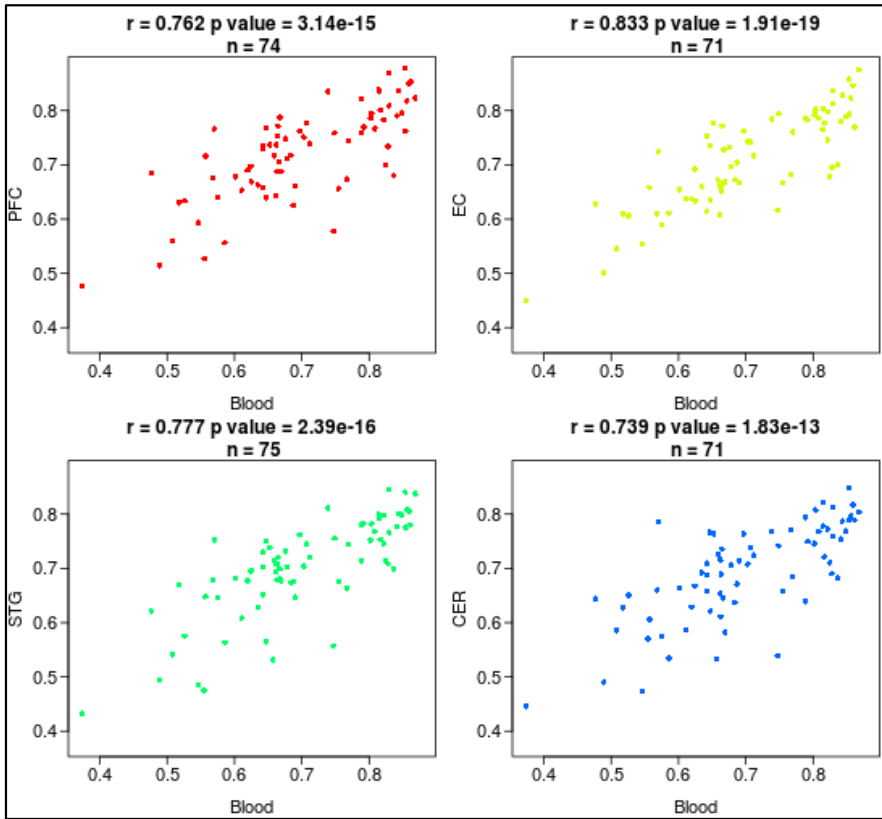
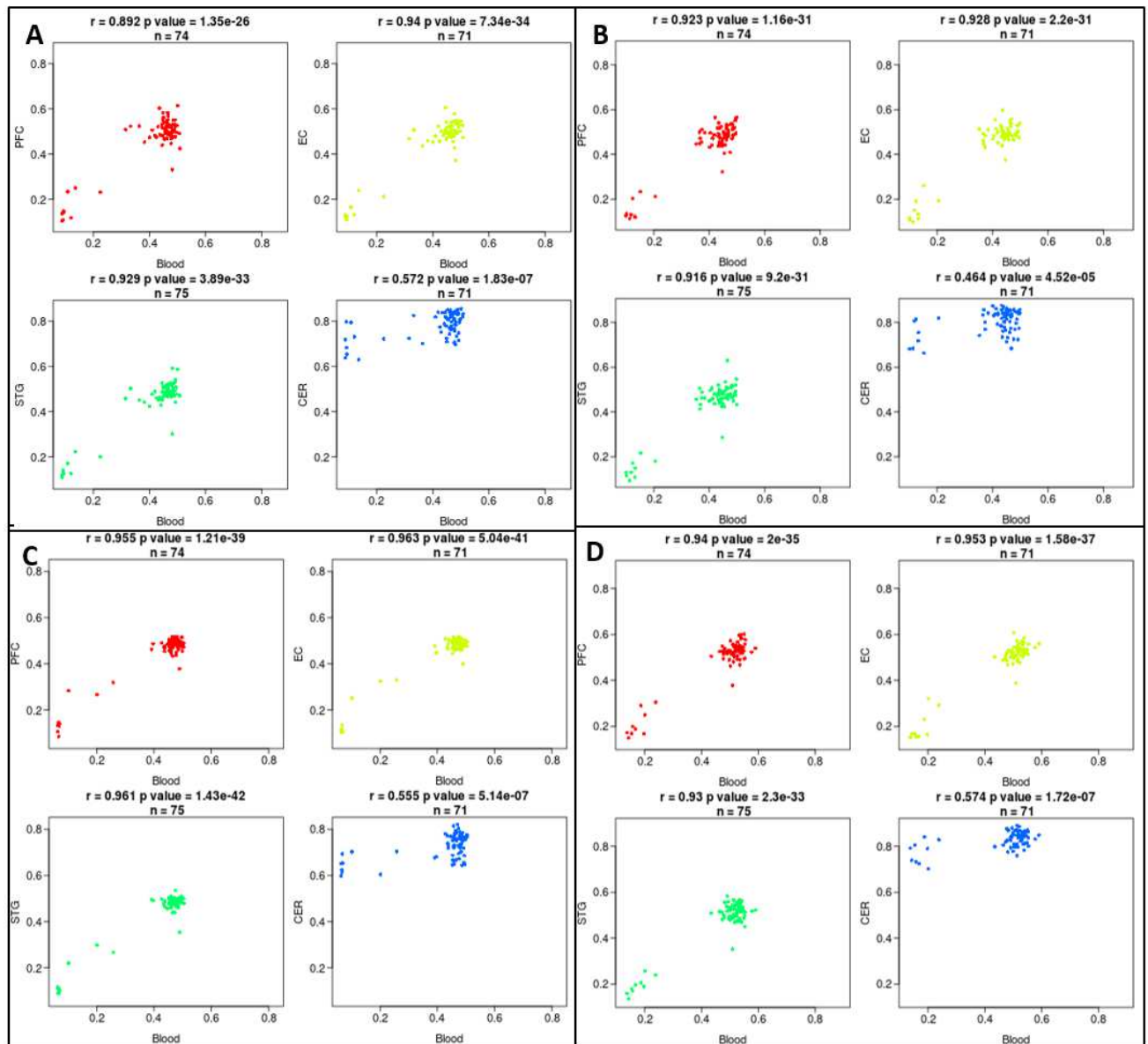


Supplementary materials

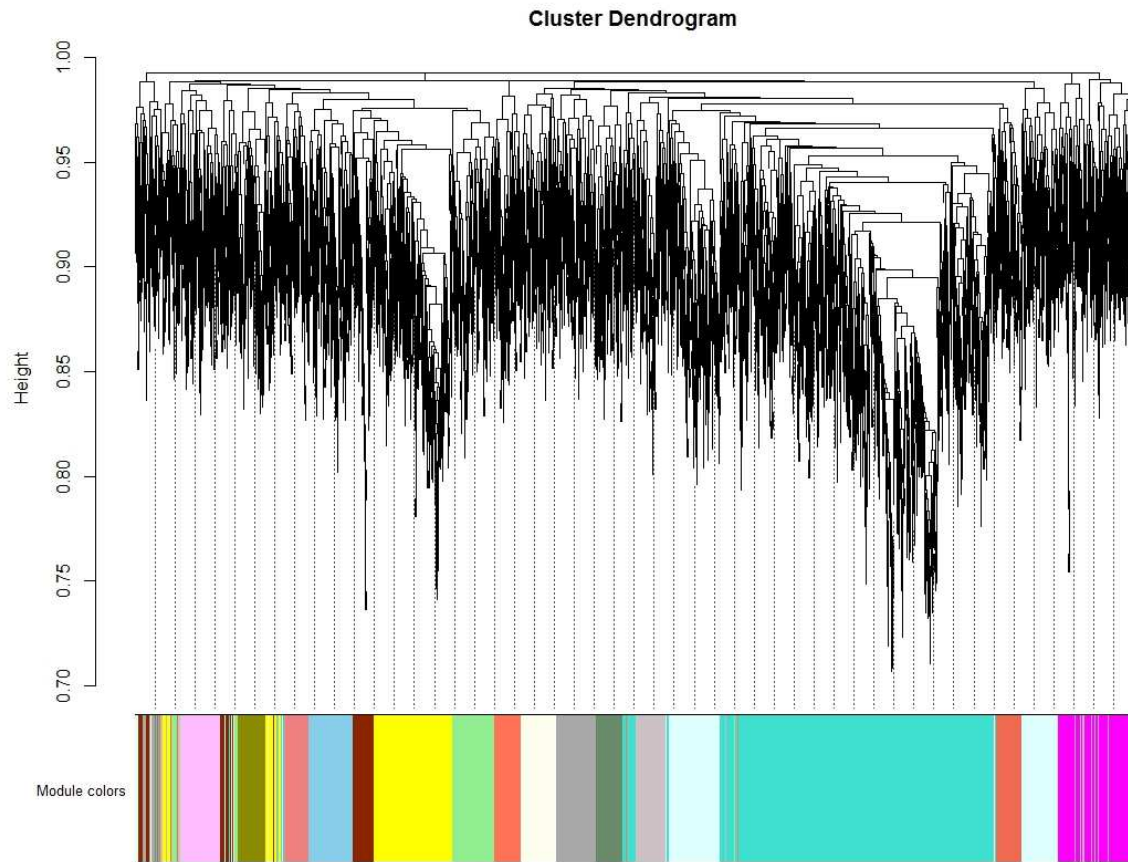
Supplementary Figure 1. The correlation between the methylation level of cg13861644 (*PIWIL1*) in the blood and in the prefrontal cortex (PFC), entorhinal cortex (EC), superior temporal gyrus (STG) and cerebellum (CER), according to the Blood Brain DNA Methylation Comparison Tool (<https://epigenetics.essex.ac.uk/bloodbrain/>) (Hannon et al. 2015).



Supplementary Figure 2. The correlation between the methylation level of (A) cg04481923 (*MIR886*); (B) cg18678645 (*MIR886*); (C) cg00124993 (*MIR886*); (D) cg18797653 (*MIR886*), in the blood and in the prefrontal cortex (PFC), entorhinal cortex (EC), superior temporal gyrus (STG) and cerebellum (CER), according to the Blood Brain DNA Methylation Comparison Tool (<https://epigenetics.essex.ac.uk/bloodbrain/>) (Hannon et al. 2015).



Supplementary Figure 3. Cluster Dendrogram showing the 70 gene co-expression modules identified through the WGCNA analysis applied to genome-wide expression data.



Supplementary Table 1. 89 significantly (FDR<0.05, $\Delta\beta > \pm 0.2$) differentially methylated probes (DMPs) between responders and Non-Responders.

cg	logFC	t	P,Value	adj,P,Val	NORES_AVG	RES_AVG	CHR	MAPINFO	gene	feature	cgi
cg02173208	0.236959	11.32382	1.45E-07	0.001137	0.687329077	0.924288	16	53857414	FTO	Body	opensea
cg07195891	-0.28682	-11.1439	1.71E-07	0.001176	0.69817505	0.411357	12	7900072	CLEC4C	5'UTR	opensea
cg15549821	0.244242	11.11501	1.76E-07	0.001176	0.331440796	0.575683	19	49342101	PLEKHA4	Body	shore
