

Supporting Information

Palladium Nanoparticles Induce Autophagy and Autophagic Flux Blockade in Hela Cells

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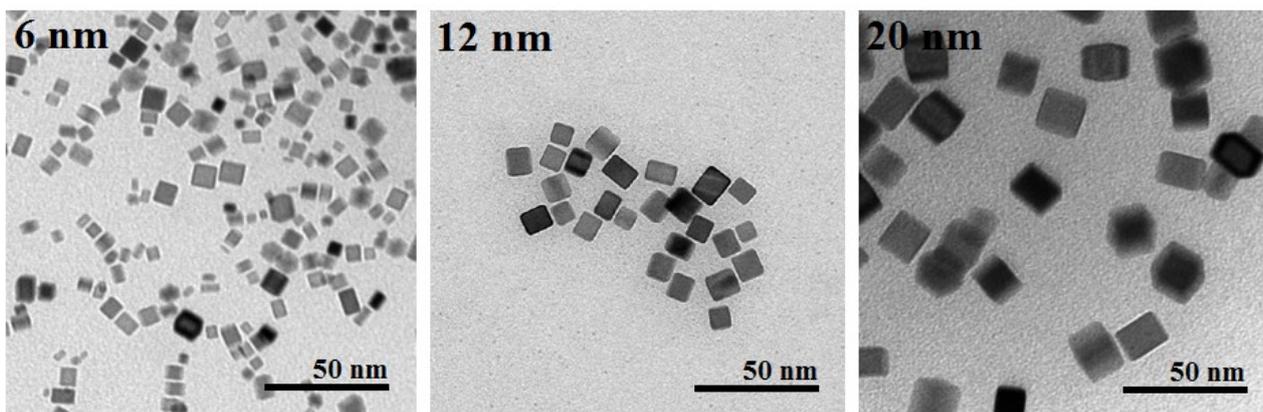


Fig. S1. The morphology and aggregation of PdNPs after 24 h dispersion in growth medium (Scale bar, 50 nm).

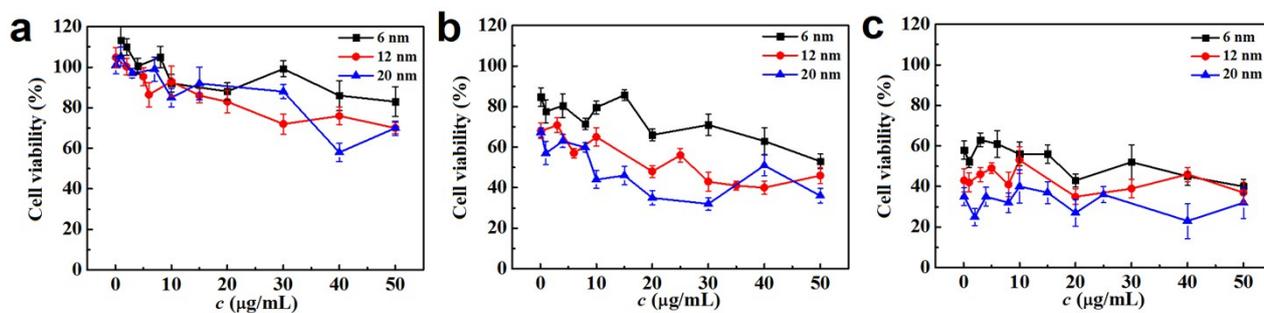


Fig. S2. Cell viability after incubating with 6, 12, and 20 nm PdNPs. (a) (b) and (c) are respectively for 12, 48, and 72 h incubation. The PdNPs concentrations range from 0.1 $\mu\text{g/mL}$ to 50 $\mu\text{g/mL}$. Data are presented as mean \pm SD of five independent measurements.

