## **ELECTRONIC SUPPLEMENTARY INFORMATION (ESI) for**

## A modular microfluidic platform for serial enrichment and harvest of pure extracellular vesicles

Hogyeong Gwak,<sup>a</sup> Sunyoung Park,<sup>a</sup> Haeun Yu,<sup>a</sup> Kyung-A Hyun,<sup>\*a</sup> and Hyo-Il Jung<sup>\*a,b</sup>

<sup>a</sup> School of Mechanical Engineering, Yonsei University, Seoul, 03722, Republic of Korea. Email: hyunkkuplus@gmail.com, uridle7@yonsei.ac.kr

<sup>b</sup> The DABOM Inc, Republic of Korea. E-mail: uridle7@yonsei.ac.kr

\* Corresponding authors:

Kyung-A Hyun, Ph.D. School of Mechanical Engineering, Yonsei University Tel.: +82-2-2123-7767 E-mail: hyunkkuplus@gmail.com

Hyo-Il Jung, Ph.D.

School of Mechanical Engineering, Yonsei University

Tel.: +82-2-2123-5814

E-mail: uridle7@yonsei.ac.kr



Fish-trap-shaped microfilter (fish trap)



Fig. S1 Detailed information of the fabricated modular microfluidic platform. (a) Photograph of the modular microfluidic platform, which consists of a horseshoe-shaped orifice micromixer (HOMM) and a fish-trap-shaped microfilter (fish trap). (b) Dimensions of the HOMM and fish trap chips.



**Fig. S2** Streamline distributions in the orifice channel (OC), cylindrical orifice channel (COC), and HOMM channel for various Reynolds numbers.



Fig. S3 Expression levels of CD63-positive EVs on antibody-coated microbeads quantified via flow cytometry. A comparison of the expression of surface proteins analysed by a batch process and the microfluidic chip in flow rate range of 50–200  $\mu$ L/min is also shown.