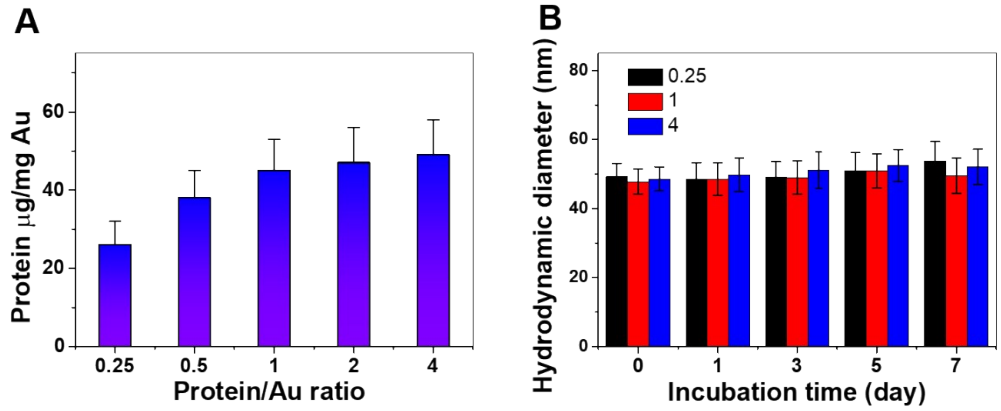

Figure S2. (A) Protein amount on obtained GNR@Mem as a function of protein to gold feeding ratio. The protein contents in the obtained gold nanorods were quantified using a BCA kit (Beyotime). (B) Hydrodynamic diameter of GNR@Mem with different protein/Au feeding ratio, incubated in PBS for various time.

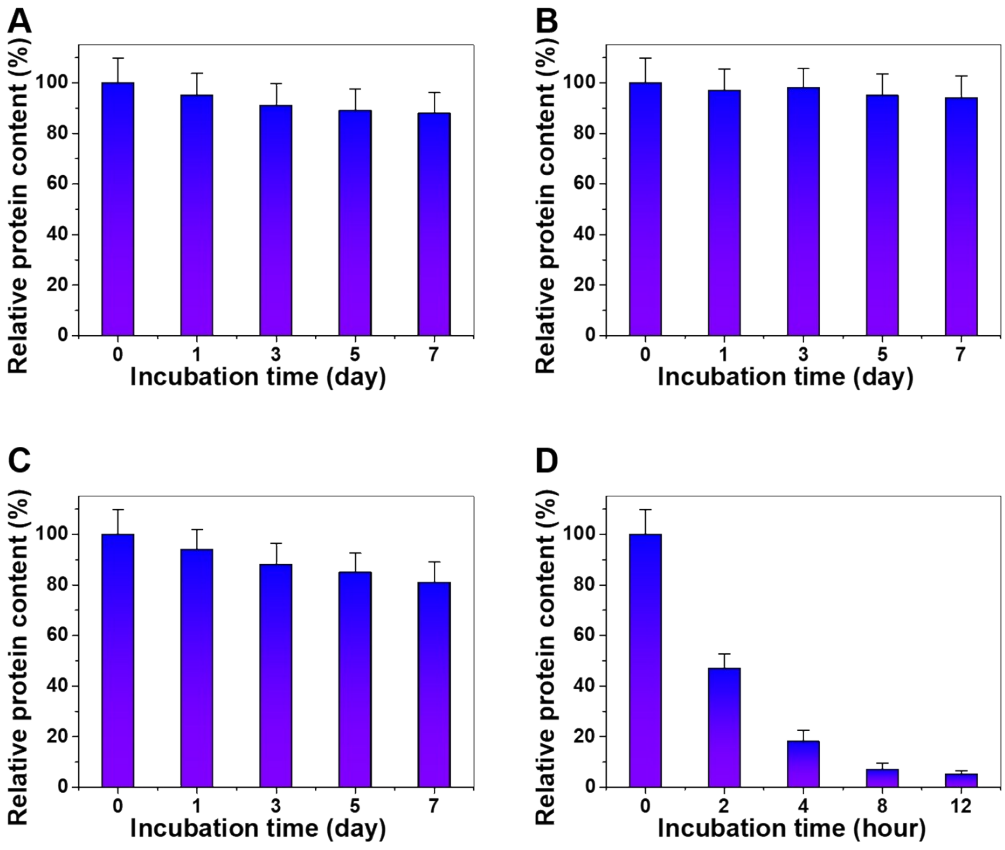

Figure S3. The relative protein content on GNR@Mem as a function of incubation time in (a) PBS, (b) PBS + 10% FBS, (c) 0.15 M NaCl (pH 6.0), and (d) 1 M NaCl, respectively.