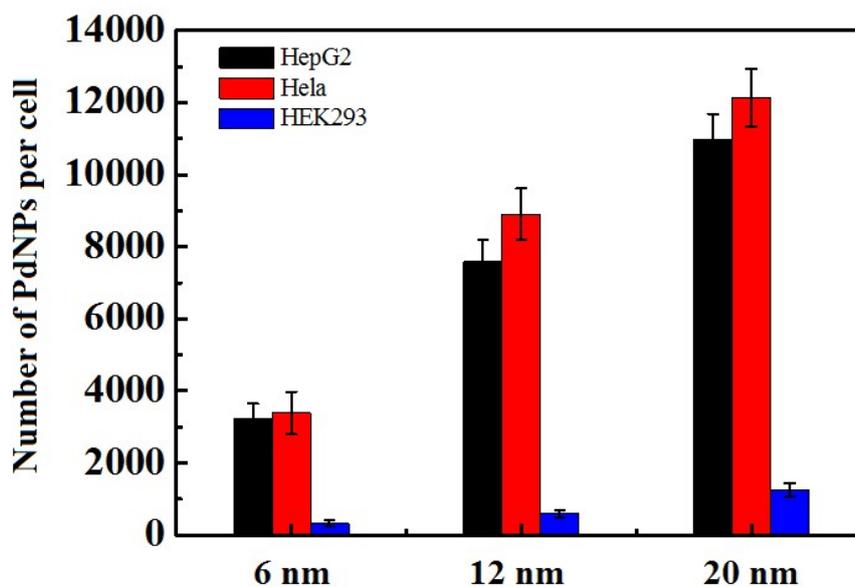


Fig. S3. The uptake results of PdNPs in HepG2 cells, Hela cells and HEK293 cells. The cells were treated with 10.0 $\mu\text{g/mL}$ PdNPs for 24 h. Data are presented as mean \pm SD of five independent measurements.

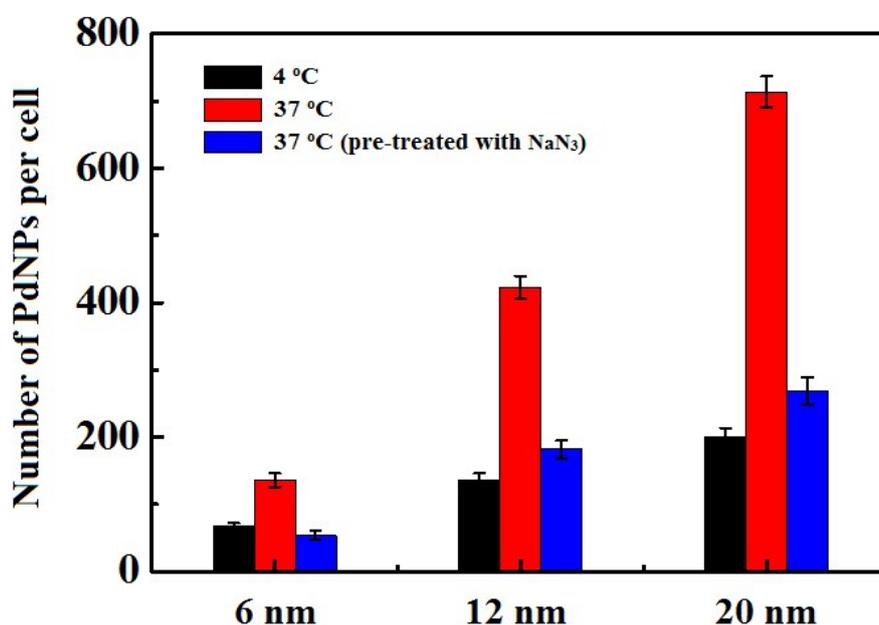


Fig. S4. The uptake results of PdNPs in Hela cells. Cells were cultured as follows: incubated with 10.0 $\mu\text{g/mL}$ PdNPs at 4 °C for 1 h (black columns); incubated with 10.0 $\mu\text{g/mL}$ PdNPs at 37 °C for 1 h (red columns); pre-incubated with 10.0 mmol/L NaN₃ for 30 min before incubating with 10.0 $\mu\text{g/mL}$ PdNPs at 37 °C for 1 h (blue columns). Data are presented as mean \pm SD of five independent measurements.

