**Supplementary Figures**

**Figure S1. Panel A:** Images show positive AE1/AE3 staining of SKOV3 & MDAH-2774 cells. Positive AE1/AE3 staining, is signified by a deep green halo around cells cytoplasm, and positive DRAQ5 (red) staining of nucleus; 40 x magnification. **Panel B:** Separation of the captured cell populations, was measured by intensity of AF488 staining of the AE1/AE3 antibody in channel 2. The 3 populations highlighted in the charts identified based on staining pattern as labelled (blue for cell debris, red for white blood cells (WBC), and purple for the cell line). **Panel C:** Retrieval of cells from spiking experiments using EpCAM* and CK*.
**Figure S2. Panel A:** Diagrammatic representation of EMT dynamics between SKOV3 and PEO1. SKOV3 cells (B) and PEO1 cell (C) stained with WT1 (red; I), AE1/AE3 (green; II) and merged images (III).
**Figure S3.** Gene expression of ovarian cancer blood samples compared to controls. Data generated from ovarian cancer panels is plotted as a box plot chart for both ovarian cancer and controls. Expression of 28 genes found to be significantly (p-value<0.05) up or down-regulated in cancer cohort compared to controls.

**Figure S4.** Presence of CD34+ (marker for CECs) cells in samples from two aEOC patients. Ch01: Brightfield; Ch02: CD34+; Ch05: DRAQ5.