

Table S2. Significantly enriched transcription factor binding motifs at the differentially methylated regions for the obese versus MCR and obese versus nonrestrictive LFD comparisons

Obese versus MCR		
Motif name	q-val	% TS
Elk4(ETS)/Hela-Elk4-ChIPSeq(GSE31477)	0	14.5
NF1(CTF)/LNCAP-NF1-ChIP-Seq(Unpublished)	0	9.52
ZNF711(Zf)/SHSY5Y-ZNF711-ChIP-Seq(GSE20673)	0	35.9
NF1-halfsite(CTF)/LNCaP-NF1-ChIP-Seq(Unpublished)	0	27.5
HIC1(Zf)/Treg-ZBTB29-ChIP-Seq(GSE99889)	0	36.1
BHLHA15(bHLH)/NIH3T3-BHLHB8.HA-ChIP-Seq(GSE119782)	0	21.3
Elk1(ETS)/Hela-Elk1-ChIP-Seq(GSE31477)	0	13.2
NeuroG2(bHLH)/Fibroblast-NeuroG2-ChIP-Seq(GSE75910)	0	21.5
Stat3(Stat)/mES-Stat3-ChIP-Seq(GSE11431)	0	7.69
ELF1(ETS)/Jurkat-ELF1-ChIP-Seq(SRA014231)	0	11.5
Twist2(bHLH)/Myoblast-Twist2.Ty1-ChIP-Seq(GSE127998)	0	25.3
EAR2(NR)/K562-NR2F6-ChIP-Seq(Encode)	0	17.6
Atoh1(bHLH)/Cerebellum-Atoh1-ChIP-Seq(GSE22111)	0	17.6
NeuroD1(bHLH)/Islet-NeuroD1-ChIP-Seq(GSE30298)	0	12.9
TEAD1(TEAD)/HepG2-TEAD1-ChIP-Seq(Encode)	0	8.83
ZFX(Zf)/mES-Zfx-ChIP-Seq(GSE11431)	0	23.4
COUP-TFII(NR)/K562-NR2F1-ChIP-Seq(Encode)	0	18.4
TEAD4(TEA)/Tropoblast-Tead4-ChIP-Seq(GSE37350)	0	8.73
TCF4(bHLH)/SHSY5Y-TCF4-ChIP-Seq(GSE96915)	0	20.9
Tcf21(bHLH)/ArterySmoothMuscle-Tcf21-ChIP-Seq(GSE61369)	0	15.8
Foxa3(Forkhead)/Liver-Foxa3-ChIP-Seq(GSE77670)	0	2.18
Erra(NR)/HepG2-Erra-ChIP-Seq(GSE31477)	0	30.3
Olig2(bHLH)/Neuron-Olig2-ChIP-Seq(GSE30882)	0	23.4
Ap4(bHLH)/AML-Tfap4-ChIP-Seq(GSE45738)	0	19.4
FoxL2(Forkhead)/Ovary-FoxL2-ChIP-Seq(GSE60858)	0	4.24
FOXA1(Forkhead)/MCF7-FOXA1-ChIP-Seq(GSE26831)	0	5.02
TEAD3(TEA)/HepG2-TEAD3-ChIP-Seq(Encode)	0	10.1
SCL(bHLH)/HPC7-Scl-ChIP-Seq(GSE13511)	0	59.4
EBF1(EBF)/Near-E2A-ChIP-Seq(GSE21512)	0	18.6
ETV4(ETS)/HepG2-ETV4-ChIP-Seq(ENCODE)	0	19.6
Tcf12(bHLH)/GM12878-Tcf12-ChIP-Seq(GSE32465)	0	17.3
Ptf1a(bHLH)/Panc1-Ptf1a-ChIP-Seq(GSE47459)	0	39.5
MyoG(bHLH)/C2C12-MyoG-ChIP-Seq(GSE36024)	0	18.6
FOXA1(Forkhead)/LNCAP-FOXA1-ChIP-Seq(GSE27824)	0	6.23
GABPA(ETS)/Jurkat-GABPa-ChIP-Seq(GSE17954)	0	14.2
AR-halfsite(NR)/LNCaP-AR-ChIP-Seq(GSE27824)	0	46.2
EBF2(EBF)/BrownAdipose-EBF2-ChIP-Seq(GSE97114)	0	13.5
Hoxc9(Homeobox)/Ainv15-Hoxc9-ChIP-Seq(GSE21812)	0	2.96
COUP-TFII(NR)/Artia-Nr2f2-ChIP-Seq(GSE46497)	0	21.6
HEB(bHLH)/mES-Heb-ChIP-Seq(GSE53233)	0	31.6
TEAD2(TEA)/Py2T-Tead2-ChIP-Seq(GSE55709)	0	5.09
Ascl1(bHLH)/NeuralTubes-Ascl1-ChIP-Seq(GSE55840)	0	26.3
Tlx?(NR)/NPC-H3K4me1-ChIP-Seq(GSE16256)	0	8.01
Stat3+il21(Stat)/CD4-Stat3-ChIP-Seq(GSE19198)	0	8.31
Fli1(ETS)/CD8-FLI-ChIP-Seq(GSE20898)	0	17.2
ZNF415(Zf)/HEK293-ZNF415.GFP-ChIP-Seq(GSE58341)	0	9.97
CDX4(Homeobox)/ZebrafishEmbryos-Cdx4.Myc-ChIP-Seq(GSE48254)	0	4.32
SPDEF(ETS)/VCaP-SPDEF-ChIP-Seq(SRA014231)	0	13.9
REST-NRSF(Zf)/Jurkat-NRSF-ChIP-Seq	0	0.45
Cdx2(Homeobox)/mES-Cdx2-ChIP-Seq(GSE14586)	0	2.88

