

Table S1. Genes involved in DNA methylation process in human heart.

	Gene ID	Gene Name	Protein Name (UniProtKB)
DNA methylation machinery			
Addition of methyl groups			
1	ENSG00000130816	<i>DNMT1</i>	DNA (cytosine-5)-methyltransferase 1
2	ENSG00000119772	<i>DNMT3A</i>	DNA (cytosine-5)-methyltransferase 3A
3	ENSG00000088305	<i>DNMT3B</i>	DNA (cytosine-5)-methyltransferase 3B
Elimination of methyl groups			
4	ENSG00000239713	<i>APOBEC3G</i>	DNA dC->dU-editing enzyme APOBEC-3G
5	ENSG00000244509	<i>APOBEC3C</i>	DNA dC->dU-editing enzyme APOBEC-3C
6	ENSG00000128394	<i>APOBEC3F</i>	DNA dC->dU-editing enzyme APOBEC-3F
7	ENSG00000243811	<i>APOBEC3D</i>	DNA dC->dU-editing enzyme APOBEC-3D
8	ENSG00000123415	<i>SMUG1</i>	Single-strand selective monofunctional uracil DNA glycosylase
9	ENSG00000139372	<i>TDG</i>	G/T mismatch-specific thymine DNA glycosylase
10	ENSG00000138336	<i>TET1</i>	Methylcytosine dioxygenase TET1
11	ENSG00000168769	<i>TET2</i>	Methylcytosine dioxygenase TET2
12	ENSG00000187605	<i>TET3</i>	Methylcytosine dioxygenase TET3
Maintenance of methyl groups			
13	ENSG00000141644	<i>MBD1</i>	Methyl-CpG-binding domain protein 1
14	ENSG00000134046	<i>MBD2</i>	Methyl-CpG-binding domain protein 2
15	ENSG00000071655	<i>MBD3</i>	Methyl-CpG-binding domain protein 3
16	ENSG00000129071	<i>MBD4</i>	Methyl-CpG-binding domain protein 4
17	ENSG00000169057	<i>MECP2</i>	Methyl-CpG-binding protein 2
18	ENSG00000065060	<i>UHRF1</i>	E3 ubiquitin-protein ligase UHRF1
19	ENSG00000147854	<i>UHRF2</i>	E3 ubiquitin-protein ligase UHRF2
20	ENSG00000174282	<i>ZBTB4</i>	Zinc finger and BTB domain-containing protein 4
21	ENSG00000177485	<i>ZBTB33</i>	Transcriptional regulator Kaiso
22	ENSG00000177311	<i>ZBTB38</i>	Zinc finger and BTB domain-containing protein 38
Regulation of methylation			
Regulation of the addition of methyl groups			
23	ENSG00000101444	<i>AHCY</i>	Adenosylhomocysteinase
24	ENSG00000099381	<i>KMT2A</i>	Histone-lysine N-methyltransferase 2 ^a
25	ENSG00000159200	<i>RCAN1</i>	Calcipressin-1
26	ENSG00000172348	<i>RCAN2</i>	Calcipressin-2
27	ENSG00000117602	<i>RCAN3</i>	Calcipressin-3
28	ENSG00000099381	<i>SETD1A</i>	Histone-lysine N-methyltransferase SETD1A
29	ENSG00000181555	<i>SETD2</i>	Histone-lysine N-methyltransferase SETD2
30	ENSG00000143379	<i>SETDB1</i>	Histone-lysine N-methyltransferase SETDB1
31	ENSG00000101945	<i>SUV39H1</i>	Histone-lysine N-methyltransferase SUV39H1
32	ENSG00000175104	<i>TRAF6</i>	TNF receptor-associated factor 6
Regulation of the elimination of methyl groups			
33	ENSG00000108468	<i>CBX1</i>	Chromobox protein homolog 1
34	ENSG00000154832	<i>CXXC1</i>	CXXC-type zinc finger protein 1

35	ENSG00000108799	<i>EZH1</i>	Histone-lysine N-methyltransferase EZH1
36	ENSG00000106462	<i>EZH2</i>	Histone-lysine N-methyltransferase EZH2
37	ENSG00000167491	<i>GATAD2A</i>	Transcriptional repressor p66-alpha
38	ENSG00000167491	<i>GATAD2B</i>	Transcriptional repressor p66-beta
39	ENSG00000116717	<i>GADD45A</i>	Growth arrest and DNA damage-inducible protein GADD45 alpha
40	ENSG00000099860	<i>GADD45B</i>	Growth arrest and DNA damage-inducible protein GADD45 beta
41	ENSG00000130222	<i>GADD45G</i>	Growth arrest and DNA damage-inducible protein GADD45 gamma
42	ENSG00000196712	<i>NF1</i>	Neurofibromin
43	ENSG00000186575	<i>NF2</i>	Merlin
44	ENSG00000147162	<i>OGT</i>	UDP-N-acetylglucosamine-peptide N-acetylglucosaminyltransferase 110 kDa subunit
45	ENSG00000169375	<i>SIN3A</i>	Paired amphipathic helix protein Sin3a
46	ENSG00000127511	<i>SIN3B</i>	Paired amphipathic helix protein Sin3b
47	ENSG00000078900	<i>TP73</i>	Tumor protein p73

Regulation of the maintenance of methyl groups

48	ENSG00000145391	<i>SETD7</i>	Histone-lysine N-methyltransferase SETD7
49	ENSG00000183955	<i>SETD8</i>	Histone-lysine N-methyltransferase SETD8

APOBEC, apolipoprotein B mRNA-editing catalytic polypeptide-like; TET, Ten-eleven translocation; UHRF, ubiquitin like with PHD

and ring finger domains 1; BTB, Broad-Complex, Tramtrack and Bric a brac; SUV39H1, Suppressor of variegation 3-9 Homolog 1;

SETD1A, Su(var)3-9, Enhancer-of-zeste, Trithorax domain containing 1A; SETDB1, Su(var)3-9, Enhancer-of-zeste, Trithorax domain

bifurcate 1; CXXC, Cys-X-X-Cys; SETD2; Su(var)3-9, Enhancer-of-zeste, Trithorax domain containing 2.