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Progress in Microbes and Molecular Biology

Supplementary materials

Supplementary Table S1. Differentially methylated probes associated with ferroptosis-related genes in colorectal cancer, including genomic annotation, delta-beta values and sample-level methylation beta values.

Part A. DMP annotation and differential methylation

Probe ID	Delta-beta (Tumour–Normal)	Gene	Gene feature	CpG context
cg24659758	-0.312843	*AIFM2*	5'UTR	shore
cg18498156	-0.239717	*CAV1*	Body	opensea
cg18209470	-0.218998	*CAV1*	3'UTR	opensea
cg20162626	-0.324437	*ENPP2*	Body	opensea
cg09444531	-0.310246	*ENPP2*	Body	opensea
cg07236691	-0.200861	*ENPP2*	Body	opensea
cg07999042	-0.341918	*FADS2*	Body	shelf
cg09441819	-0.377838	*FTMT*	TSS1500	shore
cg17177816	-0.232485	*HELLS*	TSS1500	shore
cg11458974	-0.304553	*HMOX1*	TSS1500	shore
cg22451100	-0.285616	*NFE2L2*	Body	opensea
cg13692972	-0.235722	*OTUB1*	TSS1500	shore
cg14334810	-0.203662	*PLIN2*	Body	shore
cg17156053	-0.244199	*PML*	3'UTR	opensea
cg16744911	-0.229656	*SCD*	Body	shore
cg02102889	-0.322460	*SLC7A11*	TSS1500	opensea
cg04489243	-0.292425	*TP63*	TSS200	opensea
cg04483101	-0.290780	*TP63*	5'UTR	opensea
cg21723486	-0.281236	*TP63*	1stExon	opensea
cg25708695	-0.224948	*TP63*	Body	opensea
cg26876703	-0.256432	*ACSF2*	Body	opensea
cg03742272	-0.203468	*ALOX12B*	1stExon	opensea
cg00501366	-0.275321	*ALOX12B*	TSS1500	opensea
cg01064286	-0.243368	*ATF3*	5'UTR	shelf

Probe ID	Delta-beta (Tumour–Normal)	Gene	Gene feature	CpG context
cg05986866	-0.207152	*ATG7*	TSS1500	shore
cg18520851	-0.328270	*CDO1*	Body	shelf
cg07981370	-0.271940	*CHAC1*	TSS1500	shore
cg12910268	0.224970	*DNAJB6*	Body	opensea
cg10401362	0.222856	*DNAJB6*	Body	opensea
cg02994253	-0.208707	*DNAJB6*	3'UTR	shore
cg00114346	-0.224255	*DNAJB6*	Body	shore
cg14213430	-0.263063	*DNAJB6*	Body	shelf
cg27023755	-0.368088	*DNAJB6*	Body	shore
cg12626639	-0.298372	*GOT1*	Body	opensea
cg11458974	-0.304553	*HMOX1*	TSS1500	shore
cg01940810	-0.288487	*IFNG*	Body	opensea
cg20341582	-0.206876	*KRAS*	TSS1500	opensea
cg24011073	-0.249886	*LPIN1*	Body	opensea
cg00864334	-0.210231	*MAP1LC3A*	Body	shore
cg26472089	-0.221342	*MAPK14*	Body	opensea
cg16857825	-0.237706	*MAPK14*	TSS1500	shore
cg26033870	-0.322801	*MAPK14*	Body	opensea
cg18932526	-0.213333	*MAPK8*	TSS1500	opensea
cg09663237	-0.200381	*MAPK9*	3'UTR	opensea
cg21704166	-0.204603	*NOX3*	3'UTR	opensea
cg12438576	-0.212488	*NOX4*	5'UTR	opensea
cg01436723	-0.384984	*NOX4*	Body	shelf
cg26052885	-0.231440	*PRKAA2*	3'UTR	opensea
cg27440834	-0.245998	*SNX4*	TSS1500	shore
cg16267236	-0.202234	*TF*	TSS1500	shore
cg03808577	-0.213263	*TFR2*	Body	shore
cg02057134	-0.307047	*ULK1*	TSS1500	shore
cg26365110	-0.285282	*ZEB1*	Body	opensea

Probe ID	Delta-beta (Tumour–Normal)	Gene	Gene feature	CpG context
cg04116155	-0.300558	*ZEB1*	Body	shelf
cg12336709	-0.307748	*ZEB1*	Body	opensea

Delta-beta values represent tumour minus adjacent-normal methylation. Negative values indicate hypomethylation in tumour tissue.

Part B. Sample-level methylation beta values

To preserve readability in Word/PDF format, the 108 sample-level beta-value columns are presented in six sequential blocks. The Probe ID column is repeated in each block. T, tumour; N, adjacent-normal.

Part B1. Tumour samples 1–18

Probe ID	X345T	X348T	X342T	X344T	X343T	X332T	X325T	X289T	X290T	X349T	X256T	X160T	X126T	X179T	X144T	X145T	X262T	X106T
cg24659758	0.013244	0.314377	0.126275	0.510142	0.460173	0.280160	0.568276	0.168510	0.662070	0.230644	0.866484	0.556903	0.028917	0.058317	0.247305	0.613600	0.039097	0.624386
cg18498156	0.423134	0.513941	0.490649	0.855639	0.937454	0.833024	0.864635	0.403225	0.928778	0.531867	0.815046	0.303270	0.490873	0.625995	0.199455	0.917932	0.755780	0.936907
cg18209470	0.579255	0.623438	0.522844	0.936526	0.884796	0.891274	0.931364	0.485531	0.907864	0.637247	0.862837	0.577559	0.582432	0.816557	0.272222	0.985428	0.766589	0.934675
cg20162626	0.016942	0.342229	0.511529	0.799343	0.083512	0.530953	0.725041	0.234333	0.851694	0.457096	0.515709	0.082872	0.229923	0.800417	0.196247	0.741347	0.322356	0.894438
cg09444531	0.016597	0.104036	0.199256	0.479161	0.198068	0.161825	0.559030	0.089227	0.626162	0.384904	0.512985	0.157049	0.047554	0.116819	0.255924	0.535374	0.009419	0.696486
cg07236691	0.023191	0.030590	0.169633	0.316776	0.018487	0.038181	0.089462	0.065233	0.313333	0.055954	0.102716	0.093091	0.038358	0.046708	0.179725	0.138797	0.002290	0.114068
cg07999042	0.273249	0.318546	0.097919	0.822762	0.562776	0.706809	0.701907	0.150387	0.846403	0.407847	0.801914	0.465853	0.125146	0.253293	0.741589	0.664018	0.033405	0.821702
cg09441819	0.019169	0.465577	0.093684	0.800472	0.769298	0.626177	0.826478	0.192199	0.166649	0.445757	0.640329	0.428422	0.057258	0.698298	0.223244	0.916808	0.055026	0.864701
cg17177816	0.067108	0.400260	0.361693	0.553710	0.641205	0.448759	0.869059	0.116008	0.185186	0.357606	0.301944	0.210765	0.091601	0.241206	0.297726	0.780408	0.161815	0.134905
cg11458974	0.514231	0.351997	0.304268	0.684625	0.576338	0.710258	0.472927	0.219279	0.429688	0.349456	0.663776	0.128868	0.097120	0.166473	0.407643	0.864186	0.145740	0.706050
cg22451100	0.093286	0.535450	0.545508	0.819101	0.345731	0.818675	0.825597	0.304056	0.778928	0.416892	0.714220	0.535246	0.392431	0.536115	0.837659	0.822824	0.249478	0.932165
cg13692972	0.395110	0.539795	0.403172	0.488330	0.496742	0.720650	0.293087	0.388003	0.793851	0.454051	0.851526	0.135040	0.653074	0.146425	0.519964	0.154982	0.627192	0.672883
cg14334810	0.473373	0.596166	0.521133	0.825147	0.819435	0.848017	0.797405	0.510214	0.845425	0.584420	0.942072	0.560400	0.576197	0.609379	0.572211	0.934541	0.639318	0.872164
cg17156053	0.117265	0.369496	0.333186	0.814023	0.502949	0.568181	0.799655	0.144098	0.682033	0.403816	0.410148	0.130227	0.134513	0.318099	0.400582	0.698931	0.422395	0.525550

Probe ID	X345T	X348T	X342T	X344T	X343T	X332T	X325T	X289T	X290T	X349T	X256T	X160T	X126T	X179T	X144T	X145T	X262T	X106T
cg16744911	0.025771	0.478709	0.293133	0.517664	0.268014	0.574222	0.675157	0.281580	0.339903	0.358604	0.116556	0.123308	0.063069	0.217944	0.319188	0.779965	0.083875	0.575311
cg02102889	0.131006	0.447954	0.433363	0.601135	0.118496	0.598457	0.830951	0.399998	0.282762	0.468580	0.530651	0.545582	0.068016	0.178881	0.336575	0.636406	0.409940	0.774433
cg04489243	0.374873	0.486982	0.377937	0.849578	0.491020	0.662528	0.829317	0.178861	0.323392	0.399548	0.332773	0.707755	0.166303	0.191003	0.210731	0.479680	0.031471	0.663168
cg04483101	0.496913	0.480298	0.482341	0.793417	0.708729	0.587461	0.836494	0.157238	0.695762	0.449920	0.386075	0.542481	0.257646	0.440852	0.251930	0.762861	0.557547	0.772589
cg21723486	0.177172	0.268539	0.050146	0.191872	0.368768	0.437025	0.275129	0.094515	0.320113	0.171883	0.066153	0.046297	0.083033	0.024995	0.258613	0.478356	0.028752	0.375639
cg25708695	0.301477	0.213739	0.512217	0.590275	0.987658	0.756023	0.549380	0.487776	0.707654	0.449644	0.719515	0.641402	0.743629	0.735340	0.314040	0.692327	0.492548	0.731402
cg26876703	0.258943	0.438514	0.428463	0.842631	0.763223	0.798760	0.770494	0.387491	0.768587	0.542858	0.557883	0.062323	0.485063	0.265796	0.912164	0.867098	0.583659	0.791042
cg03742272	0.028517	0.203526	0.139139	0.559214	0.373326	0.507577	0.496991	0.353869	0.274471	0.480982	0.637944	0.057590	0.117335	0.587012	0.411294	0.731062	0.203125	0.270759
cg00501366	0.176650	0.493930	0.146812	0.888033	0.732541	0.545463	0.700915	0.141735	0.833151	0.554076	0.849536	0.301489	0.051785	0.629232	0.797337	0.897184	0.637908	0.706763
cg01064286	0.103996	0.367517	0.099735	0.584988	0.463119	0.393969	0.760166	0.117431	0.593425	0.356647	0.022345	0.117586	0.479431	0.153557	0.370150	0.525838	0.719158	0.629060
cg05986866	0.668239	0.657833	0.528758	0.831686	0.896991	0.932494	0.886267	0.544162	0.521641	0.611354	0.914406	0.607824	0.581162	0.595478	0.875655	0.969329	0.582211	0.874988
cg18520851	0.003662	0.342193	0.069224	0.510019	0.125634	0.211911	0.549623	0.131009	0.282421	0.277332	0.316557	0.027717	0.054853	0.119156	0.244850	0.825402	0.017495	0.728112
cg07981370	0.056855	0.492973	0.438507	0.718729	0.612526	0.720273	0.810928	0.305172	0.827048	0.457831	0.545475	0.190410	0.218434	0.237519	0.501239	0.912073	0.522654	0.602646
cg12910268	0.307687	0.447810	0.410097	0.227291	0.113349	0.675311	0.759587	0.465785	0.697956	0.376485	0.923835	0.060411	0.184267	0.586707	0.905397	0.830297	0.644741	0.019512
cg10401362	0.173383	0.462115	0.408207	0.050947	0.063268	0.574212	0.773946	0.391964	0.681122	0.439829	0.913237	0.033553	0.109950	0.609677	0.875077	0.640930	0.646721	0.012755
cg02994253	0.617319	0.593082	0.596249	0.947438	0.890520	0.886890	0.972530	0.635637	0.771780	0.562325	0.945846	0.531473	0.337271	0.650704	0.887472	0.984057	0.681114	0.963190
cg00114346	0.205414	0.547039	0.498587	0.882370	0.631516	0.870205	0.709708	0.405220	0.783450	0.417982	0.684391	0.200986	0.278324	0.169118	0.892185	0.871874	0.663817	0.693306

