

Supplementary Material

S-Table 1. DEGs identified for hepatic carcinoma with metastasis vs. hepatic carcinoma with solitary tumor in PBMC samples by RNA-seq

Gene	Value 1 (samples of hepatic carcinoma with metastasis)	Value 2 (samples of hepatic carcinoma with solitary tumor)	Log2(fold change)	Test stat	P value	Q value
<i>HBG1</i>	812.674	1.0257	-9.62992	5.76277	8.27E-09	9.74E-06
<i>SELENBP1</i>	167.738	0.272452	-9.266	5.92561	3.11E-09	5.86E-06
<i>HBM</i>	523.448	2.03017	-8.0103	5.26052	1.44E-07	8.56E-05
<i>HBA2</i>	167975	732.425	-7.84135	10.5762	0	0
<i>HBB</i>	215021	1229.46	-7.45032	10.2299	0	0
<i>SLC4A1</i>	402.515	2.3351	-7.42941	4.89327	9.92E-07	0.000389
<i>HBG2</i>	891.76	5.53966	-7.33071	6.16851	6.89E-10	2.16E-06
<i>HBQ1</i>	57.6468	0.438609	-7.03816	4.01665	5.90E-05	0.011084
<i>TUBB2A</i>	35.1415	0.279805	-6.97261	4.49721	6.89E-06	0.001752
<i>AHSP</i>	467.205	3.76601	-6.95487	5.3088	1.10E-07	7.42E-05
<i>SPTB</i>	41.2961	0.37106	-6.79821	5.85018	4.91E-09	6.61E-06
<i>HBD</i>	748.669	7.40186	-6.6603	5.99435	2.04E-09	4.81E-06
<i>CA1</i>	884.262	9.00205	-6.61808	4.0127	6.00E-05	0.011084
<i>EPB42</i>	52.9285	0.572779	-6.52992	4.67021	3.01E-06	0.000977
<i>TRIM58</i>	191.888	2.33279	-6.36207	5.38024	7.44E-08	6.80E-05
<i>GATA1</i>	9.85844	0.136168	-6.1779	3.51571	0.000439	0.048024
<i>IFIT1B</i>	32.5005	0.463841	-6.13069	4.05341	5.05E-05	0.009701
<i>SLC6A8</i>	24.9012	0.371939	-6.065	4.71813	2.38E-06	0.000862
<i>ANK1</i>	32.5233	0.498966	-6.02639	5.37299	7.74E-08	6.80E-05
<i>TNS1</i>	40.1721	0.693556	-5.85604	5.10461	3.31E-07	0.000164

<i>ITGB5</i>	10.1939	0.184542	-5.78762	3.81381	0.000137	0.020454
<i>MAPIA</i>	6.50837	0.125593	-5.69547	5.11878	3.08E-07	0.000161
<i>SLC25A39</i>	954.89	19.7493	-5.59546	3.5527	0.000381	0.044814
<i>TMCC2</i>	25.0906	0.562626	-5.47883	4.65624	3.22E-06	0.000978
<i>TGM2</i>	11.2897	0.254228	-5.47273	3.78097	0.000156	0.022632
<i>GPIBB, SEPT5</i>	929.997	21.4717	-5.43672	3.88824	0.000101	0.017254
<i>FAM20A</i>	13.6511	0.318325	-5.42237	3.82293	0.000132	0.020258
<i>OSBP2</i>	78.6356	1.92472	-5.35246	5.34363	9.11E-08	6.80E-05
<i>ITGB3</i>	67.8796	1.67705	-5.33898	3.59303	0.000327	0.041039
<i>SNCA</i>	74.9485	1.9402	-5.27162	4.54646	5.46E-06	0.001468
<i>ITGA2B</i>	177.865	4.75529	-5.22511	5.34547	9.02E-08	6.80E-05
<i>PPBP</i>	575.538	15.4774	-5.21668	5.20524	1.94E-07	0.000107
<i>ESAM</i>	22.6103	0.611868	-5.20761	4.43153	9.36E-06	0.002203
<i>PHOSPHO1</i>	55.3969	1.56302	-5.1474	4.91204	9.01E-07	0.000386
<i>SMOX</i>	41.65	1.18511	-5.13523	3.77073	0.000163	0.023224
<i>GP9</i>	100.476	2.90242	-5.11345	4.94666	7.55E-07	0.000355
<i>MYL9</i>	143.89	4.37043	-5.04104	5.33829	9.38E-08	6.80E-05
<i>PEAR1</i>	8.5841	0.262167	-5.03311	4.13024	3.62E-05	0.007261
<i>PCSK6</i>	10.1015	0.317475	-4.99178	3.54984	0.000385	0.044814
<i>TREML1</i>	101.228	3.20772	-4.97992	4.36519	1.27E-05	0.002917
<i>ANKRD9</i>	29.2926	0.96135	-4.92933	3.80305	0.000143	0.02103
<i>NFIX</i>	11.3407	0.424595	-4.73927	4.91406	8.92E-07	0.000386
<i>C5orf4</i>	31.1466	1.16711	-4.73807	4.60901	4.05E-06	0.001177
<i>CSDA</i>	454.009	17.1805	-4.72387	3.68633	0.000228	0.031507
<i>GFI1B</i>	34.0899	1.32518	-4.68508	3.66539	0.000247	0.033228
<i>STRADB</i>	97.8276	3.81096	-4.68202	4.52618	6.01E-06	0.001571
<i>SELP</i>	19.353	0.776544	-4.63934	3.869	0.000109	0.017744
<i>C6orf25</i>	74.6923	3.00947	-4.63338	4.24477	2.19E-05	0.004786

<i>GMPR</i>	85.4169	3.57837	-4.57715	4.70148	2.58E-06	0.000901
<i>DCAF12</i>	135.232	5.79385	-4.54477	4.89762	9.70E-07	0.000389
<i>XK</i>	15.5373	0.686571	-4.50018	4.07678	4.57E-05	0.008959
<i>SLC14A1</i>	22.9842	1.05651	-4.44326	3.90194	9.54E-05	0.016955
<i>PF4</i>	674.935	31.5291	-4.41999	5.25834	1.45E-07	8.56E-05
<i>GNAZ</i>	9.65133	0.476881	-4.33903	3.53262	0.000411	0.046683
<i>ABLIM3</i>	7.89573	0.400935	-4.29963	3.62982	0.000284	0.036588
<i>TMEM158</i>	22.5647	1.1503	-4.29398	3.88471	0.000102	0.017254
<i>OR2W3</i>	33.2992	1.70445	-4.28811	3.76258	0.000168	0.023637
<i>BPGM</i>	109.765	5.64616	-4.281	4.56458	5.00E-06	0.001386
<i>SPARC</i>	126.614	6.70829	-4.23835	4.68419	2.81E-06	0.000945
<i>GLRX5</i>	234.975	14.653	-4.00324	4.65719	3.21E-06	0.000978
<i>TSTA3</i>	93.4144	6.50445	-3.84415	4.60496	4.13E-06	0.001177
<i>GAS2L1</i>	30.4022	2.13388	-3.83263	4.31003	1.63E-05	0.00366
<i>CDC34</i>	72.3519	5.41531	-3.73991	4.4538	8.44E-06	0.002037
<i>EHD3</i>	8.54554	0.658273	-3.69841	3.58548	0.000336	0.04169
<i>PRKAR2B</i>	42.4245	3.69532	-3.52113	3.84897	0.000119	0.018617
<i>UBXN6</i>	95.5743	9.58954	-3.31709	3.57999	0.000344	0.042023
<i>FECH</i>	15.7337	1.58937	-3.30733	3.87704	0.000106	0.017469
<i>FAM210B</i>	80.4911	8.37174	-3.26523	3.98036	6.88E-05	0.012462
<i>FISI</i>	125.923	13.7165	-3.19855	3.53356	0.00041	0.046683
<i>SLC1A5</i>	54.9217	6.77411	-3.01927	3.50679	0.000454	0.049094
<i>BLVRB</i>	241.336	30.2994	-2.99368	3.86429	0.000111	0.017782
<i>CEBPD</i>	155.705	20.3404	-2.9364	3.82014	0.000133	0.020258
<i>PINK1</i>	48.7803	6.66918	-2.87072	3.65048	0.000262	0.034235
<i>PRDX2</i>	202.145	28.3151	-2.83575	3.66536	0.000247	0.033228
<i>SLC7A5</i>	20.5708	3.07577	-2.74158	3.57148	0.000355	0.042856
<i>CEACAM6</i>	7.57604	63.024	3.05639	-3.88434	0.000103	0.017254

