

Supplementary information

Fluorescent intensity of SH-PTP2 in ECs

Line profiles of fluorescent intensity were obtained for quantitative representation of SH-PTP2 localization. Fluorescent images of SH-PTP2 in ECs after exposure to flow were captured by the inverted confocal laser-scanning microscope (LSM800; Carl Zeiss) and processed in ZEN Imaging Software (Carl Zeiss). Fluorescent intensity from junction to junction was obtained along a horizontal line parallel to the direction of flow, as indicated in **Fig. S1A**.

Fluorescent intensity profiles of SH-PTP2 in ECs exhibit convex-shaped distributions with a peak in centre of the cell under the control conditions with/without 2 mM Na_3VO_4 (**Fig. S1B** and **C**). Median of these profiles also indicates about 0.5. For the conditions of SS without SSG, the intensity profiles have a tendency to lean to the downstream side of the cell (**Fig. S1D**), showing median values of 0.6. SH-PTP2 with high intensity becomes distributed at the downstream side of the cells. In contrast, the intensity profiles distribute close to the centre of the cell under the condition of SS with SSG (**Fig. S1E**) in common with the control conditions. A lot of SH-PTP2 proteins with high intensity become observed at the upstream and downstream sides of the cell.

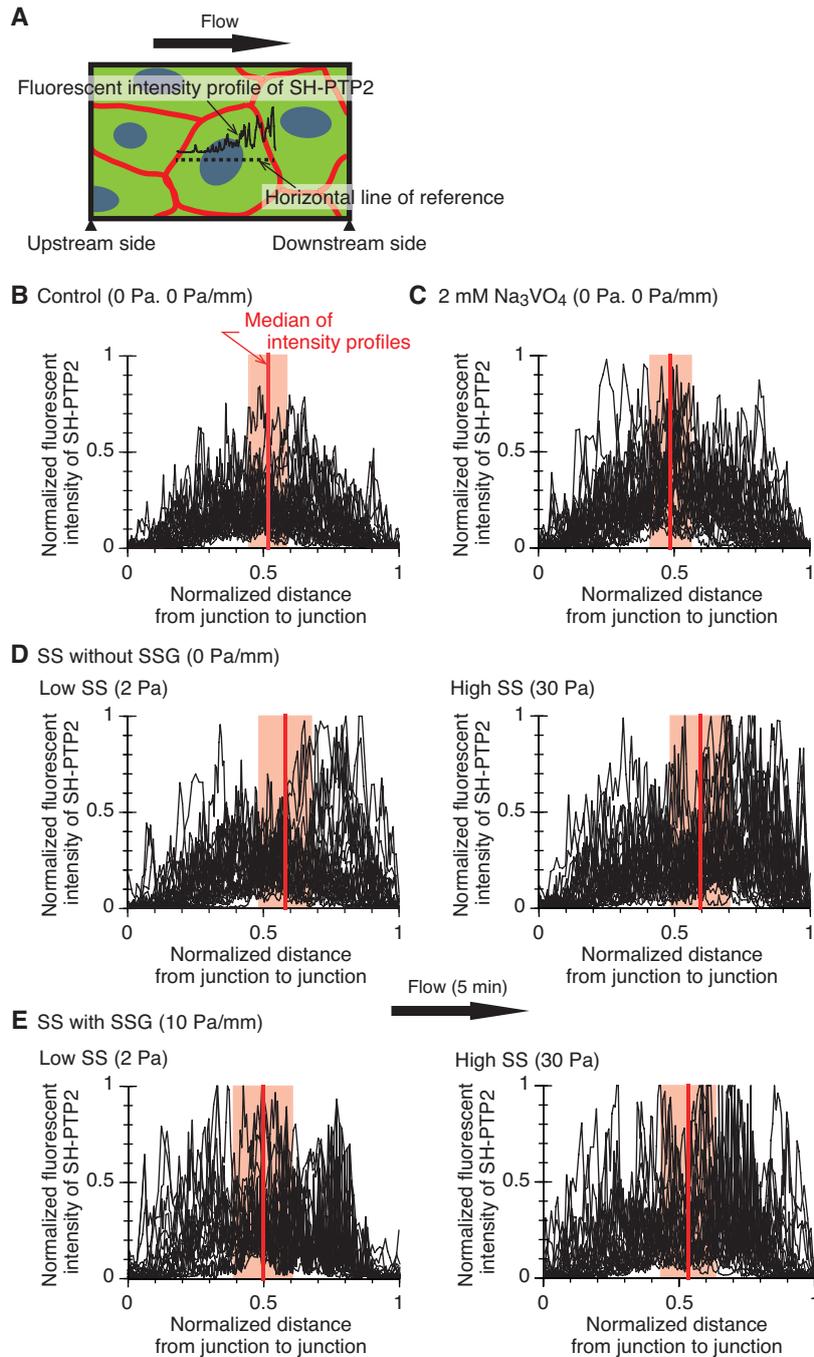


Figure S1. Difference in localization of SH-PTP2 in ECs among the flow conditions. (A) Schematic of the procedure used for obtaining fluorescent intensity profiles of SH-PTP2. Fluorescent intensity line profiles of SH-PTP2 in ECs under the conditions of control (B) and after exposure to 2 mM Na_3VO_4 for 5 min (C). (D) The intensity line profiles of SH-PTP2 in ECs exposed to 2 Pa (low shear) or 30 Pa (high shear) SS without a SSG (0 Pa/mm) for 5 min. (E) The intensity line profiles of SH-PTP2 in ECs exposed to low and high SS with a SSG (10 Pa/mm) for 5 min. Those line profiles were measured for the same cells represented in Fig. 6 (30 cells from each four experimental conditions). Median of the line profiles was indicated with a red solid line. Red box shadow means the variation in median values of the line profiles under each condition (i.e. SD of median values).