Probe ID	X345T	X348T	X342T	X344T	X343T	X332T	X325T	X289T	X290T	X349T	X256T	X160T	X126T	X179T	X144T	X145T	X262T	X106T
cg14213430	0.533702	0.630484	0.566077	0.827090	0.814530	0.729308	0.871263	0.275888	0.324301	0.585653	0.928706	0.081691	0.594963	0.573955	0.396021	0.894089	0.702332	0.881393
cg27023755	0.353778	0.295974	0.337491	0.703841	0.848934	0.680256	0.913085	0.226105	0.218628	0.381978	0.830383	0.084476	0.130311	0.478041	0.559087	0.470348	0.604808	0.877834
cg12626639	0.403860	0.558572	0.485585	0.827502	0.969743	0.693750	0.934872	0.334172	0.235133	0.489844	0.918511	0.719578	0.186239	0.664208	0.311735	0.882858	0.752679	0.936207
cg11458974	0.514231	0.351997	0.304268	0.684625	0.576338	0.710258	0.472927	0.219279	0.429688	0.349456	0.663776	0.128868	0.097120	0.166473	0.407643	0.864186	0.145740	0.706050
cg01940810	0.534378	0.557512	0.432311	0.900368	0.845474	0.749601	0.814510	0.199327	0.327947	0.529656	0.064559	0.077280	0.310996	0.737334	0.322696	0.778955	0.757723	0.853826
cg20341582	0.534211	0.649124	0.576369	0.866566	0.788583	0.820870	0.888732	0.314928	0.908418	0.633264	0.638310	0.649461	0.480457	0.492112	0.635915	0.754925	0.588351	0.796949
cg24011073	0.345540	0.413074	0.623382	0.504889	0.518413	0.510911	0.670400	0.143928	0.419462	0.696969	0.375662	0.213479	0.220717	0.460608	0.840579	0.514872	0.208337	0.767009
cg00864334	0.038579	0.470727	0.483500	0.768337	0.660142	0.625241	0.822174	0.288526	0.486623	0.522793	0.769418	0.207100	0.387264	0.037881	0.807764	0.881189	0.574594	0.554406
cg26472089	0.149535	0.438071	0.369553	0.448904	0.436597	0.462684	0.792605	0.164748	0.173857	0.425555	0.055148	0.156406	0.028437	0.553897	0.286841	0.716419	0.075785	0.422884
cg16857825	0.482559	0.541831	0.535970	0.871489	0.758162	0.761237	0.708960	0.531335	0.424562	0.584756	0.874048	0.140470	0.618770	0.642069	0.739535	0.769364	0.646640	0.810416
cg26033870	0.477023	0.430380	0.343278	0.798680	0.593540	0.640965	0.886515	0.222128	0.419435	0.519168	0.499263	0.368713	0.137339	0.631493	0.377731	0.774096	0.139682	0.891752
cg18932526	0.203822	0.520437	0.455467	0.542450	0.022494	0.545153	0.667221	0.475519	0.332755	0.371564	0.798541	0.083419	0.055738	0.389451	0.734274	0.830068	0.592451	0.762592
cg09663237	0.879533	0.849126	0.719759	0.990484	0.886917	0.910369	0.899240	0.536019	0.424915	0.756835	0.992466	0.626677	0.370794	0.761830	0.969848	0.874258	0.714552	0.995321
cg21704166	0.549362	0.604764	0.600942	0.802970	0.830729	0.881740	0.859130	0.298419	0.912855	0.571889	0.770665	0.500233	0.613823	0.630166	0.926595	0.972184	0.655177	0.904508
cg12438576	0.018322	0.098638	0.045853	0.372124	0.106496	0.271880	0.486069	0.122810	0.166509	0.252814	0.094522	0.062160	0.019159	0.099171	0.248711	0.138396	0.119697	0.222890
cg01436723	0.053239	0.471502	0.073546	0.879976	0.652251	0.673939	0.638357	0.267714	0.185440	0.550871	0.587073	0.096553	0.110497	0.224959	0.292540	0.451516	0.109797	0.932733
cg26052885	0.041019	0.432260	0.426031	0.717885	0.016039	0.575865	0.522772	0.383315	0.759849	0.187170	0.507767	0.215339	0.024648	0.498877	0.812476	0.907297	0.065177	0.624193

Probe ID	X345T	X348T	X342T	X344T	X343T	X332T	X325T	X289T	X290T	X349T	X256T	X160T	X126T	X179T	X144T	X145T	X262T	X106T
cg27440834	0.494108	0.568956	0.493856	0.769580	0.911954	0.886787	0.823331	0.335647	0.767708	0.525631	0.862536	0.506216	0.642044	0.295156	0.491105	0.848127	0.731530	0.789933
cg16267236	0.304665	0.650496	0.556968	0.843401	0.894454	0.831861	0.838999	0.334929	0.885347	0.597934	0.870942	0.643839	0.579436	0.646941	0.329482	0.945831	0.465067	0.901220
cg03808577	0.077313	0.260806	0.496628	0.369796	0.538758	0.642186	0.588988	0.538188	0.418237	0.195622	0.258190	0.046574	0.307692	0.328073	0.448194	0.524807	0.572309	0.506055
cg02057134	0.512993	0.445545	0.136731	0.769378	0.371532	0.622674	0.373493	0.156411	0.196471	0.408532	0.278220	0.191416	0.034811	0.143297	0.294755	0.593471	0.053115	0.589742
cg26365110	0.760689	0.500935	0.469238	0.935865	0.902211	0.921562	0.956064	0.462517	0.281971	0.532291	0.330966	0.433456	0.275930	0.571211	0.639455	0.988834	0.655458	0.948839
cg04116155	0.072779	0.467195	0.423047	0.770419	0.495446	0.855677	0.733032	0.154601	0.275836	0.507278	0.476307	0.126278	0.052807	0.583376	0.440445	0.846278	0.547358	0.712683
cg12336709	0.415079	0.490220	0.428279	0.906894	0.800338	0.681285	0.916146	0.458969	0.175078	0.569746	0.680885	0.163622	0.102615	0.619152	0.366090	0.951422	0.449209	0.921668

Part B2. Tumour samples 19–36

Probe ID	X56T	X136T	X58T	X223T	X260T	X164T	X161T	X142T	X146T	X141T	X172T	X279T	X151T	X229083T	X245T	X84T	X138T	X243T
cg24659758	0.525067	0.034119	0.234523	0.086823	0.783420	0.062076	0.292959	0.052162	0.264509	0.557464	0.717922	0.256743	0.507420	0.033530	0.354449	0.592795	0.813387	0.026838
cg18498156	0.510629	0.571560	0.579646	0.643088	0.956458	0.257858	0.738669	0.760064	0.796873	0.640860	0.956339	0.297949	0.196327	0.221420	0.911885	0.703619	0.923189	0.665684
cg18209470	0.490667	0.526010	0.682914	0.770624	0.968505	0.632920	0.918106	0.433983	0.950248	0.596123	0.941619	0.294371	0.461201	0.655933	0.947702	0.625908	0.918899	0.771924
cg20162626	0.090604	0.547377	0.277919	0.011600	0.841038	0.053783	0.567245	0.038931	0.722696	0.261933	0.925079	0.127077	0.068340	0.222600	0.941979	0.432627	0.868231	0.733049
cg09444531	0.189283	0.026596	0.223449	0.010234	0.767142	0.057860	0.512507	0.156277	0.526296	0.049278	0.633747	0.110623	0.031903	0.193625	0.722536	0.427689	0.665552	0.348599
cg07236691	0.190395	0.035956	0.064511	0.006323	0.528270	0.017501	0.147902	0.031079	0.253212	0.029699	0.546242	0.121034	0.035588	0.004373	0.415071	0.018209	0.514114	0.045878
cg07999042	0.166748	0.419378	0.522710	0.056154	0.821838	0.131120	0.552920	0.144101	0.671766	0.248204	0.909591	0.628779	0.443890	0.035414	0.432015	0.481481	0.872264	0.510217
cg09441819	0.407697	0.208565	0.065626	0.012880	0.885291	0.047180	0.646386	0.165038	0.289114	0.072300	0.963514	0.230236	0.183604	0.454738	0.209309	0.230316	0.964259	0.456415
cg17177816	0.556312	0.102955	0.131254	0.411280	0.436490	0.063846	0.353228	0.052917	0.280334	0.289494	0.512739	0.334698	0.253717	0.062696	0.383728	0.089957	0.695493	0.368917
cg11458974	0.147566	0.168395	0.305675	0.033478	0.833469	0.092586	0.717606	0.044885	0.427025	0.573963	0.890886	0.376501	0.165426	0.042879	0.532437	0.034430	0.915078	0.398081
cg22451100	0.128760	0.154703	0.588028	0.229995	0.928950	0.101280	0.919420	0.257613	0.489505	0.532874	0.851444	0.672518	0.501111	0.195362	0.834418	0.064041	0.897063	0.441806
cg13692972	0.224799	0.104163	0.628122	0.608669	0.686937	0.368197	0.623055	0.557329	0.570641	0.383090	0.813599	0.446492	0.162897	0.034664	0.743901	0.557238	0.838249	0.173149
cg14334810	0.584473	0.435564	0.401190	0.663547	0.941178	0.511041	0.796502	0.613734	0.659200	0.588661	0.950836	0.607177	0.507176	0.358153	0.813898	0.595325	0.942414	0.553066
cg17156053	0.095518	0.066992	0.228331	0.406672	0.765263	0.187618	0.306485	0.083223	0.477078	0.248316	0.723193	0.469260	0.177275	0.079467	0.691338	0.474723	0.836342	0.119548
cg16744911	0.556066	0.057524	0.118575	0.257501	0.807101	0.468090	0.402707	0.030673	0.245083	0.182807	0.747828	0.269355	0.140333	0.028411	0.356684	0.353304	0.759441	0.463446
cg02102889	0.209461	0.058679	0.321035	0.128043	0.861823	0.063932	0.722414	0.107569	0.510866	0.357418	0.661534	0.351489	0.512698	0.218430	0.276451	0.254898	0.858359	0.524404
cg04489243	0.457431	0.024262	0.411049	0.714731	0.765852	0.562908	0.666112	0.546430	0.177407	0.089270	0.830912	0.205920	0.533753	0.032514	0.887270	0.494656	0.887527	0.302994
cg04483101	0.576742	0.440783	0.595458	0.435719	0.542726	0.527227	0.750643	0.488119	0.277664	0.116423	0.926716	0.307379	0.493193	0.096666	0.878246	0.568814	0.857975	0.538885
cg21723486	0.099371	0.034094	0.197809	0.006294	0.577062	0.043913	0.204058	0.035279	0.216179	0.027142	0.626686	0.195484	0.032902	0.033483	0.679248	0.336031	0.629947	0.105437
cg25708695	0.609502	0.614462	0.500646	0.030686	0.565156	0.146754	0.771146	0.607419	0.765878	0.239081	0.732699	0.491317	0.532694	0.140785	0.784072	0.252612	0.648611	0.585092
cg26876703	0.133971	0.111035	0.448673	0.646809	0.858007	0.353851	0.719722	0.058749	0.436776	0.674459	0.894643	0.645696	0.071096	0.557370	0.844628	0.081315	0.890690	0.316004
cg03742272	0.326013	0.499672	0.114428	0.049217	0.708907	0.069931	0.163415	0.347119	0.399447	0.420211	0.541084	0.343356	0.035369	0.245694	0.357513	0.158380	0.657950	0.455789
cg00501366	0.563909	0.592022	0.559398	0.028899	0.908351	0.498063	0.613519	0.124930	0.478678	0.073213	0.874787	0.613323	0.218435	0.040389	0.832801	0.641372	0.869097	0.382826
cg01064286	0.133380	0.106121	0.437483	0.003554	0.849156	0.052114	0.378702	0.021127	0.447423	0.145441	0.632332	0.306799	0.058075	0.013698	0.325189	0.238001	0.880644	0.136678
cg05986866	0.641127	0.402123	0.594233	0.764409	0.938248	0.557957	0.875281	0.677652	0.489803	0.646642	0.929175	0.711156	0.636274	0.222243	0.831055	0.688754	0.951373	0.499119
cg18520851	0.044441	0.024459	0.102232	0.003968	0.633477	0.035496	0.230319	0.083785	0.228761	0.020238	0.826398	0.266074	0.040269	0.029771	0.322135	0.020519	0.821148	0.094555
cg07981370	0.220773	0.056608	0.627543	0.690655	0.696157	0.315551	0.629530	0.136153	0.424185	0.539039	0.890410	0.452031	0.263962	0.125462	0.684352	0.059434	0.872274	0.148739
cg12910268	0.653500	0.494828	0.555155	0.688801	0.273628	0.240598	0.092439	0.042148	0.351169	0.665886	0.485995	0.587532	0.054276	0.568347	0.827883	0.264168	0.458931	0.404243
cg10401362	0.166419	0.627695	0.699054	0.703771	0.069002	0.238209	0.037767	0.033016	0.336768	0.664979	0.460720	0.564714	0.029417	0.383277	0.747362	0.096586	0.423892	0.418513
cg02994253	0.687501	0.544376	0.674809	0.226708	0.960716	0.427995	0.947633	0.674156	0.928783	0.647479	0.979128	0.628042	0.416932	0.570253	0.667801	0.532987	0.964827	0.494182

Probe ID	X56T	X136T	X58T	X223T	X260T	X164T	X161T	X142T	X146T	X141T	X172T	X279T	X151T	X229083T	X245T	X84T	X138T	X243T
cg00114346	0.215467	0.064758	0.650902	0.677478	0.762014	0.148999	0.720118	0.537717	0.733933	0.636850	0.823258	0.634890	0.124318	0.367996	0.838219	0.280814	0.901977	0.365540
cg14213430	0.611792	0.169102	0.553469	0.619687	0.910085	0.453639	0.837502	0.592227	0.470782	0.597359	0.902015	0.367161	0.145494	0.211466	0.501680	0.640230	0.920506	0.393576
cg27023755	0.357890	0.259915	0.192538	0.026290	0.838712	0.128209	0.822400	0.307227	0.337574	0.152074	0.885598	0.466570	0.113317	0.380794	0.550318	0.177072	0.899030	0.272088
cg12626639	0.580407	0.121031	0.484357	0.297890	0.940322	0.131026	0.950897	0.293795	0.450822	0.582486	0.907115	0.380540	0.612872	0.454546	0.393630	0.122839	0.959075	0.495359
cg11458974	0.147566	0.168395	0.305675	0.033478	0.833469	0.092586	0.717606	0.044885	0.427025	0.573963	0.890886	0.376501	0.165426	0.042879	0.532437	0.034430	0.915078	0.398081
cg01940810	0.548477	0.696505	0.148883	0.152155	0.826792	0.568104	0.767131	0.256936	0.260605	0.690085	0.949811	0.369530	0.067664	0.273183	0.666322	0.729889	0.933102	0.443031
cg20341582	0.606584	0.251551	0.685543	0.760050	0.903958	0.573273	0.794403	0.619909	0.525281	0.663628	0.934310	0.544811	0.571079	0.227189	0.721668	0.589699	0.935934	0.464497
cg24011073	0.144298	0.273358	0.452693	0.385115	0.700022	0.284132	0.738480	0.232530	0.290362	0.515709	0.805752	0.638959	0.209357	0.218635	0.472270	0.246120	0.795959	0.438578
cg00864334	0.342817	0.133144	0.539225	0.607033	0.503012	0.189844	0.516081	0.523744	0.421569	0.366481	0.790189	0.674145	0.119058	0.126264	0.793880	0.458473	0.831287	0.103652
cg26472089	0.529270	0.137023	0.358522	0.021657	0.124057	0.107368	0.289400	0.380453	0.297441	0.318806	0.561371	0.298813	0.219684	0.109665	0.407763	0.036331	0.576487	0.549019
cg16857825	0.607377	0.423633	0.484430	0.627291	0.901244	0.529462	0.637064	0.562509	0.535414	0.561923	0.901856	0.668457	0.197242	0.385893	0.838327	0.514714	0.870245	0.405343
cg26033870	0.583512	0.234286	0.295065	0.060345	0.820870	0.155560	0.817757	0.353767	0.280520	0.548361	0.901036	0.339589	0.538833	0.162875	0.389015	0.185380	0.916707	0.474314
cg18932526	0.249814	0.076510	0.287037	0.022244	0.812476	0.182303	0.566311	0.031186	0.510268	0.510897	0.839957	0.520171	0.080616	0.535416	0.325112	0.153608	0.881625	0.475212
cg09663237	0.550267	0.751540	0.419480	0.808125	0.993096	0.781268	0.998823	0.793192	0.996795	0.378909	0.986964	0.861808	0.792857	0.802381	0.452862	0.831182	0.990941	0.416030
cg21704166	0.533106	0.594901	0.589098	0.653814	0.922633	0.249788	0.807785	0.226782	0.785403	0.655748	0.937188	0.691255	0.567301	0.531919	0.838125	0.067654	0.912383	0.572468
cg12438576	0.064790	0.091883	0.091197	0.004268	0.305234	0.049529	0.182517	0.038277	0.204254	0.085079	0.481738	0.204178	0.095945	0.014123	0.288202	0.035938	0.553632	0.081659
cg01436723	0.237007	0.143187	0.045909	0.142281	0.955697	0.115675	0.770751	0.045680	0.317407	0.591199	0.881181	0.274436	0.219883	0.260554	0.786943	0.063957	0.918036	0.567810
cg26052885	0.497764	0.348110	0.292581	0.005616	0.764655	0.062468	0.299984	0.106003	0.429131	0.020207	0.843573	0.648090	0.097995	0.023289	0.761634	0.391287	0.830875	0.134860
cg27440834	0.604888	0.224310	0.589767	0.639079	0.952610	0.658231	0.808393	0.638387	0.528764	0.542209	0.909422	0.543962	0.550941	0.175047	0.857081	0.669788	0.903797	0.437205
cg16267236	0.630757	0.262126	0.547857	0.626870	0.878197	0.593939	0.775851	0.681569	0.726582	0.465188	0.936201	0.285534	0.626046	0.404578	0.887028	0.674032	0.902498	0.571501
cg03808577	0.472590	0.150751	0.391220	0.193398	0.642494	0.215545	0.380500	0.108453	0.480761	0.539247	0.635075	0.337426	0.051234	0.344290	0.452336	0.430422	0.695715	0.436724
cg02057134	0.645314	0.385732	0.095174	0.056308	0.721019	0.165599	0.593126	0.322132	0.297153	0.086985	0.831939	0.285140	0.142697	0.044049	0.415844	0.086220	0.789692	0.059454
cg26365110	0.693113	0.276431	0.065757	0.745569	0.903203	0.217103	0.869489	0.600902	0.845209	0.293940	0.940437	0.563769	0.489035	0.644807	0.509564	0.035213	0.969376	0.637745
cg04116155	0.081359	0.313339	0.077321	0.719763	0.794776	0.154055	0.656826	0.340256	0.384953	0.197452	0.918546	0.337385	0.154951	0.268924	0.616822	0.071519	0.930921	0.332798
cg12336709	0.592419	0.296530	0.096555	0.166602	0.905810	0.231347	0.869182	0.586768	0.457959	0.696837	0.930262	0.364689	0.102579	0.507907	0.815124	0.209658	0.961686	0.443738