CD24	9.19881	92.9001	3.33616	-4.2399	2.24E-05	0.004786
FAM46A	2.5701	26.6973	3.3768	-4.21625	2.48E-05	0.005085
BACH2	0.304472	4.16575	3.77419	-3.60518	0.000312	0.039697
FOLR3	7.21739	106.773	3.88693	-3.54995	0.000385	0.044814
CRISP3	6.69286	130.388	4.28405	-4.75833	1.95E-06	0.000735
CHI3L1	3.42326	70.7748	4.36979	-4.45964	8.21E-06	0.002034
OTOF	0.214132	6.47397	4.91808	-3.51723	0.000436	0.048024
OLFM4	2.00297	98.1458	5.61471	-5.87188	4.31E-09	6.61E-06
TUBB2B	3.73662	0.031866	-6.87357	2.1073	0.035092	0.641907
ARHGAP6	4.98774	0.06504	-6.26091	2.90418	0.003682	0.197761
LOC388588	31.2841	0.453017	-6.10972	2.8115	0.004931	0.22988
TMOD1	21.5989	0.319301	-6.0799	1.96616	0.04928	0.702983
EPB49	163.532	2.72587	-5.90671	3.24306	0.001183	0.091339
TNFRSF8	4.68891	0.091681	-5.67649	2.65403	0.007954	0.309501
KANK2	5.57133	0.136198	-5.35425	3.2993	0.000969	0.080775
NT5M	8.90347	0.244456	-5.18672	2.86351	0.00419	0.211163
TALI	8.09314	0.225367	-5.16635	3.29345	0.00099	0.081039
CETP	4.22172	0.124614	-5.08229	2.83079	0.004643	0.225393
MFSD2B	15.8548	0.468671	-5.0802	3.32698	0.000878	0.075634
SPTAI1	1.94164	0.057663	-5.07348	2.8429	0.004471	1
AQP10	5.03541	0.156383	-5.00896	2.79265	0.005228	0.234431
LY6G6F	25.0289	0.809667	-4.95012	2.86587	0.004159	0.211163
VWCE	1.40727	0.045624	-4.94696	2.73154	0.006304	1
SPRED2	1.30388	0.043046	-4.92079	2.22714	0.025938	1
DOCK6	0.963408	0.032382	-4.8949	2.24855	0.024541	1
BCL2L1	221.952	7.59951	-4.8682	3.28265	0.001028	0.082771
CIQB	5.72447	0.203128	-4.81668	2.6505	0.008037	0.310876
RNF208	9.6545	0.359525	-4.74704	3.06429	0.002182	0.136977

<i>MYO7A</i>	5.64827	0.245063	-4.52659	2.42509	0.015305	0.43674
<i>SPOCD1</i>	3.73739	0.164912	-4.50226	2.7867	0.005325	0.237649
<i>SH3TC2</i>	0.32145	0.014665	-4.45418	2.46995	0.013513	1
<i>PTCRA</i>	48.8396	2.24992	-4.44011	3.05025	0.002287	0.14166
<i>RAB3IL1</i>	1.30169	0.061033	-4.41465	2.40185	0.016313	1
<i>HEMGN</i>	17.7366	0.842626	-4.3957	3.2149	0.001305	0.097525
<i>DNAJC6</i>	1.11157	0.053181	-4.38554	2.41326	0.015811	1
<i>SCN1B</i>	5.9963	0.302934	-4.30699	2.46844	0.01357	0.410905
<i>MMRN1</i>	3.40083	0.171852	-4.30664	2.80451	0.005039	0.233045
<i>TUBA8</i>	6.20072	0.320689	-4.27319	2.87354	0.004059	0.21002
<i>HIST1H2AE</i>	14.954	0.776926	-4.26661	2.31461	0.020635	0.506028
<i>GNAO1</i>	1.04964	0.054742	-4.26111	2.06234	0.039175	1
<i>TPTEP1</i>	19.376	1.03881	-4.22126	3.48045	0.000501	0.051092
<i>PKHD1L1</i>	1.15484	0.062305	-4.21219	2.7325	0.006285	1
<i>PI3</i>	12.2926	0.684109	-4.16742	2.2537	0.024215	0.545531
<i>CMTM5</i>	21.7751	1.22236	-4.15494	3.35503	0.000794	0.070499
<i>ACRBP</i>	90.8233	5.18521	-4.13059	3.011	0.002604	0.157187
<i>TBXA2R</i>	4.32024	0.247764	-4.12408	2.51391	0.01194	0.373552
<i>C14orf45</i>	4.69694	0.269893	-4.12126	2.03915	0.041436	0.688301
<i>HIST1H2BC</i>	19.8255	1.16261	-4.09191	2.20529	0.027434	0.576228
<i>GYPA</i>	5.95811	0.354261	-4.07197	2.63988	0.008294	0.314922
<i>DNM3</i>	1.84927	0.111152	-4.05635	2.34655	0.018948	1
<i>PROS1</i>	5.33754	0.32442	-4.04024	2.61398	0.008949	0.322898
<i>SLC25A37</i>	259.437	15.8024	-4.03717	2.76997	0.005606	0.247854
<i>NRGN</i>	748.431	46.2736	-4.01561	2.16193	0.030623	0.596224
<i>FDX1L</i>	4.05542	0.261203	-3.95661	2.10636	0.035173	0.641907
<i>FAM212A</i>	3.35708	0.217961	-3.94507	2.10022	0.03571	0.649186
<i>TNXB</i>	0.87292	0.056948	-3.93813	2.93383	0.003348	1

<i>TGFB11I</i>	8.44207	0.554877	-3.92736	2.76418	0.005707	0.249948
<i>C21orf7</i>	41.3678	2.75703	-3.90732	3.26283	0.001103	0.088031
<i>MYLK</i>	5.33893	0.359551	-3.89228	2.81667	0.004852	0.228403
<i>MRPL12</i>	8.89156	0.600518	-3.88816	2.45602	0.014049	0.417831
<i>GYPC</i>	387.949	26.4491	-3.87458	3.44779	0.000565	0.055443
<i>HIST1H3H</i>	68.8291	4.69933	-3.87249	1.98706	0.046916	0.697344
<i>MERTK</i>	6.53403	0.452719	-3.85128	2.70687	0.006792	0.283016
<i>LOC200772</i>	2.02111	0.141705	-3.83419	2.37091	0.017744	1
<i>CLCN4</i>	0.784523	0.055147	-3.83046	2.07147	0.038314	1
<i>FKBP8</i>	593.936	42.2	-3.81499	3.08069	0.002065	0.134127
<i>PDZKIIP1</i>	20.7328	1.49133	-3.79724	3.18402	0.001452	0.10284
<i>TRIM68</i>	1.35348	0.097551	-3.79437	2.0373	0.04162	1
<i>RBPM52</i>	2.20271	0.161705	-3.76784	2.33179	0.019712	1
<i>ARHGEF10</i>	0.755194	0.055676	-3.76172	2.01155	0.044268	1
<i>TUBB4A</i>	0.747791	0.05557	-3.75027	1.97638	0.048112	1
<i>TDRD9</i>	5.20902	0.395424	-3.71954	2.39885	0.016447	0.451546
<i>JAM3</i>	7.42999	0.579157	-3.68133	2.66831	0.007623	0.304189
<i>TMEM40</i>	13.2846	1.04614	-3.66662	2.82527	0.004724	0.22582
<i>SIGLEC11</i>	1.72885	0.136407	-3.66383	2.05069	0.040297	1
<i>IGF2BP2</i>	14.6625	1.1593	-3.66081	3.22766	0.001248	0.094555
<i>PRKAR1B</i>	10.2227	0.816563	-3.64606	2.41806	0.015603	0.441254
<i>CTN</i>	7.21619	0.579179	-3.63916	2.41403	0.015777	0.443769
<i>C1orf198</i>	3.6482	0.297093	-3.6182	2.60242	0.009257	0.3261
<i>PRUNE</i>	11.2082	0.923013	-3.60206	3.15945	0.001581	0.109337
<i>VWF</i>	2.39827	0.198404	-3.59548	3.11777	0.001822	1
<i>ADIPOR1</i>	372.938	30.9164	-3.59249	1.99117	0.046462	0.696711
<i>KNDC1</i>	0.88082	0.07302	-3.59248	2.48642	0.012903	1
<i>CLDN5</i>	11.3553	0.945606	-3.58598	2.66082	0.007795	0.305863