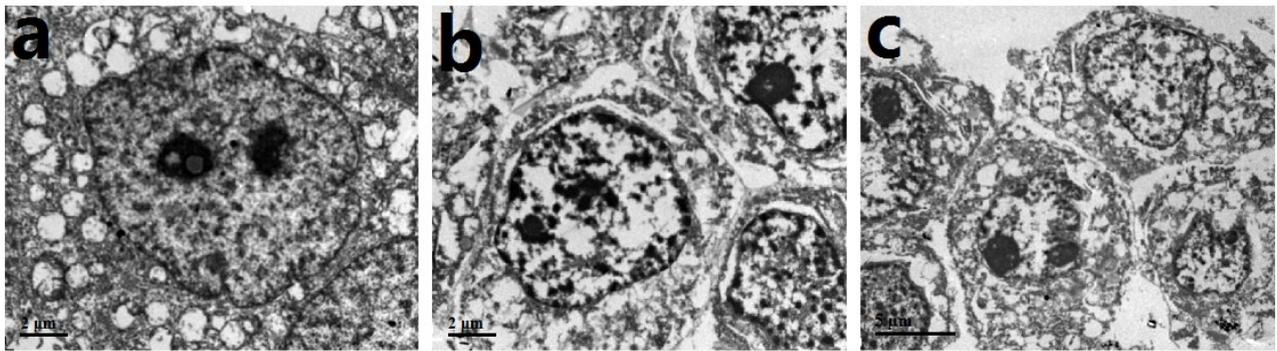


Fig. S5. Autophagic cell death in HeLa cells. The cells in (a), (b) and (c) were incubated for 24 h with 10.0 $\mu\text{g/mL}$ PdNPs with the particle sizes of 6 nm, 12 nm and 20 nm, respectively. (Scale bar, 2 μm for a and b; 5 μm for c).

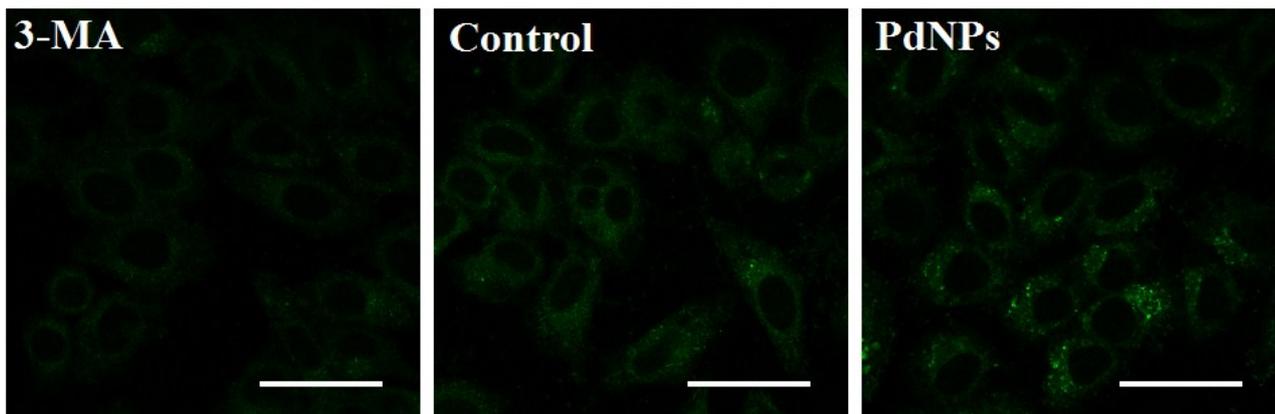


Fig. S6. Autophagosomes accumulation in HeLa cells. The cells were incubated with the autophagy inhibitor 3-MA (10.0 $\mu\text{g/mL}$), growth medium, and 6 nm PdNPs (10.0 $\mu\text{g/mL}$), (scale bar, 30 μm).