Part B3. Tumour samples 37–54

Probe ID	X244T	X200100T	X14T	X234T	X154T	X333T	X337T	X328T	X340T	X335T	X259T	X336T	X330T	X309T	X288T	X308T	X261T	X235T
cg24659758	0.626269	0.480243	0.286601	0.024195	0.492891	0.067547	0.151807	0.197297	0.859631	0.197636	0.088973	0.134799	0.625348	0.020076	0.689060	0.621732	0.638645	0.645632
cg18498156	0.728759	0.717070	0.513096	0.357136	0.771505	0.151529	0.652661	0.782418	0.951205	0.575611	0.280309	0.420957	0.659873	0.852852	0.814286	0.969760	0.478950	0.826982
cg18209470	0.814548	0.699285	0.246697	0.568676	0.526884	0.501950	0.336097	0.253984	0.955498	0.640631	0.705874	0.444286	0.825109	0.903983	0.744523	0.987612	0.721654	0.879933
cg20162626	0.795766	0.115892	0.215813	0.011960	0.197512	0.059184	0.008160	0.876761	0.858035	0.088272	0.043070	0.048702	0.713628	0.017691	0.640589	0.952363	0.317237	0.737428
cg09444531	0.365240	0.012671	0.273601	0.005368	0.115903	0.042582	0.002837	0.384884	0.668472	0.108833	0.014109	0.051503	0.481021	0.055171	0.605143	0.400204	0.405113	0.635832
cg07236691	0.014871	0.005037	0.121974	0.004788	0.017747	0.008416	0.009218	0.489476	0.249139	0.069623	0.007526	0.046176	0.339359	0.006381	0.286512	0.192168	0.193535	0.357219
cg07999042	0.097149	0.576582	0.238099	0.067375	0.600236	0.062041	0.024217	0.373507	0.887930	0.135760	0.519052	0.093234	0.064639	0.578925	0.741469	0.938678	0.601340	0.629981
cg09441819	0.602786	0.510838	0.489132	0.042287	0.038084	0.080340	0.283957	0.351094	0.845361	0.025388	0.053231	0.131295	0.409273	0.672840	0.152723	0.930397	0.806665	0.790823
cg17177816	0.065751	0.684045	0.491587	0.132877	0.111695	0.238196	0.739735	0.189395	0.755206	0.435124	0.097263	0.126528	0.571584	0.131423	0.409998	0.845213	0.177738	0.613956
cg11458974	0.663363	0.698298	0.095274	0.083354	0.165965	0.478675	0.016757	0.174008	0.802755	0.474851	0.299667	0.239580	0.635480	0.466890	0.658358	0.895913	0.625195	0.610947
cg22451100	0.492384	0.503579	0.541970	0.031353	0.582380	0.239990	0.563958	0.315529	0.955857	0.589128	0.069096	0.170978	0.838310	0.173744	0.792351	0.940867	0.584118	0.788737
cg13692972	0.600400	0.366447	0.499853	0.430834	0.647680	0.454246	0.601904	0.389643	0.544023	0.512984	0.469320	0.793643	0.684253	0.439158	0.764002	0.552386	0.638757	0.687907
cg14334810	0.630426	0.668568	0.484766	0.506114	0.582234	0.512172	0.458327	0.544951	0.894469	0.598310	0.543865	0.352197	0.717185	0.774323	0.830217	0.923772	0.752309	0.809576
cg17156053	0.306764	0.683596	0.156520	0.465335	0.623814	0.159610	0.020272	0.290442	0.688929	0.326240	0.232398	0.134159	0.355673	0.448652	0.475489	0.935889	0.552766	0.388089
cg16744911	0.422340	0.564696	0.113016	0.024364	0.237258	0.059514	0.286361	0.185080	0.786576	0.076047	0.445590	0.072152	0.522363	0.164918	0.474854	0.908240	0.297310	0.408550
cg02102889	0.236076	0.672695	0.245185	0.039074	0.036645	0.282084	0.018649	0.294568	0.821637	0.063147	0.264140	0.292731	0.756451	0.259741	0.708273	0.660039	0.527461	0.719356
cg04489243	0.556523	0.509817	0.594474	0.025825	0.015857	0.033409	0.728522	0.236840	0.756676	0.668237	0.021914	0.185711	0.621060	0.561063	0.518574	0.938079	0.643422	0.605381
cg04483101	0.595448	0.587487	0.513565	0.133257	0.039620	0.079681	0.665456	0.348998	0.666789	0.642619	0.101335	0.269531	0.675091	0.590469	0.672173	0.920536	0.707933	0.660275
cg21723486	0.247622	0.178275	0.327186	0.030084	0.007828	0.016843	0.640631	0.199499	0.129797	0.042554	0.019195	0.088380	0.398494	0.021586	0.303101	0.701758	0.422117	0.401965
cg25708695	0.721880	0.297990	0.354197	0.102035	0.642194	0.074768	0.752015	0.343486	0.890267	0.590894	0.546519	0.532112	0.647582	0.568657	0.645435	0.917187	0.660056	0.636294
cg26876703	0.588777	0.523949	0.510586	0.477803	0.589432	0.506513	0.581206	0.400502	0.856376	0.521639	0.147858	0.233460	0.429946	0.692702	0.758591	0.944401	0.711303	0.686832
cg03742272	0.126642	0.480590	0.091635	0.503913	0.022675	0.368463	0.053560	0.292797	0.622143	0.393917	0.048456	0.098182	0.560482	0.239816	0.451349	0.633909	0.412058	0.551234
cg00501366	0.609689	0.491337	0.539978	0.348760	0.249606	0.591153	0.039083	0.482983	0.866106	0.261409	0.194417	0.619405	0.775970	0.573124	0.729798	0.782199	0.652467	0.795669
cg01064286	0.049068	0.439280	0.211716	0.159502	0.100193	0.026039	0.009419	0.592278	0.708482	0.144165	0.049208	0.072888	0.099849	0.193773	0.265495	0.807048	0.547450	0.717808
cg05986866	0.624435	0.640597	0.603764	0.457386	0.714678	0.614325	0.679232	0.346423	0.948427	0.561910	0.532836	0.502505	0.837015	0.467876	0.845829	0.945420	0.816298	0.827845
cg18520851	0.080441	0.613193	0.111616	0.012047	0.046955	0.044964	0.004999	0.258563	0.598433	0.013541	0.023644	0.055087	0.330672	0.094233	0.166390	0.540361	0.382293	0.645227
cg07981370	0.466477	0.730468	0.482862	0.481252	0.645014	0.522075	0.046607	0.494271	0.824075	0.324401	0.203851	0.224741	0.746663	0.120821	0.651337	0.877439	0.399798	0.670724
cg12910268	0.378361	0.506387	0.427619	0.570413	0.122483	0.493177	0.653392	0.831182	0.435722	0.555817	0.542315	0.441583	0.340446	0.347750	0.359457	0.716382	0.573898	0.378181
cg10401362	0.363876	0.584365	0.486734	0.484251	0.032320	0.558942	0.543756	0.836920	0.143153	0.493515	0.588504	0.552169	0.338819	0.303857	0.300288	0.866307	0.417484	0.245352
cg02994253	0.569083	0.710295	0.621980	0.577502	0.642169	0.518557	0.610061	0.335172	0.950856	0.641532	0.605093	0.394386	0.872585	0.850296	0.858111	0.979442	0.884693	0.813330

Probe ID	X244T	X200100T	X14T	X234T	X154T	X333T	X337T	X328T	X340T	X335T	X259T	X336T	X330T	X309T	X288T	X308T	X261T	X235T
cg00114346	0.534213	0.496566	0.486093	0.541480	0.511723	0.462125	0.599761	0.575999	0.698077	0.413154	0.404845	0.241431	0.681247	0.255420	0.605902	0.737498	0.804938	0.711359
cg14213430	0.628190	0.708364	0.604279	0.132056	0.615511	0.338713	0.582405	0.724210	0.949382	0.573558	0.435744	0.410869	0.774201	0.742915	0.776163	0.928797	0.772812	0.771297
cg27023755	0.412670	0.590291	0.556371	0.486101	0.091767	0.265621	0.056258	0.328263	0.810840	0.070735	0.221144	0.202750	0.722470	0.655109	0.659415	0.891608	0.588849	0.728629
cg12626639	0.609673	0.789677	0.483217	0.545059	0.178685	0.210972	0.702423	0.326459	0.932117	0.482843	0.252375	0.406424	0.744100	0.775815	0.724558	0.973757	0.817025	0.760323
cg11458974	0.663363	0.698298	0.095274	0.083354	0.165965	0.478675	0.016757	0.174008	0.802755	0.474851	0.299667	0.239580	0.635480	0.466890	0.658358	0.895913	0.625195	0.610947
cg01940810	0.510122	0.498637	0.483763	0.166350	0.752981	0.586041	0.012926	0.305643	0.832700	0.621730	0.093177	0.248112	0.121828	0.764418	0.780239	0.936886	0.475354	0.732567
cg20341582	0.618012	0.537577	0.656023	0.497776	0.768635	0.356224	0.817915	0.586522	0.850960	0.637799	0.450100	0.741462	0.766124	0.822791	0.774432	0.953208	0.567451	0.804777
cg24011073	0.381091	0.435972	0.367681	0.204872	0.244268	0.271668	0.384361	0.147759	0.524079	0.386768	0.313757	0.206825	0.814905	0.215934	0.547582	0.788802	0.208386	0.735956
cg00864334	0.448485	0.549302	0.587357	0.310044	0.555799	0.460578	0.498909	0.383414	0.758325	0.480451	0.266545	0.374209	0.751112	0.104133	0.642205	0.873282	0.685747	0.459421
cg26472089	0.204840	0.562380	0.505979	0.175664	0.020143	0.162654	0.229146	0.179034	0.734186	0.246565	0.038769	0.234591	0.383932	0.837639	0.403000	0.495557	0.526423	0.369548
cg16857825	0.582883	0.597709	0.528441	0.524239	0.560849	0.496395	0.429520	0.743788	0.838692	0.458714	0.557109	0.686129	0.583864	0.184252	0.739973	0.866913	0.700671	0.786859
cg26033870	0.452264	0.541986	0.269693	0.293820	0.598697	0.348834	0.652960	0.159534	0.882593	0.500392	0.106218	0.334734	0.795737	0.717763	0.720769	0.656149	0.759203	0.770857
cg18932526	0.490515	0.268931	0.461390	0.608338	0.032778	0.084064	0.005423	0.464320	0.604009	0.193661	0.442939	0.164967	0.643175	0.084181	0.578571	0.879436	0.495313	0.665669
cg09663237	0.386033	0.751547	0.637421	0.715768	0.693065	0.599492	0.889889	0.604175	0.989208	0.193799	0.115826	0.839166	0.931856	0.960671	0.949164	0.999167	0.920157	0.918774
cg21704166	0.691750	0.726423	0.456315	0.487520	0.699413	0.523236	0.466540	0.951412	0.824822	0.583855	0.595336	0.297142	0.269840	0.188215	0.810334	0.953383	0.697451	0.797850
cg12438576	0.076350	0.061718	0.491780	0.029627	0.008776	0.015058	0.047033	0.194885	0.596917	0.294213	0.037008	0.204799	0.415222	0.105964	0.029338	0.470062	0.355069	0.259928
cg01436723	0.406291	0.604218	0.236325	0.087635	0.006681	0.058435	0.007093	0.592251	0.816926	0.555063	0.430936	0.066788	0.619515	0.588259	0.612470	0.960522	0.618811	0.636702
cg26052885	0.461626	0.701099	0.029320	0.658009	0.020762	0.040948	0.005213	0.456820	0.808916	0.018544	0.286968	0.047676	0.595446	0.015404	0.553107	0.867042	0.619816	0.556943
cg27440834	0.566956	0.621066	0.529301	0.563173	0.585061	0.612182	0.733557	0.289753	0.895200	0.626866	0.446556	0.571024	0.740382	0.449817	0.811696	0.916679	0.715700	0.830495
cg16267236	0.640235	0.561013	0.524760	0.382438	0.624021	0.411177	0.612410	0.938474	0.802129	0.566186	0.563302	0.482289	0.784670	0.798618	0.817141	0.945586	0.775041	0.773333
cg03808577	0.427723	0.267067	0.038200	0.538399	0.496894	0.173072	0.290291	0.722093	0.368228	0.201134	0.115139	0.252832	0.477381	0.466261	0.514501	0.715980	0.528505	0.517874
cg02057134	0.417413	0.333936	0.450006	0.059676	0.591608	0.072149	0.017054	0.329457	0.632622	0.541039	0.436613	0.106980	0.792192	0.347518	0.426444	0.625835	0.451679	0.569304
cg26365110	0.504700	0.559805	0.645188	0.215120	0.749456	0.377629	0.577879	0.341242	0.947252	0.218477	0.471722	0.171772	0.806134	0.839972	0.867476	0.981953	0.390315	0.830319
cg04116155	0.591938	0.358345	0.197391	0.025598	0.173413	0.234896	0.013422	0.827674	0.692540	0.666303	0.096628	0.151045	0.613754	0.451339	0.659857	0.934870	0.409941	0.759583
cg12336709	0.651428	0.477133	0.553617	0.124849	0.735094	0.173777	0.473950	0.333195	0.940095	0.246686	0.670684	0.139092	0.816660	0.520712	0.783655	0.956975	0.406391	0.821511