<i>PCYT1B</i>	1.32914	0.11185	-3.57086	2.00762	0.044684	1
<i>KREMEN1</i>	5.28361	0.451402	-3.54904	3.2855	0.001018	0.082645
<i>CCRL2</i>	4.81145	0.41212	-3.54534	2.1923	0.028358	0.581742
<i>NEDD4L</i>	2.20812	0.193935	-3.50917	2.33021	0.019795	1
<i>VIL1</i>	2.48077	0.218812	-3.50303	2.18073	0.029204	1
<i>CCR2</i>	50.9301	4.55713	-3.48232	3.06697	0.002162	0.136977
<i>RAB6B</i>	2.85407	0.259698	-3.45811	2.77523	0.005516	1
<i>KLHDC8B</i>	6.12016	0.567093	-3.43191	2.56653	0.010272	0.345478
<i>TSPAN5</i>	14.9066	1.39832	-3.41418	2.99633	0.002732	0.15894
<i>HSPA7</i>	17.4679	1.64287	-3.41042	3.47415	0.000512	0.05134
<i>PBX1</i>	2.01858	0.191779	-3.39583	2.14925	0.031614	1
<i>ZBTB45</i>	5.52856	0.528357	-3.38732	2.88935	0.00386	0.203093
<i>FASLG</i>	2.94901	0.285468	-3.36883	2.09056	0.036568	1
<i>SIGLEC16</i>	3.01759	0.292771	-3.36555	2.08519	0.037052	0.658339
<i>PTGS1</i>	68.9	6.72551	-3.35679	3.29581	0.000981	0.081039
<i>TMTC1</i>	1.44	0.14196	-3.34251	2.22972	0.025766	1
<i>FAH</i>	6.93719	0.684441	-3.34135	2.40066	0.016366	0.451546
<i>LOC113230</i>	5.01583	0.498771	-3.33004	2.0594	0.039456	0.674325
<i>KCNJ2</i>	4.29494	0.4283	-3.32594	2.66621	0.007671	0.30434
<i>TUBB1</i>	130.381	13.0102	-3.32502	3.36163	0.000775	0.070161
<i>LMNA</i>	12.8974	1.29462	-3.31648	2.76503	0.005692	0.249948
<i>MFAP3L</i>	4.35761	0.43835	-3.31338	2.56653	0.010272	0.345478
<i>GIPC3</i>	1.32047	0.133083	-3.31066	2.62684	0.008618	1
<i>MXII</i>	62.6068	6.32651	-3.30684	3.32522	0.000883	0.075634
<i>UBB</i>	1699.42	173.695	-3.29042	2.45559	0.014065	0.417831
<i>HIST1H2AC</i>	104.503	10.733	-3.28342	2.67959	0.007371	0.299205
<i>C7orf41</i>	24.2498	2.5209	-3.26596	3.10643	0.001894	0.126346
<i>KIFC3</i>	3.47317	0.364785	-3.25114	2.2289	0.02582	0.562846

<i>LAPTM4B</i>	4.39858	0.464675	-3.24274	2.25903	0.023881	0.543477
<i>SLC38A5</i>	22.7732	2.41279	-3.23856	3.08627	0.002027	0.132545
<i>TIMP1</i>	285.856	30.4835	-3.22919	2.53484	0.01125	0.365307
<i>FZD5</i>	1.42718	0.152604	-3.2253	2.23625	0.025335	1
<i>NPRL3</i>	67.6823	7.28975	-3.21484	3.20055	0.001372	0.100131
<i>MICAL2</i>	66.6708	7.19529	-3.21193	2.33101	0.019753	0.496251
<i>ACOT7</i>	9.82992	1.06374	-3.20803	2.43188	0.015021	0.433316
<i>LOC100134229</i>	5.33969	0.582693	-3.19595	2.40634	0.016113	0.448927
<i>FCGR1B</i>	9.939	1.0848	-3.19568	2.33482	0.019553	0.496251
<i>PDCD1</i>	2.88041	0.314708	-3.19419	2.35189	0.018678	1
<i>KCNH2</i>	2.26655	0.247895	-3.1927	2.13032	0.033145	1
<i>PARVB</i>	22.1433	2.42645	-3.18995	3.21182	0.001319	0.097581
<i>HIST1H1C</i>	66.1651	7.32213	-3.17574	2.98776	0.00281	0.160391
<i>CLU</i>	140.41	15.7443	-3.15674	2.97959	0.002886	0.163737
<i>KCNJ15</i>	7.70479	0.865856	-3.15356	2.60154	0.009281	0.3261
<i>ALPL</i>	10.5511	1.18605	-3.15316	3.18772	0.001434	0.10284
<i>E2F1</i>	11.4361	1.29551	-3.142	3.38714	0.000706	0.065205
<i>TTC7B</i>	6.60913	0.751975	-3.1357	3.01562	0.002565	0.156819
<i>NFE2</i>	83.0598	9.48741	-3.13007	3.22605	0.001255	0.094555
<i>TFR2</i>	3.11146	0.355965	-3.12778	2.28247	0.022461	0.5237
<i>SIRPB2</i>	18.1195	2.08006	-3.12285	3.35692	0.000788	0.070499
<i>FPR2</i>	54.4143	6.28253	-3.11457	3.46041	0.000539	0.053463
<i>ALOX12</i>	11.7244	1.38721	-3.07926	2.49048	0.012757	0.393884
<i>NGFRAP1</i>	31.1091	3.72556	-3.06181	2.31298	0.020724	0.506893
<i>RNF10</i>	196.091	23.7024	-3.04841	2.98946	0.002795	0.160391
<i>BSG</i>	435.216	52.9672	-3.03856	2.45165	0.01422	0.419787
<i>SDC3</i>	1.30511	0.158842	-3.03851	2.35864	0.018342	1
<i>TSPAN9</i>	3.04848	0.371121	-3.03813	2.58931	0.009617	0.333453

<i>CD300LB</i>	18.998	2.31811	-3.03483	3.39705	0.000681	0.063511
<i>GP1BA</i>	9.06586	1.1092	-3.03093	3.40917	0.000652	0.061363
<i>HMBS</i>	13.1355	1.62726	-3.01296	2.42619	0.015258	0.43674
<i>RHOBTB1</i>	2.27331	0.282251	-3.00975	1.97793	0.047937	1
<i>GUK1</i>	246.729	30.6751	-3.00779	2.30116	0.021383	0.508601
<i>ASCC2</i>	64.2588	7.99462	-3.00679	2.88003	0.003976	0.206883
<i>MGC16275</i>	2.10586	0.263485	-2.99862	2.18829	0.028649	1
<i>ZBTB32</i>	2.07462	0.261289	-2.98913	2.03448	0.041903	1
<i>LILRB1</i>	68.4709	8.62673	-2.9886	2.52656	0.011519	0.366251
<i>SNAPIN</i>	17.231	2.17734	-2.98437	2.4688	0.013557	0.410905
<i>FHL1</i>	21.0077	2.65517	-2.98404	3.01254	0.002591	0.157187
<i>HAGH</i>	63.0641	8.15181	-2.95163	2.99614	0.002734	0.15894
<i>CX3CR1</i>	112.75	14.7154	-2.93772	2.89334	0.003812	0.202793
<i>PLEKHF1</i>	10.0114	1.30671	-2.93764	2.6036	0.009225	0.3261
<i>DAPK3</i>	22.4019	2.93167	-2.93383	2.60259	0.009252	0.3261
<i>MARCO</i>	10.2688	1.35174	-2.92537	2.08946	0.036667	0.656445
<i>HIST2H2BE</i>	37.0848	4.91015	-2.91699	3.48614	0.00049	0.051092
<i>RILP</i>	14.5057	1.93465	-2.90647	2.37255	0.017666	0.472614
<i>LRRC32</i>	12.8436	1.71972	-2.9008	2.62813	0.008586	0.321182
<i>MMP17</i>	2.92854	0.41038	-2.83515	2.03718	0.041632	1
<i>CLIC3</i>	25.1947	3.55749	-2.82419	2.5844	0.009755	0.335628
<i>UBE2O</i>	26.0687	3.69561	-2.81844	3.43917	0.000583	0.056261
<i>VENTX</i>	9.55436	1.37073	-2.80121	2.80081	0.005097	0.233045
<i>GABARAPL2</i>	63.3092	9.09105	-2.7999	2.85209	0.004343	0.215265
<i>F13A1</i>	129.745	18.7409	-2.79142	2.99173	0.002774	0.160261
<i>SHROOM1</i>	4.44539	0.652903	-2.76737	2.37744	0.017433	0.468702
<i>EPOR</i>	4.53563	0.666957	-2.76564	2.30471	0.021183	0.508601
<i>RBM38</i>	259.06	38.6602	-2.74437	2.31779	0.020461	0.504389