cg25738128	0.204049	9.049658	1.48E-06	0.0023	0.682374565	0.886424	1	1.18E+08	FAM46C	5'UTR	opensea
cg23377942	0.228341	8.973611	1.61E-06	0.002326	0.463225496	0.691566	16	79042805	WWOX	Body	opensea
cg25727206	-0.25323	-8.87843	1.8E-06	0.002379	0.821778522	0.568551	19	45055395	CEACAM22P	Body	opensea
cg17667591	0.247764	8.340882	3.36E-06	0.002849	0.520752379	0.768516	1	17719944	PADI6	Body	opensea
cg22915785	-0.20342	-7.63531	8.01E-06	0.003744	0.68726438	0.483845	8	1.44E+08	C8orf31	TSS1500	opensea
cg13784004	-0.52282	-7.02208	1.79E-05	0.005008	0.913829516	0.391011	18	47696733	MYO5B	Body	opensea
cg20073962	-0.29419	-6.9844	1.88E-05	0.00509	0.7686409	0.474453	20	9640902	PAK7	5'UTR	opensea
cg06099315	-0.22341	-6.82494	2.33E-05	0.005572	0.38505959	0.161652	18	112528	MIR8078	TSS200	island
cg02050512	0.214241	6.539031	3.47E-05	0.006453	0.555598835	0.76984	7	38503404	AMPH	Body	opensea
cg17764313	0.258944	6.484596	3.75E-05	0.006615	0.532154251	0.791098	3	1.27E+08	MCM2	Body	opensea
cg09254210	0.201152	6.463233	3.86E-05	0.006702	0.532112085	0.733264	14	61873622	PRKCH	Body	opensea
cg20304530	-0.20488	-6.426	4.07E-05	0.006873	0.911513431	0.706638	15	88502498	NTRK3	Body	opensea
cg13861644	-0.29151	-6.3779	4.36E-05	0.007067	0.800179415	0.508668	12	1.31E+08	PIWIL1	TSS1500	shore
cg10617796	0.203682	6.369361	4.42E-05	0.007105	0.408815637	0.612498	5	83478502	EDIL3	Body	opensea
cg16454099	-0.27945	-6.23062	5.39E-05	0.007707	0.649451224	0.369996	7	92818323	HEPACAM2	3'UTR	opensea
cg08166072	-0.21578	-6.06547	6.87E-05	0.008479	0.48181594	0.266035	2	46213920	PRKCE	Body	opensea
cg14398247	-0.25681	-5.92232	8.49E-05	0.009261	0.894594073	0.637783	22	43216462	ARFGAP3	Body	opensea
cg25032089	0.205128	5.848798	9.47E-05	0.009671	0.653413852	0.858542	17	46643351	HOXB3	5'UTR	shore
