

SUPPLEMENTARY MATERIAL

corresponding to:

**Genetic and epigenetic instability of human bone marrow
mesenchymal stem cells expanded in autologous serum
or fetal bovine serum**

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Supplemental Table 1. Genes contained in chromosome regions affected by DNA gains or losses.

Sample	Chromosome region	Genes (5' – 3' order)
<u>Donor 1</u> FBS, P4	4p16.3-16.1	ZNF595, novel, novel, Q49A33, novel, ZNF141, Q69YG7, PIGG, PDE6B, ATP5I, Q6ZVX1, MFSD7, PCGF3, novel, Q96NE0, NM_006651.3, GAK, TMEM175, DGKQ, SLC26A1, IDUA, FGFR1, Q6ZVH1, RNF212, XR_017847.1, Q6ZVG4, SPON2, Q8NAZ9, CTBP1, NP_443093.2, MAEA, NP_065945.1, CRIPAK, NKX1.1, FAM53A, SLBP, TMEM129., TACC3, FGFR3, LETM1, WHSC1, novel, WHSC2, Q5BLP8, NAT8L, POLN, MXD4, Q6ZWG3, ZFYVE28, Q6ZU27, RNF4, C4orf8, TNIP2, SH3BP2, ADD1, NP_001111.2, C4orf10, NOL14, GRK4, HD, NP_001013000.2, RGS12, HGFAC, DOK7, Q96I42, LRPAP1, Q8NAF7, ADRA2C, novel, novel, novel, OTOP1, TMEM128, LYAR, ZNF509, NSG1, STX18, MSX1, CYTL1, STK32B, C4orf6, EVC2, EVC, CRMP1, Q6ZSP9, NP_997288.1, JAKMIP1, WFS1, PPP2R2C, Q6ZN58, MAN2B2, MRFAP1, Q8WU25, Q8WYZ9, S100P, MRFAP1L1, CNO, K0232, novel, novel, TBC1D14, Q6ZU05, CCDC96, Q86TJ2, GRPEL1, SORCS2, PSAPL1, AFAP1, Q9BT26, NM_203423, ABLIM2, SH3TC1, Q6ZTX6, HTRA3, ACOX3, C4orf23, Q6ZRZ0, GPR78, CPZ, novel, novel, novel, LOC728386, Q3BEM1, Q3BEM1, Q3BEM1, Q3BEM1, XR_017907.1, novel, DEFB131, novel, novel, novel, RD5, SLC2A9, WDR1
	5p15.33	NP_443141.2, NP_001073947.1, Q6ZT76, CCDC127, SDHALP2, AHRR, Q8N2X6, EXOC3, Q71RB1, SLC9A3, Q9NX68, CEP72, P25A, Q6P7N6, novel, ZDHHC11, BRD9, TRIP13, novel, NKD2, SLC12A7, SLC6A19, SLC6A18, TERT, CLPTM1L, novel, SLC6A3, AYTL2, Q6ZT66, Q7Z6L2, MRPL36, NDUFS6, IRX4, IRX2, C5orf38, IRX1
	7p22.3-22.2	FAM20C, Q8NBF4, PDGFA, Q8N814, PRKAR1B, HEATR2, Q6ZS67, UNC84A, C7orf20, Q8N1S0, CENTA1, COX19, CYP2W1, NP_115726.1, GPR146, GPR30, ZFAND2A, NP_001073930.1, MICALL2, Q6ZRI5, Q6ZRB0, MAFK, Q6ZV46, NP_689902.2, C7orf48, Q8NBC0, NP_001019848.1, LOC392617, MAD1L1, Q8N997, FTSJ2, NUDT1, SNX8, EIF3S9, CHST12, Q9H7M1, LFNG, novel, C7orf27, IQCE, TTYH3, AMZ1, GNA12, CARD11