<i>ST6GALNAC4</i>	26.1905	3.92896	-2.73682	2.33374	0.01961	0.496251
<i>EGR1</i>	37.0981	5.5753	-2.73423	3.49195	0.00048	0.051092
<i>FAM118A</i>	16.1837	2.45336	-2.72171	2.8005	0.005102	0.233045
<i>LHPP</i>	7.33353	1.1123	-2.72096	2.63998	0.008291	0.314922
<i>MPP1</i>	217.232	32.968	-2.7201	2.29989	0.021455	0.508914
<i>AQP9</i>	47.8225	7.26199	-2.71925	3.47832	0.000505	0.051092
<i>PTGS2</i>	6.4605	0.986647	-2.71104	2.49396	0.012633	0.392042
<i>RNF11</i>	55.8247	8.56261	-2.70478	3.48011	0.000501	0.051092
<i>CD151</i>	46.1389	7.12273	-2.69548	3.00191	0.002683	0.15894
<i>GIMAP8</i>	17.8197	2.75125	-2.69532	3.15762	0.001591	0.109337
<i>CLIC2</i>	4.71733	0.742778	-2.66697	1.98357	0.047303	0.699014
<i>ARHGEF12</i>	14.8449	2.36666	-2.64904	3.03371	0.002416	0.148681
<i>TSPAN17</i>	13.6964	2.1867	-2.64697	2.39903	0.016438	0.451546
<i>LTBP1</i>	6.46713	1.0408	-2.63543	2.09718	0.035978	0.651544
<i>CA2</i>	31.4906	5.14611	-2.61337	2.88127	0.003961	0.206883
<i>SH3BGRL2</i>	7.4173	1.2162	-2.60851	2.51483	0.011909	0.373552
<i>HK1</i>	122.149	20.2683	-2.59135	2.73236	0.006288	0.269166
<i>CXCR2P1</i>	30.3991	5.05717	-2.58763	2.41381	0.015787	0.443769
<i>PCTP</i>	26.7611	4.45249	-2.58745	2.95868	0.00309	0.172161
<i>MAP3K6</i>	4.63659	0.774818	-2.58113	2.62776	0.008595	0.321182
<i>C2orf88</i>	10.5725	1.77961	-2.57069	2.33625	0.019478	0.496251
<i>ZNF438</i>	6.61631	1.11647	-2.56709	2.36424	0.018067	0.479305
<i>FOS</i>	240.642	40.7085	-2.56349	2.06524	0.0389	0.672618
<i>SIAH2</i>	71.4118	12.1134	-2.55956	3.33481	0.000854	0.074426
<i>FAM46C</i>	51.379	8.8219	-2.54202	3.16194	0.001567	0.109322
<i>UBL4A</i>	15.0257	2.5843	-2.53959	2.92006	0.0035	0.190497
<i>ZER1</i>	40.4999	7.09657	-2.51273	2.903	0.003696	0.197761
<i>TNFRSF1A</i>	75.3781	13.214	-2.51208	3.255	0.001134	0.089733

<i>TECPRI</i>	13.4143	2.35527	-2.5098	2.30315	0.02127	0.508601
<i>CXCR2</i>	25.0925	4.41352	-2.50725	2.9624	0.003053	0.171105
<i>FLJ45445</i>	12.0696	2.14295	-2.4937	3.25207	0.001146	0.089907
<i>GUCY1B3</i>	4.6639	0.830782	-2.48899	2.04192	0.041159	0.688301
<i>CYP1B1</i>	45.5157	8.14154	-2.48299	3.18426	0.001451	0.10284
<i>FZD2</i>	4.27391	0.770968	-2.47082	2.26387	0.023582	0.542963
<i>TMEM63B</i>	19.9495	3.60275	-2.46919	2.07535	0.037954	0.66806
<i>GPXI</i>	1005.82	182.591	-2.46169	2.25185	0.024332	0.546857
<i>NCKIPSD</i>	5.13969	0.933099	-2.46158	2.4317	0.015028	0.433316
<i>LILRA1</i>	52.2572	9.49775	-2.45997	2.38437	0.017108	0.46427
<i>EMR1</i>	26.7106	4.91023	-2.44355	2.75796	0.005816	0.252405
<i>NAPSB</i>	57.9163	10.6591	-2.44188	2.61939	0.008809	0.322313
<i>PDLIM1</i>	46.6652	8.60889	-2.43845	2.83293	0.004612	0.225049
<i>SDPR</i>	37.7954	7.02783	-2.42706	3.16678	0.001541	0.10832
<i>RHOC</i>	37.5578	6.9937	-2.42498	2.77772	0.005474	0.243163
<i>R3HDM4</i>	208.764	38.9574	-2.42191	2.75826	0.005811	0.252405
<i>FPRI</i>	309.308	57.8636	-2.41832	2.61852	0.008831	0.322313
<i>FOXO3</i>	37.5545	7.07088	-2.40902	2.79443	0.005199	0.234431
<i>CLIP2</i>	8.26399	1.56116	-2.40422	2.54793	0.010836	0.355558
<i>RNF123</i>	27.0343	5.10868	-2.40377	2.43328	0.014963	0.433316
<i>PHF23</i>	9.34965	1.77624	-2.39608	2.62001	0.008793	0.322313
<i>ACCS</i>	23.6394	4.50482	-2.39165	2.22438	0.026123	0.563025
<i>CD300C</i>	26.3656	5.083	-2.3749	2.59286	0.009518	0.331972
<i>GSPT1</i>	61.1511	11.8155	-2.3717	2.67253	0.007528	0.302964
<i>LYL1</i>	44.8708	8.72001	-2.36338	2.81549	0.00487	0.228403
<i>PPME1</i>	9.24022	1.81801	-2.34556	2.4341	0.014929	0.433316
<i>DAP</i>	77.0794	15.1808	-2.3441	3.00676	0.002641	0.15838
<i>DPM2</i>	27.5576	5.438	-2.3413	2.35487	0.018529	0.484691

<i>AKI</i>	4.73369	0.945002	-2.32457	2.05267	0.040104	0.678031
<i>MCOLN1</i>	30.6686	6.14026	-2.32039	2.48558	0.012934	0.398034
<i>AGPAT1</i>	43.2969	8.67978	-2.31853	2.52847	0.011456	0.365934
<i>AP2A1</i>	87.1343	17.4817	-2.3174	2.67396	0.007496	0.302964
<i>TESC</i>	47.4137	9.51508	-2.31702	2.54924	0.010796	0.35547
<i>C17orf59</i>	9.37395	1.88274	-2.31583	2.36421	0.018069	0.479305
<i>RANBP10</i>	19.3023	3.88911	-2.31126	1.98728	0.046891	0.697344
<i>SIGLEC9</i>	38.0556	7.68645	-2.30772	2.30107	0.021388	0.508601
<i>ENDOD1</i>	10.6762	2.17888	-2.29275	2.60194	0.00927	0.3261
<i>HIST1H2BK</i>	84.1255	17.2501	-2.28594	2.82716	0.004696	0.22582
<i>TLR8</i>	39.7996	8.17261	-2.28388	2.42762	0.015199	0.436353
<i>C9orf78</i>	93.1377	19.1713	-2.28042	2.97479	0.002932	0.165329
<i>EFNB1</i>	2.30217	0.475897	-2.27427	1.98877	0.046727	1
<i>CXCRI</i>	22.474	4.67685	-2.26465	2.84299	0.004469	0.219201
<i>MICALCL</i>	4.81562	1.00372	-2.26236	2.34465	0.019045	0.491359
<i>CARD9</i>	16.506	3.44084	-2.26216	2.3112	0.020822	0.507971
<i>GRAP2</i>	57.615	12.0609	-2.25611	2.17705	0.029477	0.58562
<i>C9orf167</i>	11.8383	2.48491	-2.2522	2.93188	0.003369	0.184464
<i>APOL2</i>	10.5024	2.20971	-2.24879	2.14023	0.032336	0.615165
<i>MRVII</i>	3.68441	0.779454	-2.2409	2.16063	0.030724	0.596546
<i>HIST2H2AA3</i>	43.3467	9.19277	-2.23735	2.05654	0.039731	0.676569
<i>PPP2R5B</i>	10.336	2.20554	-2.22847	2.69083	0.007128	0.294385
<i>ABCC3</i>	13.2464	2.85366	-2.21472	2.05447	0.03993	0.678031
<i>TMEM150B</i>	18.1	3.91197	-2.21002	2.00764	0.044681	0.695142
<i>HAUS4</i>	15.7832	3.43583	-2.19966	1.97109	0.048714	0.702983
<i>ZNF185</i>	30.7856	6.71956	-2.19582	2.15163	0.031427	0.603972
<i>SECTMI</i>	56.2641	12.3524	-2.18742	2.86912	0.004116	0.211163
<i>HIST2H2AA3</i>	41.2949	9.19277	-2.16739	1.9847	0.047178	0.699014