Tgif2(Homeobox)/mES-Tgif2-ChIP-Seq(GSE55404)	0	32.3
FOXM1(Forkhead)/MCF7-FOXM1-ChIP-Seq(GSE72977)	0	5.42
Reverb(NR),DR2/RAW-Reverba.biotin-ChIP-Seq(GSE45914)	0	2.36
MyoD(bHLH)/Myotube-MyoD-ChIP-Seq(GSE21614)	0	14.2
Phox2b(Homeobox)/CLBGA-PHOX2B-ChIP-Seq(GSE90683)	0	0.66
Nr5a2(NR)/mES-Nr5a2-ChIP-Seq(GSE19019)	0	7.65
Pitx1:Ebox(Homeobox,bHLH)/Hindlimb-Pitx1-ChIP-Seq(GSE41591)	0	1.18
E2A(bHLH)/proBcell-E2A-ChIP-Seq(GSE21978)	0	25.3
Myf5(bHLH)/GM-Myf5-ChIP-Seq(GSE24852)	0	11.6
Nanog(Homeobox)/mES-Nanog-ChIP-Seq(GSE11724)	0	37.2
Atf7(bZIP)/3T3L1-Atf7-ChIP-Seq(GSE56872)	0	4.84
Foxf1(Forkhead)/Lung-Foxf1-ChIP-Seq(GSE77951)	0	4.17
THRb(NR)/Liver-NR1A2-ChIP-Seq(GSE52613)	0	46.7
FoxD3(forkhead)/ZebrafishEmbryo-Foxd3.biotin-ChIP-seq(GSE106676)	0	4.71
STAT4(Stat)/CD4-Stat4-ChIP-Seq(GSE22104)	0	8.05
FOXK2(Forkhead)/U2OS-FOXK2-ChIP-Seq(E-MTAB-2204)	0	4.02
Prop1(Homeobox)/GHFT1-PROP1.biotin-ChIP-Seq(GSE77302)	0	1.75
EWS:FLI1-fusion(ETS)/SK_N_MC-EWS:FLI1-ChIP-Seq(SRA014231)	0	7.90
Nr5a2(NR)/Pancreas-LRH1-ChIP-Seq(GSE34295)	0	9.71
Hoxa10(Homeobox)/ChickenMSG-Hoxa10.Flag-ChIP-Seq(GSE86088)	0	3.26
Ascl2(bHLH)/ESC-Ascl2-ChIP-Seq(GSE97712)	0	19.9
AP-2alpha(AP2)/Hela-AP2alpha-ChIP-Seq(GSE31477)	0	16.1
Phox2a(Homeobox)/Neuron-Phox2a-ChIP-Seq(GSE31456)	0	1.14
TEAD(TEA)/Fibroblast-PU.1-ChIP-Seq(Unpublished)	0.0001	4.75
TR4(NR),DR1/Hela-TR4-ChIP-Seq(GSE24685)	0.0001	1.82
PBX2(Homeobox)/K562-PBX2-ChIP-Seq(Encode)	0.0001	4.53
ZNF322(Zf)/HEK293-ZNF322.GFP-ChIP-Seq(GSE58341)	0.0001	5.75
Hoxd10(Homeobox)/ChickenMSG-Hoxd10.Flag-ChIP-Seq(GSE86088)	0.0001	6.71