	8q24.23-24.3	COL22A1, KCNK9, NP_113654.3, C8orf17, Q9P1J6, CHRAC1, EIF2C2, novel, PTK2, novel, DENND3, Q7L180, SLC45A4, GPR20, PTP4A3, Q71RG6, TSNAE1, BAI1, ARC, Q8TB58, JRK, PSCA, Q8NAM3, LY6K, C8orf55, SLURP1, LYPD2, LYNX1, LY6D, novel, GML, CYP11B1, CYP11B2, LY6E, C8orf31, novel, novel, LY6H, NP_835466.1, GLI4, ZNF696, TOP1MT, C8orf51, RHPN1, MAFA, ZC3H3, GSDMDC1, C8orf73, C8orf73, NAPRT1, EEF1D, TIGD5, PYCRL, TSTA3, ZNF623, ZNF707, Q8NDL7, novel, MAPK15, FAM83H, Q96K66, SCRIB, NP_055096.2, NRBP2, PLEC1, PARP10, GRINA, SPATC1, novel, OPLAH, EXOSC4, GPAA1, CYC1, SHARPIN, MAF1, novel, C8orf30A, Q8NDA8, Q4G0D9, SCX, Q96BK8, Q8ND95, BOP1, SCXA, HSF1, Q3KQR6, DGAT1, SCRT1, FBXL6, GPR172A, ADCK5, CPSF1, SLC39A4, VPS28, NFKBIL2, Q6ZMK1, CYHR1, KIFC2, FOXH1, Q6ZTC5, PPP1R16A, GPT, MFSD3, RECQL4, LRRC14, LRRC24, K1688, novel, ZNF251, Q9BSZ0, RPL8, ZNF517, Q6ZSQ5, Q6ZNP5, ZNF7, COMMD5, ZNF250, ZNF16, ZNF252, NR_002807.1, C8orf77
	10q26.3	Q6ZRK0, PPP2R2D, BNIP3, C10orf39, DPYSL4, STK32C, LRRC27, PWWP2, novel, C10orf91, Q8N7W6, INPP5A, NKX6, 2, C10orf92, Q5JSF6, Q5SR77, C10orf93, Q6ZUA8, GPR123, novel, KNDC1, UTF1, VENTX, ADAM8, TUBGCP2, ZNF511, Q8N377, DRD1IP, PRAP1, C10orf125, ECHS1, novel, PAOX, MTG1, SPRN, NR_02934.2, CYP2E1, SYCE1, NP_001074467.1
	11p15.5-15.4	SIRT3, PSMD13, NLRP6, ATHL1, IFITM5, IFITM2, IFITM1, IFITM3, B4GALNT4, PKP3, SIGIRR, TMEM16J, PTDSS2, Q6ZRG3, RNH1, HRAS, LRRC56, C11orf35, Q8N9U2, RASSF7, K1542, IRF7, MUPCDH, SCT, DRD4, DEAF1, TMEM80, EPS8L2, TALDO1, PDDC1, novel, CEND1, SLC25A22, LRDD, RPLP2, PNPLA2, EFCAB4A, CD151, POLR2L, TSPAN4, Q6ZTG5, CHID1, MUC6, MUC2, XR_016172.1, MUC5AC, novel, TOLLIP, BRSK2, MOB2, Q6ZVK4, DUSP8, Q96NM2, KRTAP5-1, novel, KRTAP5-2, KRTAP5-4, KRTAP5-5, Q6AI09, FAM99A, KRTAP5-6, novel, CTSD, LOC649839, SYT8, TNNI2, LSP1,

