Supporting Information

Patient specific circulating tumor cells replicate on microfibrous filter for drug screening

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SEM images of filters printed at different speeds

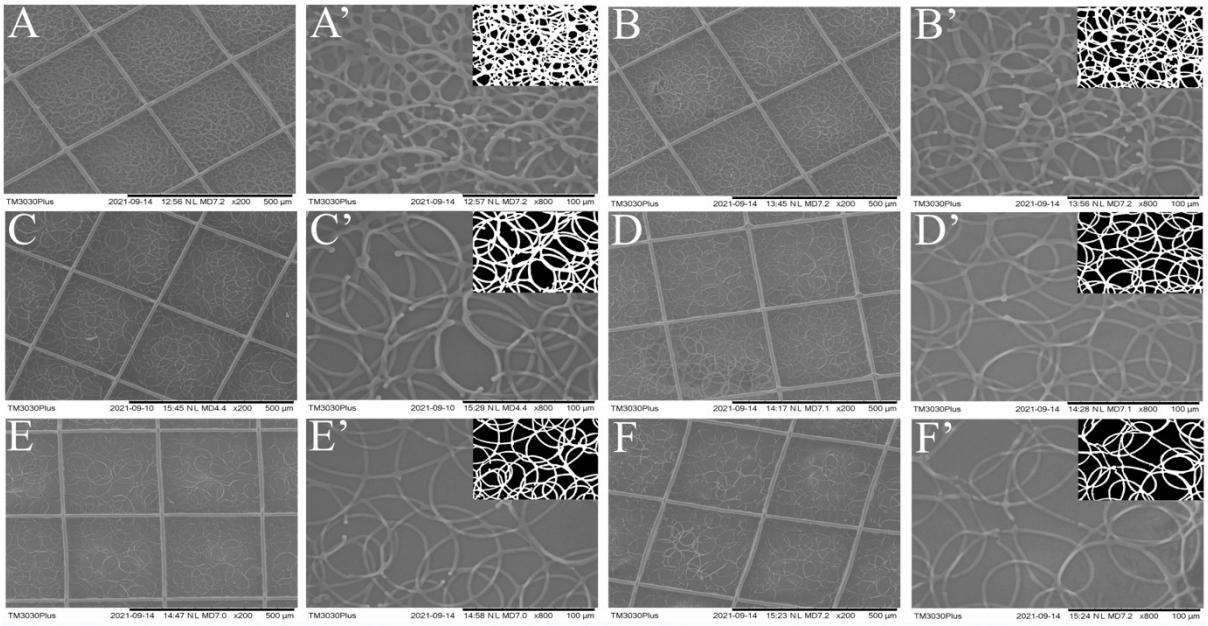

Fig. S1.: Representative SEM images of filters printed at different collector speeds. (A-F) x200 magnification images of 100, 200, 300, 400, 500, and 600 mm/min, respectively. **(A'-F')** x800 magnification images of 100, 200, 300, 400, 500, and 600 mm/min, respectively. Inserts are segmented binary images used for pore analysis.

Anti-EpCAM stability

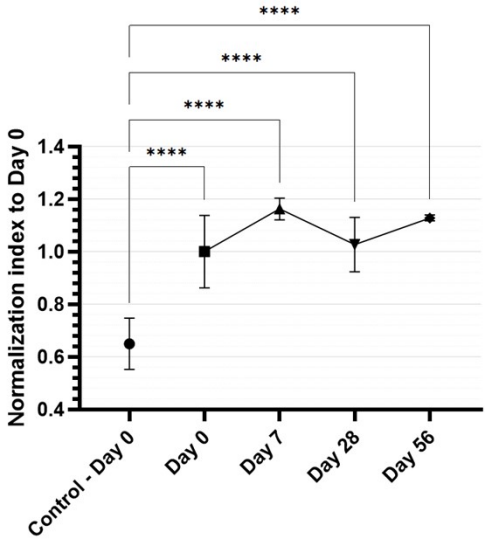

Fig. S2.: Stability of bioconjugated anti-EpCAM on 300 mm/min filters. Data normalized to the control. Control was bioconjugated replacing the anti-EpCAM step with 1% BSA/PBS and analyzed at day 0. Time points indicate time between bioconjugated and analysis. n = 3, mean ± SD, ordinary one-way ANOVA performed using GraphPad Prism, **** p-value < 0.0001.

