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Structural elucidation of cell membrane-derived nanoparticles using molecular probes

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TEM characterization of Probe-RBC-vesicles

For regular TEM imaging, a carbon film coated Cu grid was cleaned with plasma, and 10 μL of Probe-RBC-vesicle solution with a concentration of 30 μL/mL (membranes were from 30 μL mouse blood for each mL of solutiion.) was added on the grid. After 30 min, the grid was washed with ddH_2O. Five μl of 2% uranyl acetate water solution was drop onto the grid, and filter paper was used to absorb the solution instantly. This step was repeated 3 times before the sample was air dried. The prepared sample was observed using JEOL JEM2100 transmission electron microscope at 200 kV.

Probe-RBC-vesicle sample was shipped to the Nanotechnology Materials Facility at MIT for cryo-electron microscopy imaging. 4 μL of vesicle solution with a concentration of 10 μL/mL was dropped on a lacey copper grid coated with a continuous carbon film and blotted to remove excess sample without damaging the carbon layer by Gatan Cryo Plunge III. Grid was mounted on a Gatan 626 cryo-holder equipped in the TEM column. The specimen and holder tip were cooled down by liquid-nitrogen, which kept the low temperature during the transfer into the microscope and subsequent imaging. The sample was imaged using an JEOL 2100 FEG microscope at 200 kV, and the imaging was done using minimum dose method that was essential to avoid sample damage under the electron beam.

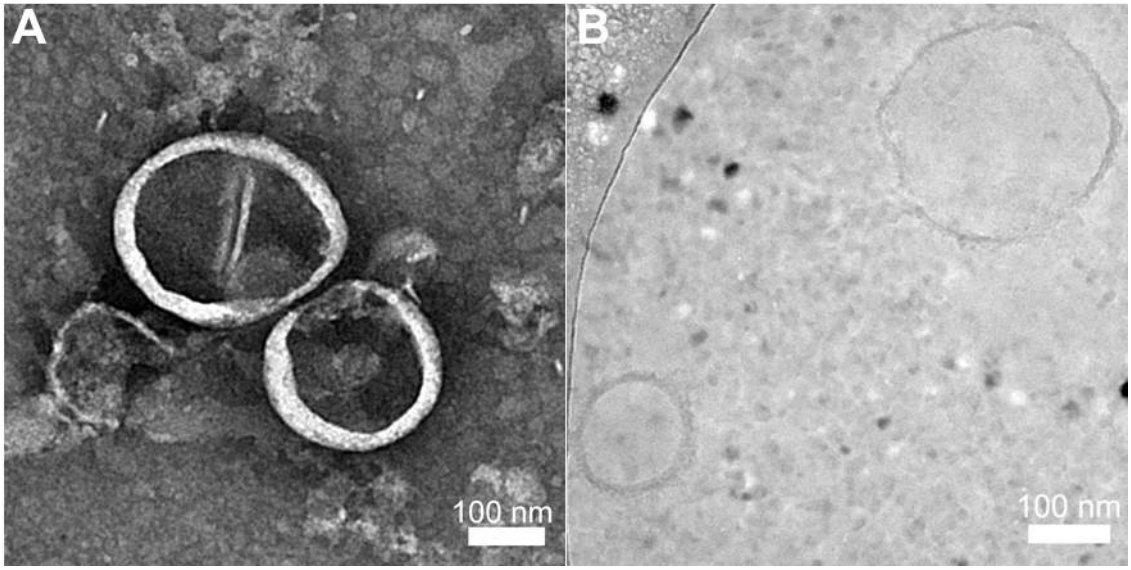

Figure. S1 Transmission electron microscopy images of ssDNA probe-modified RBC vesicles. A) A representative TEM image of Probe-RBC-vesicles. The sample was negatively stained with uranyl acetate. B) A representative Cryo-TEM image of Probe-RBC-vesicles.