		LOC728008, TNNT3, MRPL23, H19, IGF2, Q8N2L8, IGF2AS, INS, TH, novel, ASCL2, C11orf21, TSPAN32, hCG_1995786, CD81, TSSC4, TRPM5, KCNQ1, KCNQ1DN, CDKN1C, SLC22A18AS, SLC22A18, PHLDA2, NAP1L4, Q9P1L5, CARS, novel, OSBPL5, MRGPRG, C11orf36, MRGPRES, ZNF195, novel, novel, Q96FU4, novel, XR_018915.1, ART5, ART1, CHRNA10, NUP98, NP_055304.1, novel, RHOG
	12q24.33	FZD10, PIWIL1, RIMBP2, STX2, RAN, GPR133, Q96LP1, Q6ZU76, Q6ZRX8, Q69YW3, Q6ZU19, Q4G0G9, SFRS8, MMP17, ULK1, PUS1, EP400, EP400NL, DDX51, NOC4L, GALNT9, Q6ZWG6, Q6PJP7, Q8N8T0, Q86XQ1, LOC645277, P2RX2, POLE, PXMP2, Q96GB0, PGAM5, KIAA0692, GOLGA3, LOC727826, CHFR, ZNF605, novel, ZNF26, ZNF84, ZNF140, ZNF10, NM_003415.1
	13q34	IRS2, COL4A1, COL4A2, Q6ZP31, RAB20, Q8N1R6, NP_060680.2, CARS2, ING1, C13orf29, ANKRD10, ARHGEF7, C13orf16, Q5T400, SOX1, C13orf28, TUBGCP3, NP_997323.1, ATP11A, MCF2L, F7, F10, PROZ, PCID2, CUL4A, LAMP1, GRTP1, novel, ADPRHL1, DCUN1D2, TMCO3, TFDP1, ATP4B, GRK1, GAS6, NP_001034888.1, FAM70B, RASA3, CDC16, UPF3A, C13orf8
	21q22.3	Q9NSI4, BACE2, Q9NSI3, FAM3B, MX2, MX1, TMPRSS2, C21orf129, RIPK4, PRDM15, C21orf25, novel, ZNF295, C21orf121, novel, UMODL1, C21orf128, ABCG1, TFF3, TFF2, TFF1, TMPRSS3, UBASH3A, TSGA2, SLC37A1, Q6ZSA4, PDE9A, WDR4, NDUFV3, C21orf105, PKNOX1, CBS, U2AF1, CRYAA, Q6ZN03, SNF1LK, C21orf125, C21orf84, HSF2BP, H2BFS, RRP1B, PDXK, CSTB, RRP1, AGPAT3, Q8TEB0, TMEM1, PWP2, C21orf33, C21orf32, ICOSLG, DNMT3L, AIRE, PFKL, C21orf2, novel, TRPM2, LRRC3, C21orf30, C21orf29, C21orf90, KRTAP10-1, Q76LM9, novel, KRTAP10-4, KRTAP10-7, KRTAP10-8, Q76LM8, KRTAP10-10, novel, novel, novel, UBE2G2, SUMO3, PTTG1IP, ITGB2, C21orf69, C21orf67, C21orf70, C21orf122, ADARB1, NP_001074314.1, Q9NSI0, C21orf89, POFUT2, C21orf86, C21orf93, C21orf111, COL18A1, C21orf123, SLC19A1, Q9NSH8, Q6ZW00, PCBP3, Q9NSH7, COL6A1
	Xq28	LOC728317, ZNF275, novel, TREX2, BGN, SLC6A8, ATP2B3, FAM58A, DUSP9, PNCK, BCAP31, ABCD1, PLXNB3, SRPK3, IDH3G, SSR4, PDZD4, L1CAM, NP_001034857.2, AVPR2, ARHGAP4, ARD1A, RENBP, HCFC1, TMEM187, IRAK1, MECP2, OPN1LW, TEX28P2, OPN1MW, TEX28, OPN1MW2, TEX28P1, TKTL1, FLNA, EMD, RPL10, DNASE1L1, TAZ, novel, ATP6AP1, GDI1, FAM50A, PLXNA3, LAGE3, UBL4A, SLC10A3, FAM3A, G6PD, IKBKG, CXorf52, CTAG1A, novel, novel, CTAG1B
	22q11.21-q13.33	See note ^a
<u>Donor 2</u> FBS, P15	5p15.33	Same gene list as above
	12q24.33	Same gene list as above
<u>Donor 3</u> FBS, P4	5p15.33	Same gene list as above
	8p23.3	O95014, ZNF596, novel, FA87B, FBXO25, Q8NB26, C8orf42, Q8NF75, NP_001013673.1, ERICH1, DLGAP2, C8orf61, ARHGEF10, Q6ZSW5, KBTBD11, MYOM2
FBS, P12	2p25.3-25.2	FAM110C, SH3YL1, ACP1, NP_001002919.1, TMEM18, Q9BZU2, Q6ZRR3, SNTG2, TPO, PXDN, MYT1L, novel, TSSC1, TTC15, ADI1, RNASEH1, RPS7, COLEC11, TMSL2, ALLC, LOC728597
	2q14.2	INHBB, XR_017842.1, GLI2, TFCP2L1
	3q29	HES1, CPN2, LRRC15, GP5, ATP13A3, novel, TMEM44, LSG1, FAM43A, C3orf21, CENTB2, novel, PPP1R2, APOD, novel, Q6ZRC0, MUC20, MUC4, Q6ZSM7, novel, TNK2, Q8N9P1, novel, novel, TFRC, ZDHHC19, NP_689885.3, PCYT1A, TM4SF19, UBXD7, Q8NAB5, RNF168, WDR53, FBXO45, LRRC33, C3orf34, PIGX, PAK2, S, NP5, NCBP2, XR_017713.1, PIGZ, MFI2, DLG1, BDH1, Q96CK5, FYTTD1, LRCH3, novel, IQCG, RPL35A, LMLN, NM_182631
	4p16.3-16.1	Same gene list as above
	5p15.33	Same gene list as above, minus IRX1
	8p23.3	FA87B, FBXO25, Q8NB26, C8orf42, Q8NF75, NP_001013673.1, ERICH1,

