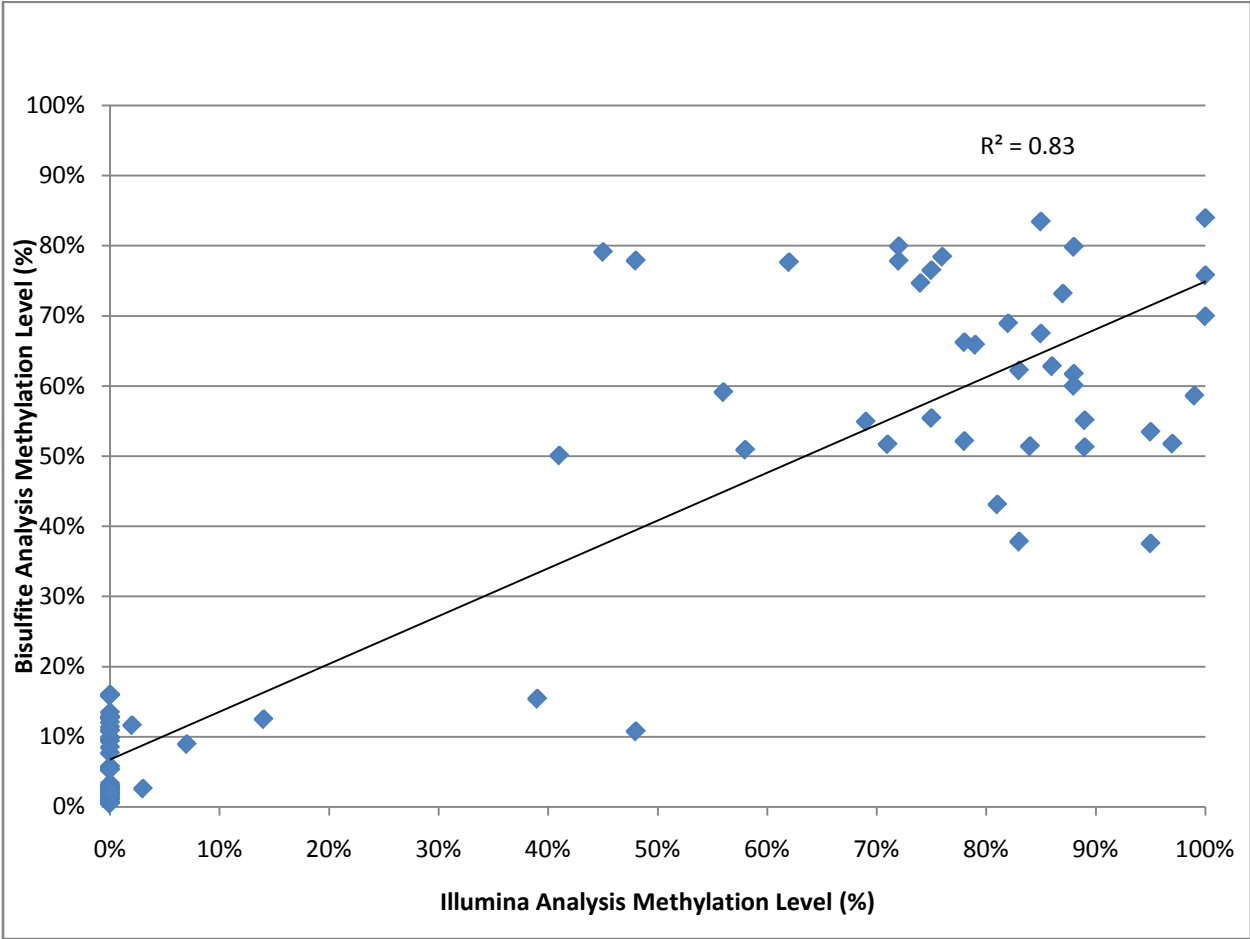
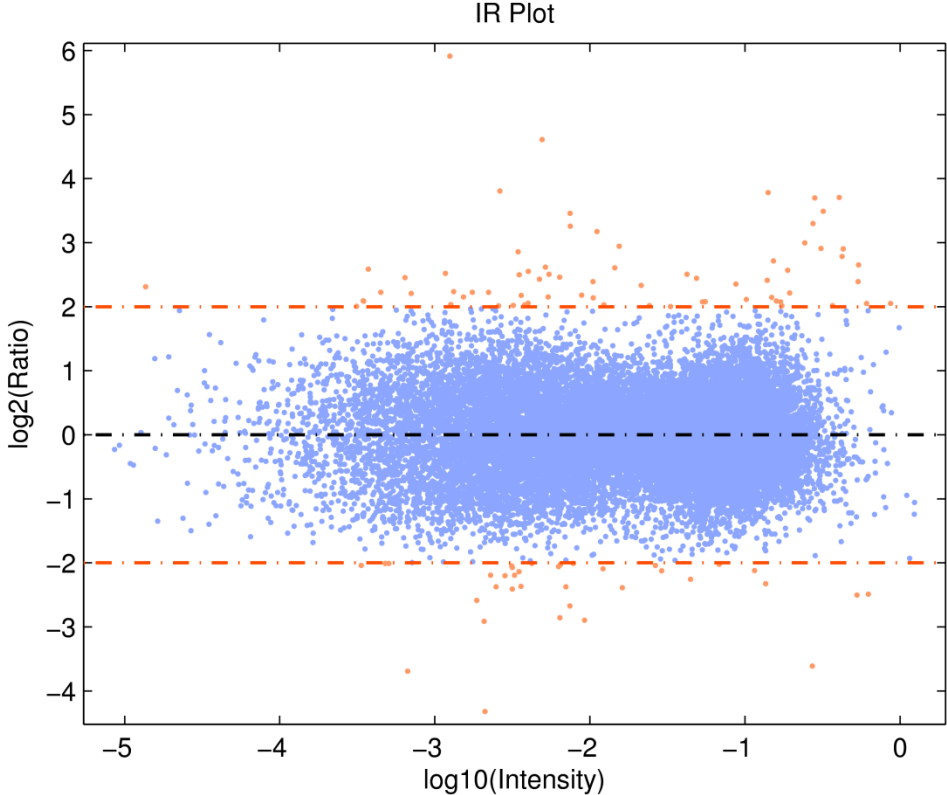


**Supplemental Data**

**Supplementary Figure 1**



Supplementary Figure 2



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**Supplemental Table 1.** Genes hypomethylated CD4+ T cells from lupus patients compared to controls. Target IDs represent unique IDs on Illumina Infinium HumanMethylation27 array, Symbol and Product represent gene name and description, Case and Control averages represent percent of methylation in each group, Ratio highlight the level of relative hypomethylation as compared with control group, *P* value represent statistical significance of associative t-test (0 indicates p-value too small to be outputted).