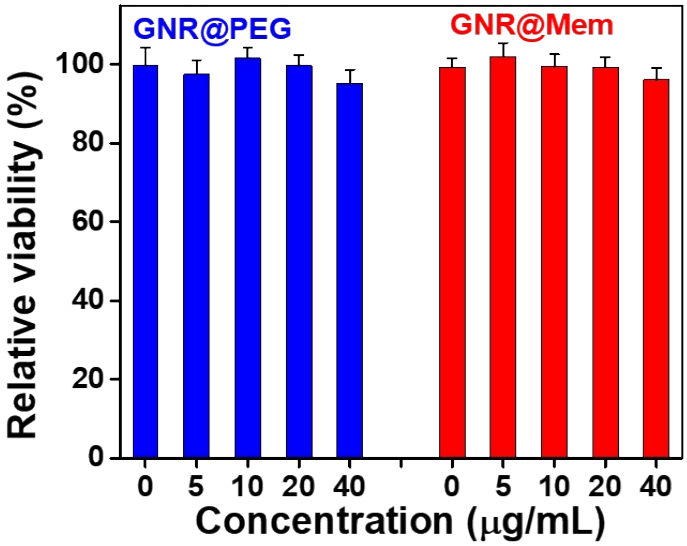

Figure S4. Cell viability profiles of KB cells after the co-incubation with GNR@PEG and GNR@Mem at varied concentrations (0, 5, 10, 20, and 40 μg/mL) for 24 h (n = 4).

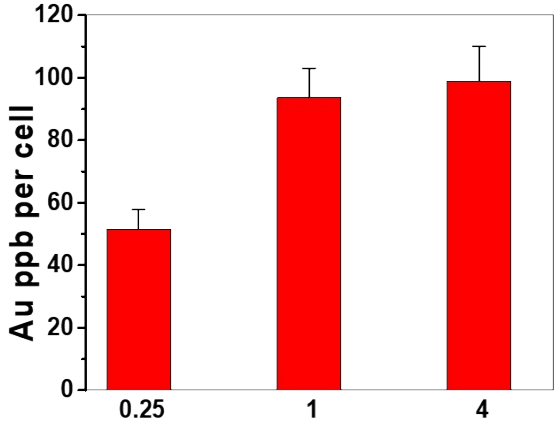

Figure S5. Gold concentration per cell in the KB cells treated with GNR@Mem with different protein/Au feeding ratio for 24 h. The concentration of GNR is 20 μg/mL.

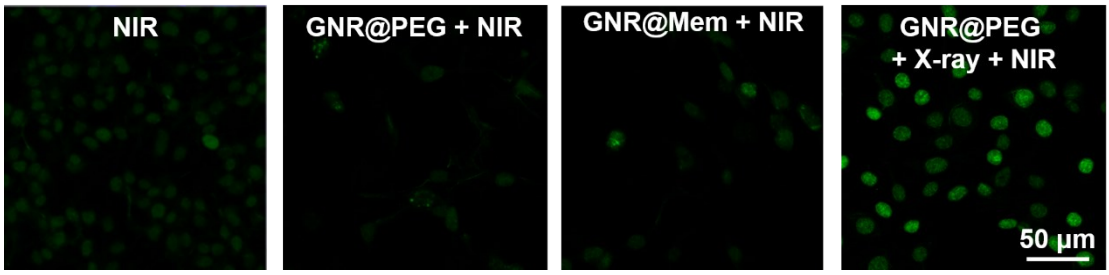

Figure S6. γ-H2AX immunofluorescence staining of KB cells after different treatments. Scale bar is 50 μm.

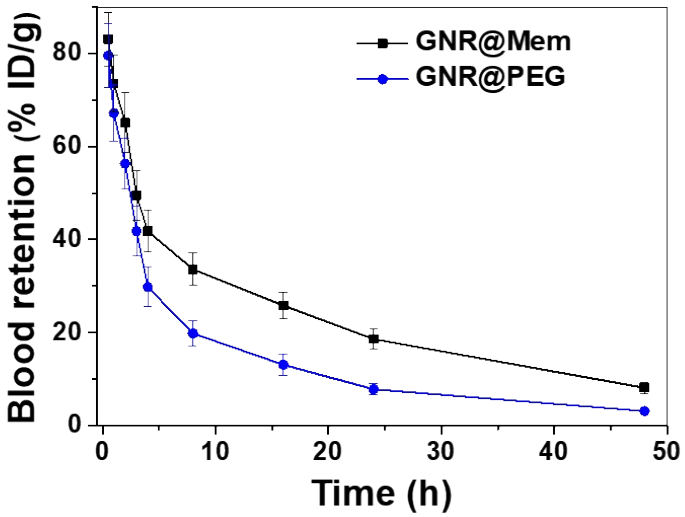

Figure S7. Blood concentration of GNRs as a function of time after i.v. injection.

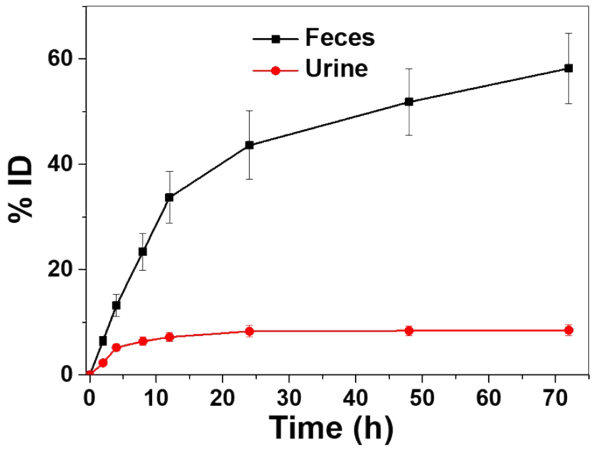

Figure S8. Cumulative urine and feces excretion of GNR@Mem at different time

points (n=4).