Computational identification of surface markers for isolating distinct subpopulations from heterogeneous cancer cell populations

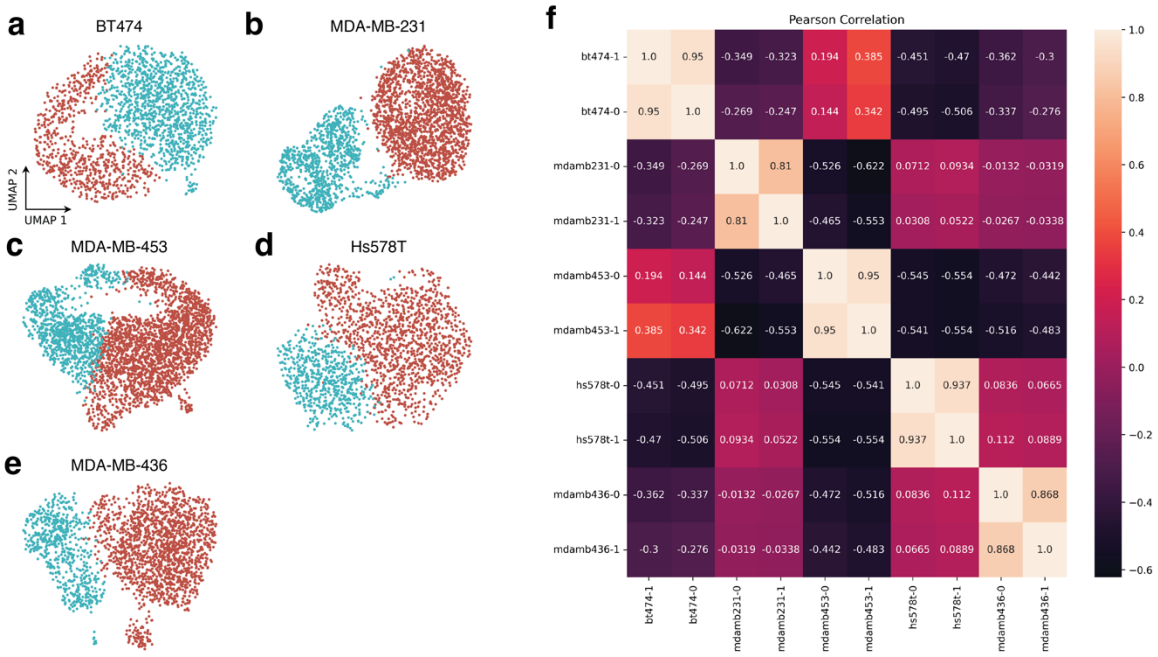
Supplementary Information

Supplementary Data 1. EMD ranked list of genes for MDA-MB-231 clusters. Output ranked candidate surface marker genes from EMD for MDA-MB-231 scRNA-seq clusters. [*emdGenesRankScore231.csv*]

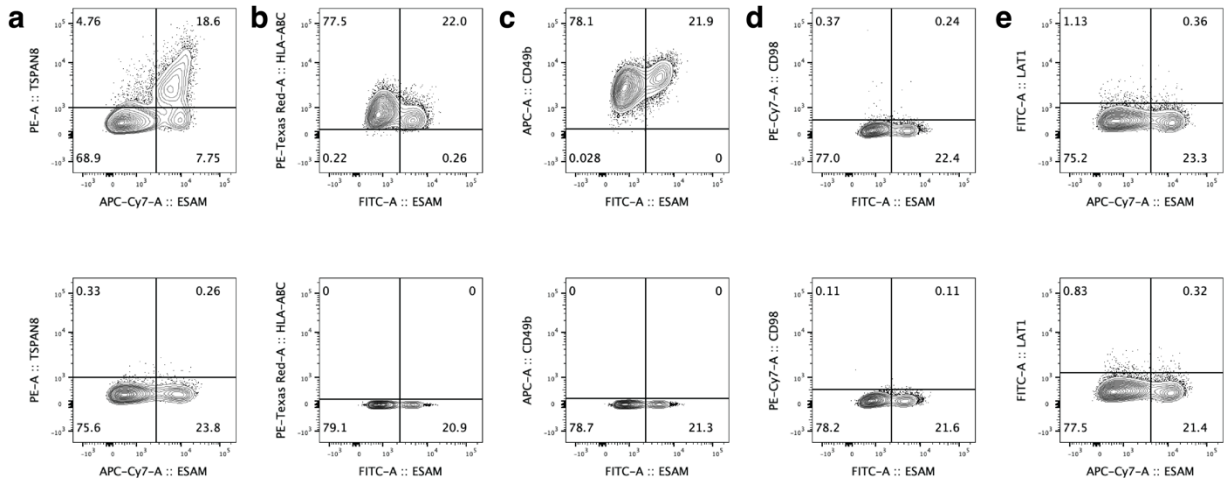
Supplementary Data 2. EMD ranked list of genes for MDA-MB-436 clusters. Output ranked candidate surface marker genes from EMD for MDA-MB-436 scRNA-seq clusters. [*emdGenesRankScore436.csv*]

Supplementary Table 1. Information on monoclonal antibodies screened on each cell line.