Target ID	Symbol	Product	Case average	Control average	Ratio	<i>P</i> value
cg01395672	ZNF207	zinc finger protein 207 isoform b	0.07	0.11	1.62	1.16E-07
cg06397837	HOXA13	homeobox protein A13	0.04	0.05	1.35	2.81E-07
cg02937479	FKBPL	WAF-1/CIP1 stabilizing protein 39	0.04	0.05	1.27	2.32E-06
cg04981492	SYDE1	synapse defective 1; Rho GTPase; homolog 1	0.04	0.05	1.40	1.28E-10
cg11189837	ADAMTS1	ADAM metalloproteinase with thrombospondin type 1 motif; 1 preproprotein	0.03	0.04	1.57	3.88E-05
cg18488855	NOVA1	neuro-oncological ventral antigen 1 isoform 2	0.04	0.05	1.19	8.46E-06
cg17980508	IFI44L	histocompatibility 28	0.48	0.57	1.20	0
cg12789833	FBXO22	F-box only protein 22 isoform b	0.07	0.09	1.19	3.62E-05
cg16977257	PRND	prion-like protein doppel preproprotein	0.03	0.04	1.39	8.72E-09
cg23490074	C19orf2	RPB5-mediating protein isoform a	0.08	0.10	1.29	2.88E-08
cg22736323	PDGFRA	platelet-derived growth factor receptor alpha precursor	0.16	0.20	1.20	2.57E-07
cg07889201	ZNF343	zinc finger protein 343	0.04	0.07	1.53	5.24E-11
cg15881727	ZBED4	zinc finger; BED domain containing 4	0.05	0.07	1.38	1.73E-07
cg11197066	PGAP1	GPI deacylase	0.04	0.05	1.41	1.04E-06
cg17158059	MGC15407	hypothetical protein LOC112942	0.03	0.04	1.48	7.6E-09
cg02214188	BDH2	3-hydroxybutyrate dehydrogenase; type 2	0.10	0.12	1.26	2.67E-07
cg25335775	MRPS14	mitochondrial ribosomal protein S14	0.09	0.12	1.29	1.34E-10
cg24502084	MAPBPIP	mitogen-activated protein-binding protein-interacting protein	0.02	0.03	1.25	2.75E-05
cg09254939	KLK10	kallikrein 10 precursor	0.05	0.07	1.40	9.09E-09
cg15045441	C6orf155	hypothetical protein LOC79940	0.06	0.08	1.31	8.16E-16
cg13282951	UHRF1	ubiquitin-like; containing PHD and RING finger domains; 1	0.05	0.07	1.40	5.06E-08
cg11372831	PPAT	phosphoribosyl pyrophosphate amidotransferase proprotein	0.06	0.08	1.30	3.19E-09
cg16094520	SHMT1	serine hydroxymethyltransferase 1 (soluble) isoform 1	0.05	0.06	1.19	1.18E-06
cg23652526	HNRPUL1	E1B-55kDa-associated protein 5 isoform d	0.02	0.04	2.10	1.04E-09
cg18504532	RABGAP1L	RAB GTPase activating protein 1-like	0.02	0.03	1.66	1.26E-07
cg21262854	FLJ20097	hypothetical protein LOC55610	0.02	0.04	1.59	3.59E-07

		isoform b				
cg09462826	FADS1	fatty acid desaturase 1	0.04	0.06	1.43	3.07E-17
cg00230502	CCDC60	hypothetical protein LOC160777	0.04	0.06	1.50	2.41E-11
cg13992856	FLOT2	flotillin 2	0.03	0.04	1.37	5.47E-07
cg03143365	MAN2B1	mannosidase; alpha; class 2B; member 1 precursor	0.03	0.04	1.41	1.96E-05
cg21685266	EHHADH	enoyl-Coenzyme A; hydratase/3-hydroxyacyl Coenzyme A dehydrogenase	0.08	0.11	1.42	6.72E-23
cg12946690	SMG6	Est1p-like protein A	0.07	0.10	1.35	2.68E-13
cg00376639	ZNF581	zinc finger protein 581	0.06	0.08	1.30	7.51E-08
cg22579849	DCTN3	dynactin 3 isoform 2	0.03	0.05	1.40	8.38E-16
cg15309223	C1orf83	hypothetical protein LOC127428	0.08	0.11	1.30	3.17E-06
cg10912268	SPTLC1	serine palmitoyltransferase subunit 1 isoform a	0.11	0.14	1.33	6.12E-09
cg26365854	ALX4	aristaless-like homeobox 4	0.09	0.13	1.43	3.55E-07
cg13617705	SMEK2	hypothetical protein LOC57223	0.23	0.29	1.30	1.08E-06
cg19248557	HLA-DRA	major histocompatibility complex; class II; DR alpha precursor	0.09	0.11	1.31	2.43E-05
cg11489580	G3BP2	Ras-GTPase activating protein SH3 domain-binding protein 2 isoform a	0.06	0.09	1.49	3.77E-05
cg08736146	MRPL10	mitochondrial ribosomal protein L10 isoform a	0.04	0.06	1.41	2.51E-15
cg09433780	APPL	adaptor protein containing pH domain; PTB domain and leucine zipper motif	0.06	0.08	1.42	1.09E-12
cg02551396	JPH2	junctophilin 2 isoform 2	0.06	0.08	1.32	6.68E-10
cg11657808	RYR2	ryanodine receptor 2	0.04	0.05	1.33	4.06E-05
cg09310112	JMJD2B	jumonji domain containing 2B	0.14	0.18	1.33	3.67E-05
cg25764464	PLEKHA5	pleckstrin homology domain containing; family A member 5	0.03	0.05	1.33	3.95E-05
cg04010530	NR4A2	nuclear receptor subfamily 4; group A; member 2 isoform a	0.09	0.12	1.26	2.45E-05
cg02096656	HSPC268	hypothetical protein LOC154791	0.09	0.13	1.56	3.34E-10
cg15864184	PTPN1	protein tyrosine phosphatase; non-receptor type 1	0.17	0.21	1.22	2.16E-27
cg09929612	ATP5J2	ATP synthase; H+ transporting; mitochondrial F0 complex; subunit F2 isoform 2a	0.09	0.12	1.36	5.02E-07
cg14271400	EPHB2	ephrin receptor EphB2 isoform 2 precursor	0.07	0.09	1.36	9.47E-07
cg22688260	ZCSL2	zinc finger; CSL domain containing 2	0.03	0.04	1.32	3.77E-10
cg13802966	CASP1	caspase 1 isoform delta	0.12	0.15	1.25	6.66E-10
cg22541143	HEL308	DNA helicase HEL308	0.15	0.18	1.24	1.45E-12
cg23539753	SP100	nuclear antigen Sp100	0.05	0.06	1.26	4.62E-07
cg26674132	ZNF559	zinc finger protein 559	0.16	0.20	1.20	5.7E-06
cg03270167	RAMP1	receptor activity-modifying protein 1 precursor	0.11	0.15	1.34	1.93E-05
cg03395546	ADCK4	aarF domain containing kinase 4	0.14	0.17	1.21	8.06E-13

