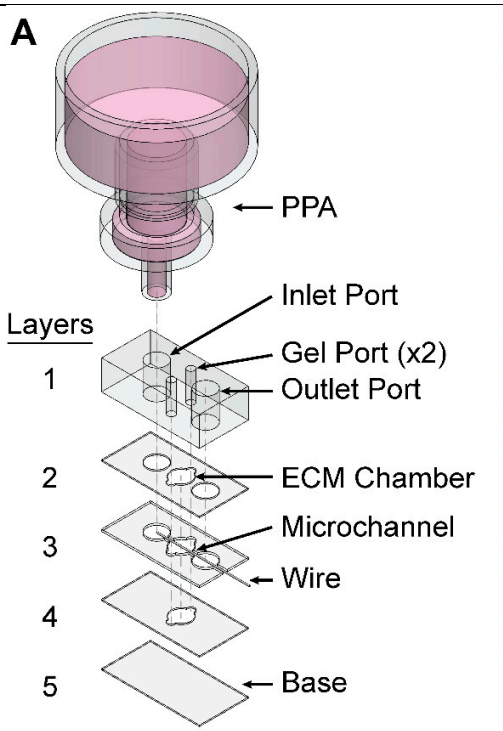
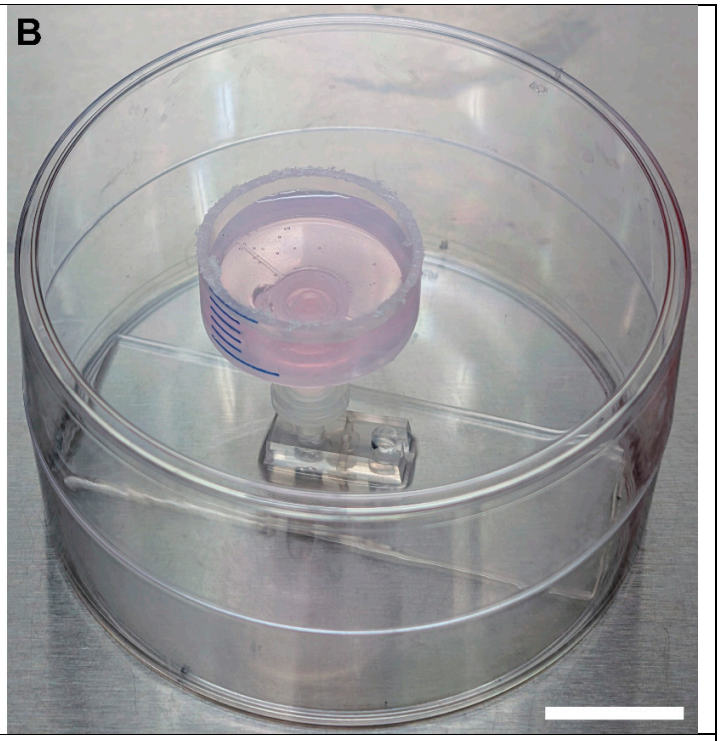
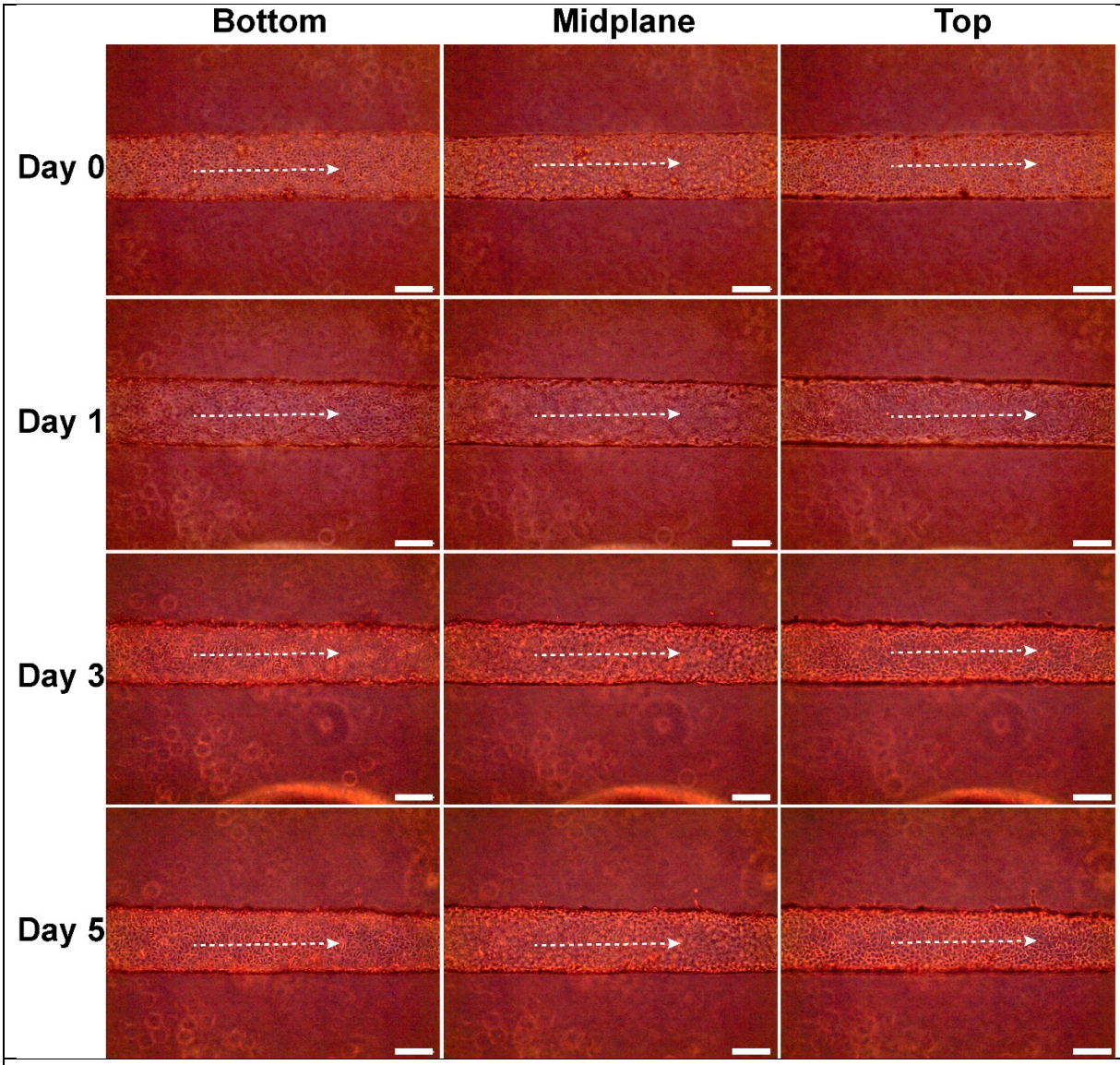




Supplementary Figure S1. Schematic and photograph of the PPA with the microvessel-on-a-chip. **A)** Exploded view showing the PPA and the five individual layers of the microdevice. **B)** Photograph of the PPA integrated with the microvessel-on-a-chip, housed in a Petri dish. Scale bar in B is 20 mm.



Supplementary Figure S2. Phase contrast images of the bottom, midplane and top planes of a representative microvessel at Day 0, 1, 3 and 5. Dashed white arrows indicate intravascular flow direction. Scale bars are 200 μm.