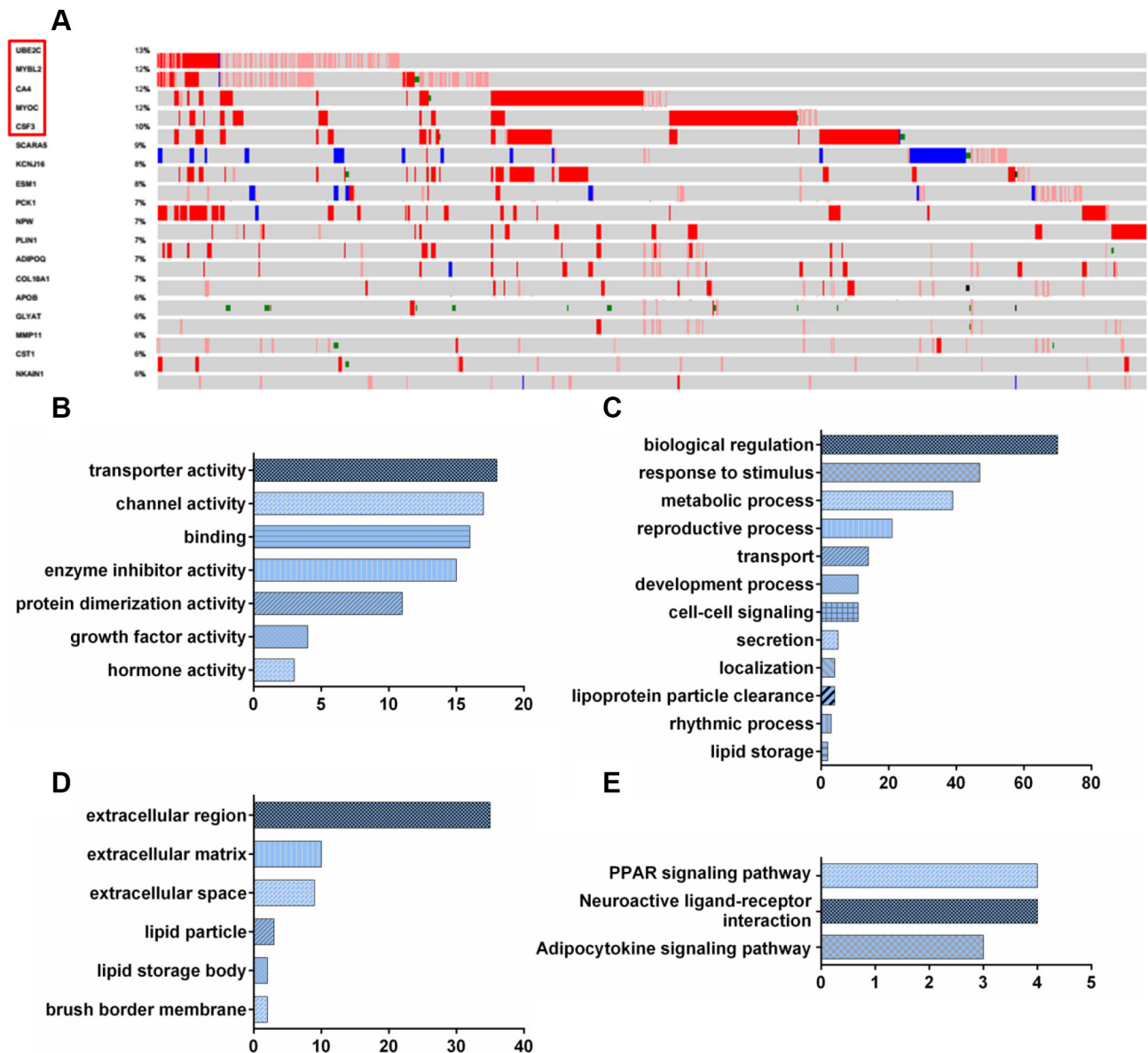