		DLGAP2, C8orf61, ARHGEF10, Q6ZSW5, KBTBD11, MYOM2
AS, P4	8q24.23-24.3	Same gene list as above
	4p16.3-16.1	Same gene list as above
	5p15.33	Same gene list as above, minus IRX2, C5orf38, IRX1 in the 3' end of the list
	13q34	Same gene list as above, minus IRS2 in the 5'-most position of the list
	18q23	SALL3, ATP9B, novel, NFATC1, Q9NY04, Q8N7E7, CTDP1, Q6ZVY3, KCNG2, PQLC1, TXNL4A, C18orf22, ZNF508, PARD6G
	22q11.21-q13.33	See note ^a

^a Known protein coding genes (204), novel protein coding genes (234), novel processed transcripts (73), putative processed transcripts (84), total pseudogenes (240), processed pseudogenes (40) and unprocessed pseudogenes (33). Source: http://vega.sanger.ac.uk/Homo_sapiens/index.html.

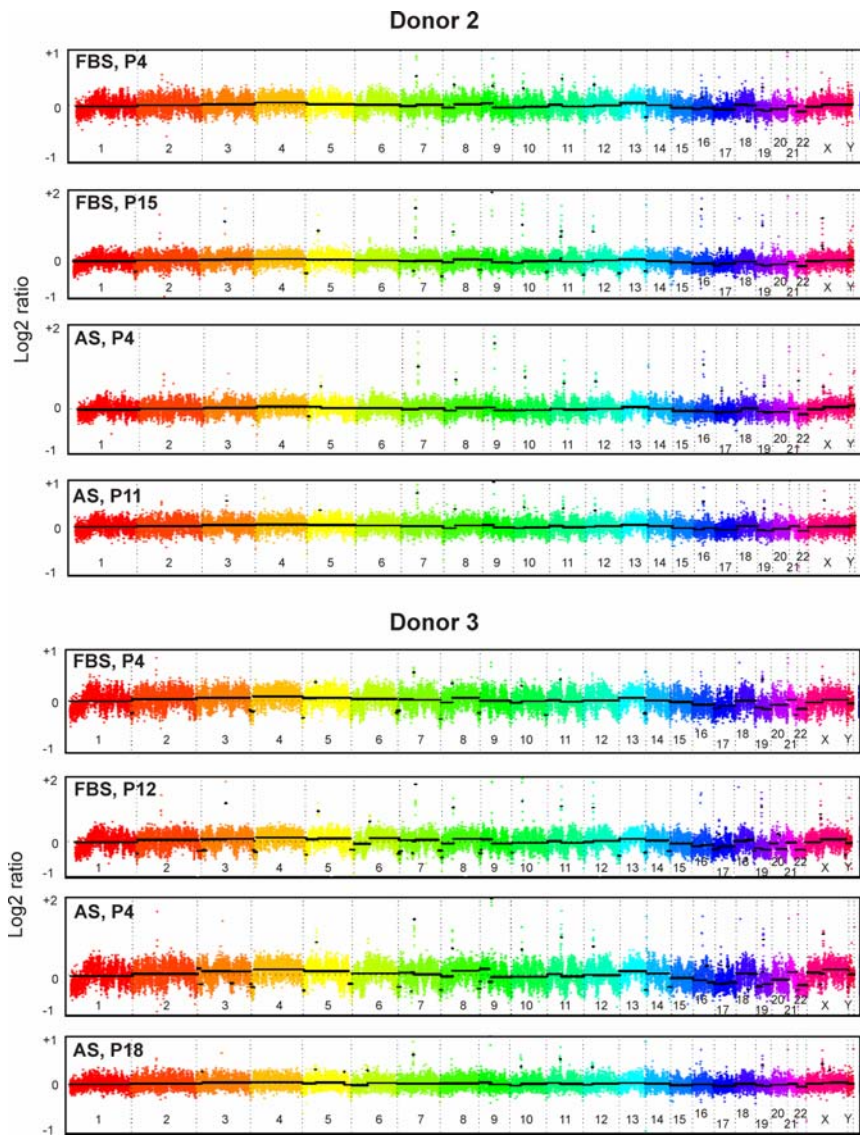
Supplemental Table 2. List of genes included in COBRA.