cg00873937	ATOH7	atonal homolog 7	0.06	0.07	1.21	1.61E-13
cg13757640	ARHGAP8	Rho GTPase activating protein 8 isoform 2	0.07	0.09	1.26	2.38E-06
cg06323427	PDCD10	programmed cell death 10	0.07	0.09	1.26	1.25E-05
cg04970352	ALX4	aristaless-like homeobox 4	0.06	0.08	1.23	4.48E-06
cg03199651	MSX1	msh homeo box homolog 1	0.06	0.08	1.23	2.41E-05
cg02548238	LOX	lysyl oxidase preproprotein	0.04	0.05	1.36	1.93E-05
cg24399106	MGC45800	hypothetical protein LOC90768	0.04	0.05	1.24	1.55E-05
cg03856723	PRKACA	cAMP-dependent protein kinase catalytic subunit alpha isoform 1	0.16	0.19	1.19	8.81E-07
cg13793354	MCCC2	methylcrotonoyl-Coenzyme A carboxylase 2 (beta)	0.05	0.07	1.47	1.68E-06
cg11680158	C9orf52	hypothetical protein LOC158219	0.03	0.04	1.26	3.49E-05
cg15676241	ITGA2	integrin alpha 2 precursor	0.07	0.08	1.25	3.42E-09
cg17420360	FLJ13236	hypothetical protein FLJ13236	0.04	0.05	1.29	3.98E-06
cg07075930	PTPRM	protein tyrosine phosphatase; receptor type; M precursor	0.07	0.09	1.20	3.28E-05
cg17190608	CUTL2	cut-like 2	0.02	0.03	1.39	6.02E-08
cg12243255	AXUD1	AXIN1 up-regulated 1	0.02	0.03	1.42	5.77E-10
cg25261908	TRPM4	transient receptor potential cation channel; subfamily M; member 4	0.03	0.05	1.41	5.14E-13
cg08355944	SLC37A3	solute carrier family 37 (glycerol-3-phosphate transporter); member 3 isoform 2	0.02	0.03	1.60	1.89E-14
cg16785344	PXN	paxillin	0.04	0.06	1.40	5.01E-09
cg12124516	MCM6	minichromosome maintenance protein 6	0.05	0.06	1.38	1.54E-07
cg00973286	TNFRSF1A	tumor necrosis factor receptor 1 precursor	0.03	0.04	1.31	3.19E-05
cg00047050	CUL5	Vasopressin-activated calcium-mobilizing receptor-1	0.04	0.06	1.38	5.32E-06
cg10570177	C9orf7	hypothetical protein LOC11094	0.04	0.06	1.32	1.56E-05
cg09234872	TRAF7	ring finger and WD repeat domain 1 isoform 1	0.03	0.03	1.19	2.06E-06
cg14966252	ZNF622	zinc finger protein 622	0.03	0.04	1.46	9.75E-09
cg21939482	MGC12966	hypothetical protein LOC84792	0.03	0.04	1.34	6.33E-14
cg16248277	FGF8	fibroblast growth factor 8 isoform F precursor	0.11	0.14	1.21	2.54E-12
cg12024906	HKR1	GLI-Kruppel family member HKR1	0.29	0.39	1.33	5.37E-09
cg15279364	TMEM130	hypothetical protein LOC222865	0.10	0.13	1.36	1.37E-10
cg05019661	ADK	adenosine kinase isoform a	0.02	0.03	1.85	8.08E-06
cg07112210	MGAT5B	beta(1;6)-N-acetylglucosaminyltransferase V isoform 1	0.25	0.30	1.24	1.96E-05
cg11407345	C21orf58	hypothetical protein LOC54058 isoform 2	0.02	0.04	1.61	0
cg25999015	ZNF575	zinc finger protein 575	0.02	0.03	1.51	4.21E-07
cg08049198	AGPAT1	1-acylglycerol-3-phosphate O-	0.02	0.04	1.68	1.61E-25