cg26844603	-0.25603	-5.79724	0.000102	0.009938	0.690066288	0.434036	2	1.13E+08	TMEM87B	Body	opensea
cg06789517	0.348359	5.701099	0.000118	0.010536	0.417515238	0.765874	1	1.15E+08	SYT6	3'UTR	opensea
cg21048050	-0.32168	-5.68942	0.000121	0.010602	0.528568483	0.206886	15	51912957	DMXL2	Body	shore

cg27630820	-0.25933	-5.63065	0.000132	0.010962	0.72534992	0.466018	12	1.31E+08	PIWIL1	TSS200	shore
cg26715042	-0.21033	-5.60663	0.000137	0.011144	0.677555133	0.467227	6	49681307	CRISP2	TSS200	opensea
cg04481923	-0.26175	-5.60655	0.000137	0.011144	0.493606327	0.231854	5	1.35E+08	MIR886	Body	island
cg19424457	-0.24726	-5.57592	0.000143	0.011362	0.730067036	0.482807	12	1.31E+08	PIWIL1	TSS200	shore
cg18678645	-0.24063	-5.33409	0.000209	0.013328	0.453350804	0.21272	5	1.35E+08	MIR886	TSS200	island
cg06489993	-0.24246	-5.30491	0.000219	0.013594	0.638550168	0.39609	19	47082996	PPP5D1	Body	opensea
cg18976291	-0.20509	-5.15752	0.000277	0.015032	0.556012827	0.350926	15	92464719	SLCO3A1	Body	opensea
cg03983883	0.218109	5.132535	0.000288	0.015295	0.280657397	0.498767	8	79577618	ZC2HC1A	TSS1500	shore
cg07670516	0.221083	5.051683	0.000328	0.016185	0.381243725	0.602327	17	5019840	ZNF232	5'UTR	island
cg00124993	-0.20275	-4.99507	0.000359	0.016808	0.496047771	0.293294	5	1.35E+08	MIR886	TSS200	island
cg26094651	-0.34421	-4.91282	0.000411	0.017822	0.807758141	0.463545	2	1802045	MYT1L	Body	island
cg02873954	-0.21584	-4.88727	0.000429	0.018175	0.724385914	0.508546	21	45161415	PDXK	Body	opensea
cg15365744	0.312758	4.836207	0.000466	0.018946	0.471208187	0.783967	12	1.07E+08	POLR3B	Body	opensea
