Supplementary Information

Origami-paper-based device for microvesicle/exosome preconcentration and isolation

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Quantification of the enriched microvesicles/exosomes using NTA.

The concentration of microvesicles/exosomes as in Fig. 3b was quantified with nanoparticle tracking analysis (NTA). To do this, first, layer 6, 8 and 10 were biopsy-punched according to the each size of sample areas. Each punched-layer was immersed in buffer solution (0.1X PBS with 0.01% Tween 20) and then we applied 10 min vortexing and centrifugation for resuspension of the preconcentrated microvesicles/exosomes. After taking out the punched-layer from the resuspended solution, the concentration of microvesicles/exosomes were measured by NTA machine.

*Information for the NTA machine:

Nanoparticle tracking analysis (NTA, NanoSight LM10, NanoSight Technology, UK)

NTA version : 3.3 Dev Build 3.3.104 software (Malvern)

Camera type : CCD camera

Camera level: 12

FPS : 30 FPS

Temperature: 24°C

Viscosity: (water) 0.9 cP

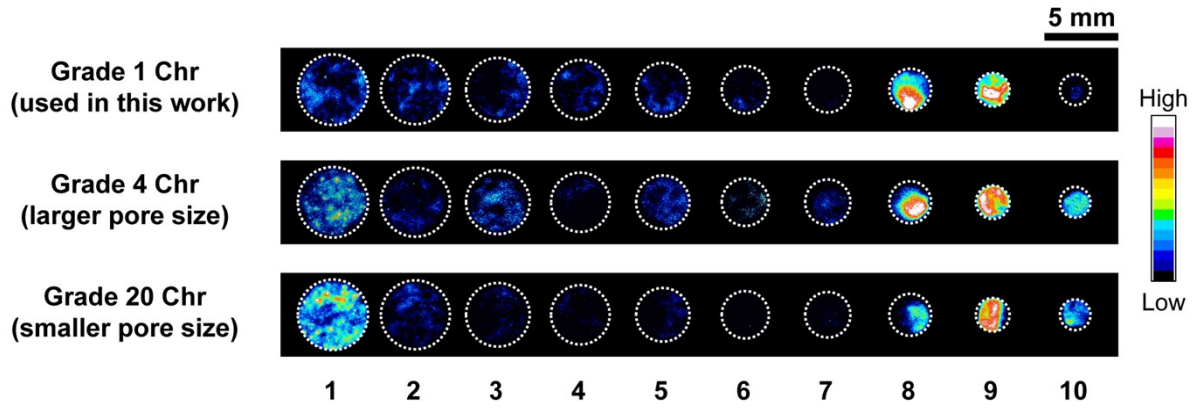

Fig. S1. Preconcentration of microvesicle/exosome with different pore size papers. Regardless of pore sizes, microvesicles/exosomes were preconcentrated on layer 8 and 9 in 20 min, but more microvesicles/exosomes were stuck to the first layer of the smaller paper matrix.