Part B4. Adjacent-normal samples 1–18

Probe ID	X336N	X160N	X126N	X179N	X144N	X145N	X262N	X106N	X56N	X136N	X58N	X223N	X260N	X164N	X161N	X142N	X146N	X141N
cg24659758	0.808489	0.540774	0.895378	0.947797	0.920539	0.923969	0.818287	0.840112	0.237719	0.841701	0.836480	0.906842	0.559445	0.780607	0.566734	0.874650	0.738929	0.085219
cg18498156	0.935323	0.910827	0.968427	0.929970	0.883558	0.987787	0.983422	0.885583	0.880853	0.926946	0.946922	0.974791	0.943867	0.920509	0.962844	0.900718	0.949378	0.702008
cg18209470	0.929632	0.971319	0.971478	0.931192	0.943753	0.970342	0.974807	0.955454	0.998215	0.992321	0.958590	0.964352	0.896310	0.966672	0.957018	0.978343	0.959287	0.630765
cg20162626	0.793541	0.947242	0.704185	0.592147	0.678541	0.884088	0.947081	0.913472	0.736483	0.864846	0.901155	0.876883	0.939974	0.925562	0.860352	0.919286	0.861176	0.497943
cg09444531	0.620743	0.539348	0.854408	0.474515	0.558648	0.955928	0.733738	0.589380	0.354588	0.889676	0.818745	0.666365	0.815418	0.615500	0.745354	0.788704	0.624738	0.047128
cg07236691	0.543702	0.424265	0.188727	0.692263	0.748845	0.434037	0.101869	0.199544	0.029116	0.377183	0.106850	0.578448	0.646096	0.215217	0.500488	0.396768	0.080546	0.014455
cg07999042	0.746364	0.900327	0.852655	0.857270	0.941127	0.955970	0.948274	0.847715	0.704759	0.880149	0.796468	0.874380	0.962258	0.872654	0.830459	0.906682	0.894500	0.130620
cg09441819	0.904250	0.903210	0.902193	0.846903	0.931967	0.850913	0.897523	0.918525	0.531385	0.900294	0.946154	0.956300	0.968680	0.925134	0.943531	0.870264	0.887954	0.252475
cg17177816	0.725530	0.108120	0.793692	0.781218	0.630478	0.808705	0.856559	0.511268	0.679338	0.540849	0.777719	0.458280	0.983749	0.205884	0.483548	0.712678	0.888117	0.512559
cg11458974	0.690461	0.839136	0.885060	0.914194	0.939806	0.909551	0.823611	0.715570	0.779170	0.600265	0.557994	0.967560	0.945119	0.791095	0.827736	0.832767	0.839260	0.131989
cg22451100	0.864803	0.696201	0.869374	0.835758	0.867032	0.953012	0.969884	0.926431	0.880717	0.897820	0.918391	0.929943	0.842137	0.953589	0.915721	0.917852	0.926617	0.711028
cg13692972	0.787387	0.680868	0.869702	0.728308	0.910234	0.891432	0.875369	0.760115	0.675388	0.851635	0.786325	0.925577	0.414150	0.790237	0.865729	0.821127	0.676916	0.252542
cg14334810	0.875074	0.598060	0.894112	0.952530	0.948511	0.956626	0.966364	0.933203	0.877647	0.943064	0.904623	0.905665	0.922455	0.865082	0.873966	0.925054	0.946389	0.651915
cg17156053	0.720191	0.120628	0.799551	0.807608	0.792488	0.865270	0.851388	0.777153	0.719050	0.606454	0.939967	0.746776	0.958591	0.696869	0.661353	0.747371	0.833075	0.141572
cg16744911	0.760313	0.105957	0.793781	0.765394	0.608576	0.848704	0.795565	0.213761	0.617307	0.572240	0.401206	0.644949	0.864432	0.414653	0.532227	0.736405	0.798618	0.243154
cg02102889	0.793422	0.977894	0.703199	0.957941	0.825196	0.769210	0.840814	0.845437	0.713038	0.813082	0.788379	0.659625	0.918112	0.855284	0.870534	0.834538	0.910073	0.213914
cg04489243	0.767845	0.880437	0.931739	0.587243	0.893431	0.859345	0.975942	0.558379	0.641981	0.865374	0.918135	0.929220	0.963962	0.758575	0.870961	0.858315	0.732921	0.470595
cg04483101	0.775669	0.869600	0.927708	0.875100	0.812568	0.920566	0.913451	0.788782	0.919255	0.881268	0.616472	0.875283	0.843424	0.852698	0.882256	0.878688	0.835366	0.578197
cg21723486	0.570162	0.707237	0.440837	0.686483	0.422562	0.839552	0.739196	0.353782	0.671606	0.824152	0.573124	0.630537	0.601313	0.670520	0.545048	0.703254	0.326337	0.617570
cg25708695	0.607647	0.720898	0.721198	0.714110	0.832007	0.702694	0.810596	0.913118	0.859352	0.868524	0.809360	0.830202	0.686794	0.758826	0.611111	0.837810	0.826129	0.666381
cg26876703	0.867373	0.738443	0.906650	0.862894	0.933839	0.899820	0.939286	0.918764	0.863144	0.847150	0.893096	0.898793	0.938708	0.878587	0.816252	0.894057	0.914521	0.584168
cg03742272	0.620596	0.147294	0.438689	0.483029	0.692612	0.729275	0.754157	0.632657	0.279166	0.677584	0.620851	0.678079	0.741538	0.425061	0.543422	0.629021	0.715885	0.156928
cg00501366	0.853874	0.546942	0.845877	0.902332	0.926227	0.922382	0.908516	0.831997	0.773592	0.833498	0.859495	0.926287	0.953525	0.895061	0.770026	0.905904	0.895843	0.603236
cg01064286	0.530943	0.640400	0.735810	0.094035	0.724972	0.420129	0.373613	0.580674	0.669373	0.687087	0.713738	0.624804	0.852941	0.726195	0.718289	0.371446	0.598940	0.083727
cg05986866	0.907451	0.859212	0.934027	0.966759	0.922077	0.954929	0.943971	0.936869	0.886048	0.917457	0.869386	0.917755	0.976468	0.862705	0.918683	0.926812	0.950859	0.704186
cg18520851	0.434024	0.572188	0.822130	0.552137	0.711171	0.719091	0.802156	0.720749	0.518593	0.730952	0.644554	0.691110	0.689714	0.657997	0.694863	0.603740	0.627717	0.073677
cg07981370	0.793535	0.646529	0.881621	0.866294	0.889344	0.898020	0.905936	0.876657	0.784600	0.676262	0.806256	0.832003	0.943982	0.728475	0.820349	0.789977	0.864166	0.329737
cg12910268	0.442878	0.562532	0.317069	0.118103	0.033727	0.383430	0.161293	0.127650	0.371025	0.158980	0.282170	0.142880	0.813211	0.013084	0.379722	0.161297	0.306795	0.564247
cg10401362	0.376491	0.833575	0.159212	0.049060	0.045639	0.204533	0.125667	0.057787	0.167248	0.174013	0.403910	0.058458	0.572131	0.007382	0.345348	0.080782	0.139625	0.480222
cg02994253	0.904650	0.980850	0.955744	0.894920	0.987942	0.969392	0.976592	0.975133	0.980960	0.976666	0.885032	0.981811	0.962381	0.943776	0.948571	0.961088	0.982857	0.724949

Probe ID	X336N	X160N	X126N	X179N	X144N	X145N	X262N	X106N	X56N	X136N	X58N	X223N	X260N	X164N	X161N	X142N	X146N	X141N
cg00114346	0.812355	0.854714	0.844603	0.896404	0.882093	0.874114	0.879925	0.830512	0.862597	0.796942	0.910590	0.910656	0.872479	0.767133	0.816476	0.838196	0.880716	0.614314
cg14213430	0.912411	0.875054	0.953160	0.956846	0.949880	0.939431	0.952311	0.931666	0.769699	0.896384	0.896771	0.923666	0.916339	0.920393	0.879918	0.962666	0.906271	0.638383
cg27023755	0.851332	0.715933	0.924979	0.942346	0.977005	0.976047	0.942050	0.909023	0.879549	0.855642	0.850398	0.904927	0.971701	0.897894	0.872651	0.935501	0.928860	0.604518
cg12626639	0.873395	0.451760	0.955058	0.956438	0.954312	0.949960	0.961827	0.935600	0.901569	0.963747	0.955651	0.957572	0.956520	0.926391	0.953412	0.963183	0.929935	0.629056
cg11458974	0.690461	0.839136	0.885060	0.914194	0.939806	0.909551	0.823611	0.715570	0.779170	0.600265	0.557994	0.967560	0.945119	0.791095	0.827736	0.832767	0.839260	0.131989
cg01940810	0.861779	0.575163	0.949674	0.960419	0.881641	0.919112	0.930582	0.843111	0.704097	0.878469	0.798378	0.963402	0.953851	0.906541	0.900931	0.904259	0.735475	0.352435
cg20341582	0.941819	0.765068	0.967987	0.979169	0.935998	0.970782	0.939671	0.894394	0.857428	0.821163	0.963543	0.939346	0.977479	0.843323	0.841050	0.961691	0.887715	0.703544
cg24011073	0.820667	0.771286	0.753203	0.842078	0.718548	0.791413	0.787062	0.745677	0.706167	0.743970	0.898796	0.834231	0.469213	0.687375	0.729767	0.836400	0.775349	0.407491
cg00864334	0.817298	0.746201	0.847487	0.754542	0.762949	0.817028	0.829354	0.728372	0.582406	0.617581	0.846524	0.833390	0.947571	0.685119	0.679660	0.782058	0.878307	0.081368
cg26472089	0.785813	0.230192	0.808691	0.831965	0.645985	0.811662	0.669821	0.497810	0.797019	0.459968	0.791976	0.765610	0.908287	0.080372	0.482280	0.878709	0.815884	0.381873
cg16857825	0.843976	0.879860	0.853770	0.932580	0.918831	0.913814	0.895205	0.819056	0.829191	0.811696	0.789783	0.895196	0.928787	0.839830	0.767480	0.885245	0.848372	0.649950
cg26033870	0.862014	0.610898	0.980454	0.932315	0.938238	0.890469	0.922533	0.848524	0.834224	0.821253	0.914496	0.885777	0.950331	0.829885	0.917118	0.910690	0.908181	0.561530
cg18932526	0.784696	0.127845	0.864806	0.894901	0.864635	0.730845	0.843021	0.787160	0.598559	0.754061	0.681669	0.821777	0.950751	0.689345	0.697510	0.779951	0.661699	0.081329
cg09663237	0.991200	0.999731	0.999674	0.999138	0.998391	0.995536	0.990948	0.997669	0.999460	0.995652	0.990582	0.993294	0.995453	0.995724	0.988448	0.996075	0.996688	0.867753
cg21704166	0.864740	0.791598	0.875034	0.887487	0.918918	0.922542	0.957155	0.819434	0.796034	0.935289	0.870605	0.899967	0.975798	0.945090	0.906797	0.919883	0.902318	0.734140
cg12438576	0.564345	0.546505	0.129400	0.750029	0.429015	0.439174	0.701475	0.392022	0.297421	0.263907	0.362732	0.683450	0.785891	0.152831	0.442872	0.526173	0.554260	0.057372
cg01436723	0.907861	0.878963	0.951010	0.886494	0.950423	0.987841	0.947319	0.893207	0.742264	0.932788	0.950406	0.905721	0.951922	0.939694	0.839647	0.926598	0.922246	0.462916
cg26052885	0.642709	0.228933	0.826756	0.605867	0.723857	0.827478	0.718581	0.522062	0.515784	0.778923	0.825040	0.877905	0.892203	0.811333	0.729678	0.820221	0.656793	0.363475
cg27440834	0.861326	0.905684	0.918272	0.852222	0.945053	0.921528	0.975536	0.926236	0.904229	0.936734	0.888240	0.941070	0.924487	0.949255	0.801666	0.956565	0.900915	0.658149
cg16267236	0.897039	0.806997	0.958366	0.903496	0.957054	0.938601	0.931419	0.894496	0.870173	0.946056	0.929132	0.858721	0.969132	0.785831	0.891112	0.924948	0.922767	0.455248
cg03808577	0.639804	0.523158	0.609651	0.686498	0.766997	0.736202	0.775926	0.726863	0.231491	0.589016	0.568674	0.701741	0.746570	0.516705	0.584282	0.645135	0.674704	0.122918
cg02057134	0.740831	0.827781	0.863458	0.904715	0.894682	0.851204	0.829532	0.680647	0.675816	0.483124	0.444654	0.841133	0.781963	0.575317	0.764495	0.784809	0.776317	0.189752
cg26365110	0.959448	0.895822	0.978305	0.978815	0.977372	0.969610	0.967854	0.962043	0.949580	0.960072	0.947003	0.949947	0.990978	0.967498	0.973944	0.955767	0.989599	0.207594
cg04116155	0.771028	0.757168	0.953563	0.928344	0.666158	0.949150	0.775911	0.700282	0.703949	0.706310	0.696966	0.933450	0.975141	0.769393	0.812173	0.910868	0.780628	0.383629
cg12336709	0.911624	0.873105	0.949433	0.976452	0.981560	0.947608	0.954041	0.925825	0.902769	0.950621	0.906213	0.927075	0.956478	0.878188	0.914689	0.953274	0.937215	0.181977

