Supplementary Fig. 1
Fabrication and flow initialization through the YFR integrated into the microflow control system.
Supplementary Fig. 2

Dimensions of the microfluidic channel and CFD analysis setting.

\[ \tau_c = \mu \frac{\partial V}{\partial y} \approx \mu \frac{\Delta V}{\Delta y} \]
Supplementary Fig. 3
Optical microscopy images of the endothelial cell alignment under flow or static conditions at day 5 of culturing.

Flow condition day 5

Non-flow condition day 5