

## Supporting Information

### **A novel cell membrane-cloaked magnetic nanogripper with enhanced stability for drug discovery**

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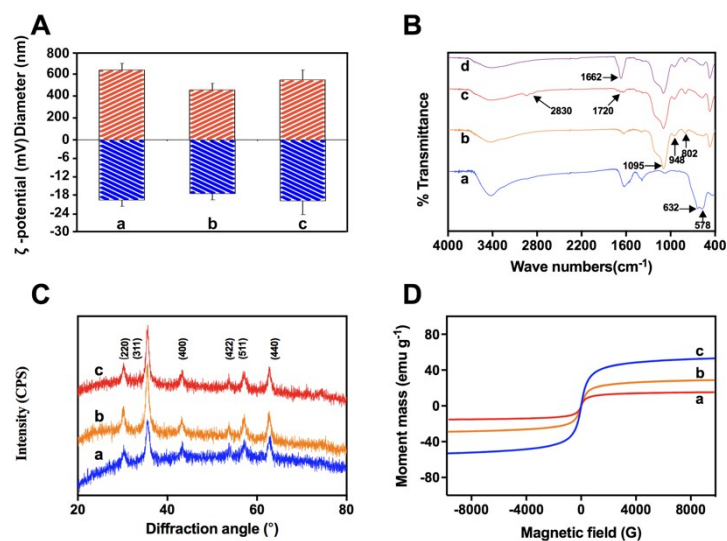
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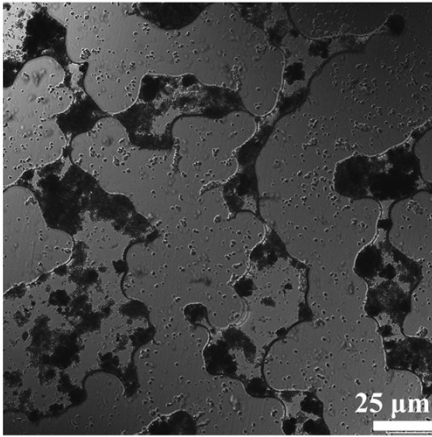
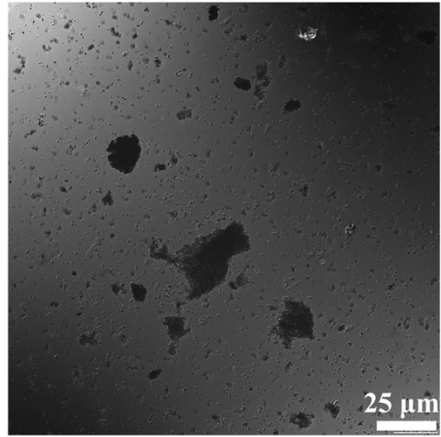
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**Samples preparation for TEM:**

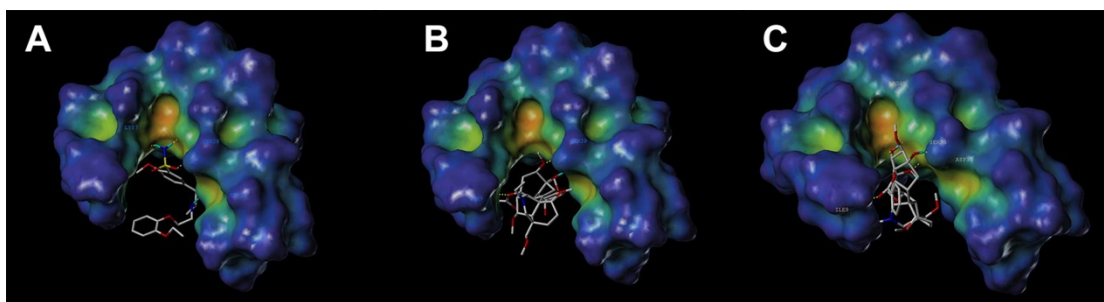
1. Use 300 mesh carbon coated grids.
2. Prepare  $\alpha_{1A}$ /MNGs solution and ultrasonic dispersed evenly.
3. Place a drop (approx. 20  $\mu$ L) of  $\alpha_{1A}$ /MNGs solution on the grid.
4. Dry overnight in a Petri dish and view the next day in TEM.



**Figure S1.** Size and zeta potential results of high  $\alpha_{1A}$ -AR expression HEK293 cell membrane-derived vesicles (a), Fe<sub>3</sub>O<sub>4</sub>-CHO nanoparticles (b) and  $\alpha_{1A}$ /MNGs (c) (A); FT-IR spectra of Fe<sub>3</sub>O<sub>4</sub> (a), Fe<sub>3</sub>O<sub>4</sub>-SiO<sub>2</sub> (b), Fe<sub>3</sub>O<sub>4</sub>-CHO (c) and  $\alpha_{1A}$ /MNGs (d) (B); XRD patterns of Fe<sub>3</sub>O<sub>4</sub> (a), Fe<sub>3</sub>O<sub>4</sub>-CHO (b) and  $\alpha_{1A}$ /MNGs (c) (C) and VSM curves of  $\alpha_{1A}$ /MNGs (a), Fe<sub>3</sub>O<sub>4</sub>-CHO (b) and Fe<sub>3</sub>O<sub>4</sub> (c) (D).

**A****B**

**Figure S2.** Bright-field images of confocal microscopy images of MNGs cores (A) and  $\alpha$ 1A/MNGs (B).



**Figure S3.** The binding model of compounds tamsulosin (A), bulleyaconitine A (B) and benzoylhypacoitine (C) with  $\alpha_{1A}$  AR (PDB ID: 4iye).