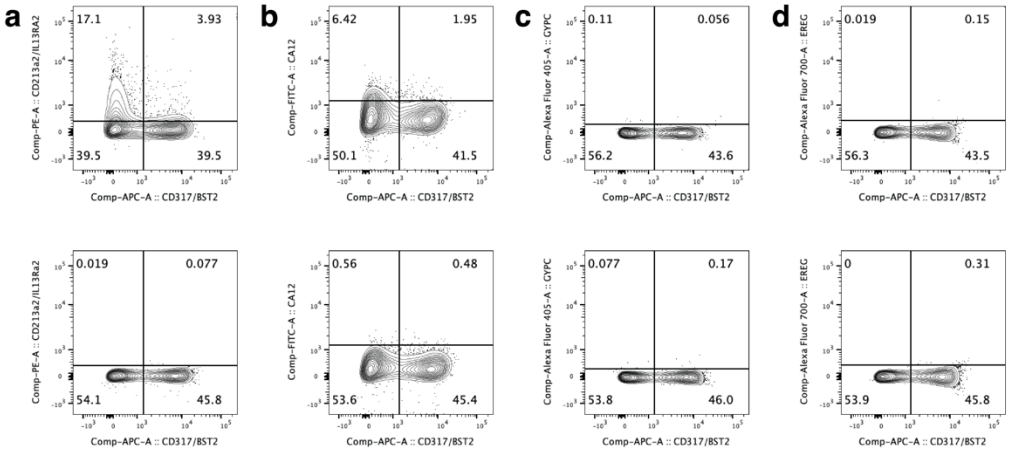
Cell Line	Gene	Antibody Target Protein	Cluster	Fluorochrome	Supplier	CatNo
mdamb231	ESAM	ESAM	1	FITC	Miltenyi	130-115-039
mdamb231	ESAM	ESAM	1	APC-Vio770	Miltenyi	130-115-038
mdamb231	TSPAN8	TSPAN8	1	PE	Miltenyi	130-117-540
mdamb231	ITGA2	CD49b	1	APC	Miltenyi	130-100-328
mdamb231	SLC7A5	LAT1	0	FITC	R&D Systems	FAB10390G-100UG
mdamb231	SLC7A5	CD98	0	PE-Vio770	Miltenyi	130-126-170
mdamb231	HLA-B	HLA-ABC	0	PE-Vio615	Miltenyi	130-130-114
mdamb436	BST2	CD317/Tetherin	1	APC	Miltenyi	130-101-660
mdamb436	CA12	CA12	0	FITC	Abcam	ab275576
mdamb436	GYPC	GYPC	1	Dylite405	Novus	NBP2-33304V
mdamb436	IL13RA2	CD213a2	0	PE	Biolegend	360305



Supplementary Figure 1. Clustering and cluster similarity within cell lines. Clustered UMAPs for (a) BT-474, (b) MDA-MB-231, (c) MDA-MB-453, (d) Hs578T, and (e) MDA-MB-436**.** (f) Pearson correlation matrix showing similarity of clusters within and across cell lines.



Supplementary Figure 2. Screened antibodies on MDA-MB-231 cells shown as stained in tandem with surface marker, ESAM. Top panel: double stained, Bottom panel: single ESAM-stained controls. (a) TSPAN8 stains a subset of ESAM-high cells, (b) HLA-ABC shows higher staining in a subset of ESAM-low cells, (c) ITGA2/CD49b shows higher staining in a subset of ESAM-high cells, (d) SLC7A5/CD98 did not surface stain, (e) SLC7A5/LAT1 did not surface stain.



Supplementary Figure 3. Screened antibodies on MDA-MB-436 cells shown as stained in tandem with surface marker, BST2/CD317/tetherin. Top panel: double stained, Bottom panel: single BST2/CD317/tetherin-stained controls. (a) IL13Ra2/CD213a2 shows higher staining in a subset of BST2/tetherin-low, (b) CA12 shows higher staining in a small subset of BST2/tetherin-low cells, (c) GYPC did not surface stain, (d) EREG did not surface stain.