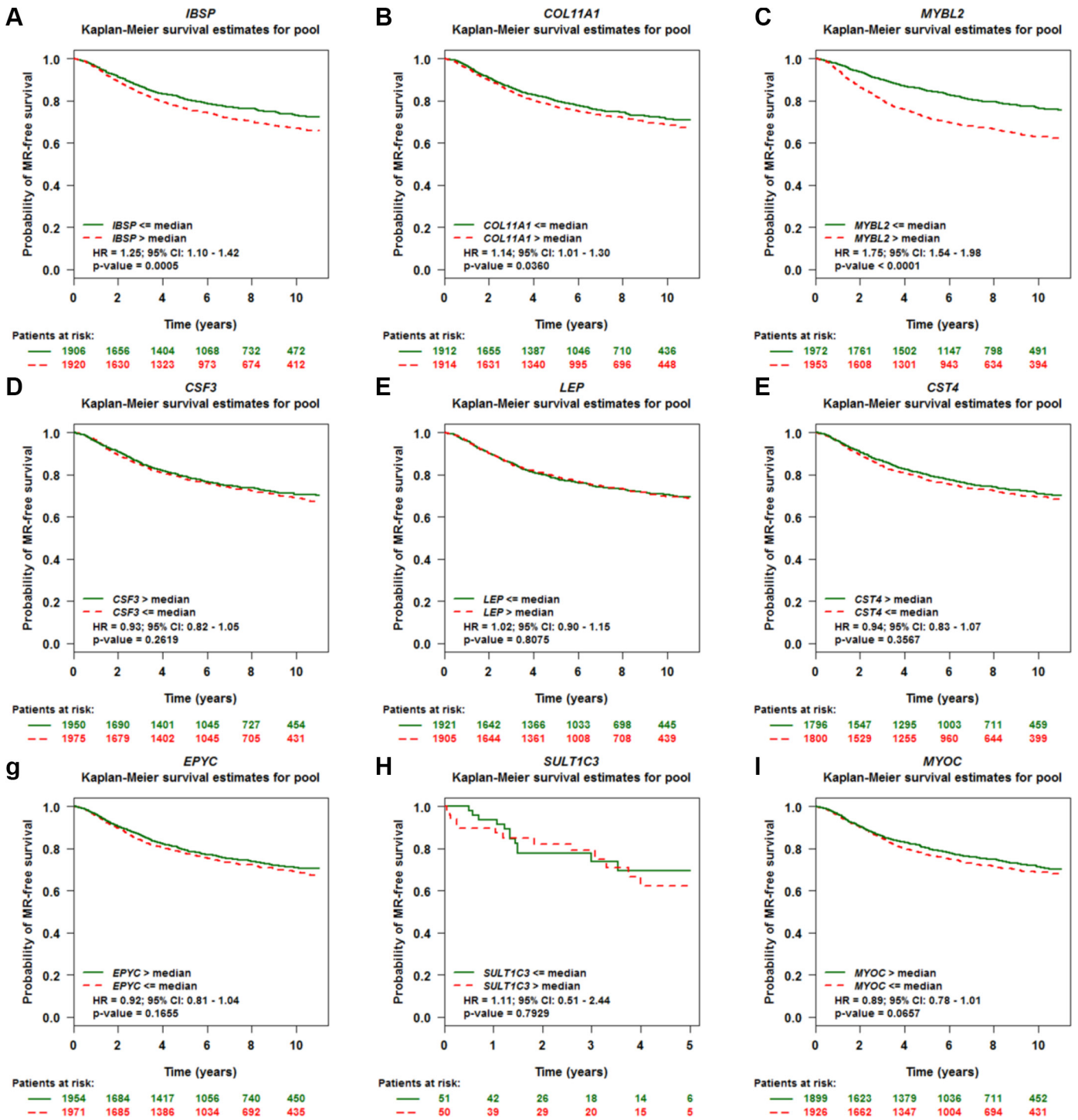