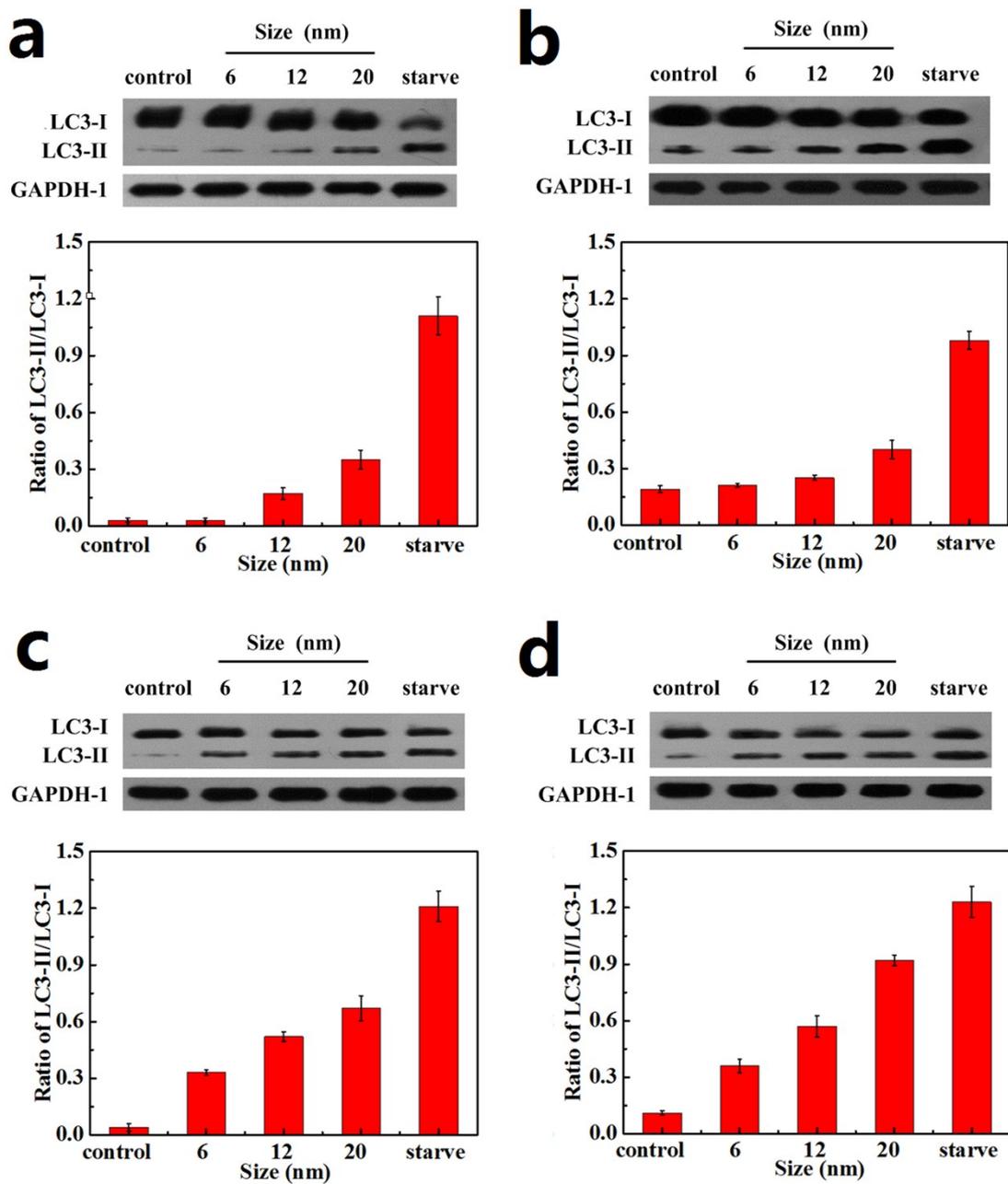


Fig. S7. Ratio of LC3-II/LC3-I after incubating with 6, 12, and 20 nm PdNPs. The concentration of (a), (b), (c), and (d) are 0.1, 0.5, 1.0, and 5.0 $\mu\text{g/mL}$, respectively. Data are presented as mean \pm SD of five independent measurements.