		acyltransferase 1				
cg16418684	VWCE	hypothetical protein LOC220001	0.02	0.03	1.27	8.52E-06
cg01735903	POLR3D	RNA polymerase III 53 kDa subunit RPC4	0.07	0.09	1.33	6.13E-07
cg13854874	CHAF1B	chromatin assembly factor 1 subunit B	0.15	0.18	1.22	6.3E-07
cg24528523	SLC22A18	tumor suppressing subtransferable candidate 5	0.04	0.04	1.20	3.33E-05
cg18170080	ESAM	endothelial cell adhesion molecule	0.03	0.04	1.25	1.31E-12
cg23152772	FIBCD1	fibrinogen C domain containing 1	0.14	0.17	1.21	1.62E-08
cg22402007	NTRK2	neurotrophic tyrosine kinase; receptor; type 2 isoform b precursor	0.09	0.11	1.26	5.49E-06
cg16797831	KIAA1324	hypothetical protein LOC57535	0.06	0.08	1.26	1.11E-07
cg20712430	KREMEN2	kringle-containing transmembrane protein 2 isoform b precursor	0.04	0.06	1.45	1E-18
cg05774801	SFRP2	secreted frizzled-related protein 2 precursor	0.04	0.06	1.47	1.57E-11
cg09622447	CBS	cystathionine-beta-synthase	0.04	0.05	1.23	9.8E-08
cg03777459	GATA5	GATA binding protein 5	0.03	0.05	1.52	3.8E-13
cg12928668	SEMA6A	sema domain; transmembrane domain (TM); and cytoplasmic domain; (semaphorin) 6A	0.02	0.03	1.79	6E-17
cg08806153	HOXD11	homeobox D11	0.03	0.04	1.36	5.29E-08
cg21621248	LRRTM1	leucine rich repeat transmembrane neuronal 1	0.04	0.06	1.29	1.63E-08
cg07271264	MYOD1	myogenic differentiation 1	0.06	0.09	1.38	1.46E-06
cg24794531	TRPC1	transient receptor potential cation channel; subfamily C; member 1	0.04	0.07	1.62	0
cg05989054	GAMT	guanidinoacetate N-methyltransferase isoform a	0.29	0.36	1.22	2.68E-17
cg02310296	MMP9	matrix metalloproteinase 9 preproprotein	0.14	0.17	1.25	6.25E-09
cg10465696	ROBO4	roundabout homolog 4; magic roundabout	0.26	0.33	1.28	0
cg25687894	ACLY	ATP citrate lyase isoform 1	0.11	0.17	1.51	6.84E-13
cg11354906	SFRP2	secreted frizzled-related protein 2 precursor	0.06	0.08	1.39	1.42E-06
cg19006008	F2RL3	coagulation factor II (thrombin) receptor-like 3	0.02	0.03	1.43	2.01E-06
cg20483374	C1QTNF5	C1q and tumor necrosis factor related protein 5	0.21	0.26	1.20	5.2E-07
cg26219051	SCUBE1	signal peptide-CUB domain-EGF-related 1	0.07	0.10	1.35	7.2E-06
cg07737781	WBSCR14	Williams Beuren syndrome chromosome region 14 isoform alpha	0.03	0.05	1.44	1.32E-05
cg02506426	AQP11	aquaporin 11	0.02	0.03	1.46	2E-15
cg24056567	PSD3	ADP-ribosylation factor guanine nucleotide factor 6 isoform a	0.11	0.14	1.22	1.26E-05
cg25996835	BBS4	Bardet-Biedl syndrome 4	0.03	0.05	1.41	6.03E-06
cg03667047	KL	klotho isoform a	0.05	0.06	1.35	3.05E-06
cg22461835	ADRA1A	alpha-1A-adrenergic receptor isoform	0.06	0.07	1.22	8.49E-06

		3				
cg24530795	FAM109A	hypothetical protein LOC144717	0.04	0.05	1.40	1.01E-07
cg23004625	PIGM	PIG-M mannosyltransferase	0.11	0.13	1.19	5.75E-06
cg12099051	SAMHD1	SAM domain- and HD domain-containing protein 1	0.05	0.07	1.30	6.57E-10
cg18875839	KIF13B	kinesin family member 13B	0.02	0.03	1.42	3.33E-08
cg01447420	FEN1	flap structure-specific endonuclease 1	0.03	0.05	1.88	9.82E-11
cg03147542	CBLL1	Cas-Br-M (murine) ecotropic retroviral transforming sequence-like 1	0.05	0.08	1.41	1.31E-05
cg14415034	SACM1L	suppressor of actin 1	0.03	0.03	1.31	4.41E-11
cg19136717	ARIH1	ariadne homolog; ubiquitin-conjugating enzyme E2 binding protein; 1	0.03	0.04	1.32	9.46E-06
cg27087572	LSM1	Lsm1 protein	0.05	0.06	1.21	5.38E-06
cg19955521	WDR37	WD repeat domain 37	0.04	0.05	1.31	4.08E-12
cg06150468	SNFT	Jun dimerization protein p21SNFT	0.04	0.05	1.30	7.9E-14
cg18312782	TEX2	testis expressed sequence 2	0.11	0.15	1.33	6.57E-07
cg17691309	TPM2	tropomyosin 2 (beta) isoform 1	0.02	0.06	2.80	6.72E-17
cg03702236	SEMA5A	semaphorin 5A	0.08	0.10	1.26	2.74E-06
cg03027037	NAPB	N-ethylmaleimide-sensitive factor attachment protein; beta	0.03	0.04	1.24	3.56E-06
cg11158729	CNNM4	cyclin M4	0.03	0.04	1.36	6.28E-09
cg11620873	CD9	CD9 antigen	0.03	0.03	1.31	1.66E-05
cg15202954	VGCNL1	voltage gated channel like 1	0.09	0.12	1.27	2.51E-05
cg20345446	OSBPL5	oxysterol-binding protein-like protein 5 isoform a	0.15	0.20	1.30	1.53E-07
cg14044580	PCTK1	PCTAIRE protein kinase 1	0.08	0.12	1.45	1.29E-08
cg24723331	ST8SIA1	ST8 alpha-N-acetyl-neuraminide alpha-2;8-sialyltransferase 1	0.02	0.04	1.76	3.28E-07
cg13964084	C6orf134	hypothetical protein LOC79969 isoform 2	0.02	0.04	1.97	1.35E-05
cg22956315	TTC1	tetratricopeptide repeat domain 1	0.02	0.03	1.66	2.81E-06
cg07054788	RPL5	ribosomal protein L5	0.03	0.05	1.41	1.43E-05
cg05822100	CDH6	cadherin 6; type 2 preproprotein	0.03	0.04	1.30	2.35E-05
cg04461802	GPR126	G protein-coupled receptor 126 beta 1	0.11	0.14	1.33	2.25E-06
cg00767581	HOXD4	homeobox D4	0.20	0.27	1.33	1.14E-08
cg15021531	DDIT3	DNA-damage-inducible transcript 3	0.04	0.06	1.51	4.53E-07
cg07006042	ATP1B3	Na <sup>+</sup> /K <sup>+</sup> -ATPase beta 3 subunit	0.04	0.06	1.33	2.99E-08
cg00331237	CSRP2	cysteine and glycine-rich protein 2	0.08	0.11	1.33	4.52E-09
cg18677965	DDX27	DEAD (Asp-Glu-Ala-Asp) box polypeptide 27	0.02	0.04	1.95	5.26E-07
cg09226684	KLK10	kallikrein 10 precursor	0.12	0.14	1.19	4.18E-06
cg10162464	ZNF282	zinc finger protein 282	0.03	0.04	1.42	5.82E-10
cg14191109	SLC25A16	solute carrier family 25; member 16	0.09	0.13	1.35	1.67E-05
cg05454446	BMS1L	BMS1-like; ribosome assembly protein	0.23	0.28	1.24	4.64E-06