Gene name	Designation	Chromosome location	Genebank accession
ABCG2	ATP-binding cassette, sub-family G, member 2	4q22-q23	NM_004827
ABL1	v-abl Abelson murine leukemia viral oncogene homol. 1	9q34.1	NM_007313
ABL2	v-abl Abelson murine leukemia viral oncogene homol. 2	1q25.2	NM_005158
APOA1	apolipoprotein A-I	11q23-q24	NM_000039
BARD1	BRCA1 associated RING domain 1	2q	NM_000465
BDH1	3-hydroxybutyrate dehydrogenase, type 1	3q29	NM_004051
BLM	Bloom syndrome	15	NM_000057
BMP6	bone morphogenetic protein 6	6p24-p23	NM_001718
BMP2	bone morphogenetic protein 2	20p12	NM_001200
CBFB	core-binding factor, beta subunit	16q22.1	NM_001755
CD9	CD9 molecule	12p13	M38690
CD14	CD14 molecule	5q22-q32	NM_001040021
CDC20	cell division cycle 20 homolog	1p34.1	NM_001255
CDH13	cadherin 13, H-cadherin (heart)	16q23.3	NM_001257
CDKN1A	cyclin-dependent kinase inhibitor 1A (p21, Cip1)	6p21.1	NM_078467
CDKN1C	cyclin-dependent kinase inhibitor 1C (p57, Kip2)	11p15.5	NM_000076
CDKN2B	cyclin-dependent kinase inhibitor 2B (p15)	9p21	AB060808
CDX2	caudal type homeobox 2	13q12.2	NM_001265
CHFR	checkpoint with forkhead and ring finger domains	12q24.33	AK001658
CNTN2	contactin 2 (axonal)	1q32.1	NM_005076
CRABP1	cellular retinoic acid binding protein 1	15q24	NM_004378
CRK	v-crck sarcoma virus CT10 oncogene homolog	17p13	NM_016823
GJB2	gap junction protein, beta 2, 26kDa	13q11-q12	M86849
CXCL2	chemokine (C-X-C motif) ligand 2	4q13.3	NM_002089
DAB2IP	DAB2 interacting protein	9q33.1-q33.3	AF367051
DAPK1	death-associated protein kinase 1	9q34.1	NM_004938
DCK	deoxycytidine kinase	4q13.3-q21.1	M60527
DKK1	dickkopf homolog 1 (<i>Xenopus laevis</i>)	10q11.2	NM_012242
DKK3	dickkopf homolog 3 (<i>Xenopus laevis</i>)	11p15.3	NM_013253
ECE1	endothelin converting enzyme 1	1p36.1	NM_001397
EDNRB	endothelin receptor type B	13q22	NM_000115
EGFR	epidermal growth factor receptor (erythroblastic leukemia viral (v-erb-b) oncogene homolog, avian)	7p12	NM_005228
EIF4A2	eukaryotic translation initiation factor 4A, isoform 2	3q28	NM_001967
EP300	E1A binding protein p300	22q13.2	NM_001429
EPHA1	EPH receptor A1	7q32-q36	M18391
EPHA8	EPH receptor A8	1p36.12	NM_020526
ESR2	estrogen receptor 2 (ER beta)	14q21-q22	X99101
FEZ1	fasciculation and elongation protein zeta 1	11q24.2	NM_005103
GPR37	G protein-coupled receptor 37	7q31	NM_005302
GPS1	G protein pathway suppressor 1	17q25.3	NM_212492
LEPRE1	leucine proline-enriched proteoglycan 1	1p34.1	AK027648
GSK3B	glycogen synthase kinase 3 beta	3q13.3	BC012760
GSTP1	glutathione S-transferase pi	11q13-qter	NM_000852
GUSB	human beta-d-glucuronidase	7q11.21	NM_000181
HSPC070	HSPC070 protein	3pter-3p25.1	NM_000057
FOXP2	forkhead box N2	2p22-p16	NM_002158
IL6	interleukin 6	7p21-p15	M18403
ING1	inhibitor of growth family, member 1	13q34	NM_005537
JUNB	jun B proto-oncogene	19p13.13	NM_002229
CD82	CD82 molecule	11p11.2	U20770
KLF4	Kruppel-like factor 4 (gut)	9q31	NM_004235

