Supplementary Data:

The collection of markers up-regulated in TCM activated hMSCs and down-regulated in the hMSCs treated with 5-Aza and naïve hMSCs grown in DMEM includes genes involved in several functional classes:

(i) Transmembrane

SLC29A1 solute carrier family 29 (nucleoside transporters), member 1
TNFSF4 tumor necrosis factor (ligand) superfamily, member 4 (tax-transcriptionally activated glycoprotein 1, 34kda)
ELOVL2 elongation of very long chain fatty acids (fen1/elo2, sur4/elo3, yeast)-like 2
CMKLR1 chemokine-like receptor 1
VCAM1 vascular cell adhesion molecule 1
FZD8 frizzled homolog 8 (drosophila) TNFSF18 tumor necrosis factor (ligand) superfamily, member 18

(ii) Signal transduction

GUCY1B3 guanylate cyclase 1, soluble, beta 3
LEF1 lymphoid enhancer-binding factor 1
TNFSF4 tumor necrosis factor (ligand) superfamily, member 4 (tax-transcriptionally activated glycoprotein 1, 34kda)
CMKLR1 chemokine-like receptor 1
FZD8 frizzled homolog 8 (drosophila)
TNFSF18 tumor necrosis factor (ligand) superfamily, member 18
RASA1 ras p21 protein activator (gtpase activating protein) 1

(iii) Splicing

EGR2 early growth response 2 (krox-20 homolog, drosophila)
GUCY1B3 guanylate cyclase 1, soluble, beta 3
GAS7 growth arrest-specific 7
LEF1 lymphoid enhancer-binding factor 1
CMKLR1 chemokine-like receptor 1
VCAM1 vascular cell adhesion molecule 1
RASA1 ras p21 protein activator (gtpase activating protein) 1

Markers up regulated in 5-AZA treated cell lines include several genes involved in DNA metabolism and cellular processes eg:

GDF15 growth differentiation factor 15
COL5A3 collagen, type v, alpha 3
CLDN1 claudin 1
RARRES2 retinoic acid receptor responder (tazarotene induced) 2
ID1 inhibitor of DNA binding 1, dominant negative helix-loop-helix protein
DCAMKL1 doublecortin and cam kinase-like 1
ST8SIA1 st8 alpha-n-acetyl-neuraminide alpha-2,8-sialyltransferase 1
PTGDS prostaglandin d2 synthase 21kda (brain)
IGFBP1 insulin-like growth factor binding protein 1
FOS v-fos fbj murine osteosarcoma viral oncogene homolog
TNFRSF19 tumor necrosis factor receptor superfamily, member 19
HIST1H2BC histone 1, h2bd
HIST1H2AC histone 1, h2ac
TOP2A topoisomerase (dna) ii alpha 170kda
ALDH1A3 aldehyde dehydrogenase 1 family, member a3
TRIB3 tribbles homolog 3 (drosophila)

Markers upregulated in naïve hMSCs grown in DMED media include genes involved in glycoprotein and binding processes and in cellular metabolism:

GREM1 gremlin 1, cysteine knot superfamily, homolog (xenopus laevis)
SLC6A1 solute carrier family 6 (neurotransmitter transporter, gaba), member 1
CD200 cd200 antigen
CHI3L1 chitinase 3-like 1 (cartilage glycoprotein-39)
GPR155 g protein-coupled receptor 155
EFNB2 ephrin-b2
CD24 cd24 antigen (small cell lung carcinoma cluster 4 antigen)
OXTR oxytocin receptor
GREM2 gremlin 2, cysteine knot superfamily, homolog (xenopus laevis)
TEK tyrosine kinase, endothelial (venous malformations, multiple cutaneous and mucosal).