WBC capture

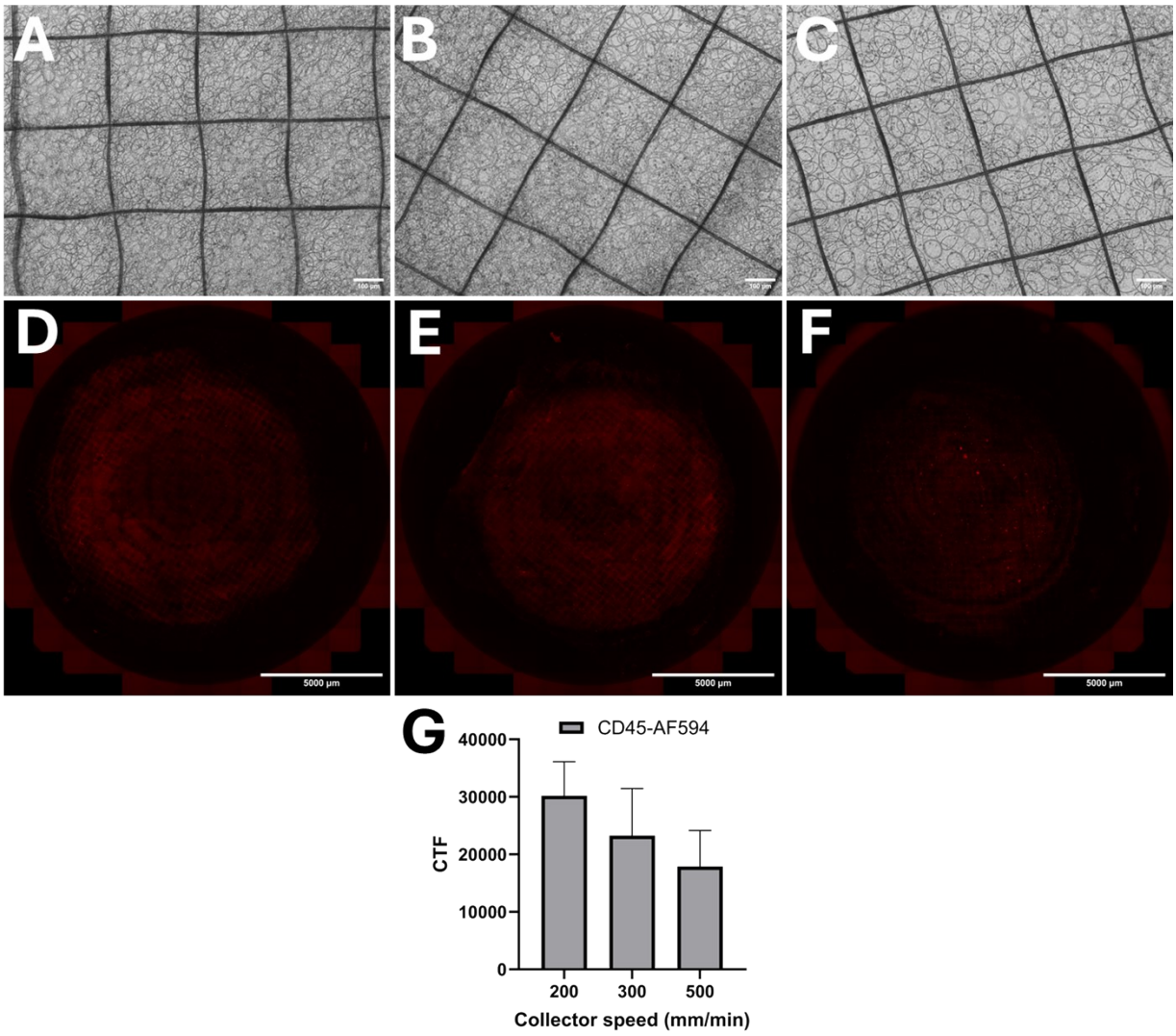

Fig. S3.: Capture of white blood cells. (A-C) Brightfield images of filters after blood filtration through filters printed at (**A**) 200, (**B**) 300, and (**C**) 500 mm/min, respectively. **(D-F)** Stitched images of CD45 staining after blood filtrations through filter printed at (**D**) 200, (**E**) 300, and (**F**) 500 mm/min, respectively. **(G)** Fluorescence intensity based on the grey values of the fluorescence images shown. CTF = corrected total fluorescence.