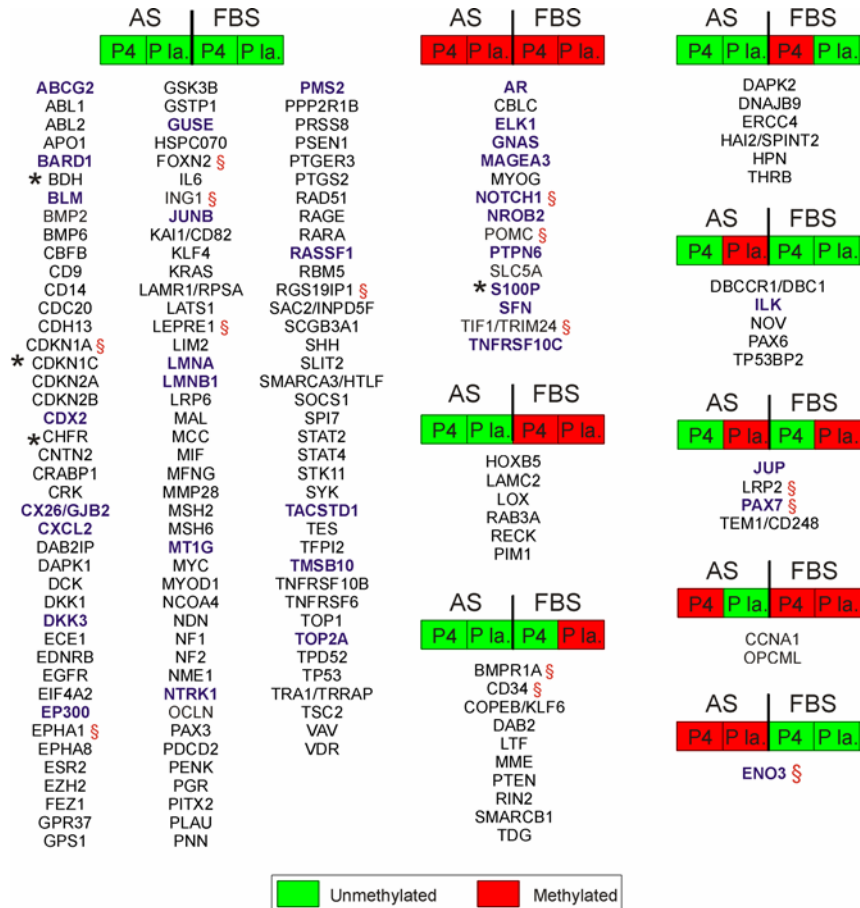
KRAS	v-Ki-ras2 Kirsten rat sarcoma viral oncogene homolog	12p12.1	NM_033360
RPSA	ribosomal protein SA	3p21.3	NM_002295
LATS1	LATS, large tumor suppressor, homolog 1	6q25.1	NM_004690
LIM2	lens intrinsic membrane protein 2, 19kDa	19q13.4	NM_030657
LMNA	lamin A/C	1q22	NM_170707
LMNB1	lamin B1	5q23.2	NM_005573
LRP6	LPL receptor-related protein 6	12p11.2-13.3	AF074264
MAL	Myelin and lymphocyte-associated protein	2cen-q13	NM_022440
MCC	mutated in colorectal cancers	5q21-q22	NM_002387
MIF	macrophage migration inhibitory factor (glycosylation-inhibiting factor)	22q11.23	NM_002415
MFNG	O-fucosylpeptide 3-beta-N-acetylglucosaminyltransferase	22q13.1	NM_002405
MMP28	matrix metalloproteinase 28	17q21.1	AF315683
MSH2	mutS homolog 2, colon cancer, nonpolyposis type 1	2p21	U03911
MSH6	mutS homolog 6	2p16	NM_000179
MT1G	metallothionein 1G	16q13	NM_005950
MYC	v-myc myelocytomatosis viral oncogene homolog (avian)	8q24	NM_002467
MYOD1	myogenic differentiation 1	11p15	AF027148
NCOA4	nuclear receptor coactivator 4	10q11.2	L49399
NDN	necdin homolog (mouse)	15q11-q12	NM_002487
NF1	neurofibromin 1	17q11.2	NM_000267
NF2	neurofibromin 2 (bilateral acoustic neuroma)	22q12.2	NM_000268
NME1	non-metastatic cells 1, protein (NM23A)	17q21.33	NM_000269
NTRK1	neurotrophic tyrosine kinase, receptor, type 1	1q23-q31	NM_002529
OCLN	occludin	5q13.1	U49184
CDKN2A	cyclin-dependent kinase inhibitor 2A (melanoma, p16)	9p21	NM_000077
PAX3	paired box 3	2q36.1	NM_181457
PDCD2	programmed cell death 2	6q27	NM_002598
PENK	proenkephalin	8q23-q24	NM_006211
PGR	progesterone receptor	11q22-q23	M15716
PITX2	paired-like homeodomain 2	4q25	U69961
PLAU	plasminogen activator, urokinase	10q24	NM_002658
PNN	pinin, desmosome associated protein	14q21.1	NM_002687
PMS2	PMS2 postmeiotic segregation increased 2 (S. cerevisiae)	7p22.1	NM_000535
PPP2R1B	protein phosphatase 2, regulatory subunit A, beta isoform	11q23.1	NM_002716
PRSS8	protease, serine, 8	16p11.2	NM_002773
PSEN1	presenilin 1 (Alzheimer disease 3)	14q24.3	AJ008005
PTGER3	prostaglandin E receptor 3 (subtype EP3)	1p31.2	NM_000957
PTGS2	prostaglandin-endoperoxide synthase 2	1q25.2-q25.3	NM_000963
RAD51	RAD51 homolog (RecA homolog, E. coli)	15q15.1	NM_133487
RAGE	renal tumor antigen	14q32	AB022694
RARA	retinoic acid receptor, alpha	17q12	X06538
RASSF1	Ras association domain family 1	3p21.3	AF132675
RBM5	RNA binding motif protein 5	3p21.3	NM_005778
GIPC1	GIPC PDZ domain family, member 1	19p13.1	AF089816
INPP5F	inositol polyphosphate-5-phosphatase F	10q26.13	NM_014937
SCGB3A1	secretoglobin, family 3A, member 1	5q35-qter	AF313458
SHH	sonic hedgehog homolog (Drosophila)	7q36	NM_000193
SLIT2	slit homolog 2 (Drosophila)	4p15.2	AF055585
HLTF	helicase-like transcription factor	3q25.1-q26.1	L34673
SOCS1	suppressor of cytokine signaling 1	16p13.13	U88326
SPA17	sperm autoantigenic protein 17	11q24.2	NM_017425