Part B5. Adjacent-normal samples 19–36

Probe ID	X172N	X279N	X151N	X229083N	X245N	X84N	X138N	X243N	X244N	X200100N	X14N	X234N	X154N	X333N	X337N	X328N	X340N	X335N
cg24659758	0.893135	0.832478	0.763694	0.791700	0.844404	0.525434	0.070218	0.758784	0.621477	0.876686	0.821273	0.826402	0.920460	0.875281	0.733478	0.151162	0.921826	0.938291
cg18498156	0.946861	0.959175	0.937430	0.975261	0.923871	0.935453	0.936041	0.955966	0.933306	0.897625	0.845220	0.929685	0.943078	0.935149	0.934375	0.908053	0.943241	0.970280
cg18209470	0.968752	0.965276	0.949374	0.987024	0.963996	0.956918	0.799473	0.983388	0.962977	0.928615	0.989674	0.986152	0.976116	0.972101	0.977541	0.950319	0.988444	0.983410
cg20162626	0.892812	0.769432	0.760233	0.902975	0.832901	0.780699	0.887124	0.802677	0.711332	0.820519	0.880443	0.875017	0.844099	0.885532	0.880829	0.817841	0.917938	0.824862
cg09444531	0.838470	0.745706	0.553712	0.765701	0.755653	0.544252	0.403690	0.686467	0.867225	0.857885	0.759357	0.692225	0.620434	0.716906	0.628267	0.686927	0.803977	0.792308
cg07236691	0.599891	0.196703	0.506932	0.463460	0.539716	0.564263	0.081833	0.346486	0.669839	0.558179	0.627403	0.653396	0.515983	0.485137	0.235706	0.573124	0.408799	0.545784
cg07999042	0.923793	0.788510	0.769955	0.849288	0.940576	0.886213	0.909791	0.867247	0.956787	0.883054	0.860271	0.868453	0.921695	0.892715	0.877481	0.884843	0.932498	0.875711
cg09441819	0.937188	0.929745	0.888868	0.949832	0.936064	0.759493	0.379485	0.913670	0.912271	0.956660	0.871953	0.913729	0.933481	0.941531	0.923280	0.904278	0.950173	0.889751
cg17177816	0.864528	0.559311	0.517173	0.616069	0.861527	0.877178	0.190199	0.375937	0.602803	0.761173	0.628513	0.646673	0.861839	0.420162	0.681638	0.493777	0.907055	0.656456
cg11458974	0.815430	0.888606	0.756485	0.848991	0.903187	0.911456	0.680029	0.752583	0.927649	0.930608	0.925095	0.884695	0.679930	0.839457	0.844391	0.958623	0.928371	0.835494
cg22451100	0.884016	0.930311	0.885655	0.925691	0.955099	0.953133	0.493856	0.945149	0.933135	0.918520	0.864927	0.944945	0.966668	0.902322	0.952505	0.906969	0.890482	0.930245
cg13692972	0.761595	0.762571	0.766817	0.797625	0.858412	0.795379	0.822825	0.803277	0.879500	0.810454	0.781130	0.842177	0.891359	0.848114	0.739411	0.850930	0.614271	0.750162
cg14334810	0.952817	0.940862	0.896099	0.937902	0.931330	0.913939	0.860208	0.954876	0.926833	0.901230	0.780885	0.974093	0.970129	0.936882	0.959025	0.917442	0.950985	0.954357
cg17156053	0.897723	0.544690	0.690027	0.762225	0.798341	0.678914	0.246821	0.564627	0.765248	0.738500	0.566676	0.580960	0.840045	0.755851	0.717167	0.666080	0.861954	0.785578
cg16744911	0.775928	0.741916	0.760879	0.604998	0.771374	0.805953	0.201701	0.635324	0.894649	0.586223	0.373940	0.756528	0.830721	0.513931	0.703484	0.743131	0.762299	0.743439
cg02102889	0.850299	0.951473	0.705539	0.885354	0.904236	0.671423	0.311994	0.945502	0.827867	0.838963	0.855344	0.897815	0.920133	0.856201	0.913564	0.756425	0.906350	0.857738
cg04489243	0.933446	0.857755	0.798383	0.856490	0.782331	0.689684	0.642216	0.871361	0.839343	0.842521	0.872751	0.846640	0.919030	0.872803	0.718121	0.824011	0.877219	0.869020
cg04483101	0.912071	0.904981	0.820591	0.884448	0.916112	0.835685	0.492765	0.904171	0.852409	0.887531	0.865765	0.851819	0.907930	0.935446	0.783436	0.867407	0.857251	0.929588
cg21723486	0.692025	0.525643	0.547155	0.657268	0.663019	0.584558	0.065001	0.524975	0.728582	0.669931	0.635116	0.691304	0.704456	0.756469	0.420270	0.498712	0.553993	0.731900
cg25708695	0.760351	0.879072	0.785924	0.918218	0.798718	0.814764	0.690267	0.897319	0.805219	0.861645	0.758116	0.740974	0.940739	0.851002	0.879238	0.765929	0.792064	0.666955
cg26876703	0.844860	0.861568	0.887228	0.888547	0.892282	0.898655	0.767821	0.844965	0.912566	0.891516	0.873392	0.882966	0.930737	0.848212	0.937920	0.855354	0.947039	0.856281
cg03742272	0.733013	0.661137	0.511424	0.628389	0.800515	0.687383	0.365191	0.552181	0.608336	0.750271	0.552299	0.743512	0.741532	0.717448	0.328672	0.548360	0.598783	0.722728
cg00501366	0.912630	0.848000	0.836378	0.813253	0.876997	0.818691	0.958296	0.945347	0.923296	0.893843	0.721249	0.909268	0.854755	0.895464	0.874288	0.861730	0.880399	0.923434
cg01064286	0.921282	0.486503	0.799269	0.752678	0.699882	0.699598	0.310873	0.601220	0.961145	0.611630	0.206784	0.710517	0.676431	0.804842	0.543287	0.735730	0.941824	0.608747
cg05986866	0.960081	0.923376	0.920588	0.918882	0.935801	0.944294	0.929459	0.939806	0.919948	0.948201	0.948043	0.961723	0.981762	0.941854	0.961055	0.917852	0.959064	0.964194
cg18520851	0.805075	0.660338	0.800782	0.752843	0.645325	0.610645	0.112423	0.430241	0.759548	0.793777	0.529240	0.761517	0.848188	0.803176	0.601627	0.732406	0.770471	0.721593
cg07981370	0.919390	0.736131	0.761962	0.825118	0.898531	0.861793	0.792117	0.868040	0.772426	0.866601	0.745763	0.779539	0.877454	0.831000	0.854384	0.824235	0.923206	0.864991
cg12910268	0.468460	0.035417	0.032871	0.419227	0.257226	0.249294	0.673043	0.117512	0.373421	0.383172	0.852966	0.264891	0.329530	0.328720	0.043878	0.032204	0.498244	0.307196
cg10401362	0.421584	0.016260	0.026671	0.401635	0.118184	0.122952	0.717377	0.090815	0.042688	0.292059	0.919854	0.283599	0.306825	0.279098	0.022592	0.033101	0.418174	0.184078
cg02994253	0.980619	0.975966	0.990505	0.982663	0.975871	0.978078	0.851981	0.994114	0.980608	0.911940	0.983487	0.977346	0.982986	0.956835	0.976494	0.984395	0.977586	0.973779

Probe ID	X172N	X279N	X151N	X229083N	X245N	X84N	X138N	X243N	X244N	X200100N	X14N	X234N	X154N	X333N	X337N	X328N	X340N	X335N
cg00114346	0.835118	0.884527	0.821331	0.879354	0.889097	0.881611	0.759968	0.829379	0.834707	0.915085	0.904813	0.937735	0.902360	0.866924	0.795874	0.865104	0.925556	0.905428
cg14213430	0.860129	0.947211	0.947707	0.914727	0.938972	0.961453	0.844682	0.960230	0.896467	0.940927	0.967455	0.939887	0.932569	0.887577	0.905268	0.914193	0.965423	0.932097
cg27023755	0.871713	0.918328	0.890175	0.909692	0.934727	0.938423	0.208146	0.875845	0.945140	0.889552	0.854816	0.953922	0.946017	0.919211	0.934573	0.927596	0.962420	0.948046
cg12626639	0.945943	0.964883	0.955424	0.951639	0.961177	0.944276	0.604255	0.975837	0.929222	0.974427	0.523282	0.966707	0.961886	0.920932	0.942886	0.817794	0.991889	0.981700
cg11458974	0.815430	0.888606	0.756485	0.848991	0.903187	0.911456	0.680029	0.752583	0.927649	0.930608	0.925095	0.884695	0.679930	0.839457	0.844391	0.958623	0.928371	0.835494
cg01940810	0.909901	0.907452	0.808866	0.869974	0.891030	0.819465	0.850843	0.873278	0.907464	0.882655	0.708294	0.917559	0.878196	0.876974	0.853018	0.915098	0.924372	0.906769
cg20341582	0.978267	0.949150	0.915029	0.932991	0.958945	0.925180	0.893770	0.940662	0.968121	0.960367	0.868224	0.878739	0.919016	0.933260	0.930835	0.845307	0.969792	0.902141
cg24011073	0.717836	0.698518	0.845149	0.714544	0.828277	0.815449	0.298588	0.867467	0.906317	0.739812	0.737841	0.704839	0.807130	0.754198	0.856225	0.829800	0.744082	0.741986
cg00864334	0.836343	0.760099	0.668668	0.779112	0.795178	0.796745	0.423850	0.660224	0.877872	0.781846	0.867825	0.875447	0.706774	0.821627	0.679342	0.741524	0.886198	0.826490
cg26472089	0.470776	0.538041	0.670818	0.802007	0.627189	0.755373	0.387346	0.526513	0.678719	0.731679	0.148434	0.559963	0.598727	0.570568	0.733583	0.520436	0.884365	0.716828
cg16857825	0.939563	0.883027	0.833550	0.900155	0.890225	0.867867	0.918736	0.851839	0.897507	0.924143	0.912203	0.962455	0.925075	0.885827	0.833768	0.836913	0.947697	0.920450
cg26033870	0.917572	0.950318	0.897832	0.919110	0.903454	0.945166	0.553282	0.738789	0.889833	0.917195	0.852326	0.959521	0.930037	0.844059	0.914941	0.939649	0.869613	0.909143
cg18932526	0.895209	0.736904	0.869324	0.837171	0.776807	0.729083	0.066865	0.670082	0.819053	0.780014	0.371019	0.849026	0.747231	0.803302	0.630892	0.826595	0.737939	0.824130
cg09663237	0.993118	0.996849	0.997609	0.997209	0.997276	0.995361	0.303602	0.999571	0.998082	0.996654	0.999603	0.996818	0.989293	0.992155	0.998351	0.996221	0.997677	0.994243
cg21704166	0.969540	0.918895	0.915634	0.918646	0.931490	0.909311	0.969447	0.866478	0.916038	0.943132	0.924809	0.923021	0.911335	0.915359	0.904093	0.946245	0.911982	0.839267
cg12438576	0.717534	0.496653	0.409356	0.583075	0.517386	0.598721	0.055648	0.523395	0.583922	0.580712	0.365035	0.590834	0.631199	0.460702	0.300736	0.366857	0.618657	0.625183
cg01436723	0.964199	0.895668	0.918600	0.955486	0.940233	0.826978	0.110854	0.944998	0.896622	0.940003	0.776554	0.882995	0.958670	0.926482	0.845688	0.751907	0.902547	0.903866
cg26052885	0.898879	0.564406	0.642095	0.742418	0.676223	0.434597	0.881798	0.642256	0.777988	0.852763	0.412423	0.717487	0.745257	0.887159	0.623415	0.694445	0.768239	0.783261
cg27440834	0.964249	0.961848	0.907088	0.947938	0.919700	0.928684	0.687842	0.968447	0.922299	0.929146	0.926267	0.968309	0.956481	0.927794	0.953186	0.888472	0.912343	0.940474
cg16267236	0.964168	0.888194	0.894259	0.887300	0.924791	0.936065	0.937293	0.948210	0.940434	0.959469	0.952506	0.950916	0.947892	0.906889	0.901483	0.932999	0.916017	0.936999
cg03808577	0.589209	0.567110	0.526079	0.612184	0.755133	0.800958	0.545335	0.619606	0.778797	0.695833	0.598735	0.737081	0.708442	0.735735	0.763457	0.814350	0.636791	0.681363
cg02057134	0.793439	0.824826	0.813073	0.818810	0.848892	0.878385	0.347266	0.705625	0.763022	0.678095	0.758639	0.950801	0.748587	0.819789	0.830274	0.811396	0.772542	0.812082
cg26365110	0.977055	0.968457	0.975624	0.944995	0.963749	0.973493	0.984041	0.983456	0.971816	0.942236	0.892845	0.984811	0.971521	0.960421	0.970205	0.938624	0.970167	0.972470
cg04116155	0.895648	0.788229	0.953048	0.880204	0.933581	0.883681	0.250934	0.847864	0.896479	0.879103	0.849242	0.900654	0.835626	0.801489	0.755527	0.789009	0.831580	0.916530
cg12336709	0.932293	0.923793	0.937962	0.923103	0.890018	0.916638	0.975233	0.940236	0.945596	0.931906	0.954052	0.960739	0.906646	0.934607	0.924276	0.920261	0.964708	0.942185