cg13766096	ING1	inhibitor of growth family; member 1 isoform D	0.05	0.08	1.65	5.56E-12
cg16741710	TP73	tumor protein p73	0.05	0.07	1.34	3.86E-05
cg23610841	PURG	purine-rich element binding protein G isoform A	0.03	0.04	1.38	1.47E-05
cg02608292	RPL28	ribosomal protein L28	0.04	0.05	1.42	5.82E-12
cg15156078	RASGRF1	Ras protein-specific guanine nucleotide-releasing factor 1 isoform 1	0.05	0.07	1.30	4.17E-10
cg25629694	SMURF2	SMAD specific E3 ubiquitin protein ligase 2	0.05	0.06	1.34	2.83E-07
cg09266965	TRIM52	hypothetical protein LOC84851	0.03	0.05	1.38	9.98E-09
cg08441546	DREV1	hypothetical protein LOC51108	0.03	0.04	1.64	1.03E-11
cg13591701	FAM20A	family with sequence similarity 20; member A	0.05	0.06	1.21	3.4E-09
cg26611683	FOXO1A	forkhead box O1A	0.05	0.06	1.20	1.92E-05
cg12556134	TGIF2	TGFB-induced factor 2	0.13	0.17	1.32	5.69E-09
cg23898073	GFRA1	GDNF family receptor alpha 1 isoform a preproprotein	0.02	0.04	1.69	4.54E-07
cg27650434	MYCL1	l-myc-1 proto-oncogene isoform 2	0.03	0.04	1.49	1.91E-07
cg19049316	FHIT	fragile histidine triad gene	0.03	0.05	1.39	2.8E-06
cg25519930	CACNA1C	calcium channel; voltage-dependent; L type; alpha 1C subunit	0.04	0.04	1.26	1.94E-05
cg23699324	CTNNA2	catenin; alpha 2	0.07	0.09	1.22	1.57E-06
cg00491839	PPP1R15A	protein phosphatase 1; regulatory subunit 15A	0.02	0.05	1.88	1.29E-15
cg26656135	EYA4	eyes absent 4 isoform a	0.02	0.05	1.87	1.26E-06
cg06310844	PDCD5	programmed cell death 5	0.10	0.14	1.35	6.77E-07
cg02224920	B3GALT6	UDP-Gal:betaGal beta 1;3-galactosyltransferase polypeptide 6	0.03	0.04	1.54	5.96E-06
cg03933322	CSAD	cysteine sulfinic acid decarboxylase-related protein 2	0.27	0.33	1.24	7.27E-06
cg16290693	SPSB1	SPRY domain-containing SOCS box protein SSB-1	0.10	0.16	1.55	1.92E-18
cg14223017	AP3D1	adaptor-related protein complex 3; delta 1 subunit	0.04	0.06	1.52	1.83E-07
cg11296937	HSPC152	hypothetical protein LOC51504	0.06	0.10	1.66	6.66E-23
cg18758482	ZBTB8OS	zinc finger and BTB domain containing 8 opposite strand	0.25	0.30	1.21	1.6E-12
cg27649653	ZNF8	zinc finger protein 8	0.10	0.13	1.30	2.93E-07
cg25820971	SUPT16H	chromatin-specific transcription elongation factor large subunit	0.03	0.04	1.69	1.83E-15
cg06983551	BUB1	BUB1 budding uninhibited by benzimidazoles 1 homolog	0.04	0.06	1.38	3.49E-11
cg23152667	TBCA	beta-tubulin cofactor A	0.03	0.04	1.45	3.18E-10
cg05874478	PSME2	proteasome activator subunit 2	0.07	0.10	1.38	6.7E-11
cg11233228	CDC26	CDC26 subunit of anaphase promoting complex	0.03	0.04	1.28	3.56E-08
cg01677177	ZBTB26	zinc finger protein 483	0.05	0.06	1.19	4.32E-06
cg20938689	COX7C	cytochrome c oxidase subunit VIIc	0.29	0.35	1.22	1.86E-11