<i>SH3TC1</i>	16.869	3.75781	-2.16641	2.66531	0.007692	0.30434
<i>FOXO4</i>	25.0818	5.60635	-2.16151	2.86819	0.004128	0.211163
<i>CDC42EP2</i>	7.96072	1.78588	-2.15626	2.36095	0.018228	0.480832
<i>EIF2AK1</i>	51.6413	11.6807	-2.1444	2.36829	0.017871	0.476737
<i>ABCC4</i>	4.34017	0.983965	-2.14107	1.9982	0.045695	0.695142
<i>ABI3</i>	30.1676	6.84153	-2.14061	2.65741	0.007874	0.307684
<i>CNPPD1</i>	39.3342	8.99576	-2.12847	2.85475	0.004307	0.214603
<i>HSPB1</i>	59.2228	13.5585	-2.12695	2.18869	0.028619	0.582085
<i>FAM157B</i>	14.5563	3.34505	-2.12154	2.09445	0.03622	0.653411
<i>PQLC1</i>	40.4357	9.35713	-2.11149	2.21438	0.026803	0.573492
<i>ANKRD50</i>	3.42128	0.79855	-2.09908	2.01996	0.043388	0.694591
<i>LILRB4</i>	22.9619	5.3672	-2.097	2.20641	0.027355	0.576228
<i>MBNL3</i>	27.6851	6.5099	-2.0884	2.09777	0.035926	0.651544
<i>FZD1</i>	3.65821	0.862116	-2.08518	1.97666	0.04808	0.702983
<i>CDC42BPB</i>	5.74939	1.3575	-2.08245	2.25951	0.023852	0.543477
<i>SBNO2</i>	39.7646	9.39828	-2.08102	2.04264	0.041088	0.688301
<i>C19orf35</i>	7.17897	1.7045	-2.07443	2.24503	0.024766	0.550059
<i>KCTD21</i>	3.42493	0.814524	-2.07205	1.96942	0.048905	0.702983
<i>TFDP1</i>	69.4214	16.583	-2.06568	2.24526	0.024752	0.550059
<i>OST4</i>	544.575	130.152	-2.06493	2.49331	0.012656	0.392043
<i>C9orf69</i>	19.5834	4.69172	-2.06144	2.45907	0.01393	0.417757
<i>PIK3R6</i>	4.59819	1.11177	-2.04821	2.17718	0.029467	0.58562
<i>TSC22D1</i>	13.605	3.29092	-2.04758	2.01476	0.043929	0.695142
<i>LILRP2</i>	7.07871	1.72221	-2.03922	2.17771	0.029428	0.58562
<i>BNIP3L</i>	114.172	27.7858	-2.03879	2.22638	0.025989	0.563025
<i>TSPAN33</i>	12.8738	3.13968	-2.03575	2.55479	0.010625	0.35343
<i>SLC25A29</i>	6.89536	1.69192	-2.02696	2.04856	0.040505	0.68236
<i>HMOX1</i>	62.2434	15.3039	-2.02402	2.72783	0.006375	0.270433

<i>TMEM111</i>	47.9273	11.8056	-2.02138	2.46728	0.013614	0.410917
<i>ATG9A</i>	25.5498	6.31211	-2.01712	2.34264	0.019148	0.492669
<i>FAM212B</i>	3.86972	0.957778	-2.01446	2.02118	0.043261	0.694018
<i>MAP2K3</i>	75.8383	18.8321	-2.00973	2.06933	0.038515	0.671257
<i>PNP</i>	34.4257	8.58673	-2.0033	2.62276	0.008722	0.322313
<i>AZU1</i>	26.8112	107.752	2.0068	-2.61591	0.008899	0.322313
<i>SAMD8</i>	2.06629	8.37868	2.01968	-2.34899	0.018825	0.48754
<i>TMEM194A</i>	1.39081	5.68893	2.03223	-2.20384	0.027536	0.576228
<i>ZDHHC17</i>	3.46908	14.3834	2.05178	-2.10638	0.035172	0.641907
<i>PIK3R1</i>	8.79263	37.5842	2.09576	-2.08379	0.037179	0.659355
<i>CAMP</i>	53.5725	231.433	2.11103	-2.79309	0.005221	0.234431
<i>DUSP2</i>	3.46997	15.1513	2.12644	-2.26141	0.023734	0.543477
<i>CHIC1</i>	0.700715	3.06875	2.13075	-2.02237	0.043138	0.693548
<i>SLC2A5</i>	2.35558	10.358	2.13658	-2.06228	0.039181	0.672618
<i>BIRC3</i>	3.76364	16.5572	2.13726	-2.3497	0.018788	0.48754
<i>PRTN3</i>	17.6392	77.6243	2.13772	-2.80066	0.0051	0.233045
<i>KLHL15</i>	1.10623	4.91539	2.15165	-2.18978	0.02854	0.581742
<i>SASH1</i>	0.654022	2.92766	2.16234	-2.27658	0.022811	1
<i>ENPP4</i>	1.50212	6.79772	2.17805	-2.25615	0.024061	0.543477
<i>SLC25A36</i>	4.07175	18.6234	2.19339	-2.56883	0.010204	0.345478
<i>HERC5</i>	1.67792	7.70209	2.19858	-2.22431	0.026127	0.563025
<i>IFIT5</i>	1.24185	5.73944	2.20842	-2.16167	0.030644	0.596224
<i>THEM4</i>	0.638748	2.9673	2.21583	-2.17383	0.029718	0.587929
<i>PGLYRP1</i>	25.0964	118.543	2.23986	-2.95149	0.003162	0.175182
<i>FUT4,PIWIL4</i>	5.00749	23.6881	2.24201	-2.2492	0.0245	0.548017
<i>ZXDB</i>	0.78189	3.76682	2.26831	-2.29154	0.021933	0.516345
<i>DEFA1</i>	400.755	1937.35	2.27329	-2.20652	0.027348	0.576228
<i>NIT2</i>	3.18477	15.5977	2.29207	-2.13684	0.032611	0.619149

RORA	2.95807	14.549	2.29819	-2.89132	0.003836	0.202956
PAX5	0.971882	4.82712	2.31231	-2.45389	0.014132	0.418492
LEF1	5.22977	26.0292	2.31531	-2.58185	0.009827	0.335628
EIF2AK2	5.39059	27.6998	2.36136	-2.52212	0.011665	0.368621
OLR1	2.98562	15.3642	2.36346	-2.52886	0.011443	0.365934
ITGA6	1.62336	8.36782	2.36587	-2.43685	0.014816	0.433293
ODZ1	0.395695	2.04097	2.3668	-2.22413	0.02614	1
ANKRD36B	1.12088	5.89827	2.39566	-2.30235	0.021315	0.508601
ATP8B4	2.05358	10.8369	2.39974	-2.16735	0.030208	0.596224
LCN2	205.984	1088.59	2.40186	-2.34858	0.018845	0.48754
MPO	21.0883	111.92	2.40795	-2.64233	0.008234	0.314922
RGPD8	0.540697	3.00148	2.47278	-2.1495	0.031594	0.604725
SIK1	1.27585	7.24648	2.50582	-2.62509	0.008663	0.322313
CEACAM1	5.07847	28.9951	2.51334	-2.93343	0.003352	0.184464
CCDC126	0.963742	5.59134	2.53647	-1.96027	0.049964	0.705419
PLEKHA1	1.42216	8.55011	2.58786	-2.58387	0.00977	0.335628
DEFA1B	292.834	1760.85	2.58812	-2.86156	0.004216	0.211163
DEFA1	293.883	1773.24	2.59308	-2.86244	0.004204	0.211163
SLC28A3	0.644345	3.91523	2.60319	-2.08217	0.037327	0.659909
CEACAM8	22.2508	137.439	2.62686	-3.10841	0.001881	0.126346
IFIT1	1.41864	8.7855	2.63061	-2.24343	0.024869	0.551044
TSHZ2	0.134186	0.845072	2.65484	-1.99151	0.046425	1
TCN1	10.5526	66.8514	2.66335	-3.40984	0.00065	0.061363
HJURP	0.475868	3.05941	2.68462	-2.05304	0.040069	0.678031
SERPINB10	4.20704	27.2469	2.69521	-3.19052	0.00142	0.10284
DPP4	0.480314	3.1351	2.70646	-2.16196	0.030622	0.596224
IFI6	24.624	164.298	2.73817	-3.13292	0.001731	0.117257
L2HGDH	0.242979	1.654	2.76705	-2.00076	0.045418	1

<i>ZNF254</i>	0.569701	3.88571	2.7699	-2.26917	0.023258	0.53813
<i>CLC</i>	6.38987	43.5967	2.77036	-2.55472	0.010627	0.35343
<i>MS4A3</i>	5.70754	39.8575	2.80391	-2.66955	0.007595	0.304189
<i>ANXA3</i>	5.10822	36.5986	2.84089	-3.24054	0.001193	0.091339
<i>ERAP2</i>	2.56604	18.4228	2.84388	-3.33737	0.000846	0.074426
<i>C2orf89</i>	2.43781	17.7356	2.86299	-2.22566	0.026037	0.563025
<i>ZDBF2</i>	0.172714	1.2654	2.87314	-2.17087	0.029941	1
<i>PASK</i>	1.65675	12.1615	2.8759	-2.5979	0.00938	0.328356
<i>USP45</i>	0.22189	1.70934	2.94553	-2.08967	0.036647	1
<i>SOX13</i>	0.158795	1.25311	2.98027	-2.20917	0.027163	1
<i>ERG</i>	0.392911	3.11978	2.98917	-2.34943	0.018802	0.48754
<i>TSPAN2</i>	2.69528	21.5036	2.99607	-3.43825	0.000585	0.056261
<i>B3GNT5</i>	0.479839	3.83248	2.99766	-2.15513	0.031152	0.602371
<i>RIMKLB</i>	0.164242	1.32504	3.01215	-2.00201	0.045284	1
<i>PDE4D</i>	1.31087	11.0215	3.07173	-2.91758	0.003528	0.190918
<i>LOC388387</i>	0.32073	2.73723	3.09329	-2.09817	0.03589	1
<i>TRPM6</i>	0.103934	0.892455	3.10211	-1.96311	0.049633	1
<i>BPI</i>	20.9001	182.273	3.12452	-3.38041	0.000724	0.066172
<i>NELL2</i>	1.5132	13.2158	3.12659	-2.52557	0.011551	0.366251
<i>RALGPS2</i>	0.989144	9.24397	3.22426	-3.30418	0.000953	0.08009
<i>FCERIA</i>	1.3162	12.3605	3.23128	-2.52011	0.011732	0.369498
<i>MMP8</i>	21.1984	202.416	3.25529	-3.0882	0.002014	0.132545
<i>FAM84B</i>	0.170311	1.6449	3.27176	-2.23899	0.025156	1
<i>B3GNT7</i>	0.149098	1.47059	3.30206	-2.29968	0.021467	1
<i>FAM169A</i>	0.117	1.17072	3.32281	-1.98568	0.047069	1
<i>ZNF326</i>	0.795205	8.00577	3.33164	-2.18778	0.028686	0.582181
<i>NR3C2</i>	0.09376	0.957338	3.35199	-2.03059	0.042296	1
<i>CD69</i>	1.9456	20.31	3.3839	-2.6969	0.006999	0.290342