Part B6. Adjacent-normal samples 37–54

Probe ID	X259N	X325N	X343N	X348N	X345N	X332N	X256N	X349N	X289N	X290N	X342N	X344N	X330N	X235N	X309N	X288N	X308N	X261N
cg24659758	0.851848	0.778371	0.224513	0.844755	0.688680	0.824921	0.906297	0.295060	0.714293	0.867742	0.835610	0.839567	0.621853	0.528096	0.369589	0.671836	0.706367	0.578956
cg18498156	0.937287	0.905604	0.802038	0.922625	0.897119	0.901550	0.965605	0.933311	0.927342	0.932522	0.893287	0.953330	0.863875	0.893708	0.837048	0.829357	0.803777	0.836184
cg18209470	0.962867	0.978291	0.962544	0.956878	0.959044	0.972056	0.971696	0.953546	0.933402	0.982158	0.970099	0.947619	0.865769	0.912957	0.886382	0.856072	0.899181	0.893841
cg20162626	0.811057	0.674479	0.845719	0.747980	0.823301	0.889123	0.749501	0.831217	0.866415	0.776708	0.837074	0.927043	0.743530	0.706027	0.542960	0.678756	0.698938	0.766686
cg09444531	0.580204	0.754300	0.429281	0.489146	0.744840	0.795095	0.691229	0.411775	0.602652	0.744413	0.788602	0.831931	0.465412	0.267418	0.381781	0.521750	0.550879	0.556523
cg07236691	0.653473	0.265730	0.058067	0.406694	0.600122	0.469891	0.141522	0.261211	0.085757	0.495885	0.429853	0.444613	0.069611	0.303122	0.274220	0.121921	0.289868	0.312199
cg07999042	0.863761	0.833650	0.814718	0.857600	0.745287	0.842159	0.865238	0.807767	0.830915	0.864786	0.874583	0.925737	0.764607	0.666289	0.730694	0.758367	0.770472	0.751871
cg09441819	0.861842	0.754644	0.647333	0.852238	0.786887	0.968896	0.914883	0.753090	0.861141	0.916060	0.870731	0.923349	0.550437	0.772836	0.800886	0.234515	0.539537	0.816432
cg17177816	0.396254	0.525832	0.286351	0.782314	0.484577	0.758245	0.804567	0.548846	0.616799	0.706566	0.653077	0.497396	0.619777	0.572987	0.353433	0.582442	0.618755	0.510873
cg11458974	0.711434	0.759866	0.489606	0.879087	0.755253	0.895268	0.747981	0.880576	0.712064	0.902735	0.873539	0.857741	0.620906	0.588224	0.528803	0.578624	0.623187	0.610117
cg22451100	0.845479	0.925898	0.729232	0.945472	0.898518	0.958296	0.910583	0.913119	0.892478	0.818370	0.922518	0.891170	0.500684	0.818956	0.753279	0.456967	0.825199	0.852963
cg13692972	0.878073	0.615690	0.770013	0.639089	0.889918	0.653570	0.701427	0.843160	0.804311	0.867433	0.819524	0.827840	0.685815	0.136007	0.743858	0.728882	0.768237	0.734399
cg14334810	0.911581	0.854327	0.863798	0.910136	0.925211	0.900631	0.899550	0.927749	0.928060	0.941813	0.925615	0.937824	0.840962	0.833046	0.816302	0.809391	0.827221	0.803563
cg17156053	0.686896	0.717001	0.402941	0.841183	0.591732	0.556682	0.795513	0.489453	0.622786	0.823957	0.844675	0.775607	0.710215	0.594476	0.507125	0.630337	0.536048	0.515111
cg16744911	0.695221	0.768725	0.375809	0.701565	0.638055	0.644796	0.634729	0.504626	0.475462	0.809172	0.643061	0.690912	0.406528	0.566298	0.555633	0.157345	0.590833	0.354253
cg02102889	0.877608	0.832230	0.708582	0.736445	0.714249	0.878513	0.835741	0.545858	0.916525	0.876301	0.798058	0.843534	0.753501	0.134967	0.565051	0.471021	0.718092	0.786504
cg04489243	0.756514	0.745751	0.714479	0.754780	0.712335	0.883888	0.830830	0.802853	0.756604	0.897690	0.918699	0.920113	0.698496	0.626868	0.615562	0.675009	0.658633	0.575395
cg04483101	0.949073	0.866801	0.742416	0.820970	0.872851	0.789339	0.875488	0.790362	0.739521	0.888177	0.920828	0.942570	0.705126	0.740650	0.682031	0.684958	0.735635	0.679037
cg21723486	0.742253	0.495429	0.198021	0.529224	0.528226	0.545749	0.550351	0.482664	0.488864	0.668652	0.539695	0.775513	0.383061	0.414352	0.378434	0.364513	0.433439	0.470450
cg25708695	0.670292	0.917658	0.809729	0.714862	0.684130	0.849221	0.935308	0.804412	0.666018	0.765796	0.855376	0.864350	0.690655	0.642141	0.670657	0.730677	0.634499	0.653783
cg26876703	0.861532	0.839243	0.746296	0.890668	0.828817	0.905300	0.885329	0.826405	0.814987	0.866823	0.873762	0.886546	0.800795	0.722594	0.699233	0.769232	0.755566	0.675126
cg03742272	0.599360	0.481890	0.546407	0.519189	0.564981	0.716635	0.594274	0.661928	0.533719	0.638583	0.711362	0.633866	0.511826	0.460219	0.299977	0.481824	0.574737	0.217448
cg00501366	0.829253	0.615127	0.862831	0.848566	0.773087	0.894046	0.868063	0.792720	0.792140	0.870344	0.890176	0.943104	0.793892	0.860868	0.189642	0.636850	0.306651	0.846487
cg01064286	0.509541	0.647574	0.613684	0.700716	0.593025	0.625203	0.683387	0.607109	0.191476	0.821450	0.706083	0.404090	0.668422	0.702725	0.090206	0.315909	0.120628	0.567300
cg05986866	0.917758	0.959402	0.904498	0.917793	0.927178	0.922797	0.889653	0.947475	0.927898	0.934960	0.920016	0.964856	0.891445	0.850600	0.841298	0.873794	0.854743	0.852243
cg18520851	0.737843	0.626364	0.613885	0.595937	0.476654	0.641678	0.548632	0.379823	0.448980	0.843631	0.690991	0.832265	0.482465	0.475428	0.534724	0.104108	0.146945	0.629272
cg07981370	0.731092	0.777568	0.637565	0.834419	0.907137	0.830892	0.847714	0.623457	0.750555	0.776602	0.818552	0.871356	0.794895	0.703269	0.652455	0.776546	0.777997	0.570873
cg12910268	0.302420	0.129719	0.035870	0.438829	0.014942	0.527791	0.095123	0.121472	0.065783	0.416576	0.426263	0.358346	0.353476	0.083621	0.515117	0.071158	0.418904	0.453694
cg10401362	0.244362	0.080420	0.015797	0.325890	0.004802	0.441006	0.150674	0.057312	0.042069	0.316793	0.329196	0.340642	0.225842	0.030199	0.461479	0.052102	0.304676	0.360575
cg02994253	0.975672	0.967275	0.962373	0.977956	0.968088	0.935801	0.922385	0.985060	0.961275	0.936051	0.990275	0.932718	0.891643	0.893058	0.907808	0.862269	0.915256	0.849557

Probe ID	X259N	X325N	X343N	X348N	X345N	X332N	X256N	X349N	X289N	X290N	X342N	X344N	X330N	X235N	X309N	X288N	X308N	X261N
cg00114346	0.860259	0.873478	0.778949	0.816189	0.854872	0.887970	0.810064	0.906421	0.760470	0.840092	0.834315	0.896843	0.476989	0.274114	0.850969	0.540817	0.849246	0.892336
cg14213430	0.937834	0.915565	0.842760	0.884888	0.930235	0.898451	0.940895	0.910708	0.843321	0.947396	0.933496	0.965141	0.858090	0.828853	0.460655	0.836532	0.843474	0.800149
cg27023755	0.952356	0.918932	0.874028	0.861548	0.933010	0.921676	0.902084	0.921659	0.862398	0.893359	0.936493	0.951403	0.766337	0.682473	0.661644	0.783159	0.793502	0.596292
cg12626639	0.936021	0.943474	0.774249	0.967003	0.932039	0.952388	0.920847	0.849926	0.940006	0.950104	0.968581	0.910581	0.827017	0.781154	0.783176	0.866863	0.827364	0.779703
cg11458974	0.711434	0.759866	0.489606	0.879087	0.755253	0.895268	0.747981	0.880576	0.712064	0.902735	0.873539	0.857741	0.620906	0.588224	0.528803	0.578624	0.623187	0.610117
cg01940810	0.913664	0.775972	0.793779	0.827730	0.847421	0.886899	0.855383	0.758888	0.880630	0.956510	0.917560	0.883315	0.782639	0.790119	0.791386	0.354721	0.764347	0.838227
cg20341582	0.963358	0.853153	0.790290	0.806444	0.949638	0.862830	0.943585	0.899816	0.849082	0.945973	0.893184	0.955345	0.821993	0.860340	0.801781	0.704102	0.796580	0.871064
cg24011073	0.816464	0.670429	0.501597	0.777663	0.712492	0.608022	0.837228	0.512880	0.670483	0.853113	0.697005	0.827889	0.677464	0.678586	0.395204	0.746074	0.824684	0.814897
cg00864334	0.593577	0.826706	0.638090	0.795513	0.838655	0.733958	0.812979	0.755669	0.626420	0.749565	0.610624	0.592961	0.647998	0.726981	0.410642	0.649823	0.678705	0.719824
cg26472089	0.520754	0.522708	0.209411	0.853135	0.645089	0.555329	0.532708	0.153799	0.546291	0.774468	0.485962	0.823087	0.400297	0.491149	0.364192	0.487071	0.445488	0.376312
cg16857825	0.924223	0.855774	0.884806	0.798732	0.889332	0.933080	0.841722	0.920391	0.890217	0.829729	0.892062	0.887878	0.850183	0.835468	0.768272	0.841826	0.842647	0.843792
cg26033870	0.894510	0.840080	0.772191	0.961172	0.828082	0.852791	0.898299	0.935868	0.819215	0.891875	0.923819	0.820458	0.743918	0.626609	0.731378	0.632166	0.742422	0.690554
cg18932526	0.864315	0.575266	0.221023	0.701000	0.812303	0.826998	0.625976	0.186839	0.716428	0.797835	0.853337	0.833730	0.552220	0.478821	0.636170	0.510422	0.573556	0.499616
cg09663237	0.997181	0.977983	0.989408	0.990501	0.996923	0.999372	0.991822	0.994777	0.995848	0.991930	0.993638	0.987546	0.971378	0.959079	0.954819	0.986358	0.968622	0.940739
cg21704166	0.913963	0.913169	0.901626	0.935789	0.909424	0.911863	0.923455	0.847705	0.856947	0.911698	0.935094	0.858071	0.879051	0.851177	0.888018	0.879214	0.892983	0.894258
cg12438576	0.351468	0.395010	0.074869	0.236833	0.392533	0.530048	0.543150	0.387995	0.450158	0.519789	0.387376	0.405743	0.172302	0.357113	0.064423	0.378643	0.421799	0.473314
cg01436723	0.887669	0.791000	0.804114	0.838502	0.815160	0.895688	0.942177	0.842230	0.794143	0.886953	0.930532	0.923961	0.644811	0.710163	0.700729	0.577379	0.604573	0.655118
cg26052885	0.662336	0.591811	0.689899	0.524039	0.653815	0.824764	0.552896	0.517495	0.650359	0.707936	0.850414	0.737845	0.583742	0.584053	0.585827	0.523536	0.506559	0.559299
cg27440834	0.935634	0.928038	0.919150	0.913653	0.913727	0.923473	0.961954	0.926476	0.887346	0.921911	0.952652	0.900361	0.888747	0.844680	0.801764	0.834940	0.849986	0.822705
cg16267236	0.938803	0.883325	0.851099	0.947631	0.844243	0.863378	0.904368	0.899471	0.912184	0.897118	0.930352	0.933782	0.808390	0.795139	0.779118	0.824945	0.806841	0.792299
cg03808577	0.608566	0.698476	0.304108	0.582296	0.588467	0.723169	0.682839	0.690077	0.644522	0.630323	0.652642	0.615860	0.518363	0.472578	0.432155	0.511251	0.458020	0.474916
cg02057134	0.738326	0.714158	0.567245	0.775768	0.859167	0.825817	0.660546	0.887373	0.747769	0.727536	0.834947	0.787735	0.445439	0.169453	0.203424	0.419437	0.450879	0.790379
cg26365110	0.985094	0.961816	0.936698	0.946755	0.935802	0.938024	0.962241	0.969313	0.961261	0.923894	0.928137	0.969421	0.904946	0.868612	0.852036	0.881038	0.882305	0.830956
cg04116155	0.885235	0.747970	0.774037	0.924704	0.675664	0.813749	0.893491	0.875678	0.673332	0.791232	0.842656	0.848453	0.675390	0.514826	0.706998	0.439886	0.691907	0.392745
cg12336709	0.920110	0.957701	0.905172	0.924102	0.821083	0.912047	0.896489	0.947051	0.921326	0.911601	0.889625	0.917677	0.833724	0.823252	0.776023	0.768768	0.755744	0.805006

Supplementary Table S2. Functional enrichment results for differentially methylated ferroptosis-driver genes.

