

[Supplementary Data]

Supplementary Figure

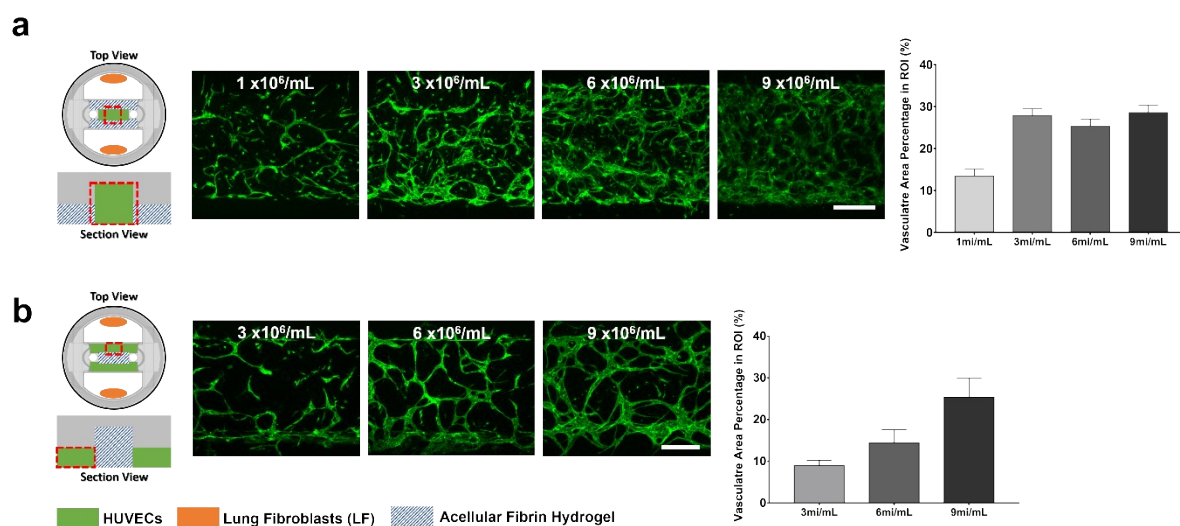


Figure S1. Vascular patterning in IMPACT platform with different cellular concentration. (a) 3D confocal images of center patterning of vasculature in different HUVEC concentration (scale bar = 300 μm). Quantitative comparison of vascular area percentage in ROI. (b) 3D confocal images of round patterning of vasculature in different HUVEC concentration (scale bar = 300 μm). Quantitative comparison of vascular area percentage in ROI. All error bars represent SD.

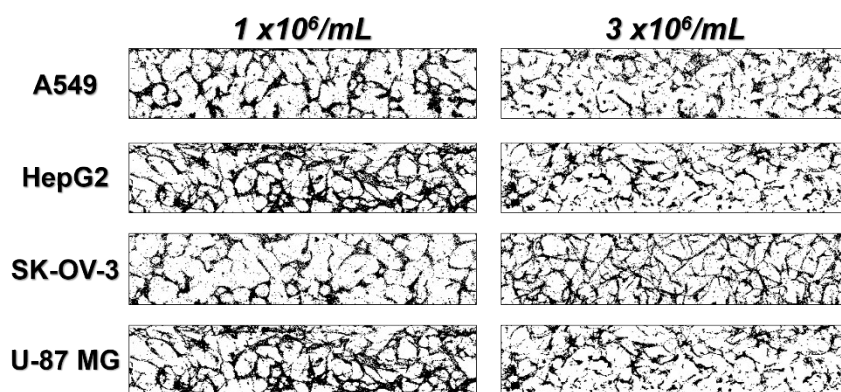


Figure S2. Z-stacked and masked confocal 3D image of vasculature co-cultured with different types of tumor cell line, each in different tumor concentration (1 or 3 $\times 10^6/\text{mL}$).

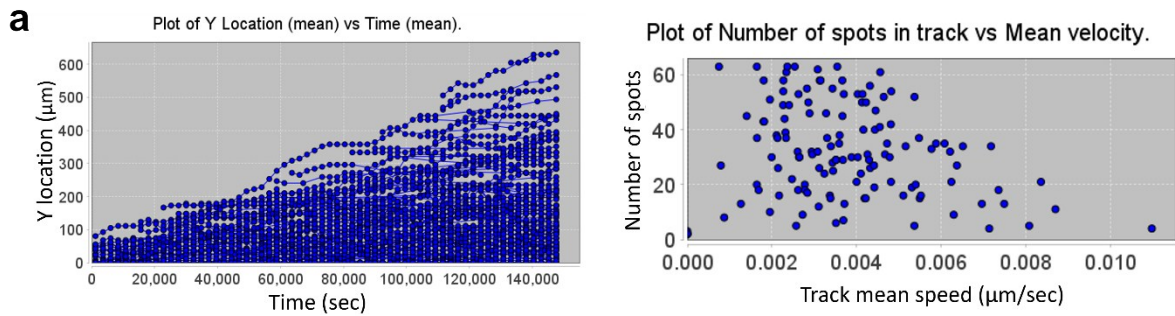


Figure S3. TrackMate analysis on 3D GFP-U-87 MG migration shown in Video S2. (a) Plot of each cell's Y location over time. Y=0 indicates the starting point which is the upper part of Video S2. (b) Plot of the total cell number having different mean speed in total tracking time