STAT2	signal transducer and activator of transcription 2, 113kDa	12q12-12q14	NM_005419
STAT4	signal transducer and activator of transcription 4	2q32.2-q32.3	NM_003151
STK11	serine/threonine kinase 11	19p13.3	U63333
SYK	spleen tyrosine kinase	9q22	L28824
TACSTD1	tumor-associated calcium signal transducer 1	2p21	M33011
TES	testis derived transcript (3 LIM domains)	7q31.2	NM_015641
TFPI2	tissue factor pathway inhibitor 2	7q	L27624
TMSB10	thymosin, beta 10	2p11.2	NM_021103
TNFRSF10B	tumor necrosis factor receptor superfamily, member 10b	8p22-p21	NM_147187
TNFRSF6B	tumor necrosis factor receptor superfamily, member 6b	20q13.3	NM_003823
TOP1	topoisomerase (DNA) I	20q12-q13.1	NM_003286
TOP2A	topoisomerase (DNA) II alpha 170kDa	17q21-q22	NM_001067
TP53	tumor protein p53 (Li-Fraumeni syndrome)	17p13.1	AF307851
TRRAP	transformation/transcription domain-associated protein	7q21.2-q22.1	NM_003496
TSC2	tuberous sclerosis 2	16p13.3	NM_000548
VAV1	vav 1 guanine nucleotide exchange factor	19p13.2	NM_005428
VDR	vitamin D (1,25- dihydroxyvitamin D3) receptor	12q12-q14	J03258
CBLC	Cas-Br-M ecotropic retroviral transforming sequence c	19q13.2	AB028645
ELK1	ELK1, member of ETS oncogene family	Xp11.23	NM_005229
GNAS	GNAS complex locus	20q13.2-q13.3	NM_000516
MAGEA3	melanoma antigen family A, 3	Xq28	NM_005362
MYOG	myogenin (myogenic factor 4)	1q31-q41	NM_002479
NOTCH1	Notch homolog 1, translocation-associated	9q34.3	NM_017617
NROB2	nuclear receptor subfamily 0, group B, member 2	1p36.1	NM_021969
POMC	proopiomelanocortin (adrenocorticotropin)	2p23	NM_000939
PTPN6	protein tyrosine phosphatase, non-receptor 6	12p13.31	NM_002831
SLC5A1	solute carrier family 5, member 1	22q13.1	NM_000343
S100P	S100 calcium binding protein P	4p16	NM_005980
SFN	stratifin	1p36.11	NM_006142
TRIM24	tripartite motif-containing 24	7q32-q34	NM_015905
TNFRSF10C	tumor necrosis factor receptor superfamily, member 10c	8p22-p21	NM_003841
HOXB5	homeobox B5	17q21.32	NM_002147
LAMC2	laminin, gamma 2	1q25-q31	NM_005562
LOX	lysyl oxidase	5q23.3-q31.2	NM_002317
RAB3A	RAB3A, member RAS oncogene family	19p13.2	NM_002866
RECK	reversion-inducing-cysteine-rich protein with kazal motifs	9p12-13	NM_021111
PIM1	pim-1 oncogene	6p21	NM_002648
BMPR1A	bone morphogenetic protein receptor, type IA	10q22.3	NM_004329
CD34	CD34 molecule	1q32	NM_001773
KLF6	Kruppel-like factor 6	10p15	NM_001008490
DAB2	disabled homolog 2, mitogen-responsive phosphoprotein	5p13	NM_001343
LTF	lactotransferrin	3q21-q23	NM_002343
MME	membrane metallo-endopeptidase	3q21-q	NM_007288
PTEN	phosphatase and tensin homolog (mutated in multiple advanced cancers 1)	10q23	NM_000314
RIN2	Ras and Rab interactor 2	20p11.22	AB060339
SMARCB1	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily b, member 1	22q11.2	NM_003073
TDG	thymine-DNA glycosylase	12q24.1	NM_003211