cg03321588	-0.20156	-4.80965	0.000487	0.019336	0.464078696	0.262521	3	56787713	ARHGEF3	Body	opensea
cg21351392	-0.20957	-4.76814	0.000521	0.01987	0.691611832	0.482038	6	1.62E+08	AGPAT4	Body	opensea
cg02780130	-0.20253	-4.74006	0.000546	0.020277	0.353148076	0.150617	12	312753	LOC101929384	TSS200	island
cg07469075	-0.32744	-4.73749	0.000548	0.020315	0.710877135	0.383437	11	35548139	PAMR1	TSS1500	shore
cg08801017	-0.22126	-4.71382	0.00057	0.020689	0.580356149	0.359101	13	19918525	LOC100101938	Body	shore
cg18865685	-0.22819	-4.67949	0.000604	0.021241	0.763325039	0.535136	1	1.77E+08	ASTN1	Body	opensea
cg18797653	-0.21139	-4.66822	0.000615	0.021422	0.512706915	0.301316	5	1.35E+08	MIR886	TSS1500	shore
cg17497608	-0.27603	-4.62813	0.000658	0.022076	0.749843229	0.473817	7	90896701	FZD1	1stExon	shore
cg18319102	-0.21599	-4.60677	0.000682	0.02244	0.520251945	0.304258	12	1.31E+08	PIWIL1	TSS200	shore
cg12355172	-0.20669	-4.60363	0.000686	0.022497	0.535138931	0.328452	11	67418315	ACY3	TSS200	opensea
cg14755254	-0.38539	-4.60342	0.000686	0.022499	0.433199671	0.047812	8	637813	ERICH1	Body	island
cg21862353	-0.26948	-4.5691	0.000726	0.023065	0.726553307	0.45707	2	1801628	MYT1L	Body	island
cg17345276	-0.24823	-4.55618	0.000742	0.023279	0.904868816	0.656636	2	27349220	ABHD1	Body	shelf
cg13983884	0.273158	4.534316	0.00077	0.023654	0.339997868	0.613156	1	1.55E+08	KCNN3	Body	opensea

cg11931211	-0.21454	-4.52174	0.000787	0.023901	0.723062176	0.508522	12	1.31E+08	PIWIL1	TSS200	island
cg08713344	-0.2419	-4.4074	0.000955	0.026113	0.889735636	0.647839	10	3183772	PITRM1-AS1	TSS200	shelf
cg01093476	-0.22263	-4.38564	0.000991	0.026555	0.261249994	0.038617	5	32020512	PDZD2	Body	opensea
