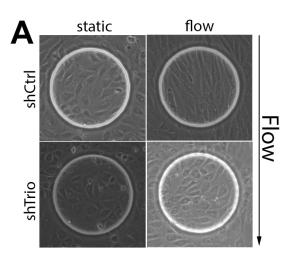
## Supplemental Materials Molecular Biology of the Cell

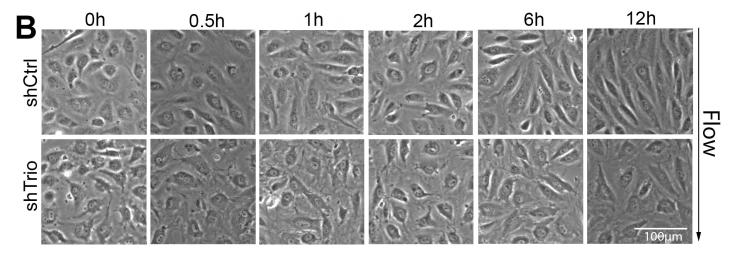
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**Figure S1.** *Flow induces EC alignment.* (A) ECs were cultured on ECIS under flow device and inspected after 12h flow for proper alignment. shCTRL-treated ECs aligned after 12h of flow whereas ECs depleted for Trio (shTrio) or under static conditions did not. (B) ECs were cultured in flow channels for Rac1 activity assay and before lysis inspected for cell alignment. shCTRL-treated ECs aligned after 12h of flow whereas ECs depleted for Trio (shTrio) did not.

**Figure S2.** *Measuring EC alignment in response to flow.* EC alignment was measured as the angle of the line drawn from the north to south of the cell (red line) with the line similar to the direction of the flow (green line). When the angle was more than 45 degrees, ECs were considered to be not aligned.

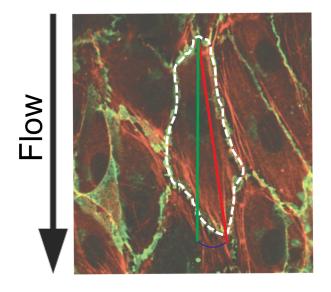
## Supplemental Figure 1

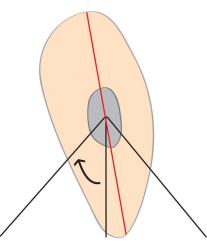




## **Supplemental Figure 2**

Quantifying cell alignment





Measuring 45 degree angle