Electronic Supplementary Material (ESI) for Lab on a Chip
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Electronic supplementary information for "Integration of intra- and extravasation in one cell-based microfluidic chip for the study of cancer metastasis"

Min Kyeong Shin, Sung Kyu Kim and Hyungil Jung[1]

[1] *Depatrment of Biotechnology, Yonsei University, 50 Yonsei-ro, Seodaemun-gu, Seoul, Korea. Fax: 82 2 362 7265; Tel: 82 2 2123 2884;E-mail:hijung@yonsei.ac.kr*

Cell invasion assay with colon cancer cells

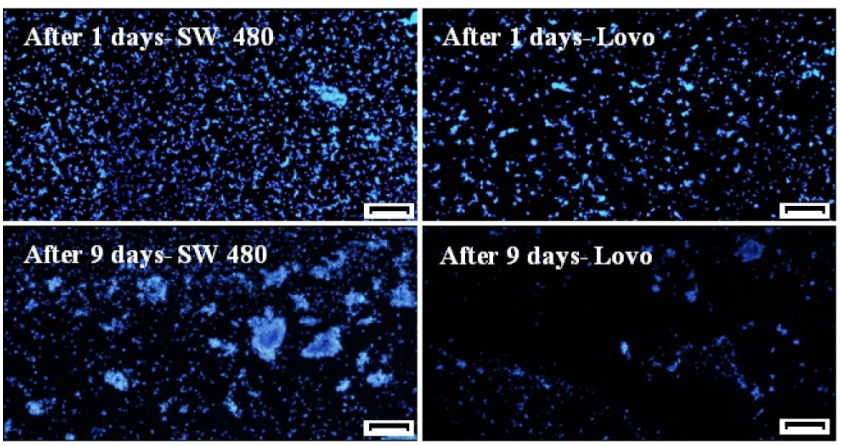

Figure S1. Cell invasion analysis of colon cancer cells up to 9 days. Fluorescence image of SW480s and LOVOs stained with DAPI to identify the field. The number of colon cancer cells that degraded the Matrigel and flowed out of the channel after buffer was infused at physiological conditions of shear stress (3 dyne/cm^2) via the flow rate of 88 μl/min. Scale bars are 200 μm.

Expression of cell adhesion molecules within the extravasation chamber

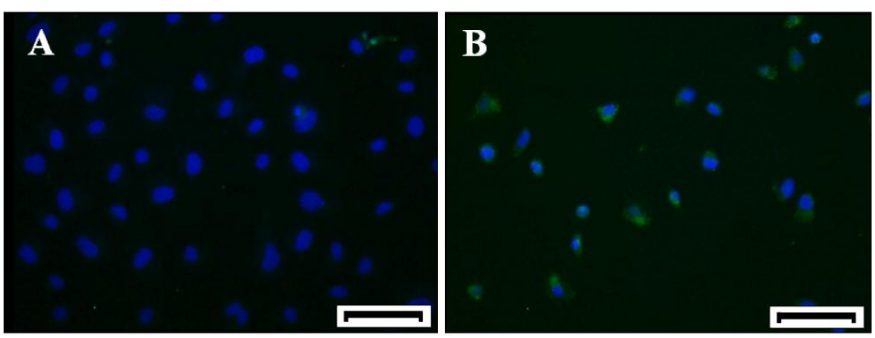

Figure S2. Determination of E-selectin expression within the extravasation chamber. HUVECs were either not treated or stimulated with TNF-α for 4 hours to induce expression of surface molecules, followed by incubation with FITC-conjugated antibody. Fluorescence images show the expression of E-selectin (B) compared to unstimulated HUVECs (A). All cells were stained with DAPI for identification. Scale bars are 50 μm.

Optimization of cancer cell adhesion to HUVECs

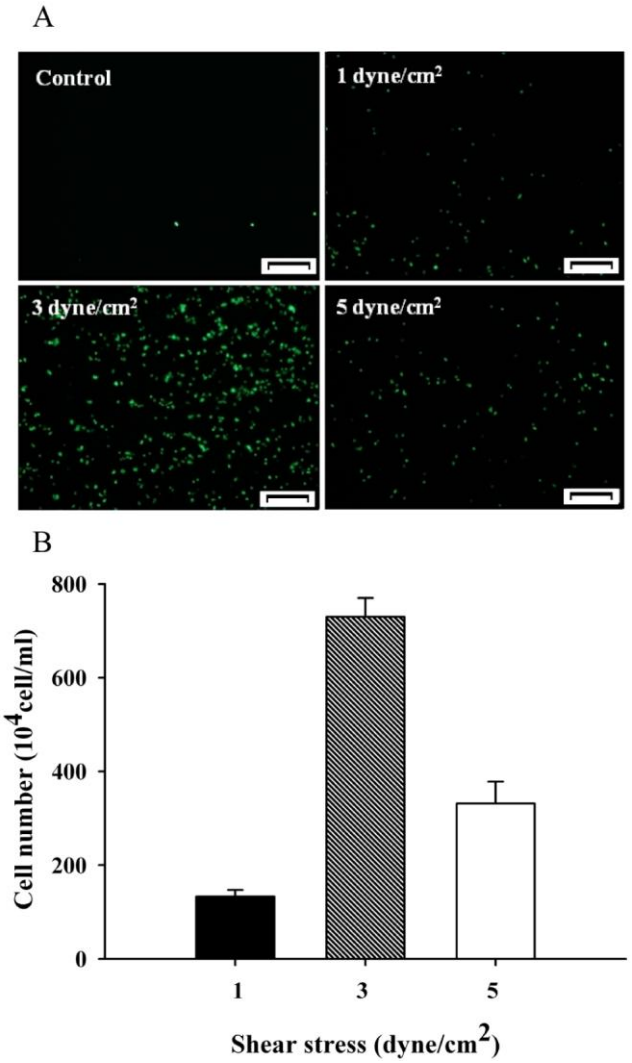

Figure S3. The effect of shear stress on cancer cell adhesion. LOVOs were infused into the extravasation chamber containing E-selectin-expressing HUVECs. Green fluorescence represents calcein-AM labelled LOVOs (A) and cell adhesion efficiency was highest at 3 dyne/cm^2 of shear stress (B). Error bars represent the standard deviation of three average cell numbers of individual integrated chips. Resepctive average cell numbers were measured by three times counting on each chip. Scale bars are 200 μm.