		precursor				
cg23073111	ESRRA	estrogen-related receptor alpha	0.19	0.24	1.24	1.09E-07
cg16118817	FEM1A	fem-1 homolog a (C.elegans)	0.26	0.33	1.24	4.64E-15
cg20095338	NAP1L1	nucleosome assembly protein 1-like 1	0.07	0.09	1.27	3.97E-07
cg11323731	AKR1A1	aldo-keto reductase family 1; member A1	0.03	0.05	1.41	2.19E-05
cg26272237	FLJ12118	hypothetical protein LOC79587	0.03	0.04	1.23	1.77E-06
cg12970724	CRLF1	cytokine receptor-like factor 1	0.04	0.06	1.25	6.81E-07
cg13384396	ADCY5	adenylate cyclase 5	0.08	0.12	1.44	7.17E-08
cg17853587	NDST3	N-deacetylase/N-sulfotransferase (heparan glucosaminyl) 3	0.03	0.04	1.38	2.73E-13
cg18459342	TPD52	tumor protein D52 isoform 1	0.17	0.21	1.23	4.23E-06
cg05662500	GPD1L	glycerol-3-phosphate dehydrogenase 1-like	0.02	0.03	1.43	1.11E-07
cg20673075	STK3	serine/threonine kinase 3 (STE20 homolog; yeast)	0.22	0.30	1.33	6.94E-11
cg08141873	HRAS	v-Ha-ras Harvey rat sarcoma viral oncogene homolog isoform 2	0.08	0.11	1.37	1.01E-08
cg25711779	EFEMP1	EGF-containing fibulin-like extracellular matrix protein 1 isoform b	0.12	0.14	1.19	1.72E-09
cg19706682	LRRC50	leucine rich repeat containing 50	0.13	0.15	1.20	1.4E-11
cg26717786	FLJ44861	hypothetical protein LOC388428	0.06	0.09	1.43	2.28E-09
cg04283377	ARAF	v-raf murine sarcoma 3611 viral oncogene homolog	0.15	0.19	1.30	1.11E-15
cg02121943	TBX3	T-box 3 protein isoform 1	0.10	0.12	1.21	1.62E-09
cg02624129	SNX19	sorting nexin 19	0.03	0.06	1.76	0
cg00929606	ZNF3	zinc finger protein 3 isoform 2	0.10	0.15	1.54	0
cg14455487	FOXJ3	forkhead box J3	0.05	0.07	1.33	2.2E-09
cg27227786	DGKE	diacylglycerol kinase epsilon	0.07	0.10	1.29	7.23E-07
cg16956268	CDK5RAP2	CDK5 regulatory subunit associated protein 2 isoform a	0.03	0.05	1.37	1.27E-05
cg03718539	ETNK2	ethanolamine kinase 2	0.31	0.38	1.22	1.74E-06
cg08028004	RANBP2	RAN binding protein 2	0.05	0.07	1.38	3.44E-07
cg08965527	LRRC50	leucine rich repeat containing 50	0.18	0.23	1.27	2.43E-08
cg26771217	CLK2	CDC-like kinase 2 isoform 2	0.12	0.15	1.29	1.37E-06
cg22469841	FSTL1	folliculin-like 1 precursor	0.04	0.06	1.29	4.3E-06
cg14321399	RRAGB	Ras-related GTP binding B short isoform	0.18	0.21	1.20	1.77E-10
cg12582366	FLJ32130	hypothetical protein LOC146540	0.31	0.37	1.20	1.16E-05
cg10398682	BNC1	basonuclin 1	0.06	0.08	1.34	3.93E-06
cg14242042	SOX5	SRY (sex determining region Y)-box 5 isoform c	0.02	0.04	1.78	8.57E-06
cg10005894	ST6GAL1	sialyltransferase 1 isoform a	0.02	0.03	1.54	2.33E-09
cg05001145	ELL2	elongation factor; RNA polymerase II; 2	0.04	0.05	1.35	3.34E-08
cg25136310	RPL36	ribosomal protein L36	0.03	0.04	1.31	2.91E-05

cg16363586	BST2	bone marrow stromal cell antigen 2	0.12	0.20	1.62	1.48E-06
cg06627364	MGC4677	hypothetical protein LOC112597	0.02	0.03	1.36	2.25E-05
cg17421623	C3orf9	hypothetical protein LOC56983	0.32	0.41	1.26	2.48E-07
cg17959722	MRPL41	mitochondrial ribosomal protein L41	0.05	0.15	2.92	3.78E-05
cg02002676	APOBEC3B	apolipoprotein B mRNA editing enzyme; catalytic polypeptide-like 3B	0.02	0.04	1.64	6.12E-06
cg05876918	PIP5K2C	phosphatidylinositol-4-phosphate 5-kinase; type II; gamma	0.02	0.03	1.79	6.99E-07
cg26097271	MED6	mediator of RNA polymerase II transcription; subunit 6 homolog	0.02	0.04	1.60	1.24E-07
cg22766145	BHLHB5	basic helix-loop-helix domain containing; class B; 5	0.09	0.11	1.27	8.67E-09
cg23127998	FLRT3	fibronectin leucine rich transmembrane protein 3 precursor	0.13	0.17	1.26	3.21E-12
cg17096191	NOS1AP	nitric oxide synthase 1 (neuronal) adaptor protein	0.02	0.03	1.47	3.36E-05
cg13150441	RNF40	ring finger protein 40 isoform 1	0.04	0.05	1.43	9.1E-06
cg02166313	PAPOLA	poly(A) polymerase alpha	0.03	0.04	1.42	1.25E-06

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**Supplemental Table 2.** Genes hypermethylated CD4+ T cells from lupus patients compared to controls. Target IDs represent unique IDs on Illumina Infinium HumanMethylation27 array, Symbol and Product represent gene name and description, Case and Control averages represent percent of methylation in each group, Ratio highlight the level of relative hypermethylation as compared with control group, *P* value represent statistical significance of associative t-test (0 indicates p-value too small to be outputted).