<i>ABCA13</i>	1.57161	16.4774	3.39017	-3.48486	0.000492	0.051092
<i>RTKN2</i>	0.129728	1.41562	3.44786	-2.32198	0.020234	1
<i>ARHGAP5</i>	0.250806	2.79511	3.47826	-2.66434	0.007714	1
<i>ARL5B</i>	0.865307	10.7881	3.64009	-3.21021	0.001326	0.097581
<i>ZBTB10</i>	0.251735	3.33551	3.72793	-2.74064	0.006132	0.263676
<i>ARG1</i>	2.51963	33.4267	3.72972	-2.23269	0.02557	0.56128
<i>TMEM38B</i>	0.194953	2.71715	3.8009	-1.96084	0.049897	1
<i>CDCA3</i>	0.175843	2.46901	3.81157	-2.04616	0.040741	1
<i>PMP22</i>	0.322184	4.5659	3.82494	-2.01847	0.043543	0.694591
<i>S100P</i>	6.36884	91.7699	3.84892	-3.24224	0.001186	0.091339
<i>LRRN1</i>	0.128282	1.90854	3.89508	-2.45482	0.014096	1
<i>SIGLEC1</i>	2.52033	37.7222	3.90373	-2.62224	0.008735	0.322313
<i>NAPB</i>	0.214996	3.28393	3.93304	-2.44781	0.014373	0.422958
<i>CEP128</i>	0.078884	1.23791	3.97203	-2.09289	0.036359	1
<i>CUBN</i>	0.063483	1.01793	4.00311	-2.80994	0.004955	1
<i>SDK2</i>	0.016929	0.278087	4.03799	-2.2023	0.027644	1
<i>CDKI</i>	0.446129	7.5914	4.08883	-2.06701	0.038733	0.672618
<i>MRPS36</i>	0.276124	4.70294	4.09017	-2.14225	0.032174	0.613316
<i>GCNT4</i>	0.08817	1.52694	4.11421	-2.17929	0.02931	1
<i>ZSWIM5</i>	0.044401	0.787799	4.14915	-2.23572	0.02537	1
<i>SCN9A</i>	0.034815	0.652165	4.22748	-2.25016	0.024439	1
<i>LRRN3</i>	0.153946	2.90636	4.23871	-2.20843	0.027214	1
<i>HDC</i>	0.397738	7.67034	4.2694	-2.42255	0.015412	0.43848
<i>GLT25D2</i>	0.048778	1.09099	4.48326	-2.45112	0.014241	1
<i>RPSAP58</i>	0.249016	6.23628	4.64638	-2.55369	0.010659	0.35343
<i>RGMB</i>	0.062367	1.57474	4.6582	-2.13486	0.032773	1
<i>AIG1</i>	0.234681	6.12284	4.70543	-2.57838	0.009926	0.337463
<i>NR4A2</i>	0.335327	10.4136	4.95676	-3.10463	0.001905	0.126346

<i>GGT5</i>	0.100812	4.83477	5.58371	-2.15849	0.03089	0.598537
<i>ANKRD18A</i>	0.046128	2.46526	5.73996	-2.62209	0.008739	1
<i>CPA3</i>	0.161059	9.59812	5.89709	-3.31258	0.000924	0.078425

S-Table 2. Reactome pathways enrichment analysis for PPI network

Pathway	Description	Count in gene set	FDR
HSA-109582	Hemostasis	53 of 601	7.71E-13
HSA-168256	Immune System	95 of 1925	1.64E-09
HSA-6798695	Neutrophil degranulation	35 of 471	1.80E-06
HSA-202733	Cell surface interactions at the vascular wall	18 of 135	2.69E-06
HSA-168249	Innate Immune System	55 of 1012	2.69E-06
HSA-114608	Platelet degranulation	16 of 125	2.20E-05
HSA-373760	L1CAM interactions	15 of 116	3.62E-05
HSA-76002	Platelet activation, signaling and aggregation	22 of 256	4.63E-05
HSA-8936459	RUNX1 regulates genes involved in megakaryocyte differentiation and platelet function	10 of 66	0.00080
HSA-6785807	Interleukin-4 and Interleukin-13 signaling	12 of 106	0.0014
HSA-983231	Factors involved in megakaryocyte development and platelet production	14 of 153	0.0023
HSA-140877	Formation of Fibrin Clot (Clotting Cascade)	7 of 39	0.0055
HSA-190840	Microtubule-dependent trafficking of connexons from Golgi to the plasma membrane	5 of 17	0.0078
HSA-1474244	Extracellular matrix organization	19 of 298	0.0078
HSA-1247673	Erythrocytes take up oxygen and release carbon dioxide	4 of 8	0.0078
HSA-977225	Amyloid fiber formation	9 of 78	0.0085

HSA-437239	Recycling pathway of L1	7 of 45	0.0085
HSA-389977	Post-chaperonin tubulin folding pathway	5 of 20	0.0105
HSA-380108	Chemokine receptors bind chemokines	7 of 48	0.0109
HSA-430116	GP1b-IX-V activation signalling	4 of 11	0.0130
HSA-6803157	Antimicrobial peptides	9 of 87	0.0141
HSA-8878171	Transcriptional regulation by RUNX1	14 of 201	0.0153
HSA-389960	Formation of tubulin folding intermediates by CCT/TriC	5 of 23	0.0153
HSA-382551	Transport of small molecules	32 of 706	0.0153
HSA-1237044	Erythrocytes take up carbon dioxide and release oxygen	4 of 12	0.0153
HSA-2559580	Oxidative Stress Induced Senescence	9 of 92	0.0163
HSA-422475	Axon guidance	26 of 541	0.0190
HSA-1566977	Fibronectin matrix formation	3 of 5	0.0190
HSA-1280218	Adaptive Immune System	32 of 733	0.0212
HSA-6807878	COPI-mediated anterograde transport	9 of 99	0.0234
HSA-5626467	RHO GTPases activate IQGAPs	5 of 29	0.0273
HSA-189445	Metabolism of porphyrins	4 of 17	0.0312
HSA-445095	Interaction between L1 and Ankyrins	5 of 31	0.0327
HSA-6811436	COPI-independent Golgi-to-ER retrograde traffic	6 of 49	0.0384
HSA-380320	Recruitment of NuMA to mitotic centrosomes	8 of 91	0.0467
HSA-1280215	Cytokine Signaling in Immune system	28 of 654	0.0473

S-Table 3. The type and frequency of *RHOC* neighbor gene alterations in LIHC of TCAG (cBioPortal).

Gene Symbol	Amplification	Homozygous Deletion	Up- regulation	Down- regulation	Mutation	Total Alteration
<i>RHOC</i>	0.0%	0.0%	6.1%	0.0%	0.3%	6.4%
<i>PTK2</i>	13.6%	0.3%	34.6%	0.5%	2.0%	39.4%
<i>PIP5K1A</i>	10.0%	0.0%	18.3%	1.6%	0.0%	24.2%
<i>ARHGAP39</i>	13.3%	0.0%	15.6%	0.0%	1.4%	23.8%
<i>ARHGEF11</i>	10.4%	0.0%	26.5%	0.5%	1.4%	32.1%

S-Table 4. Frequency and type of alterations of co-expression genes with *RHOC* for hepatic carcinoma with metastasis in LIHC of TCAG.