ETS(ETS)/Promoter	0.0001	6.28
Foxo3(Forkhead)/U2OS-Foxo3-ChIP-Seq(E-MTAB-2701)	0.0001	3.72
ZBTB18(Zf)/HEK293-ZBTB18.GFP-ChIP-Seq(GSE58341)	0.0003	6.68
AP-2gamma(AP2)/MCF7-TFAP2C-ChIP-Seq(GSE21234)	0.0003	20.4
ETV1(ETS)/GIST48-ETV1-ChIP-Seq(GSE22441)	0.0003	19.4
THRb(NR)/HepG2-THRb.Flag-ChIP-Seq(Encode)	0.0004	8.89
Foxa2(Forkhead)/Liver-Foxa2-ChIP-Seq(GSE25694)	0.0004	4.63
ZNF416(Zf)/HEK293-ZNF416.GFP-ChIP-Seq(GSE58341)	0.0004	20.1
GATA(Zf),IR4/iTreg-Gata3-ChIP-Seq(GSE20898)	0.0005	0.57
FOXK1(Forkhead)/HEK293-FOXK1-ChIP-Seq(GSE51673)	0.0006	5.21
RARa(NR)/K562-RARa-ChIP-Seq(Encode)	0.0006	29.2
HOXA1(Homeobox)/mES-Hoxa1-ChIP-Seq(SRP084292)	0.0006	1.93
EBF(EBF)/proBcell-EBF-ChIP-Seq(GSE21978)	0.0007	3.39
RBPJ:Ebox(?,bHLH)/Panc1-Rbpj1-ChIP-Seq(GSE47459)	0.0008	4.69
Smad4(MAD)/ESC-SMAD4-ChIP-Seq(GSE29422)	0.0015	21.6
Pdx1(Homeobox)/Islet-Pdx1-ChIP-Seq(SRA008281)	0.0015	4.84
Hand2(bHLH)/Mesoderm-Hand2-ChIP-Seq(GSE61475)	0.0015	5.50
PGR(NR)/EndoStromal-PGR-ChIP-Seq(GSE69539)	0.0016	1.60
FOXP1(Forkhead)/H9-FOXP1-ChIP-Seq(GSE31006)	0.0017	2.36
Zic3(Zf)/mES-Zic3-ChIP-Seq(GSE37889)	0.0017	11.1
ERRg(NR)/Kidney-ESRRG-ChIP-Seq(GSE104905)	0.0017	9.71
STAT5(Stat)/mCD4+-Stat5-ChIP-Seq(GSE12346)	0.0018	2.72
HLF(bZIP)/HSC-HLF.Flag-ChIP-Seq(GSE69817)	0.0021	3.74
LEF1(HMG)/H1-LEF1-ChIP-Seq(GSE64758)	0.0026	4.38
Pit1+1bp(Homeobox)/GCrat-Pit1-ChIP-Seq(GSE58009)	0.0026	1.03
Hoxd11(Homeobox)/ChickenMSG-Hoxd11.Flag-ChIP-Seq(GSE86088)	0.0028	13.6
Tcfcp2l1(CP2)/mES-Tcfcp2l1-ChIP-Seq(GSE11431)	0.0031	2.61
Esrrb(NR)/mES-Esrrb-ChIP-Seq(GSE11431)	0.0034	7.14