Drug effect at end point (72h)

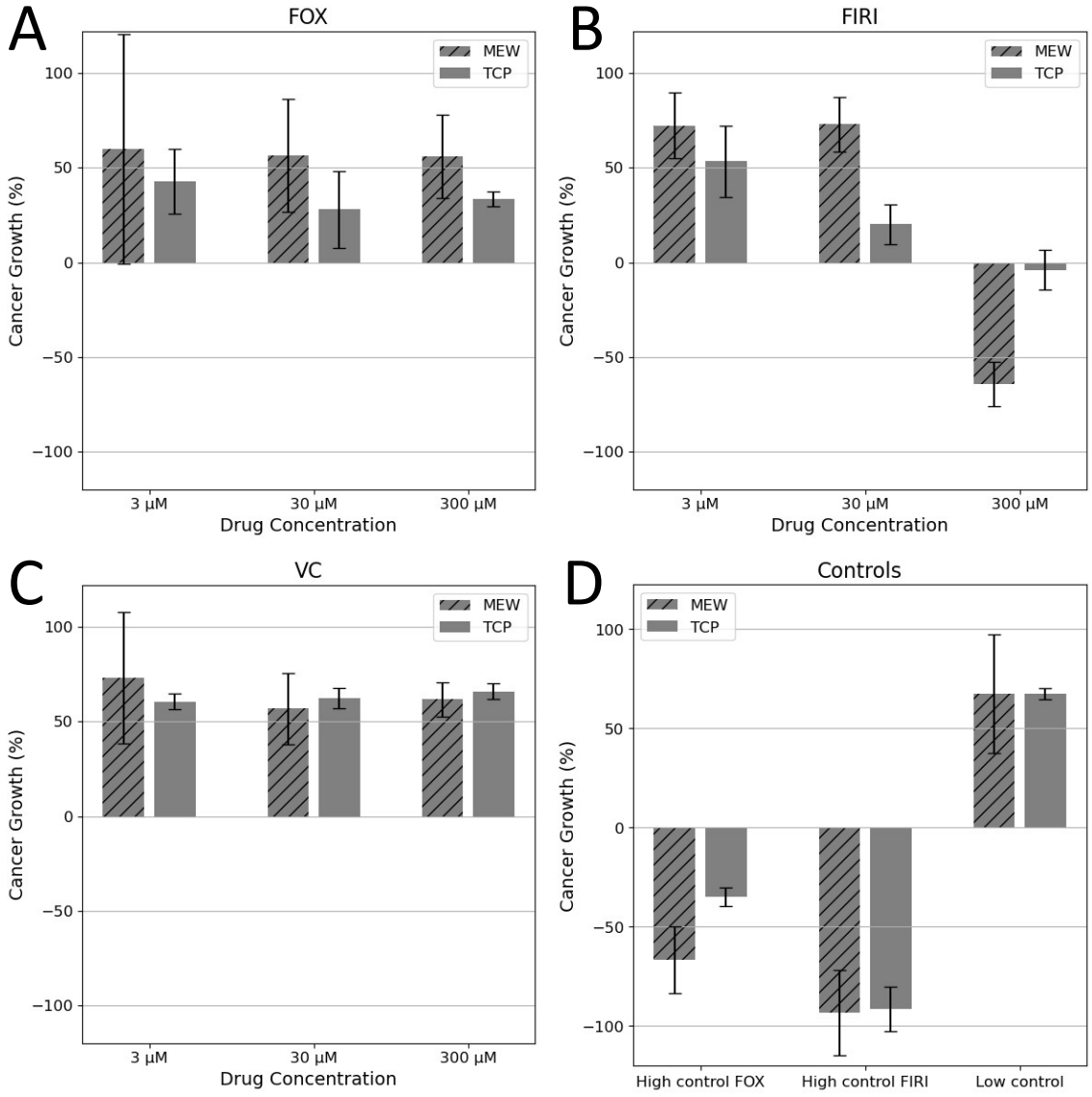

Fig. S4.: Cancer growth after 72-hour drug exposure. CTC44 cells cultured on filter scaffolds and TCPs were exposed to combinations of 5-fluorouracil and oxaliplatin (FOX) and 5-fluorouracil and irinotecan (FIRI) for 72 hours at concentrations of 3 µM, 30 µM, and 300 µM. Cancer growth is expressed as the percentage change in area covered by cancer cells from 0 hours to 72 hours. High controls had a drug concentration of 10 mM while low control were pure growth media. **(A)** Cancer growth after 72-hour exposure to FOX at three different concentrations. **(B)** Cancer growth after 72-hour exposure to FIRI at three different concentrations. **(C)** Cancer growth after 72-hour exposure to VC at three different concentrations. **(D)** Cancer growth after 72-hour exposure to control solutions.