Target ID	Symbol	Product	Case average	Control average	Ratio	<i>P</i> value
cg00429618	ZNF322B	zinc finger protein 322B	0.19	0.14	0.75	1.55E-15
cg27567335	RAMP1	receptor activity-modifying protein 1 precursor	0.13	0.10	0.73	1.2E-13
cg14865868	TRIB2	tribbles homolog 2	0.15	0.12	0.79	9.27E-07
cg20395072	GNPNAT1	glucosamine-phosphate N-acetyltransferase 1	0.48	0.37	0.77	1.93E-18
cg07115304	TRIB3	tribbles 3	0.04	0.02	0.50	5.43E-27
cg15774133	EIF3S8	eukaryotic translation initiation factor 3; subunit 8; 110kDa	0.17	0.12	0.68	1.71E-08
cg06625811	KIFAP3	kinesin-associated protein 3	0.03	0.02	0.66	5.78E-07
cg14775560	FOLH1	folate hydrolase 1 isoform 1	0.19	0.13	0.69	2.44E-10
cg22621695	DYRK2	dual-specificity tyrosine-(Y)-phosphorylation regulated kinase 2 isoform 1	0.22	0.18	0.80	2.74E-06
cg17091770	STYX	serine/threonine/tyrosine interacting protein	0.03	0.02	0.60	3.04E-05
cg13461622	RUNX3	runt-related transcription factor 3 isoform 2	0.18	0.13	0.70	7.11E-15
cg09577651	SIRPB1	signal-regulatory protein beta 1 precursor	0.11	0.08	0.75	1.65E-05
cg15219393	PPARGC1B	PGC-1-related estrogen receptor alpha coactivator	0.06	0.04	0.74	7.24E-07
cg04631202	MAN1C1	mannosidase; alpha; class 1C; member 1	0.43	0.34	0.79	6.89E-14
cg14602164	FBXO8	F-box only protein 8	0.06	0.05	0.82	5.54E-06
cg03259469	SVIL	supervillin isoform 1	0.05	0.04	0.79	7.99E-06
cg19904653	BRF2	RNA polymerase III transcription initiation factor BRF2	0.19	0.15	0.80	2.45E-05
cg11593656	COMMD6	COMM domain containing 6 isoform b	0.10	0.08	0.79	9.77E-07
cg26904212	FXR2	fragile X mental retardation syndrome related protein 2	0.03	0.02	0.74	1E-05
cg25264554	XRN1	5prime-3' exoribonuclease 1	0.08	0.05	0.65	7.11E-07
cg26829131	HOXC9	homeobox C9	0.10	0.08	0.73	3.27E-08
cg27626102	STEAP2	six transmembrane epithelial	0.08	0.06	0.80	1.77E-05

		antigen of the prostate 2				
cg16175263	TNFRSF10C	tumor necrosis factor receptor superfamily; member 10c precursor	0.10	0.08	0.79	2.79E-08
cg21022247	BIN2	bridging integrator 2	0.41	0.32	0.78	1.96E-06
cg21917349	APBA2	amyloid beta A4 precursor protein-binding; family A; member 2	0.38	0.31	0.82	3.15E-05
cg20029201	BCL9L	B-cell CLL/lymphoma 9-like	0.35	0.27	0.78	5.98E-07
cg07864632	TRIP12	thyroid hormone receptor interactor 12	0.05	0.03	0.58	8.91E-11
cg03160309	PTGS2	prostaglandin-endoperoxide synthase 2 precursor	0.21	0.15	0.72	2.63E-06
cg09491779	C9orf82	hypothetical protein LOC79886	0.28	0.18	0.62	4.38E-06
cg18022926	MAWBP	MAWD binding protein isoform a	0.12	0.05	0.44	1.07E-14
cg21885525	SCYE1	small inducible cytokine subfamily E; member 1	0.29	0.20	0.71	4.1E-06
cg05626013	LRRTM3	leucine rich repeat transmembrane neuronal 3	0.49	0.32	0.64	0
cg19857457	RPL17	ribosomal protein L17	0.22	0.12	0.54	3.23E-10
cg02807450	MTMR2	myotubularin-related protein 2 isoform 1	0.41	0.29	0.70	1.99E-06
cg00885506	WDR31	WD repeat domain 31 isoform 2	0.08	0.06	0.78	3.03E-07
cg26596161	SLC26A7	solute carrier family 26; member 7 isoform a	0.12	0.08	0.66	1.16E-13
cg17309462	C20orf38	hypothetical protein LOC55304	0.22	0.16	0.76	9.63E-10
cg15563952	DHTKD1	dehydrogenase E1 and transketolase domain containing protein 1	0.05	0.04	0.74	3.43E-10
cg11718315	PARP16	poly (ADP-ribose) polymerase family; member 16	0.07	0.05	0.72	1.4E-06
cg17630833	MAPT	microtubule-associated protein tau isoform 2	0.04	0.03	0.63	0
cg07964539	TRFP	Trf (TATA binding protein-related factor)-proximal homolog	0.14	0.11	0.77	4.46E-09
cg26900034	LOC51315	hypothetical protein LOC51315	0.07	0.05	0.74	6.95E-08
cg25421694	RAB5A	RAB5A; member RAS oncogene family	0.15	0.11	0.79	9.33E-15
cg10477754	PPRC1	PGC-1 related co-activator	0.04	0.03	0.70	7.35E-06
cg25149927	SSH1	slingshot homolog 1	0.12	0.08	0.71	3.74E-05
cg25425078	CCND2	cyclin D2	0.12	0.08	0.67	9.98E-06
cg19182046	C14orf111	hypothetical protein LOC51077	0.10	0.06	0.64	1.8E-06
cg14331163	RORB	RAR-related orphan receptor B	0.12	0.10	0.78	1.56E-07