Nur77(NR)/K562-NR4A1-ChIP-Seq(GSE31363)	0.0042	1.28
HNF4a(NR),DR1/HepG2-HNF4a-ChIP-Seq(GSE25021)	0.0044	5.14
RAR:RXR(NR),DR5/ES-RAR-ChIP-Seq(GSE56893)	0.0044	0.51
HNF6(Homeobox)/Liver-Hnf6-ChIP-Seq(ERP000394)	0.0047	2.84
MafF(bZIP)/HepG2-MafF-ChIP-Seq(GSE31477)	0.0056	1.34
GLIS3(Zf)/Thyroid-Glis3.GFP-ChIP-Seq(GSE103297)	0.0056	25.3
HNF1b(Homeobox)/PDAC-HNF1B-ChIP-Seq(GSE64557)	0.0057	0.46
PAX5(Paired,Homeobox),condensed/GM12878-PAX5-ChIP-Seq(GSE32465)	0.0059	1.69
Unknown(Homeobox)/Limb-p300-ChIP-Seq	0.0061	2.90
Nkx6.1(Homeobox)/Islet-Nkx6.1-ChIP-Seq(GSE40975)	0.0061	12.5
PPARE(NR),DR1/3T3L1-Pparg-ChIP-Seq(GSE13511)	0.0061	11.4
Bcl11a(Zf)/HSPC-BCL11A-ChIP-Seq(GSE104676)	0.0064	8.74
FXR(NR),IR1/Liver-FXR-ChIP-Seq(Chong_et_al.)	0.0066	5.33
PPARa(NR),DR1/Liver-Ppara-ChIP-Seq(GSE47954)	0.0069	12.3
c-Myc(bHLH)/LNCAP-cMyc-ChIP-Seq(Unpublished)	0.008	6.62
Fox:Ebox(Forkhead,bHLH)/Panc1-Foxa2-ChIP-Seq(GSE47459)	0.0091	7.26
ZNF519(Zf)/HEK293-ZNF519.GFP-ChIP-Seq(GSE58341)	0.0109	4.48
Barx1(Homeobox)/Stomach-Barx1.3xFlag-ChIP-Seq(GSE69483)	0.0111	1.91
Zac1(Zf)/Neuro2A-Plagl1-ChIP-Seq(GSE75942)	0.0113	39.5
Lhx2(Homeobox)/HFSC-Lhx2-ChIP-Seq(GSE48068)	0.0113	4.83
Mef2c(MADS)/GM12878-Mef2c-ChIP-Seq(GSE32465)	0.0113	1.43
MYB(HTH)/ERMYB-Myb-ChIPSeq(GSE22095)	0.013	17.2
Mouse_Recombination_Hotspot(Zf)/Testis-DMC1-ChIP-Seq(GSE24438)	0.0134	0.43
RXR(NR),DR1/3T3L1-RXR-ChIP-Seq(GSE13511)	0.0134	14.6
Mef2d(MADS)/Retina-Mef2d-ChIP-Seq(GSE61391)	0.014	0.78
Bcl6(Zf)/Liver-Bcl6-ChIP-Seq(GSE31578)	0.0168	12.3
Zfp809(Zf)/ES-Zfp809-ChIP-Seq(GSE70799)	0.0173	4.18
Nkx2.5(Homeobox)/HL1-Nkx2.5.biotin-ChIP-Seq(GSE21529)	0.0197	21.7
THRa(NR)/C17.2-THRa-ChIP-Seq(GSE38347)	0.0204	5.45
ERE(NR),IR3/MCF7-ERa-ChIP-Seq(Unpublished)	0.0215	3.44
Dlx3(Homeobox)/Kerainocytes-Dlx3-ChIP-Seq(GSE89884)	0.023	2.30
Cux2(Homeobox)/Liver-Cux2-ChIP-Seq(GSE35985)	0.0261	2.06
OCT:OCT-short(POU,Homeobox)/NPC-OCT6-ChIP-Seq(GSE43916)	0.0281	2.26
Oct6(POU,Homeobox)/NPC-Pou3f1-ChIP-Seq(GSE35496)	0.0292	1.82
Pax8(Paired,Homeobox)/Thyroid-Pax8-ChIP-Seq(GSE26938)	0.0295	5.11
Tgif1(Homeobox)/mES-Tgif1-ChIP-Seq(GSE55404)	0.0297	27.1
Atf2(bZIP)/3T3L1-Atf2-ChIP-Seq(GSE56872)	0.0354	3.14
CEBP:AP1(bZIP)/ThioMac-CEBPb-ChIP-Seq(GSE21512)	0.0355	4.08
Atf1(bZIP)/K562-ATF1-ChIP-Seq(GSE31477)	0.0358	5.54
HIF-1b(HLH)/T47D-HIF1b-ChIP-Seq(GSE59937)	0.0359	13.2
GLI3(Zf)/Limb-GLI3-ChIP-Chip(GSE11077)	0.0384	2.14
Hoxa9(Homeobox)/ChickenMSG-Hoxa9.Flag-ChIP-Seq(GSE86088)	0.0384	17.5
GATA(Zf),IR3/iTreg-Gata3-ChIP-Seq(GSE20898)	0.0421	0.73
Twist(bHLH)/HMLE-TWIST1-ChIP-Seq(Chang_et_al)	0.0448	1.87
HOXB13(Homeobox)/ProstateTumor-HOXB13-ChIP-Seq(GSE56288)	0.0448	4.78
CUX1(Homeobox)/K562-CUX1-ChIP-Seq(GSE92882)	0.0459	2.81
USF1(bHLH)/GM12878-Usf1-ChIP-Seq(GSE32465)	0.0488	5.30

Obese versus nonrestrictive LFD

Motif name	q-val	% TS
p53(p53)/Saos-p53-ChIP-Seq(GSE15780)	0.0015	8.70

Abbreviations: LFD, low-fat diet; MCR, Mediterranean-style calorie-restricted; q-val, Benjamini q-value; % TS, % of target sequences with motif.