Electronic Supplementary Material (ESI) for Lab on a Chip

Supplementary text for:

Visualization of microscale particle focusing in diluted and whole blood using particle trajectory analysis

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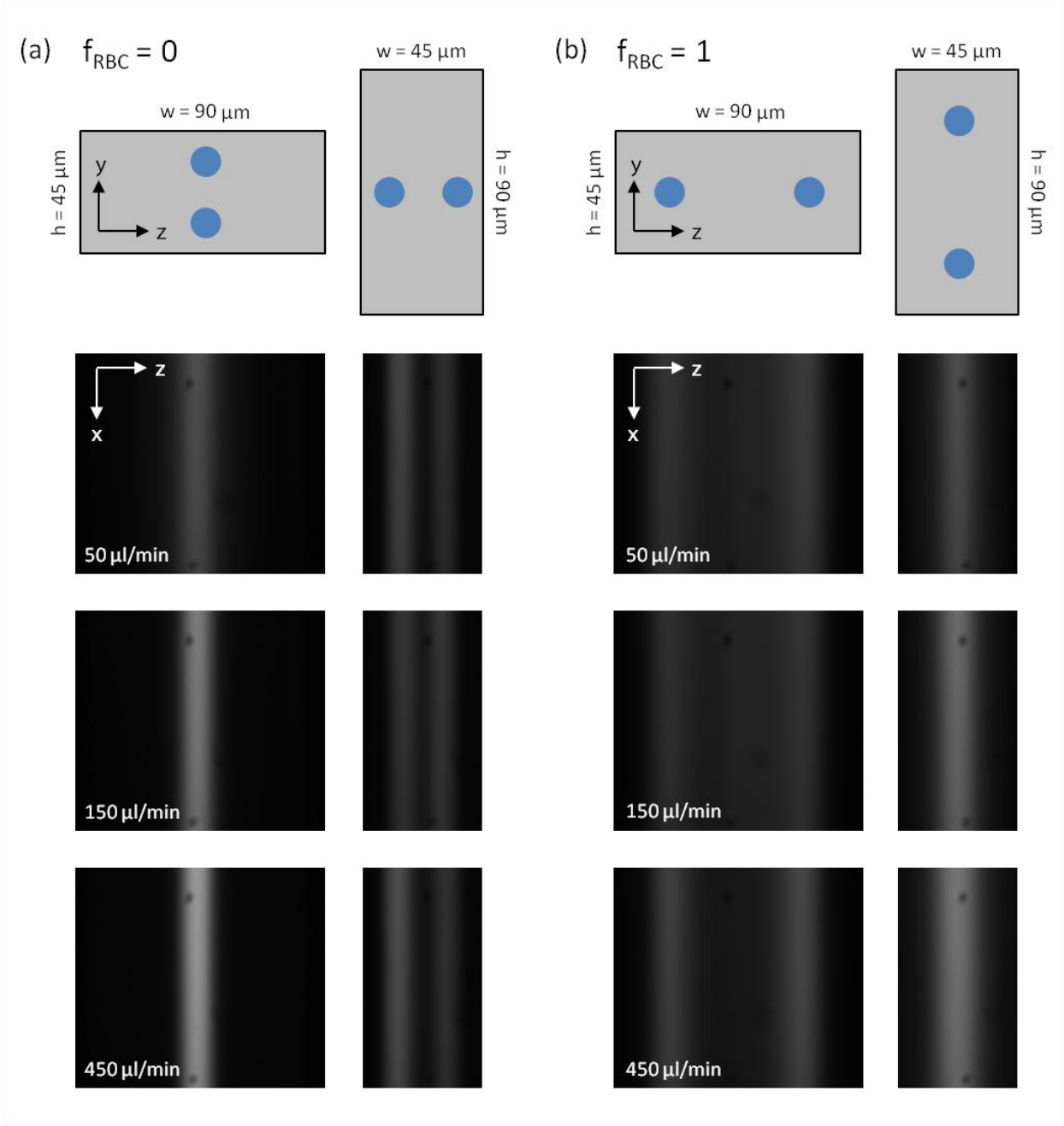

Fig S1 Using long-exposure fluorescence (streak) imaging to verify PTA-observed PC-3 cell focusing behavior. Straight rectangular channels with opposite aspect ratios (*H/W* = 0.5 and 2) were used to generate orthogonal imaging perspectives of PC-3 focusing behavior at 50, 150, and 450 µl/min for: (a) f_{RBC} = 0, and (b) f_{RBC} = 1. PC-3 cell focusing behavior is symmetric across the center of the channel long face and not the result of particle settling or imaging artifacts.