cg16049587	BCDIN3	bin3; bicoid-interacting 3	0.12	0.09	0.76	4.94E-06
cg18264687	MLLT3	myeloid/lymphoid or mixed-lineage leukemia (trithorax homolog; Drosophila); translocated to; 3	0.07	0.05	0.66	1.42E-08
cg16691888	LRP2	low density lipoprotein-related protein 2	0.12	0.08	0.65	2.11E-14
cg05593479	TIGD1	hypothetical protein LOC200765	0.06	0.04	0.67	1.02E-10
cg02257681	DDAH2	dimethylarginine dimethylaminohydrolase 2	0.05	0.02	0.50	2.86E-08
cg27400772	DPF1	Neuro-d4 (rat) homolog	0.17	0.11	0.64	0
cg03760705	RNF185	ring finger protein 185	0.10	0.06	0.62	0
cg25985103	MAN2C1	mannosidase; alpha; class 2C; member 1	0.17	0.12	0.73	8.53E-09
cg04316754	MMP24	matrix metalloproteinase 24 preproprotein	0.11	0.07	0.69	1.01E-07
cg06476337	NDUFS4	NADH dehydrogenase (ubiquinone) Fe-S protein 4; 18kDa (NADH-coenzyme Q reductase)	0.21	0.14	0.68	1.47E-06
cg02057157	CNO	cappuccino	0.19	0.14	0.74	4.15E-08
cg13170032	HLX1	H2.0-like homeo box 1	0.11	0.09	0.77	2.18E-07
cg10011232	FKBP8	FK506-binding protein 8	0.07	0.05	0.68	6.16E-10
cg02299653	LSM5	U6 snRNA-associated Sm-like protein 5	0.06	0.02	0.39	5.28E-07
cg05303448	AACS	acetoacetyl-CoA synthetase	0.25	0.18	0.72	0
cg26727372	ME2	malic enzyme 2; NAD(+)-dependent; mitochondrial	0.12	0.09	0.78	1.8E-05
cg01578341	RKHD3	ring finger and KH domain containing 3	0.04	0.02	0.67	4.65E-12
cg10107186	PFDN5	prefoldin 5 isoform alpha	0.14	0.10	0.72	7.2E-10
cg12314510	DYNLL2	dynein light chain 2	0.04	0.03	0.64	3.73E-06
cg26990660	RAMP2	receptor (calcitonin) activity modifying protein 2 precursor	0.04	0.03	0.71	2.77E-06
cg08347960	SCN2A2	sodium channel; voltage-gated; type II; alpha 2	0.17	0.13	0.76	1.06E-09
cg24928378	RND1	GTP-binding protein RHO6	0.14	0.10	0.69	5.37E-07
cg04536575	C14orf50	hypothetical protein LOC145376	0.07	0.05	0.71	6.17E-08
cg10450322	CDKN2C	cyclin-dependent kinase inhibitor 2C	0.09	0.07	0.77	5.6E-08
cg16924616	DLX5	distal-less homeo box 5	0.08	0.05	0.64	6.25E-08
cg08211091	FLJ37478	hypothetical protein LOC339983	0.05	0.04	0.76	5.96E-06
cg07448460	GGH	gamma-glutamyl hydrolase precursor	0.05	0.04	0.67	6.68E-24
cg00692549	TARDBP	TAR DNA binding protein	0.09	0.06	0.73	6.1E-08
cg19595170	SRF	serum response factor (c-fos serum response element-binding transcription factor)	0.04	0.02	0.58	0

cg24784109	HIST1H3D	H3 histone family; member B	0.11	0.09	0.80	6.9E-06
cg00293409	LRRRC33	leucine rich repeat containing 33	0.04	0.03	0.75	1.6E-08
cg22138278	MAF1	MAF1 protein	0.04	0.03	0.70	7E-06
cg17680902	SKIV2L	superkiller viralicidic activity 2-like homolog	0.10	0.08	0.78	3.47E-10
cg10753582	KIFAP3	kinesin-associated protein 3	0.04	0.03	0.79	1.54E-06
cg12086773	C2orf25	hypothetical protein LOC27249	0.05	0.02	0.52	2.17E-05
cg13216057	DKK3	dickkopf homolog 3 precursor	0.05	0.03	0.64	2.27E-05
cg22967298	PCNP	PEST-containing nuclear protein	0.04	0.03	0.68	2.17E-05
cg20273774	GNB2L1	guanine nucleotide binding protein (G protein); beta polypeptide 2-like 1	0.16	0.12	0.75	1.14E-07
cg06367117	ALDOC	fructose-bisphosphate aldolase C	0.07	0.04	0.62	2.06E-05
cg13284426	RAB24	RAB24 gene product isoform 2	0.63	0.51	0.81	0
cg17272843	KCTD14	potassium channel tetramerisation domain containing 14	0.22	0.16	0.74	5.66E-14
cg20404387	FAM43B	hypothetical protein LOC163933	0.10	0.07	0.71	1.84E-06
cg11320084	RNF2	ring finger protein 2	0.14	0.11	0.79	5.68E-06
cg15454483	SNX12	sorting nexin 12	0.15	0.11	0.77	4.7E-07
cg15827031	NUP155	nucleoporin 155kDa isoform 2	0.04	0.02	0.69	9.75E-07
cg11412582	HERC2	hect domain and RLD 2	0.26	0.16	0.62	5.4E-06
cg01943185	NMU	neuromedin U	0.04	0.03	0.70	5.54E-12
cg03876618	IGFBP7	insulin-like growth factor binding protein 7	0.07	0.06	0.82	2.66E-05
cg15786837	HOXB13	homeo box B13	0.05	0.04	0.78	8.42E-06
cg02007844	KCNJ8	potassium inwardly-rectifying channel J8	0.03	0.03	0.80	1.31E-05
cg08797194	UGCGL2	UDP-glucose:glycoprotein glucosyltransferase 2	0.22	0.17	0.77	1.18E-06
cg13297960	NCAM2	neural cell adhesion molecule 2 precursor	0.09	0.06	0.76	1.41E-08
cg27243140	OTOP3	otopetrin 3	0.40	0.33	0.82	0
cg01311051	ALDOA	aldolase A	0.17	0.13	0.77	6.7E-10
cg06190053	PGM5	phosphoglucomutase 5	0.21	0.16	0.76	6.59E-06
cg09872616	MEST	mesoderm specific transcript isoform b	0.08	0.04	0.49	1.55E-05
cg02084087	TNFRSF25	tumor necrosis factor receptor superfamily; member 25 isoform 2 precursor	0.05	0.03	0.73	3.11E-07