cg21104276	-0.20402	-4.30821	0.001131	0.028175	0.918131597	0.714107	7	90896572	FZD1	1stExon	island
cg01053087	-0.21361	-4.28674	0.001174	0.028643	0.248897833	0.03529	8	637909	ERICH1	Body	island
cg04332058	0.240916	4.279809	0.001188	0.028805	0.529771121	0.770688	14	23548787	ACIN1	Body	opensea
cg03678595	0.217751	4.271122	0.001205	0.029005	0.709916915	0.927668	14	78023855	SPTLC2	Body	opensea
cg08454824	-0.20856	-4.24326	0.001265	0.02967	0.734397411	0.525833	8	637468	ERICH1	Body	island
cg18781968	0.250137	4.209456	0.001341	0.030445	0.417419105	0.667556	3	29805756	RBMS3	Body	opensea
cg27237671	-0.24154	-4.2055	0.00135	0.030553	0.54468673	0.303144	2	676223	TMEM18	Body	shore
cg16288713	0.323876	4.197498	0.001369	0.030751	0.17677505	0.500651	13	79234144	RNF219	TSS1500	shore
cg05194426	-0.21881	-4.18461	0.001399	0.031068	0.31044473	0.091633	10	1.35E+08	CYP2E1	Body	shore
cg18105134	-0.23637	-4.15032	0.001485	0.031952	0.813757544	0.57739	13	1.14E+08	PROZ	Body	opensea
cg12080266	0.273935	4.088734	0.001653	0.033548	0.700193774	0.974129	21	36060640	CLIC6	Body	opensea
cg18263335	-0.26371	-4.06077	0.001735	0.03433	0.765601458	0.501894	2	676133	TMEM18	Body	shore
cg19754622	0.265083	4.058601	0.001742	0.034373	0.3338445	0.598928	10	1.34E+08	STK32C	Body	shelf
cg18706028	-0.2002	-4.0356	0.001813	0.035	0.703644752	0.503449	11	6292490	CCKBR	Body	island
cg25052156	0.227565	4.027922	0.001838	0.035227	0.556445419	0.78401	10	1.23E+08	FGFR2	5'UTR	shore
cg10547329	0.284896	3.99608	0.001943	0.036163	0.467818654	0.752715	5	1.72E+08	SH3PXD2B	Body	opensea
cg24764243	0.366206	3.989228	0.001966	0.036339	0.41710056	0.783307	7	1.08E+08	NRCAM	5'UTR	opensea
cg06378142	-0.37022	-3.97221	0.002026	0.036872	0.69130447	0.32108	19	50119633	PRR12	Body	shore