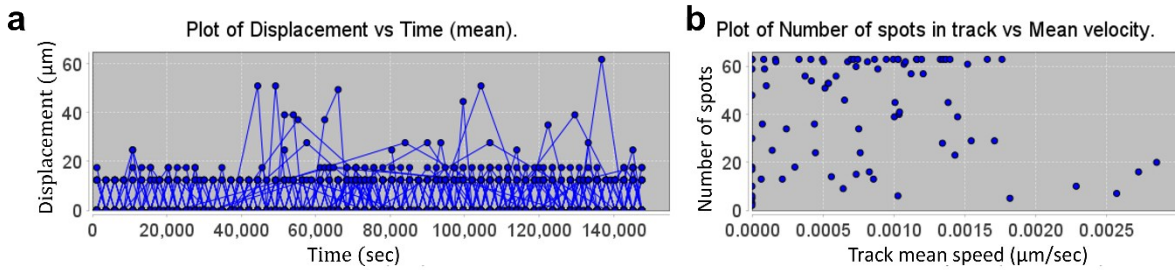
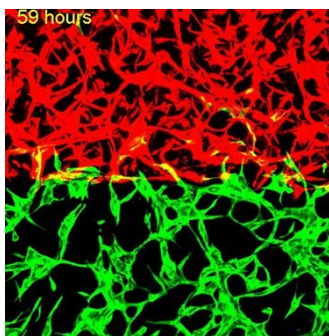
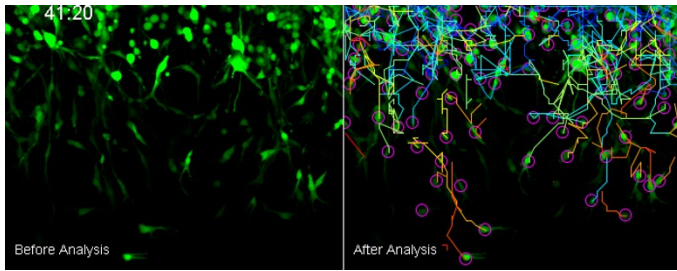


Figure S4. TrackMate analysis on 3D GFP-U-87 MG migration within RFP-HUVEC 3D Vasculature shown in Video S3. (a) Plot of each cell's displacement over time. (b) Plot of the total cell number having different mean speed in total tracking time.

Supplementary Video

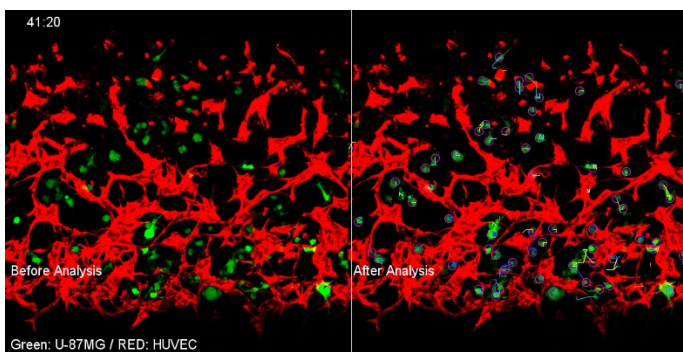


Video S1. Live imaging of vasculogenesis on IMPACT platform. 3D RFP-HUVEC vascular network was generated on upper part (central channel) and GFP-HUVEC 3D vasculature was generated on lower part (round channel) for 60 hr. Each frame interval is 20 min.



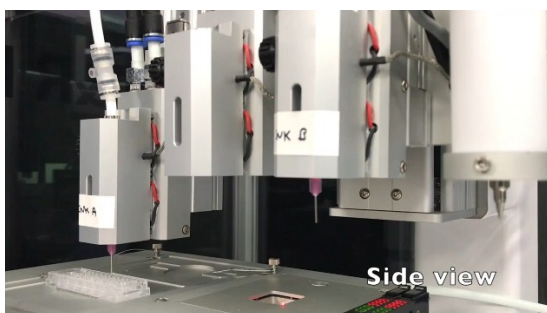
Video S2. Live imaging of GFP-U-87 MG migration for TrackMate analysis

Left is original movie of cell migration from up to down for 42 hr with 40 min of frame interval. Right is after TrackMate analysis and lines indicate the track index.



Video S3. Live imaging of GFP-U-87 MG migration in presence of 3D RFP-HUVEC vasculature for TrackMate analysis

Left is original movie of cell migration from up to down for 42 hrs with 40 min of frame interval. Right is after TrackMate analysis and lines indicate the track index of GFP-U-87 MG cell.



Video S4. Automated loading of 3D hydrogel on IMPACT platform