## Supplementary Information

Figure S1 displays SEM images of the ETBFMs N90/S10/A10, N80/S40/A40, N70/S35/A35, N60/S30/A30, N50/S25/A25, N40/S30/A30, N30/S35/A35, N20/S40/A40 and N10/S45/A45. The average fiber diameter of the electrospun N90/S10/A10, N80/S40/A40, and N70/S35/A35 were 235 ± 23 nm with high regularity (Figure S1). Decreasing the fraction of nylon-6 resulted in slight irregularity of fiber diameters, suggesting that partial phase separation occurred. The irregularity of the fiber dimensions increased slightly upon decrease of fractions of nylon-6 to 50%. When the fractions of nylon-6 in the fibrous mats was 40 wt%, some regions of the fibrous mats exhibited apparent irregularity of fiber dimension due to phase separation among nylon-6, PAA and PSBMA. Further decreasing the fraction of nylone-6 to 30%, the fiber diameters exhibited a broad distribution. For the N20/S40/A40 and N10/S45/A45 blend, the electrospun fiber structure could not generated completely. Therefore, the fraction of nylon-6 in the triple-blend solutions for electrospinning was set at 50% to achieve non-biofouling properties, and anti-EpCAM binding as rich as possible, without serious phase separation.



Figure S1 SEM images of the triple-blended fibrous mats possessing the weight ratios of nylon-6 from 10 to 100%. The marked composite ratio represents the fractions of nylon-6.

The pseudopodium of CTCs did not extend itself until the actin reassembles itself into a network on the ETBFMs without anti-EpCAM grafts. CTCs usually detached from the fibrous mats without pseudopodium extension. In addition, the fiber structure did not be damaged seriously after CTC capture.



Figure S2: SEM images of captured colorectal cancer cells for 3 h: (a) DLD-1, (b) HCT-116, and (c) HT-29 by N50/S25/A25 fibrous mats with anti-EpCAM grafts.