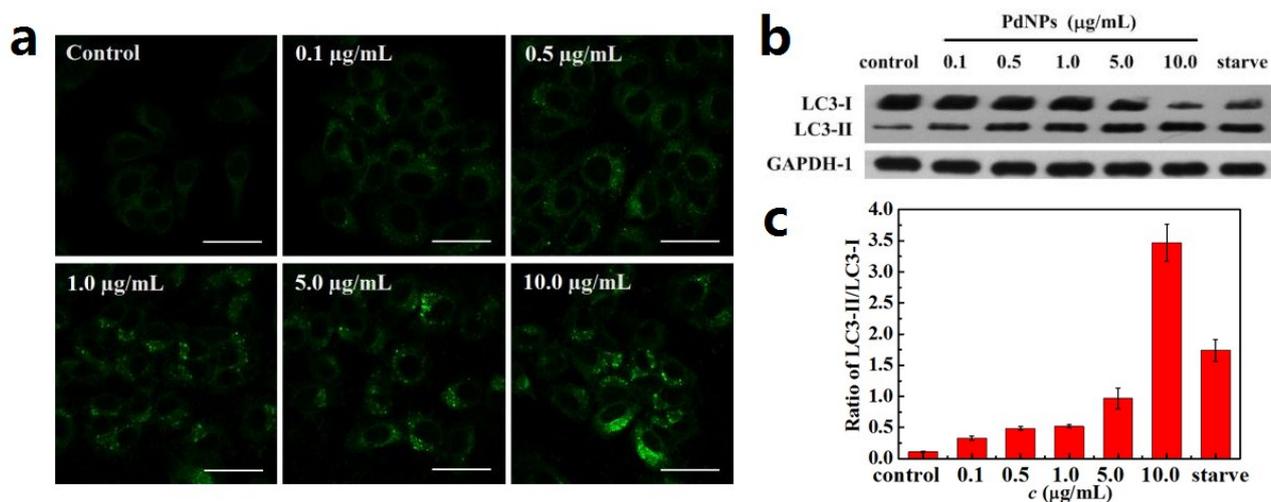


Fig. S8. The autophagosome accumulation in HeLa cells. (a) Fluorescent micrographs of autophagosomes (scale bar, 30 µm). (b) Western blotting of LC3-I and LC3-II expressions in HeLa cells. (c) Ratio of LC3-II/LC3-I. Cells were treated with 20 nm PdNPs at 0.1, 0.5, 1.0, 5.0, and 10.0 µg/mL for 24 h. Data are presented as mean ± SD of five independent measurements.

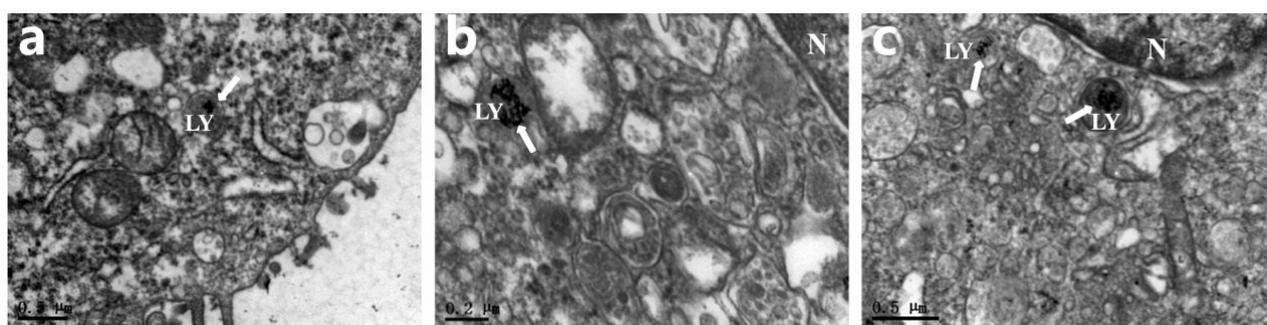


Fig. S9. The endocytosis of PdNPs by lysosomes. The HeLa cells were treated with (a) 6 nm, (b) 12 nm, and (c) 20 nm PdNPs (Scale bar, 0.5 µm for a and c; 0.2 µm for b).

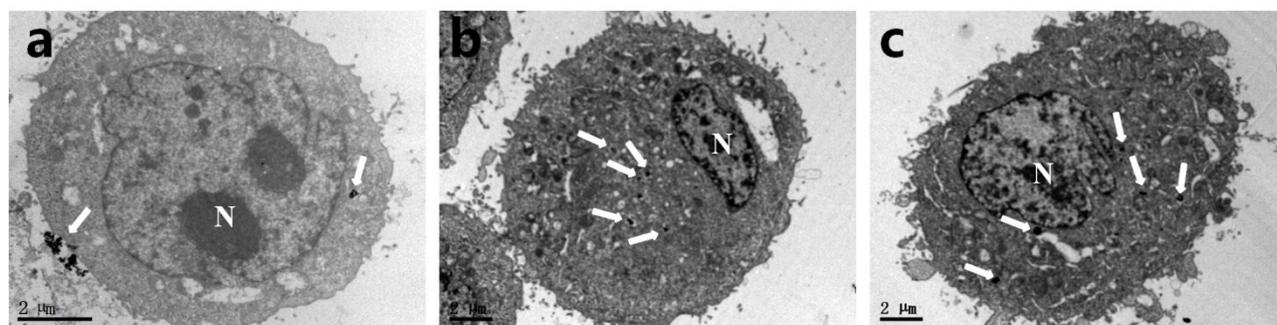


Fig. S10. The distribution of PdNPs in HeLa cells. (a) PdNPs are clustered together before they are taken into the HeLa cell. (b, c) The internalized PdNPs appear as agglomerates. Cells were treated with 10.0 µg/mL of 20 nm PdNPs. Scale bar, 2 µm.