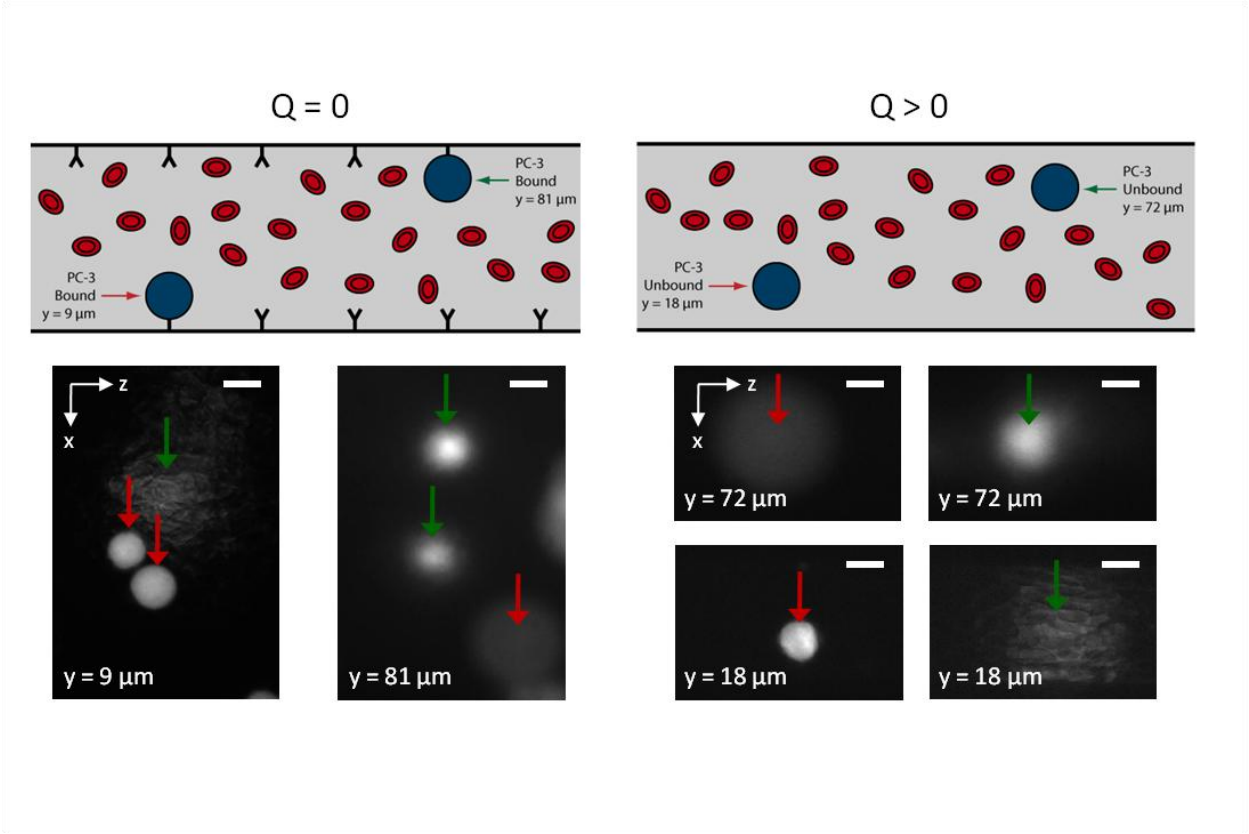

Fig. S2 Identifying PC-3 cells re-suspended in whole blood (f_{RBC} = 1, *HCT* = 45%). (a) A straight rectangular channel with 2:1 aspect ratio was functionalized with anti-EpCAM antibody, which binds to EpCAM surface markers found on PC-3 cells. After PC-3 cells were captured in the channel, images were taken near the channel floor (y = 9 µm) to visualize PC-3 cells attached to the channel floor (red arrow) and the channel ceiling (green arrow). Images were also taken near the channel ceiling (y = 81 µm) to visualize PC-3 cells attached to the channel floor (red arrow) and the channel ceiling (green arrow). (b) In an unfunctionalized channel, images were taken at y = 18 µm to visualize PC-3 cells flowing near the channel floor (red arrow) and the channel ceiling (green arrow). Images were also taken at y = 72 µm to visualize PC-3 cells flowing near the channel floor (red arrow) and the channel ceiling (green arrow).