Prognostic significance of PLIN1 expression in human breast cancer

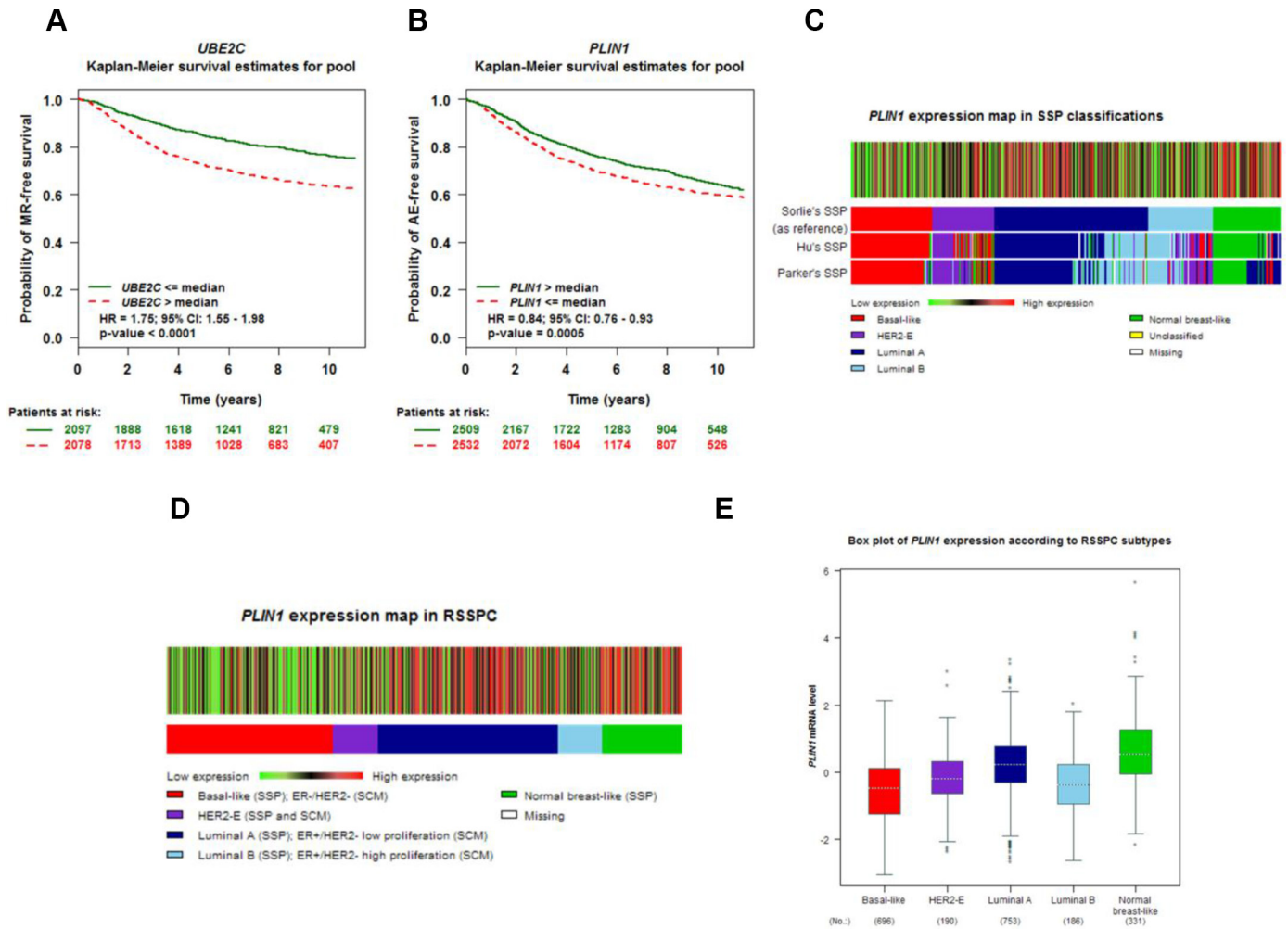
Supplementary Materials



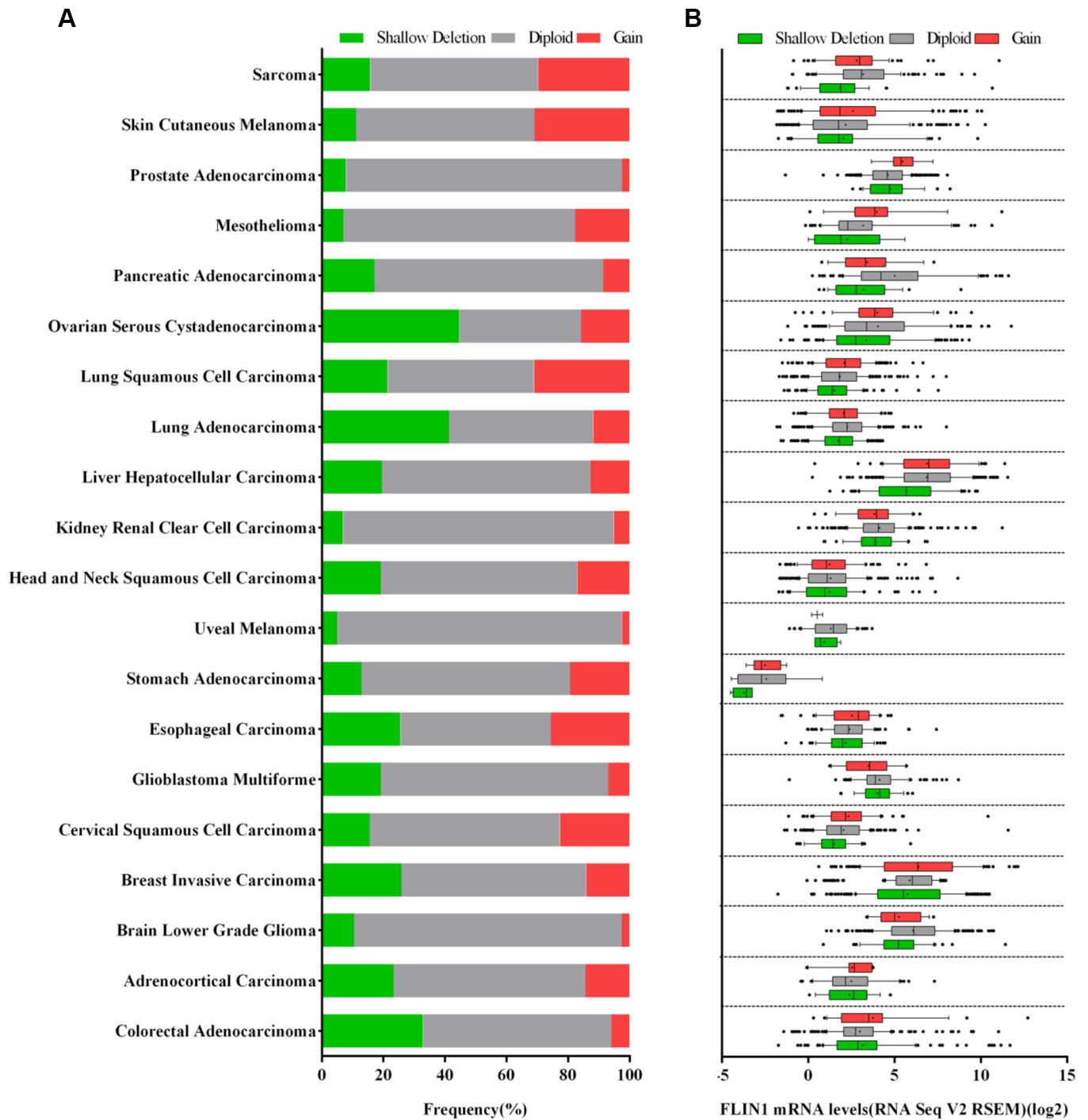
Supplementary Figure S1: Gene ontology analyses of the concordant genes. (A) The concordant, significant gene entities were analyzed for mutation, copy number variation (CNV) and gene expression alteration status in TCGA human breast cancer patient cohorts. The genes, which was framed including UBE2C, MYBL2, CA4, MYOC, CSF3, showed alteration in highest proportion (> 10%) of the patients. (B–D) Gene ontology analysis was performed for the concordant gene list in the DAVID database for the classification of the genes. The most enriched and significant GO term for the molecular function category was transporter activity (B), for the biological process category was biological regulation (C) and for the cellular components category was extracellular (D). (E) KEGG pathway enrichment analysis for the concordant genes.