Gene symbol	Total alteration	Amplification	Homozygous Deletion	Dysregulation		Mutation	Interaction with <i>RHOC</i>
				Up	Down		
<i>GPX1</i>	4.3%	0.7%	0.25	3.6%	0%	0%	RNA-RNA
<i>FKBP8</i>	5.9%	1.4%	0%	5.0%	0%	0.2%	RNA-RNA /ceRNA
<i>TFDP1</i>	10.6%	2.9%	0.2%	9.3%	0%	0.5%	RNA-RNA
<i>APOL2</i>	4.0%	0.5%	0%	3.2%	0%	0.2%	RNA-RNA
<i>DCAF12</i>	9.3%	0.8%	0%	5.6%	3.2%	0.2%	ceRNA
<i>SCN1B</i>	4.2%	1.3%	0%	2.4%	0%	0.2%	ceRNA
<i>FOXO3</i>	8.0%	0.2%	1.6%	6.3%	0%	0%	ceRNA
<i>GAS2L1</i>	8.2%	0.5%	0.2%	7.4%	0%	0.5%	ceRNA
<i>TSTA3</i>	28.6%	15.9%	0%	21%	0%	0.8%	ceRNA
<i>MYL9</i>	1.1%	0.5%	0%	0.5%	0%	0%	ceRNA
<i>MAP2K3</i>	5.3%	1.6%	0.8%	2.9%	0%	0.5%	ceRNA
<i>TNSI</i>	6.0%	0.5%	0.2%	2.8%	0%	2.1%	ceRNA
<i>TSPAN9</i>	4.8%	0.2%	0.2%	4.2%	0%	0.2%	ceRNA

<i>EHD3</i>	6.4%	1.1%	0%	5.0%	0%	0.2%	ceRNA
<i>ASCC2</i>	13.5%	0.5%	0.2%	7.2%	5.6%	0.5%	ceRNA
<i>TGM2</i>	5.6%	1.3%	0%	4.0%	0%	0.2%	ceRNA
<i>PEAR1</i>	14.3%	12.2%	0%	1.3%	0%	1.1%	ceRNA
<i>BCL2L1</i>	7.6%	1.1%	0%	7.2%	0%	0%	ceRNA

S-Table 5. The *RHOC* expression level and tumor purity (TCGA)

Samples	<i>RHOC</i>	Tumor purity
TCGA.2Y.A9GS	12.3917	0.591500
TCGA.2Y.A9GT	11.6125	0.671800
TCGA.2Y.A9GU	11.9869	0.934200
TCGA.2Y.A9GV	11.5488	0.753500
TCGA.2Y.A9GW	12.4983	0.668500
TCGA.2Y.A9GX	12.0334	0.537300
TCGA.2Y.A9GY	12.6271	0.760900
TCGA.2Y.A9GZ	11.7835	0.836000
TCGA.2Y.A9H0	12.3748	0.867600
TCGA.2Y.A9H1	13.5028	0.815900
TCGA.2Y.A9H2	12.5971	0.872600
TCGA.2Y.A9H3	13.5304	0.650000
TCGA.2Y.A9H4	12.5981	0.858500
TCGA.2Y.A9H5	11.7580	0.812400
TCGA.2Y.A9H6	12.3666	0.759900
TCGA.2Y.A9H7	11.0587	0.861800
TCGA.2Y.A9H8	12.3800	0.791300
TCGA.2Y.A9H9	12.4621	0.791300
TCGA.2Y.A9HA	12.0424	0.921500

TCGA.2Y.A9HB	12.3021	0.701900
TCGA.3K.AAZ8	11.8736	0.884200
TCGA.4R.AA8I	12.2285	0.882900
TCGA.5C.A9VG	11.0974	0.880600
TCGA.5C.A9VH	12.3800	0.865400
TCGA.5R.AA1C	12.4409	0.836300
TCGA.5R.AA1D	12.1862	0.683900
TCGA.5R.AAAM	12.1528	0.765300
TCGA.BC.4072	12.5292	0.553100
TCGA.BC.4073	12.0703	0.614800
TCGA.BC.A10Q	13.6859	0.874700
TCGA.BC.A10R	12.6222	0.834400
TCGA.BC.A10S	12.9243	0.750200
TCGA.BC.A10T	12.6342	0.722900
TCGA.BC.A10U	12.9151	0.925300
TCGA.BC.A10W	12.9664	0.825900
TCGA.BC.A10X	12.2263	0.715200
TCGA.BC.A10Y	12.1408	0.725600
TCGA.BC.A10Z	12.4428	0.925300
TCGA.BC.A110	12.5644	0.563000
TCGA.BC.A112	12.9291	0.880600
TCGA.BC.A216	11.7007	0.850800
TCGA.BC.A217	11.7426	0.718800
TCGA.BC.A3KG	10.7330	0.922500
TCGA.BC.A5W4	12.6699	0.976300
TCGA.BC.A69H	13.2485	0.756500
TCGA.BC.A69I	12.4877	0.814800
TCGA.BC.A8YO	10.7979	0.669300

TCGA.BD.A2L6	11.9055	0.754700
TCGA.BD.A3EP	12.5828	0.654100
TCGA.BD.A3ER	12.5212	0.718800
TCGA.CC.5258	11.6067	0.738400
TCGA.CC.5259	12.9396	0.723400
TCGA.CC.5260	13.1110	0.762800
TCGA.CC.5261	10.9101	0.707600
TCGA.CC.5262	13.1854	0.689800
TCGA.CC.5263	12.6210	0.701100
TCGA.CC.5264	13.1966	0.858300
TCGA.CC.A123	12.0906	0.887900
TCGA.CC.A1HT	12.2329	0.559800
TCGA.CC.A3M9	13.2106	0.273800
TCGA.CC.A3MA	12.6588	0.881100
TCGA.CC.A3MB	12.4734	0.836000
TCGA.CC.A3MC	12.1141	0.850900
TCGA.CC.A5UC	12.2304	0.836400
TCGA.CC.A5UD	12.7120	0.924100
TCGA.CC.A5UE	13.5895	0.791300
TCGA.CC.A7IE	11.9762	0.786800
TCGA.CC.A7IF	11.6653	0.941100
TCGA.CC.A7IG	13.1764	0.864400
TCGA.CC.A7IH	11.8794	0.844800
TCGA.CC.A7II	12.6102	0.667700
TCGA.CC.A7IJ	12.7718	0.536000
TCGA.CC.A7IK	12.1363	0.791300
TCGA.CC.A7IL	13.6688	0.791300
TCGA.CC.A8HS	10.8984	0.949200

TCGA.CC.A8HT	11.9141	0.375500
TCGA.CC.A8HU	12.0791	0.791300
TCGA.CC.A8HV	12.1041	0.873100
TCGA.CC.A9FS	12.3260	0.880600
TCGA.CC.A9FW	12.1867	0.654200
TCGA.DD.A113	12.1793	0.855500
TCGA.DD.A114	12.1157	0.582500
TCGA.DD.A115	13.0418	0.607900
TCGA.DD.A116	12.6877	0.846100
TCGA.DD.A118	12.8952	0.842700
TCGA.DD.A119	12.8406	0.843400
TCGA.DD.A11A	12.0758	0.836000
TCGA.DD.A11C	11.1142	0.786100
TCGA.DD.A11D	12.4277	0.880500
TCGA.DD.A1EA	11.3730	0.689300
TCGA.DD.A1EB	12.7182	0.899400
TCGA.DD.A1EC	11.8585	0.500000
TCGA.DD.A1ED	11.9706	0.676400
TCGA.DD.A1EE	12.0690	0.870500
TCGA.DD.A1EF	12.0321	0.774900
TCGA.DD.A1EG	12.7719	0.685900
TCGA.DD.A1EH	10.7517	0.883100
TCGA.DD.A1EI	12.7439	0.699000
TCGA.DD.A1EJ	11.8088	0.880600
TCGA.DD.A1EK	12.3469	0.629100
TCGA.DD.A1EL	12.7638	0.615100
TCGA.DD.A39V	13.1470	0.735500
TCGA.DD.A39W	11.6252	0.917600

