Additional file 2.

Table S2. Remaining common enriched pathways between two cohorts (cancer-related pathways are listed in table II of the main paper). First part of the table lists the common enriched pathways between the BI and UNC data sets, associated with ovarian cancer survival. Second part of the table presents common enriched pathways associated with metastatic breast cancer between the van de Vijver and Wang data sets. Red coloring represents enriched pathways in short (versus long) survival for ovarian cancer, and for metastasis in breast cancer, and blue coloring represents enriched pathways in long survival and non-metastasis, respectively. Asterisks (*) indicate pathways also distinguished in the Dressman et al [31] study.

Common pathways for two ovarian survival data sets		
Enriched pathway		Function of pathway
Enriched Pathways in long survival time	**HSA04940_TYPE_1_DIABETES_MELLITUS**	Includes human leukocyte antigen (HLA) genes, related to immune system function and protection against cancer,
	HSA04514_CELL_ADHESION_MOLECULES* [32]	Known to interfere with cellular detachment and cancer metastasis, related to cancer invasion and metastasis.
	HSA05217_BASAL_CELL_CARCINOMA	
	HSA04916_MELANOGENESIS	
	HSA03030_DNA_POLYMERASE[33]	Functions to replicate DNA, targeting DNA damage agent which cause cell cycle arrest[33] .
	HSA04310_WNT_SIGNALING_PATHWAY*	Includs oncogenes and tumor suppressors[34];significantly deregulated in ovarian cancer[35]

	HSA04340_HEDGEHOG_SIGNALING_ PATHWAY*	Crucial role in tumorigenesis[36]
	HSA04612_ANTIGEN_PROCESSING_AND_ PRESENTATION*	Biological process for preparing antigens for presentation to immune system cells.
	HSA04350_TGF_BETA_SIGNALING_PATHWAY*	Affects tumorigenesis, either negatively or positively[37].
	HSA00251_GLUTAMATE_METABOLISM	
	HSA04060_CYTOKINE_CYTOKINE_ RECEPTOR_INTERACTION*	Involves cytokines which facilitate invasion and metastasis and also function to inhibit tumor progression[38] .
	Ovarian_cancer module (Stanford)	Curated ovarian cancer-related gene set from Stanford study [39]
Enriched pathways in short survival time	HSA03020_RNA_POLYMERASE	Elevated levels of RNA polymerase products appear in tumor cells[40] .
	HSA01032_GLYCAN_STRUCTURES_ DEGRADATION	N-linked glycan is generated by tumor cells at high levels and plays an important role in cell-cell communication.
	HSA00220_UREA_CYCLE_AND_METABOLISM_ OF_AMINO_GROUPS	
	HSA01031_GLYCAN_STRUCTURES_ BIOSYNTHESIS_2*	
	HSA00903_LIMONENE_AND_PINENE_ DEGRADATION	
	HSA00920_SULFUR_METABOLISM	Constituent of a number of essential cellular processes such as biosynthesis or transfer of electrons
	Ovarian_Schwarts	Curated ovarian gene set distinguishes clear cell from other poor-prognosis ovarian cancers (stage III and stage IV)[41]; one of 5 additional curated ovarian-related gene sets used in this paper
	Ovarian_Schaner	Clear cell carcinoma predictor from other ovarian epithelial cancers[42];one of 5 additional curated ovarian-related gene sets.

Common pathways for metastasis & non-metastasis between van de Vijver and Wang data sets	
Enriched pathway	Function of pathway

Enriched pathways in non-metastasis	**HSA04940_TYPE_1_DIABETES_MELLITUS**	Includes human leukocyte antigen (HLA), related with immune system function to protect against cancer and mediate autoimmune disease.
	HSA04640_HEMATOPOIETIC_CELL_LINEAGE	Crucial function of self-renewal in both stem cells and cancer cells [43]
	HSA04610_COMPLEMENT_AND_ COAGULATION_CASCADES	Inhibits lung cancer metastasis in animal studies[44]; part of innate immune system and an effector of antibody-mediated immunity [45].
	HSA04060_CYTOKINE_CYTOKINE_ RECEPTOR_INTERACTION	Cancer cells respond cytokines which facilitate invasion and metastasis and also function to inhibit tumor progression[38]
	HSA04340_HEDGEHOG_SIGNALING_ PATHWAY	Crucial role in tumorigenesis [36] [46]
Enriched pathways in Metastasis	HSA00051_FRUCTOSE_AND_MANNOSE_ METABOLISM	
	HSA04110_CELL_CYCLE (cancer)	Related with cell growth and cell death
	HSA00100_BIOSYNTHESIS_OF_STEROIDS (cancer)	Found in metastatic tissue [47], and related with feminizing syndromes [48]
	HSA03050_PROTEASOME	Degradation of damaged and unneeded proteins
	HSA05110_CHOLERA_INFECTION	
	HSA00240_PYRIMIDINE_METABOLISM	
	HSA00970_AMINOACYL_TRNA_ BIOSYNTHESIS	

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