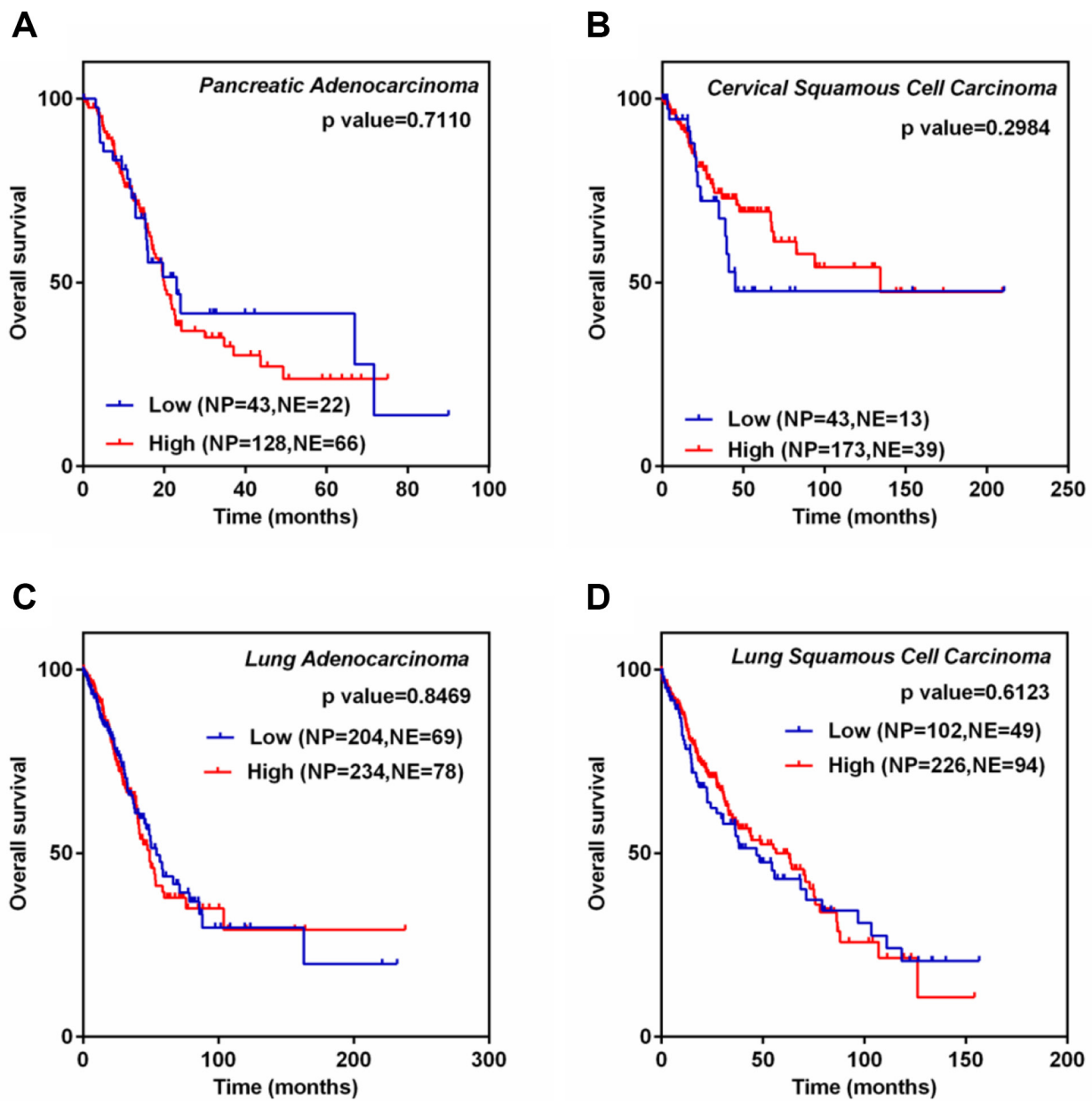
Supplementary Figure S2: Kaplan-Meier MR-free overall survival curves using Bc-GenExMiner v3.2 database for IBSP (A), $N = 3,826$, COL11A1 (B), $N = 3,826$, MYBL2 (C), $N = 3,925$, CSF3 (D), $N = 3,925$, LEP (E), $N = 3,826$, CST4 (F), $N = 3,596$, EPYC (G), $N = 3,925$, SULT1C3 (H), $N = 101$ and MYOC (I), $N = 3,825$.



Supplementary Figure S3: (A) Kaplan-Meier MR-free overall survival curves using Bc-GenExMiner v3.2 database for *UBE2C* ($N = 4,175$) (B) Kaplan-Meier MR-free overall survival curves using Bc-GenExMiner v3.2 database ($N = 5,041$). (C–D) *PLIN1* expression in different molecular subtypes, classified by SSP (Single Sample Predictor, B) and RSPC (Robust SSP classification based on patients classified in the same subtype with the three SSPs, C). (E) Box plot of *PLIN1* expression according to RSPC subtypes, including basal-like ($N = 699$), HER2-E ($N = 190$), luminal A ($N = 756$), luminal B ($N = 186$) and normal breast-like ($N = 332$).



Supplementary Figure S4: Genomic alteration of PLIN1 in several human cancer types. (A) Frequencies of PLIN1 genomic alterations in 21 different human cancer types. **(B)** Relationship between PLIN1 mRNA expression levels (log₂) and genomic alterations.