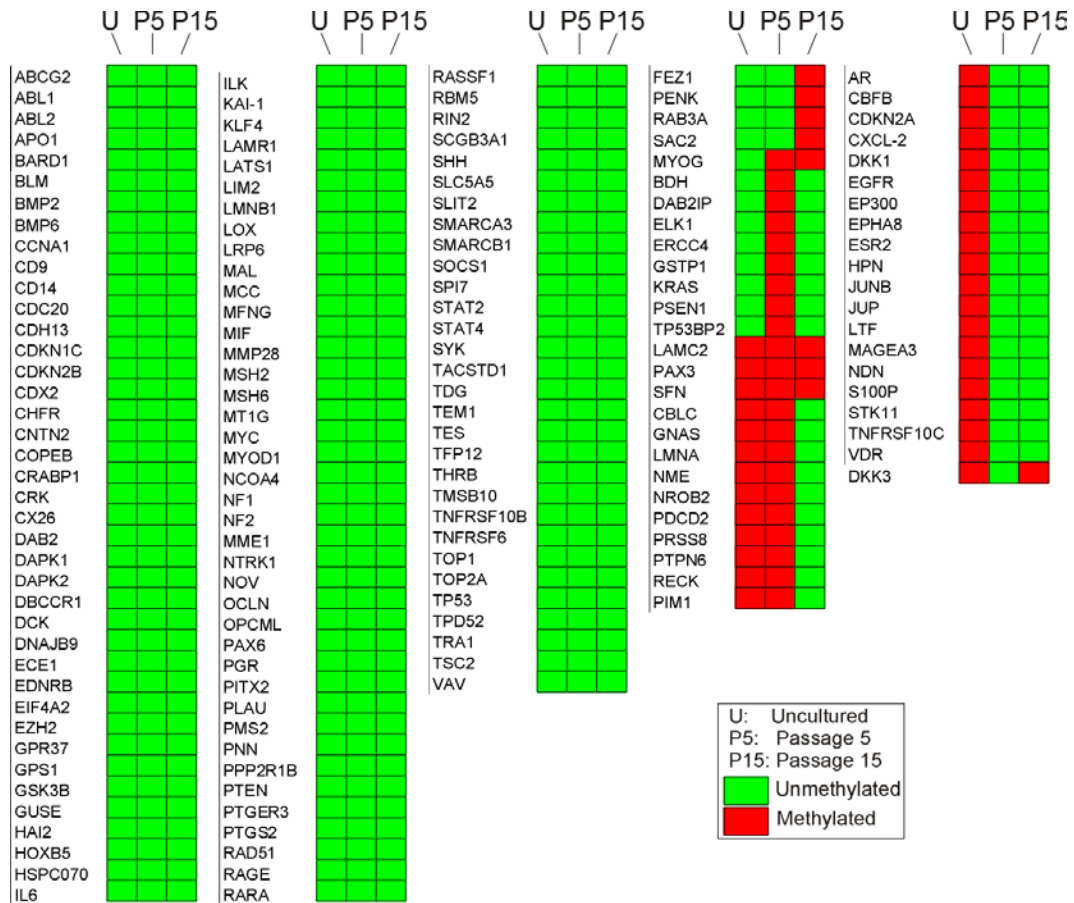
DAPK2	death-associated protein kinase 2	15q22.1	AB018001
DNAJB9	DnaJ (Hsp40) homolog, subfamily B, member 9	7q31	AB026908
ERCC4	excision repair cross-complementing rodent repair deficiency, complementation group 4	16p13.3-p13.11	L76568
HAI2/SPINT2	serine peptidase inhibitor, Kunitz type, 2	19q13.1	NM_021102
HPN	hepsin (transmembrane protease, serine 1)	19q11-q13.2	NM_182983
THRB	thyroid hormone receptor, beta (erythroblastic leukemia viral (v-erb-a) oncogene homolog 2, avian)	3p24.1-p22	NM_000461
DBC1	deleted in bladder cancer 1	9q32-q33	NM_014618
ILK	integrin-linked kinase	11p15.4	NM_004517
JUP	junction plakoglobin	17q21	AF233882
NOV	nephroblastoma overexpressed gene	8q24.12	NM_002514
PAX6	paired box 6	11p13	NM_001604
PAX7	paired box 7	1p36.13	NM_002584
TPD52	tumor protein D52	8q21	NM_005079
TP53BP2	tumor protein p53 binding protein, 2	1q41	NM_001031685
CD248	CD248 molecule, endosialin	11q13	NM_020404
CCNA1	cyclin A1	13q12.3-q13	U66838
OPCML	opioid binding protein/cell adhesion molecule-like	11q25	NM_001012393
ENO3	enolase 3 (beta, muscle)	17pter-p11	NM_001976
LRP2	low density lipoprotein-related protein 2	2q24-q31	NM_004525



Supplemental Fig. 1. Whole-genome array CGH analysis of changes in DNA copy number in BMMSCs expanded to P4 and to late passage (as indicated) in FBS- or AS-supplemented culture for donors 2 and 3. DNA gains and losses are shown as log₂ values relative to DNA from uncultured cells from the same donors (reference diploid DNA), with a window size of 300 Kb. Profiles of each chromosome (numbered) are shown.



Supplemental Fig. 2. COBRA analysis of DNA methylation of 170 genes in BMSCs expanded in AS or FBS to passage 4 (P4) and late passage. Genes are listed according to their methylation pattern. Methylation of genes in bold blue font was confirmed by bisulfite sequencing. Genes preceded by an asterisk are localized in genomic regions affected by DNA loss in cells from donor 1 (FBS, P4; *CDKN1C*, *CHFR*, *S100P*) and from donor 3 (FBS, P12; *BDH*). Genes followed by § (n=14) were excluded from analysis of ASCs due to lack of methylation information.



Supplemental Fig. 4. COBRA analysis of the methylation pattern in the promoter region of 156 genes in ASCs. ASCs were analyzed freshly isolated (uncultured, U), and cultured in FBS-supplemented medium to P5 or P15. Genes are classified based on their methylation state in the various cultures.