cg01480180	-0.25751	-3.96913	0.002037	0.03697	0.699306951	0.441798	7	90896329	FZD1	1stExon	island
cg10318771	0.304096	3.928303	0.002188	0.038279	0.525628093	0.829724	2	2.07E+08	ADAM23	Body	opensea
cg18467790	0.311633	3.917569	0.00223	0.038653	0.457647155	0.76928	7	4871879	RADIL	Body	shelf
cg24521141	0.21625	3.910168	0.002259	0.038886	0.692038576	0.908289	2	38744309	LOC101929596	TSS1500	opensea
cg19585676	-0.37024	-3.8049	0.002721	0.042489	0.586190186	0.215952	6	29913343	HLA-A	3'UTR	shore
cg01458105	0.204366	3.791464	0.002786	0.042992	0.315391902	0.519758	10	1.34E+08	STK32C	Body	shelf

cg20283771	-0.20008	-3.78799	0.002803	0.043107	0.803941427	0.603863	16	88943542	CBFA2T3	Body	island
cg18872420	0.300785	3.744296	0.00303	0.04477	0.413390948	0.714176	14	78023429	SPTLC2	Body	opensea
cg15921713	-0.22446	-3.72528	0.003134	0.04553	0.464198043	0.239743	7	16602973	LRRC72	Body	opensea
cg25830530	-0.26584	-3.69853	0.003287	0.046577	0.728616988	0.46278	9	36276951	GNE	1stExon	opensea
cg24564187	0.205113	3.686661	0.003357	0.047067	0.380258995	0.585372	11	1.3E+08	TMEM45B	5'UTR	shelf
cg04794593	-0.20796	-3.6845	0.00337	0.047165	0.656954962	0.448992	1	7598988	CAMTA1	Body	opensea
cg06150148	0.21894	3.683704	0.003375	0.047188	0.631226667	0.850166	2	1.01E+08	LONRF2	Body	opensea
cg12284872	-0.30867	-3.67645	0.003418	0.047474	0.768664574	0.459991	1	2.05E+08	KLHDC8A	Body	shore
cg23403192	-0.24104	-3.66539	0.003487	0.047917	0.898906147	0.657866	21	30396327	USP16	TSS1500	shore
cg04118610	0.413706	3.645412	0.003613	0.048739	0.234596744	0.648303	4	62707027	LPHN3	Body	opensea
cg03644281	-0.24544	-3.62298	0.003761	0.049691	0.899648194	0.654211	6	41068752	NFYA	3'UTR	island