Supplementary Figure S5: Kaplan-Meier survival curves for the patients with low or high PLIN1 in pancreatic adenocarcinoma (A), cervical squamous cell carcinoma (B), lung adenocarcinoma (C) and lung squamous cell carcinoma (D).

Supplementary Table S1: List of concordant differentially expressed genes. See Supplementary_ Table_S1

Supplementary Table S2: Main characteristics and results of the eligible studies for metastatic relapse event

Study code	Original data	Filtered data		Final data	
	Reference	No. patients	(Nm, ERm and MR) -selected patients	No. patients	No. MR
Rosetta2002	Van de Vijver et al., 2002 [1]	295	295	295	101
GSE2603	Minn et al., 2005[2]	82	82	82	27
GSE1456	Pawitan et al., 2005[3]	159	159	159	40
GSE2034	Wang et al., 2005[4]	286	286	286	107
GSE2741	Weigelt et al., 2005[5]	50	50	50	13
E_TABM_158	Chin et al., 2006[6]	112	112	112	21
GSE8757	Chin et al., 2007[7]	171	171	171	38
GSE7390	Desmedt et al., 2007[8]	198	198	198	62
GSE6532	Loi et al., 2007[9]	401	401	393	101
GSE5327	Minn et al., 2007[10]	58	58	58	11
GSE7378	Zhou et al., 2007[11]	54	54	54	9
GSE7849	Anders et al., 2008[12]	75	75	75	14
GSE9893	Chanrion et al., 2008[13]	155	155	155	48
GSE9195	Loi et al., 2008[14]	77	77	77	10
GSE11121	Schmidt et al., 2008[15]	200	200	200	46
GSE12093	Zhang et al., 2009[16]	136	136	136	20
GSE19615	Li et al., 2010[17]	115	115	115	14
GSE17907	Sircoulomb et al., 2010[18]	55	55	39	17
GSE22219	Buffa et al., 2011[19]	216	216	216	82
GSE26971	Filipits et al., 2011[20]	277	277	258	58
GSE25055	Hatzis et al., 2011[21]	309	309	309	65
GSE20685	Kao et al., 2011[22]	296	296	296	63
GSE33926	Kuo et al., 2012[23]	51	51	51	12
GSE45255	Nagalla et al., 2013[24]	41	41	41	14
			Total:	3, 826	993

Supplementary Table S3: Main characteristics and results of the eligible studies for any event

Study code	Original data		Filtered data	Final data	
	Reference	No. patients	(Nm, ERm and AE) -selected patients	No. patients	No. AE
Rosetta2002	Van de Vijver et al., 2002 [1]	295	295	295	122
GSE2603	Minn et al., 2005[2]	82	82	82	27
GSE1456	Pawitan et al., 2005[3]	159	159	159	50
GSE2034	Wang et al., 2005[4]	286	286	286	107
GSE2741	Weigelt et al., 2005[5]	50	50	50	13
GSE3143	Bild et al., 2006[25]	158	158	158	50
E_TABM_158	Chin et al., 2006[6]	112	112	112	42
GSE4922	Ivshina et al., 2006[26]	249	249	249	89
GSE8757	Chin et al., 2007[7]	171	171	171	56
GSE7390	Desmedt et al., 2007[8]	198	198	198	91
GSE6532	Loi et al., 2007[9]	401	401	393	139
GSE5327	Minn et al., 2007[10]	58	58	58	11
E_UCON_1	Naderi et al., 2007[27]	135	135	135	65
GSE7378	Zhou et al., 2007[11]	54	54	54	9
GSE7849	Anders et al., 2008[12]	75	75	75	14
GSE9893	Chanrion et al., 2008[13]	155	155	155	57
GSE9195	Loi et al., 2008[14]	77	77	77	13
GSE11121	Schmidt et al., 2008[15]	200	200	200	46
GSE10510	Calabrò et al., 2009[28]	139	139	134	96
GSE16391	Desmedt et al., 2009[29]	55	55	55	55
GSE12093	Zhang et al., 2009[16]	136	136	136	20
GSE19615	Li et al., 2010[17]	115	115	115	14
GSE17907	Sircoulomb et al., 2010[18]	55	55	39	17
GSE22219	Buffa et al., 2011[19]	216	216	216	82
GSE20711	Dedeurwaerder et al., 2011[30]	85	85	85	36
GSE26971	Filipits et al., 2011[20]	277	277	258	58
GSE25055	Hatzis et al., 2011[21]	309	309	309	65
GSE20685	Kao et al., 2011[22]	296	296	296	73
GSE21653	Sabatier et al., 2011[31]	266	266	252	83
GSE16987	Wang et al., 2011[32]	149	149	147	10
GSE33926	Kuo et al., 2012[23]	51	51	51	12
GSE45255	Nagalla et al., 2013[24]	41	41	41	14
			Total:	5,041	1 636