Pathway	Annotation ID	Genes found	Input size	Term genes	Universe	P value	Adjusted P value	Relative enrichment	Annotation bias	Genes
ATF2 transcription factor network	bioplanet_1342	5	21	58	8575	2.21e-07	8.5e-05	35.201149	0.99905066	*MAPK9, MAPK14, MAPK8, ATF3, IFNG*
Autophagy regulation	bioplanet_201	4	21	30	8575	6.03e-07	0.000115715	54.444444	0.96306058	*ULK1, ATG7, IFNG, PRKAA2*
Rapid glucocorticoid receptor pathway	bioplanet_1329	3	21	9	8575	1.29e-06	0.000139963	136.11111	1.0707942	*MAPK9, MAPK14, MAPK8*
Activation of the AP-1 family of transcription factors	bioplanet_1614	3	21	10	8575	1.46e-06	0.000139963	122.5	0.98993887	*MAPK9, MAPK14, MAPK8*
Senescence and autophagy	bioplanet_1763	5	21	96	8575	2.74e-06	0.0001836	21.267361	0.99605653	*ULK1, MAPK14, ATG7, MAP1LC3A, IFNG*
Interleukin-12/STAT4 pathway	bioplanet_1384	4	21	43	8575	2.87e-06	0.0001836	37.984496	0.98171176	*MAPK9, MAPK14, MAPK8, IFNG*
TGF-beta signaling pathway	bioplanet_274	6	21	184	8575	4.1e-06	0.000224967	13.315217	1.0168667	*ZEB1, MAPK9, MAPK14, MAPK8, ATF3, IFNG*
G alpha 12 pathway	bioplanet_1688	4	21	48	8575	5.29e-06	0.000253725	34.027778	1.0237212	*MAPK9, MAPK14, MAPK8, KRAS*
Hypertrophy pathway	bioplanet_1757	3	21	19	8575	1.12e-05	0.000399283	64.473684	0.97736292	*ZEB1, ATF3, IFNG*
Natural killer cell receptor signaling pathway	bioplanet_711	4	21	60	8575	1.24e-05	0.000399283	27.222222	1.0105885	*MAPK9, MAPK14, MAPK8, KRAS*
G-protein-independent seven transmembrane receptor signaling	bioplanet_730	3	21	19	8575	1.23e-05	0.000399283	64.473684	1.009419	*MAPK9, MAPK14, MAPK8*
CD8/T cell receptor downstream pathway	bioplanet_1377	4	21	61	8575	1.25e-05	0.000399283	26.775956	0.99601975	*MAPK9, MAPK8, IFNG, KRAS*
T cell receptor signaling pathway	bioplanet_470	5	21	136	8575	1.67e-05	0.000461404	15.012255	1.0159155	*MAPK9, MAPK14, MAPK8, IFNG, KRAS*
MAPK cascade role in angiogenesis	bioplanet_1718	4	21	64	8575	1.68e-05	0.000461404	25.520833	1.0238501	*MAPK14, MAPK8, NOX4, KRAS*
Mitochondrial pathway of apoptosis: antiapoptotic Bcl-2 family	bioplanet_1014	3	21	23	8575	2.14e-05	0.00054803	53.26087	0.99501602	*MAPK9, MAPK14, MAPK8*
Th1/Th2 differentiation pathway	bioplanet_55	7	21	377	8575	2.47e-05	0.000592567	7.581786	1.0311126	*ULK1, MAPK9, MAPK14, MAPK8, IFNG, PRKAA2, KRAS*
Myocyte adrenergic pathway	bioplanet_1694	4	21	71	8575	2.62e-05	0.000592626	23.004695	1.0321616	*MAPK9, MAPK14, MAPK8, KRAS*
IGF1 receptor signaling through beta-arrestin	bioplanet_653	3	21	25	8575	3.12e-05	0.000666016	49	1.0359551	*MAPK9, MAPK14, MAPK8*
Regular glucocorticoid receptor	bioplanet_1321	4	21	81	8575	3.81e-05	0.000683668	20.164609	0.99319623	*MAPK9, MAPK14, MAPK8, IFNG*

Pathway	Annotation ID	Genes found	Input size	Term genes	Universe	P value	Adjusted P value	Relative enrichment	Annotation bias	Genes
pathway										
T cell signal transduction	bioplanet_587	4	21	78	8575	3.92e-05	0.000683668	20.940171	1.0398243	*MAPK9*, *MAPK14*, *MAPK8*, *KRAS*
Oxidative stress	bioplanet_1747	3	21	27	8575	3.42e-05	0.000683668	45.37037	0.98592465	*MAPK14*, *NOX4*, *HMOX1*
Fc epsilon receptor I signaling pathway	bioplanet_471	4	21	79	8575	3.72e-05	0.000683668	20.675105	1.0123009	*MAPK9*, *MAPK14*, *MAPK8*, *KRAS*
Differentiation pathway in PC12 cells	bioplanet_1689	4	21	83	8575	4.77e-05	0.000795917	19.678715	1.026743	*MAPK9*, *MAPK14*, *MAPK8*, *KRAS*
Nuclear events mediated by MAP kinases	bioplanet_1581	3	21	30	8575	5.34e-05	0.000819936	40.833333	1.0276678	*MAPK9*, *MAPK14*, *MAPK8*
CD40/CD40L signaling	bioplanet_606	3	21	31	8575	5.29e-05	0.000819936	39.516129	0.99016881	*MAPK9*, *MAPK14*, *MAPK8*
Progesterone-mediated oocyte maturation	bioplanet_454	4	21	85	8575	6.12e-05	0.000903337	19.215686	1.0693864	*MAPK9*, *MAPK14*, *MAPK8*, *KRAS*
Chagas disease	bioplanet_312	4	21	103	8575	0.000101198	0.001398329	15.857605	1.0020417	*MAPK9*, *MAPK14*, *MAPK8*, *IFNG*
GnRH signaling pathway	bioplanet_453	4	21	101	8575	0.000101962	0.001398329	16.171617	1.0244549	*MAPK9*, *MAPK14*, *MAPK8*, *KRAS*
Fibroblast growth factor receptor pathway	bioplanet_1670	4	21	103	8575	0.000114276	0.001513177	15.857605	1.0347032	*MAPK9*, *MAPK14*, *MAPK8*, *KRAS*
TWEAK signaling pathway	bioplanet_581	3	21	42	8575	0.000132297	0.001693398	29.166667	0.98890612	*MAPK9*, *MAPK14*, *MAPK8*
G alpha i pathway	bioplanet_1684	4	21	107	8575	0.000137483	0.00170301	15.264798	1.0448638	*MAPK9*, *MAPK14*, *MAPK8*, *KRAS*
Epidermal growth factor receptor (EGFR) pathway	bioplanet_1669	4	21	109	8575	0.000143602	0.001723222	14.984709	1.0370774	*MAPK9*, *MAPK14*, *MAPK8*, *KRAS*
ERBB2/ERBB3 signaling events	bioplanet_617	3	21	44	8575	0.000165065	0.001920759	27.840909	1.0169096	*MAPK9*, *MAPK8*, *KRAS*
HIV-1 Nef as negative effector of Fas and TNF	bioplanet_17	12	21	1707	8575	0.00017607	0.00198855	2.8705331	0.9962767	*ULK1*, *ZEB1*, *LPIN1*, *MAPK14*, *ATG7*, *MAPK8*, *MAP1LC3A*, *ATF3*, *IFNG*, *NOX4*, *HMOX1*, *KRAS*
Neurotrophin signaling pathway	bioplanet_476	4	21	125	8575	0.000227338	0.002494222	13.066667	1.0181355	*MAPK9*, *MAPK14*, *MAPK8*, *KRAS*
RANKL signaling pathway	bioplanet_614	3	21	54	8575	0.000305404	0.003239613	22.685185	1.0182827	*MAPK9*, *MAPK14*, *MAPK8*
Glypican-3 pathway	bioplanet_1381	2	21	11	8575	0.00031215	0.003239613	74.242424	1.0034287	*MAPK9*, *MAPK8*
Down syndrome cell adhesion molecule (DSCAM) interactions	bioplanet_1515	2	21	11	8575	0.000351991	0.003402304	74.242424	1.0661415	*MAPK14*, *MAPK8*
Iron metabolism in placenta	bioplanet_821	2	21	12	8575	0.000354407	0.003402304	68.055556	0.97649981	*TF*, *TFR2*
Calcineurin-dependent NFAT signaling role in lymphocytes	bioplanet_722	3	21	55	8575	0.000353029	0.003402304	22.272727	1.0506167	*MAPK9*, *MAPK14*, *MAPK8*

Pathway	Annotation ID	Genes found	Input size	Term genes	Universe	P value	Adjusted P value	Relative enrichment	Annotation bias	Genes
Adrenergic pathway	bioplanet_1692	4	21	137	8575	0.00037136	0.003478099	11.922141	1.0570601	*MAPK9*, *MAPK14*, *MAPK8*, *KRAS*
EGF/EGFR signaling pathway	bioplanet_602	4	21	141	8575	0.000381945	0.003492068	11.583924	1.0340697	*MAPK9*, *MAPK14*, *MAPK8*, *KRAS*
Shigellosis	bioplanet_310	3	21	61	8575	0.000418185	0.003624123	20.081967	1.0019334	*MAPK9*, *MAPK14*, *MAPK8*
Insulin signaling pathway	bioplanet_452	5	21	272	8575	0.000471891	0.003624123	7.5061275	1.029601	*MAPK9*, *MAPK14*, *MAPK8*, *PRKAA2*, *KRAS*
fMLP induced chemokine gene expression in HMC-1 cells	bioplanet_132	5	21	276	8575	0.000454595	0.003624123	7.397343	1.0055415	*MAPK9*, *MAPK14*, *MAPK8*, *IFNG*, *KRAS*
TSP1-induced apoptosis in microvascular endothelial cell	bioplanet_29	6	21	398	8575	0.000409754	0.003624123	6.1557789	1.0713024	*MAPK9*, *MAPK14*, *MAPK8*, *IFNG*, *PRKAA2*, *KRAS*
RIG-I-like receptor signaling pathway	bioplanet_466	3	21	64	8575	0.000436301	0.003624123	19.140625	0.96800722	*MAPK9*, *MAPK14*, *MAPK8*
Keap1-Nrf2 pathway	bioplanet_1739	2	21	13	8575	0.00046491	0.003624123	62.820513	1.030128	*MAPK8*, *HMOX1*
Colorectal cancer	bioplanet_280	3	21	62	8575	0.00046192	0.003624123	19.758065	1.0199811	*MAPK9*, *MAPK8*, *KRAS*
Ephrin receptor B forward pathway	bioplanet_1308	3	21	60	8575	0.000431254	0.003624123	20.416667	1.0299693	*TF*, *MAPK8*, *KRAS*
Angiotensin II-stimulated signaling through G-proteins and beta-arrestin	bioplanet_706	3	21	62	8575	0.000514581	0.003728285	19.758065	1.0589599	*MAPK9*, *MAPK14*, *MAPK8*
Epithelial cell signaling in Helicobacter pylori infection	bioplanet_308	3	21	66	8575	0.000514267	0.003728285	18.560606	0.99310359	*MAPK9*, *MAPK14*, *MAPK8*
Integrin signaling pathway	bioplanet_271	4	21	153	8575	0.000495257	0.003728285	10.675381	1.0200332	*MAPK9*, *MAPK14*, *MAPK8*, *KRAS*
Adipocytokine signaling pathway	bioplanet_456	3	21	66	8575	0.0005445	0.003872002	18.560606	1.013032	*MAPK9*, *MAPK8*, *PRKAA2*
Pancreatic cancer	bioplanet_282	3	21	69	8575	0.000622916	0.004349083	17.753623	1.0144314	*MAPK9*, *MAPK8*, *KRAS*
JNK (c-Jun kinases) phosphorylation and activation mediated by activated human TAK1	bioplanet_1574	2	21	16	8575	0.000658852	0.004517844	51.041667	0.99043212	*MAPK9*, *MAPK8*
Rac1 cell motility signaling pathway	bioplanet_1379	3	21	71	8575	0.000683569	0.004535541	17.253521	1.017676	*MAPK9*, *MAPK14*, *MAPK8*
CDC42 signaling events	bioplanet_578	3	21	69	8575	0.000685056	0.004535541	17.753623	1.048654	*MAPK9*, *MAPK14*, *MAPK8*
Pertussis toxin-insensitive CCR5 signaling in macrophage	bioplanet_178	2	21	17	8575	0.000802285	0.005145293	48.039216	1.0279278	*MAPK14*, *MAPK8*
Seven transmembrane receptor signaling through beta-arrestin	bioplanet_713	3	21	74	8575	0.000803952	0.005145293	16.554054	1.0324315	*MAPK9*, *MAPK14*, *MAPK8*
Prolactin activation of MAPK signaling	bioplanet_487	3	21	75	8575	0.000819569	0.005159253	16.333333	1.0252422	*MAPK9*, *MAPK14*, *MAPK8*

Pathway	Annotation ID	Genes found	Input size	Term genes	Universe	P value	Adjusted P value	Relative enrichment	Annotation bias	Genes
NOD signaling pathway	bioplanet_465	3	21	82	8575	0.000913663	0.005658818	14.939024	0.97220672	*MAPK9, MAPK14, MAPK8*
MAP kinase signaling pathway	bioplanet_94	4	21	189	8575	0.000996151	0.006071777	8.6419753	0.99356229	*MAPK9, GOT1, MAPK14, MAPK8*
HIF-1 degradation in normoxia	bioplanet_1671	3	21	83	8575	0.001025471	0.006152829	14.759036	0.99998091	*MAPK9, MAPK14, MAPK8*
Antigen-activated B-cell receptor generation of second messengers	bioplanet_489	4	21	188	8575	0.001097833	0.006485663	8.6879433	1.0262171	*MAPK9, MAPK14, MAPK8, KRAS*
Estrogen receptor signaling pathway	bioplanet_488	2	21	20	8575	0.001134997	0.006603617	40.833333	1.0369215	*MAPK9, MAPK14*
Sulfur amino acid metabolism	bioplanet_849	2	21	23	8575	0.001337873	0.007667808	35.507246	0.97672728	*GOT1, CDO1*
Interleukin-2 signaling pathway	bioplanet_1421	7	21	718	8575	0.001372066	0.007748135	3.9809656	1.0337723	*MAPK9, GOT1, MAPK14, MAPK8, IFNG, SNX4, KRAS*
ERBB signaling pathway	bioplanet_227	3	21	93	8575	0.001561172	0.008688262	13.172043	1.0326778	*MAPK9, MAPK8, KRAS*
Physiological and pathological hypertrophy of the heart	bioplanet_1705	2	21	26	8575	0.001860794	0.010207787	31.410256	1.0194652	*MAPK14, MAPK8*
ERBB1 downstream pathway	bioplanet_1340	3	21	105	8575	0.002172324	0.01174891	11.666667	1.0261077	*MAPK9, MAPK8, KRAS*
Tumor necrosis factor (TNF) pathway	bioplanet_1683	2	21	30	8575	0.002373525	0.012658801	27.222222	0.99767523	*MAPK9, MAPK8*
p53 activity regulation	bioplanet_195	3	21	113	8575	0.002508085	0.013193214	10.840708	1.0021991	*MAPK9, MAPK14, MAPK8*
Interleukin-18 signaling pathway	bioplanet_138	4	21	244	8575	0.002699502	0.013659585	6.6939891	1.0092949	*MAPK9, MAPK14, MAPK8, IFNG*
Retinoic acid receptor-mediated signaling	bioplanet_716	2	21	30	8575	0.00268612	0.013659585	27.222222	1.0630858	*MAPK14, MAPK8*
Fas signaling pathway	bioplanet_547	3	21	114	8575	0.00270346	0.013659585	10.745614	1.0203415	*MAPK9, MAPK14, MAPK8*
Cysteine and methionine metabolism	bioplanet_338	2	21	34	8575	0.002967606	0.014630527	24.019608	0.98486588	*GOT1, CDO1*
MAPK/TRK pathway	bioplanet_1375	2	21	34	8575	0.003048027	0.014630527	24.019608	0.99850969	*MAPK14, KRAS*
mTOR signaling pathway	bioplanet_117	5	21	417	8575	0.002976026	0.014630527	4.8960831	1.0124442	*ULK1, MAPK9, MAPK8, PRKAA2, KRAS*
G alpha s pathway	bioplanet_1679	3	21	117	8575	0.003034403	0.014630527	10.470085	1.0358017	*MAPK9, MAPK14, MAPK8*
Interleukin-1 signaling pathway	bioplanet_1675	3	21	123	8575	0.003132634	0.014851005	9.9593496	0.99554185	*MAPK9, MAPK14, MAPK8*
Iron uptake and transport	bioplanet_1072	2	21	37	8575	0.003457065	0.015659448	22.072072	0.97749864	*TF, HMOX1*
TOR signaling	bioplanet_550	2	21	33	8575	0.003466284	0.015659448	24.747475	1.0998582	*ULK1, PRKAA2*
Signaling to ERKs	bioplanet_531	2	21	36	8575	0.003424994	0.015659448	22.685185	1.0003384	*MAPK14, KRAS*
Interleukin-23-mediated signaling events	bioplanet_638	2	21	37	8575	0.003387891	0.015659448	22.072072	0.96736521	*IFNG, ALOX12B*