TCGA.DD.A39X	12.8193	0.765900
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TCGA.DD.AACE	11.5346	0.840500
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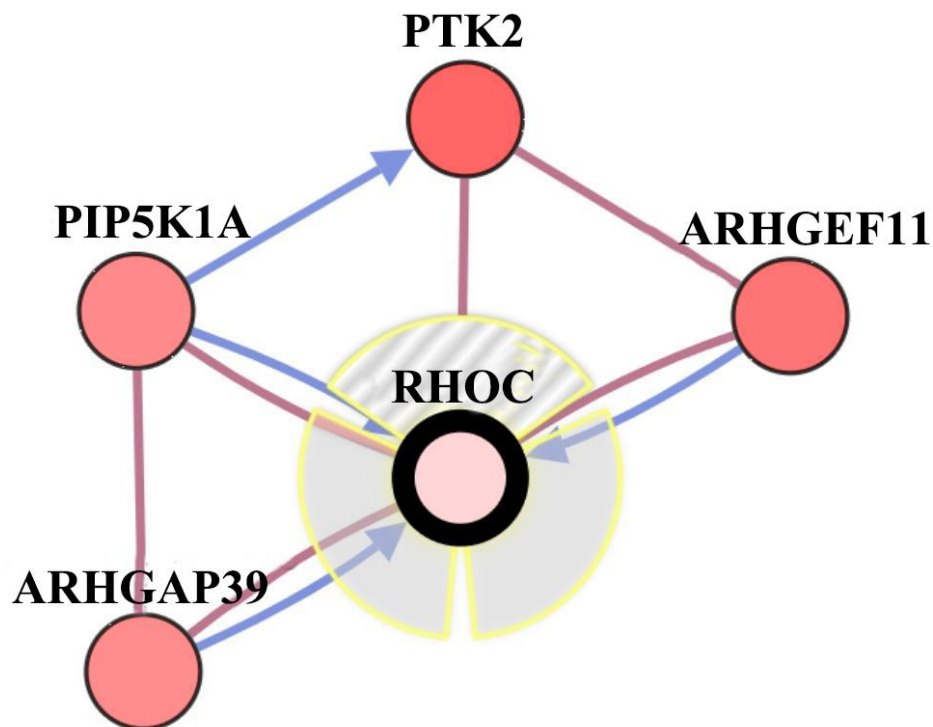
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TCGA.G3.A25U	11.4881	0.859900
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TCGA.G3.A25X	13.5818	0.690800
TCGA.G3.A25Y	11.6238	0.794900
TCGA.G3.A25Z	12.5571	0.835300
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TCGA.G3.A5SJ	13.2044	0.657300
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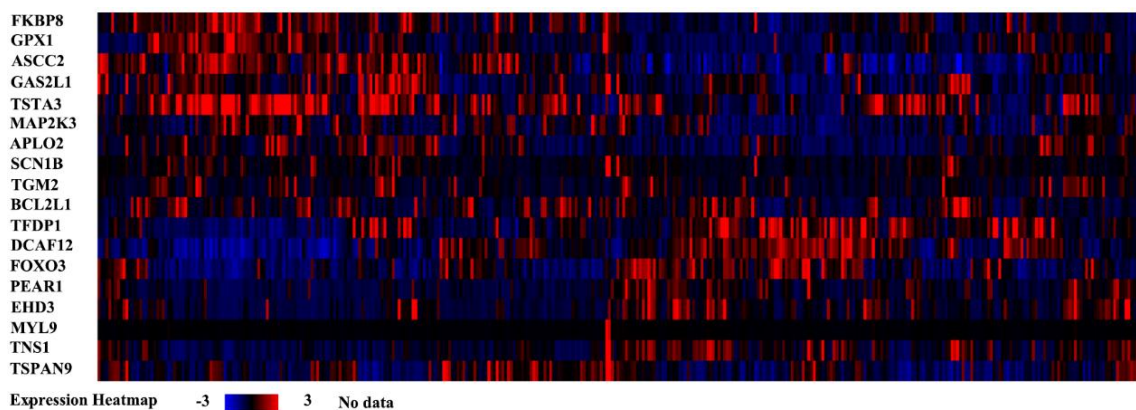
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TCGA.KR.A7K7	12.4129	0.791300
TCGA.KR.A7K8	12.0537	0.367800
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TCGA.MI.A75E	12.7973	0.765600
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TCGA.RC.A7SH	11.5408	0.942600
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TCGA.RG.A7D4	10.9697	0.475100
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TCGA.UB.A7MB	11.2861	0.922400
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TCGA.ZP.A9D4	12.0105	0.791300
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TCGA.ZS.A9CE	11.5993	0.746600
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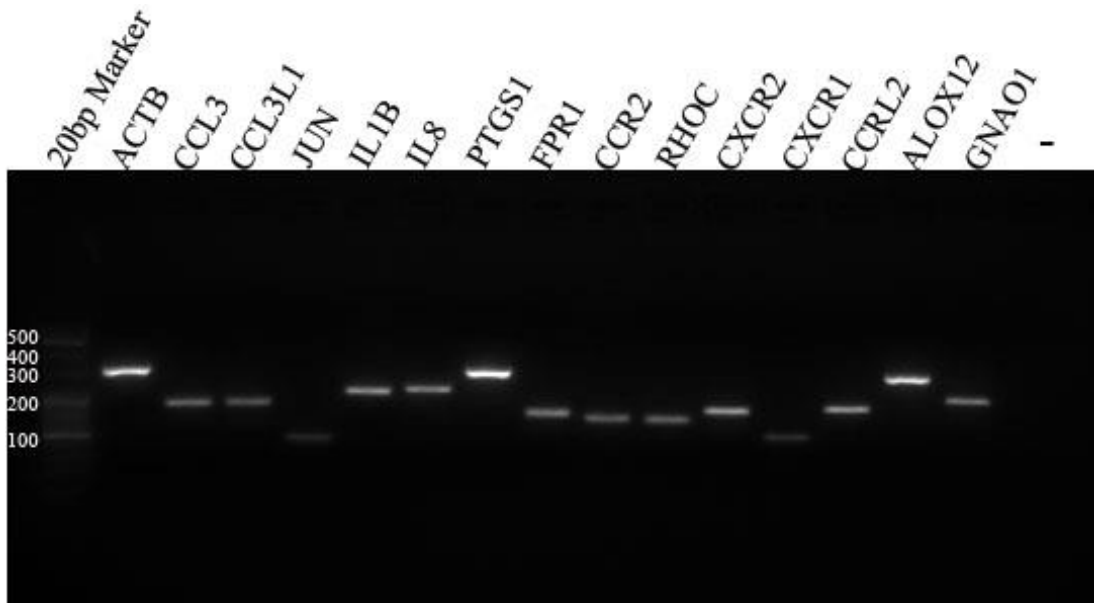


S-Figure 1. Network view of the *RHOC*-neighboring genes in LIHC of TCAG (cBioPortal). *RHOC* are seed genes (indicated with thick border), and all other genes are automatically identified as altered in LIHC (frequencies >20%). Darker red indicates increased frequency of alteration in LIHC. The interaction types are derived from the Biological Pathway Exchange (BioPAX): the blue connection indicates that the first protein controls a reaction that changes the state of the second protein; the red connection indicates that the proteins are members of the same complex.

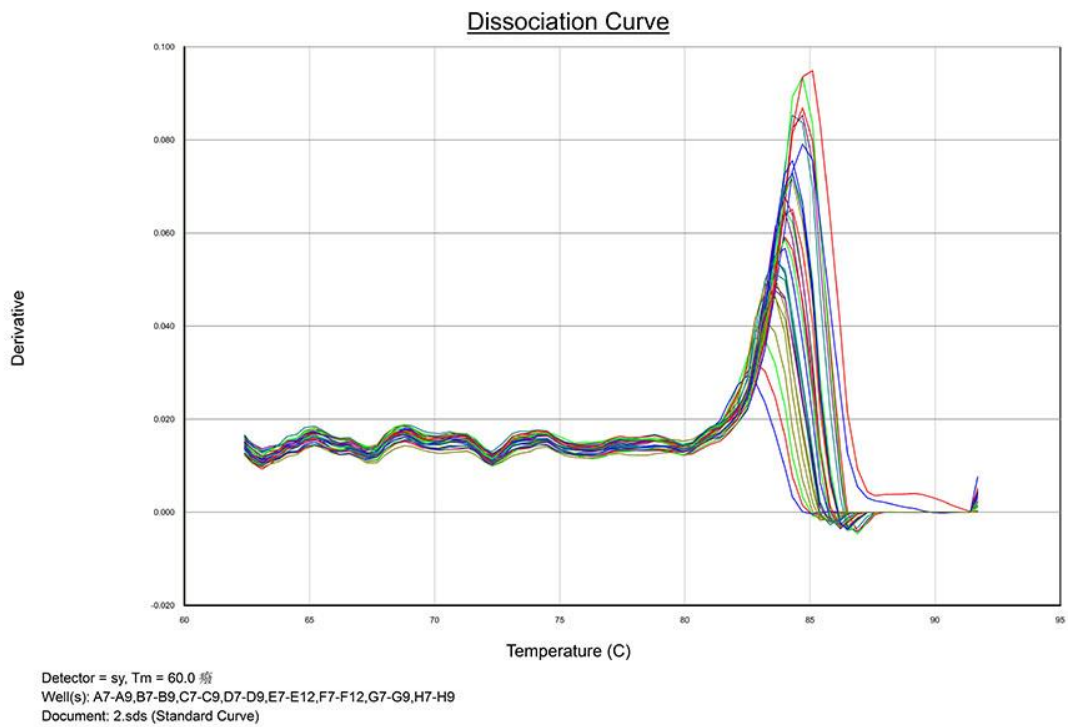


S-Figure 2. Expression heatmap of 18 co-expression genes with *RHOC* in LIHC of TCAG (cBioPortal).

Gene expression level was represented as log₂ FC.



S-Figure 3. Agarose gel electrophoresis of amplification products
 The quality of amplification products was accessed by 2% agarose gel.



S-Figure 4. Dissociation curve of amplification products
 The quality of the amplification products was accessed by dissociation curve.