Supplementary Table S4: PLIN1 univariate Cox analysis for MR (Nm; ERm)

Cohort	Reference	<i>p</i> value	HR	95% CI	No. patients	No. MR
Rosetta2002	Van de Vijver et al., 2002[1]	0.2719	0.89	0.73–1.09	295	101
GSE2603	Minn et al., 2005 [2]	0.118	0.73	0.49–1.08	82	27
GSE1456	Pawitan et al., 2005 [3]	0.0501	0.74	0.55–1.00	159	40
GSE2034	Wang et al., 2005 [4]	0.3381	0.91	0.76–1.10	286	107
GSE2741	Weigelt et al., 2005 [5]	0.1989	1.36	0.85–2.17	50	13
E_TABM_158	Chin et al., 2006 [6]	0.1831	1.46	0.84–2.57	112	21
GSE8757	Chin et al., 2007 [7]	0.031	1.28	1.02–1.60	171	38
GSE7390	Desmedt et al., 2007 [8]	0.7977	0.97	0.76–1.24	198	62
GSE6532	Loi et al., 2007 [9]	0.0058	0.77	0.64–0.93	393	101
GSE5327	Minn et al., 2007 [10]	0.0246	0.42	0.20–0.89	58	11
GSE7378	Zhou et al., 2007 [11]	0.2141	0.6	0.27–1.34	54	9
GSE7849	Anders et al., 2008 [12]	0.4648	0.78	0.41–1.51	75	14
GSE9893	Chanrion et al., 2008 [13]	< 0.0001	0.56	0.45–0.72	155	48
GSE9195	Loi et al., 2008 [14]	0.4367	0.79	0.44–1.43	77	10
GSE11121	Schmidt et al., 2008 [15]	0.6313	1.07	0.80–1.44	200	46
GSE12093	Zhang et al., 2009 [16]	0.0781	0.66	0.42–1.05	136	20
GSE19615	Li et al., 2010 [17]	0.2332	0.72	0.43–1.23	115	14
GSE17907	Sircoulomb et al., 2010 [18]	0.13	1.63	0.87–3.06	39	17
GSE22219	Buffa et al., 2011 [19]	0.2976	0.88	0.70–1.11	216	82
GSE26971	Filipits et al., 2011 [20]	0.963	0.99	0.77–1.28	258	58
GSE25055	Hatzis et al., 2011 [21]	0.2886	0.87	0.67–1.13	309	65
GSE20685	Kao et al., 2011 [22]	0.8471	1.02	0.80–1.31	296	63
GSE33926	Kuo et al., 2012 [23]	0.0464	1.52	1.01–2.29	51	12
GSE45255	Nagalla et al., 2013 [24]	0.2969	0.75	0.44–1.28	41	14
	Pool	0.0003	0.89	0.84–0.95	3,826	993

”Pool” consists in merging all cohorts pooled together with data from all studies previously converted to a common scale with a suitable normalisation (median centred [0] and standard deviation normalized to one).

Supplementary Table S5: PLIN1 univariate Cox analysis for AE (Nm; ERm)