Pathway	Annotation ID	Genes found	Input size	Term genes	Universe	P value	Adjusted P value	Relative enrichment	Annotation bias	Genes
PDGFB signaling pathway	bioplanet_608	3	21	126	8575	0.003686719	0.01646163	9.7222222	1.0302905	*MAPK9*, *MAPK8*, *KRAS*
Tob role in T-cell activation	bioplanet_56	4	21	264	8575	0.003903741	0.017230307	6.1868687	1.0341594	*MAPK8*, *IFNG*, *PRKAA2*, *KRAS*
Toll-like receptor signaling pathway regulation	bioplanet_717	3	21	137	8575	0.004074256	0.017778572	8.9416058	0.98071155	*MAPK9*, *MAPK14*, *MAPK8*
Interleukin-10 anti-inflammatory signaling pathway	bioplanet_136	4	21	272	8575	0.004265748	0.018405025	6.004902	1.0287376	*MAPK14*, *MAPK8*, *IFNG*, *HMOX1*
FoxO family signaling	bioplanet_616	2	21	47	8575	0.005791525	0.024710505	17.375887	1.0011622	*MAPK9*, *MAPK8*
Energy metabolism	bioplanet_822	2	21	47	8575	0.005933434	0.025037786	17.375887	1.0138616	*MAPK14*, *PRKAA2*
Toll receptor cascades	bioplanet_1464	3	21	157	8575	0.006186347	0.025821273	7.8025478	0.99411671	*MAPK9*, *MAPK14*, *MAPK8*
Angiopoietin receptor Tie2-mediated signaling	bioplanet_724	2	21	49	8575	0.006386066	0.026368272	16.666667	1.0097829	*MAPK14*, *MAPK8*
MAPK signaling pathway	bioplanet_226	4	21	309	8575	0.006640771	0.026892173	5.2858684	1.0260093	*MAPK9*, *MAPK14*, *MAPK8*, *KRAS*
Telomeres, telomerase, cellular aging, and immortality	bioplanet_66	4	21	309	8575	0.006653011	0.026892173	5.2858684	1.0265707	*MAPK9*, *MAPK8*, *IFNG*, *KRAS*
JNK/MAPK pathway	bioplanet_1664	2	21	51	8575	0.006868733	0.027440661	16.013072	1.0071531	*MAPK9*, *MAPK8*
4-1BB-dependent immune response	bioplanet_49	4	21	311	8575	0.006931625	0.027440661	5.2518757	1.0322052	*MAPK14*, *MAPK8*, *IFNG*, *NOX4*
Activation of BMF and translocation to mitochondria	bioplanet_1199	1	21	3	8575	0.007172426	0.027845188	136.11111	0.97844652	*MAPK8*
Activation of BIM and translocation to mitochondria	bioplanet_1548	1	21	3	8575	0.007284687	0.027845188	136.11111	0.99381983	*MAPK8*
Type 2 diabetes mellitus	bioplanet_297	2	21	50	8575	0.007323864	0.027845188	16.333333	1.0626846	*MAPK9*, *MAPK8*
Androgen receptor regulation of biosynthesis and transcription	bioplanet_1333	2	21	52	8575	0.007217681	0.027845188	15.705128	1.0133976	*MAPK14*, *MAPK8*
Kit receptor signaling pathway	bioplanet_632	2	21	54	8575	0.007914587	0.029796094	15.123457	1.0235169	*MAPK14*, *MAPK8*
NFAT involvement in hypertrophy of the heart	bioplanet_168	4	21	325	8575	0.008141594	0.030353126	5.025641	1.0344424	*MAPK9*, *MAPK14*, *MAPK8*, *KRAS*
SHP2 signaling	bioplanet_559	2	21	56	8575	0.008350946	0.030834263	14.583333	1.0145684	*IFNG*, *KRAS*
TACI and BCMA stimulation of B cell immune responses	bioplanet_54	4	21	338	8575	0.009093955	0.033257893	4.8323471	1.0265589	*MAPK9*, *MAPK14*, *MAPK8*, *KRAS*
TNFR1 signaling pathway	bioplanet_30	4	21	350	8575	0.009392739	0.034026526	4.6666667	0.99949252	*MAPK9*, *MAPK14*, *MAPK8*, *IFNG*
Malate-aspartate shuttle	bioplanet_429	1	21	4	8575	0.009678351	0.034556684	102.08333	0.99141865	*GOT1*
Interleukin-12-mediated signaling	bioplanet_635	2	21	63	8575	0.009809059	0.034556684	12.962963	0.97973346	*MAPK14*, *IFNG*

Pathway	Annotation ID	Genes found	Input size	Term genes	Universe	P value	Adjusted P value	Relative enrichment	Annotation bias	Genes
events										
Leptin signaling pathway	bioplanet_588	2	21	61	8575	0.009757414	0.034556684	13.387978	1.0095477	*MAPK14, MAPK8*
Activation of PUMA and translocation to mitochondria	bioplanet_1411	1	21	4	8575	0.009943116	0.034710513	102.08333	1.0186827	*MAPK8*
Signaling events mediated by focal adhesion kinase	bioplanet_501	2	21	62	8575	0.011040655	0.03803198	13.172043	1.0599823	*MAPK9, MAPK8*
p75 neurotrophin receptor-mediated signaling	bioplanet_666	2	21	66	8575	0.011191702	0.03803198	12.373737	1.0019584	*MAPK9, MAPK8*
Retinoblastoma protein regulation	bioplanet_1380	2	21	65	8575	0.011126206	0.03803198	12.564103	1.0144566	*MAPK9, MAPK14*
Heme degradation	bioplanet_876	1	21	5	8575	0.011799637	0.038344816	81.666667	0.96794476	*HMOX1*
Phenylalanine, tyrosine and tryptophan biosynthesis	bioplanet_347	1	21	5	8575	0.011936771	0.038344816	81.666667	0.97926517	*GOT1*
AP-1 transcription factor network	bioplanet_1343	2	21	69	8575	0.012030249	0.038344816	11.835749	0.99512038	*ATF3, IFNG*
Leishmaniasis	bioplanet_311	2	21	70	8575	0.011950854	0.038344816	11.666667	0.977247	*MAPK14, IFNG*
NO2-dependent IL-12 pathway in NK cells	bioplanet_47	5	21	581	8575	0.011651558	0.038344816	3.5140562	1.0032776	*MAPK9, MAPK14, MAPK8, IFNG, KRAS*
Activation of RAS in B cells	bioplanet_908	1	21	5	8575	0.012082611	0.038344816	81.666667	0.99130607	*KRAS*
HIF-1 transcriptional activity in hypoxia	bioplanet_1371	2	21	66	8575	0.01143645	0.038344816	12.373737	1.0135027	*TF, HMOX1*
Endothelins	bioplanet_1292	2	21	64	8575	0.011596284	0.038344816	12.760417	1.05339	*MAPK14, MAPK8*
Signaling events mediated by VEGFR1 and VEGFR2	bioplanet_500	2	21	70	8575	0.013297585	0.041854695	11.666667	1.0342994	*MAPK14, PRKAA2*
AMPK inhibition of chREBP transcriptional activation activity	bioplanet_959	1	21	5	8575	0.013510227	0.04217827	81.666667	1.1092717	*PRKAA2*
Methionine salvage pathway	bioplanet_940	1	21	6	8575	0.01421131	0.044009217	68.055556	0.97261006	*GOT1*
ADP signalling through P2Y purinoceptor 1	bioplanet_541	1	21	6	8575	0.014787015	0.045425709	68.055556	1.0123198	*MAPK14*
VEGF signaling pathway	bioplanet_233	2	21	76	8575	0.014971635	0.045627839	10.745614	1.0135463	*MAPK14, KRAS*
Immune system	bioplanet_905	6	21	879	8575	0.015415375	0.046610268	2.7872582	0.98998108	*MAPK9, MAPK14, ATG7, MAPK8, IFNG, KRAS*
Selective expression of chemokine receptors during T-cell polarization	bioplanet_46	5	21	641	8575	0.016227079	0.048681237	3.1851274	0.98568153	*MAPK9, MAPK14, MAPK8, IFNG, KRAS*

Pathway	Annotation ID	Genes found	Input size	Term genes	Universe	P value	Adjusted P value	Relative enrichment	Annotation bias	Genes
SARS coronavirus protease	bioplanet_327	1	21	7	8575	0.016653537	0.049090145	58.333333	0.97808478	*MAPK14*
MEK activation	bioplanet_1254	1	21	7	8575	0.016746899	0.049090145	58.333333	0.98361681	*KRAS*
Degradation of cysteine and homocysteine	bioplanet_874	1	21	7	8575	0.016538531	0.049090145	58.333333	0.97127097	*CDO1*
ATM-dependent DNA damage response	bioplanet_1178	2	21	81	8575	0.01703273	0.04954976	10.082305	1.0180046	*MAPK9*, *MAPK8*
FYVE-finger proteins in vesicle transport	bioplanet_421	1	21	7	8575	0.01738494	0.049819529	58.333333	1.021438	*TF*
NOD-like receptor (NLR) proteins	bioplanet_1737	1	21	7	8575	0.017380294	0.049819529	58.333333	1.0211625	*MAPK8*

P values and enrichment statistics are displayed to a maximum of eight significant figures for readability.

Supplementary Table S3. Functional enrichment results for differentially methylated ferroptosis-suppressor genes.

Pathway	Annotation ID	Genes found	Input size	Term genes	Universe	P value	Adjusted P value	Relative enrichment	Annotation bias	Genes
p53 signaling pathway	bioplanet_1332	4	13	136	8574	3.8796449e-05	0.0031425124	19.39819	1.0002802	*PML, AIFM2, TP63, CAV1*
Keap1-Nrf2 pathway	bioplanet_1739	2	13	13	8574	0.00016438734	0.0066576875	101.46746	1.0012222	*NFE2L2, HMOX1*
Biosynthesis of unsaturated fatty acids	bioplanet_403	2	13	20	8574	0.00039764735	0.010736478	65.953846	1.0007283	*SCD, FADS2*
Oxidative stress	bioplanet_1747	2	13	27	8574	0.00072850688	0.011801811	48.854701	0.9995427 4	*NFE2L2, HMOX1*
Basigin interactions	bioplanet_1487	2	13	25	8574	0.00062419273	0.011801811	52.763077	0.9999257	*CAV1, SLC7A11*
Porphyrin and chlorophyll metabolism	bioplanet_359	2	13	42	8574	0.0017636634	0.022456234	31.406593	0.9993716	*FTMT, HMOX1*
Delta Np63 pathway	bioplanet_1363	2	13	44	8574	0.0019406622	0.022456234	29.979021	1.0010091	*HELLS, TP63*
TAp63 pathway	bioplanet_1372	2	13	54	8574	0.0029049769	0.029412892	24.42735	1.0000154	*PML, TP63*
PPAR signaling pathway	bioplanet_450	2	13	69	8574	0.0046972006	0.038047325	19.117057	0.9995094 7	*SCD, FADS2*
HIF-1 transcriptional activity in hypoxia	bioplanet_1371	2	13	66	8574	0.0043158754	0.038047325	19.986014	1.0007242	*HMOX1, PLIN2*
TGF-beta regulation of extracellular matrix	bioplanet_1442	4	13	507	8574	0.0056312028	0.039350793	5.2034593	1.0001887	*SCD, PLIN2, CAV1, SLC7A11*
p73 transcription factor network	bioplanet_1296	2	13	77	8574	0.0058297471	0.039350793	17.130869	1.0005081	*PML, TP63*
Heme degradation	bioplanet_876	1	13	5	8574	0.0075505294	0.04087655	131.90769	0.9987603	*HMOX1*
NOSTRIN-mediated endothelial NOS trafficking	bioplanet_1601	1	13	5	8574	0.0075697315	0.04087655	131.90769	1.0013107	*CAV1*
Interleukin-10 anti-inflammatory signaling pathway	bioplanet_136	3	13	272	8574	0.0071559478	0.04087655	7.2743213	1.001312	*HELLS, HMOX1, TP63*
Cell surface interactions at the vascular wall	bioplanet_1498	2	13	92	8574	0.0082219645	0.041623695	14.337793	0.9997452 7	*CAV1, SLC7A11*

P values and enrichment statistics are displayed to a maximum of eight significant figures for readability.