Cohort	Reference	<i>p</i> -value	HR	95% CI	No. patients	No. AE
Rosetta2002	Van de Vijver et al., 2002 [1]	0.1054	0.86	0.72–1.03	295	122
GSE2603	Minn et al., 2005 [2]	0.118	0.73	0.49–1.08	82	27
GSE1456	Pawitan et al., 2005 [3]	0.3313	0.87	0.66–1.15	159	50
GSE2034	Wang et al., 2005 [4]	0.3381	0.91	0.76–1.10	286	107
GSE2741	Weigelt et al., 2005 [5]	0.1989	1.36	0.85–2.17	50	13
GSE3143	Bild et al., 2006 [25]	0.6482	0.93	0.68–1.27	158	50
E_TABM_158	Chin et al., 2006 [6]	0.092	1.39	0.95–2.03	112	42
GSE4922	Ivshina et al., 2006 [26]	0.0688	0.83	0.68–1.01	249	89
GSE8757	Chin et al., 2007 [7]	0.0956	1.19	0.97–1.47	171	56
GSE7390	Desmedt et al., 2007 [8]	0.7242	1.04	0.85–1.27	198	91
GSE6532	Loi et al., 2007 [9]	0.029	0.84	0.71–0.98	393	139
GSE5327	Minn et al., 2007 [10]	0.0246	0.42	0.20–0.89	58	11
E_UCON_1	Naderi et al., 2007 [27]	0.2651	0.86	0.66–1.12	135	65
GSE7378	Zhou et al., 2007 [11]	0.2141	0.6	0.27–1.34	54	9
GSE7849	Anders et al., 2008 [12]	0.4648	0.78	0.41–1.51	75	14
GSE9893	Chanrion et al., 2008 [13]	< 0.0001	0.63	0.50–0.78	155	57
GSE9195	Loi et al., 2008 [14]	0.9842	0.99	0.57–1.74	77	13
GSE11121	Schmidt et al., 2008 [15]	0.6313	1.07	0.80–1.44	200	46
GSE10510	Calabrò et al., 2009 [28]	0.56	0.94	0.76–1.16	134	96
GSE16391	Desmedt et al., 2009 [29]	0.9665	1.01	0.78–1.29	55	55
GSE12093	Zhang et al., 2009 [16]	0.0781	0.66	0.42–1.05	136	20
GSE19615	Li et al., 2010 [17]	0.2332	0.72	0.43–1.23	115	14
GSE17907	Sircoulomb et al., 2010 [18]	0.13	1.63	0.87–3.06	39	17
GSE22219	Buffa et al., 2011 [19]	0.2976	0.88	0.70–1.11	216	82
GSE20711	Dedeurwaerder et al., 2011 [30]	0.4357	1.14	0.82–1.61	85	36
GSE26971	Filipits et al., 2011 [20]	0.963	0.99	0.77–1.28	258	58
GSE25055	Hatzis et al., 2011 [21]	0.2886	0.87	0.67–1.13	309	65
GSE20685	Kao et al., 2011 [22]	0.5655	1.07	0.85–1.34	296	73
GSE21653	Sabatier et al., 2011 [31]	0.2943	0.89	0.71–1.11	252	83
GSE16987	Wang et al., 2011 [32]	0.0956	0.5	0.22–1.13	147	10
GSE33926	Kuo et al., 2012 [23]	0.0464	1.52	1.01–2.29	51	12
GSE45255	Nagalla et al., 2013 [24]	0.2969	0.75	0.44–1.28	41	14
	Pool	0.0006	0.92	0.87–0.96	5,041	1636

Supplementary Table S6: Molecular subtype prognostic analyses for PLIN1 with patients with any event information (metastatic or any relapse, or death) (n = 4,155)

Subtype	Original data				Filtered/Final data									
	No. SSP classified patients				SSP classified patients and AE									
	Sorlie's [33]	Hu's [34]	Parker's [35]	RSSPC	Sorlie's		Hu's		Parker's		RSSPC		RMSPC	
					n	AE	n	AE	n	AE	n	AE	n	AE
Basal-like	795	1,268	1,144	703	790	254	1,092	366	910	293	699	224	580	193
HER2-E	606	502	828	190	601	232	396	154	640	251	190	78	124	49
Luminal A	1,503	1,339	1,581	761	1484	383	1,074	204	1,234	254	756	139	324	58
Luminal B	637	989	1,068	190	627	247	762	318	786	305	186	94	80	44
Normal breast-like	663	808	728	335	653	150	658	159	536	140	332	77	--	--
Unclassified	0	0	0	0	0	--	0	--	0	--	--	--	--	--
Total:	4,204	4,906	5,349	2,179	4,155	1,266	3,982	1,201	4,106	1,243	2,163	612	1,108	344

AE: any event (any relapse or death); n: number of patients; SSP: single sample predictor; MSP: molecular subtype predictor; RMSPC: robust Molecular Subtype Predictors Classification based on patients classified in the same subtype with the six MSPs; RSSPC: robust SSP classification based on patients classified in the same subtype with the three SSPs.

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