Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supplementary Information

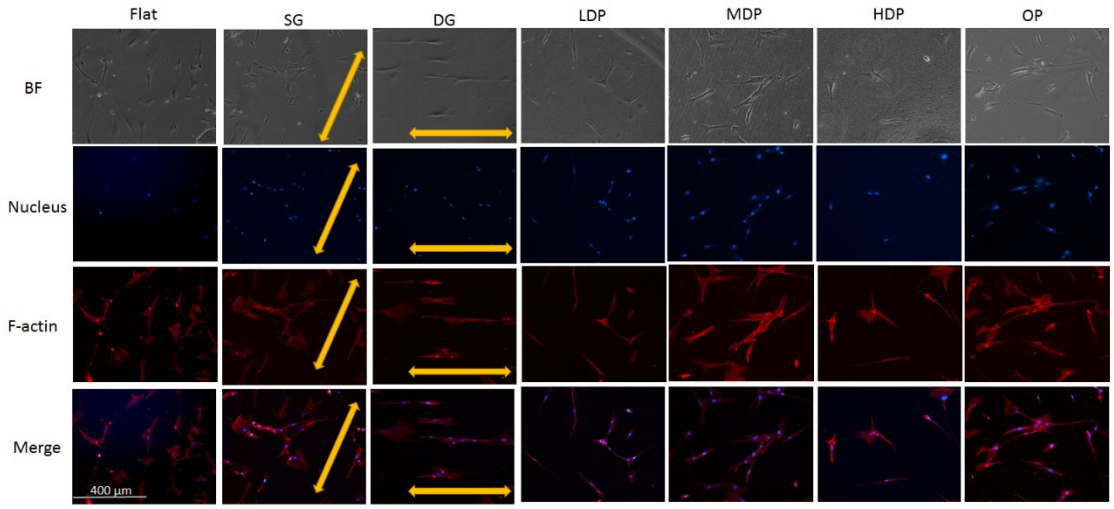
Table S1: Primers for qPCR.

Genes for hMSCs	Sequence
GAPDH-F	ACCACAGTCCATGCCATCAC
GAPDH-R	TCCACCACCCTGTTGCTGTA
SOX9-F	CAGACGCACATCTCCCCCAA
SOX9-R	GCTTCAGGTCAGCCTTGCC
COL2-F	ATGACAATCTGGCTCCCAAC
COL2-R	CTTCAGGGCAGTGTACGTGA
ACAN-F	TGGTGATGATCTGGCACGAG
ACAN-R	GTTTGTAGGTGGTGGCTGT
COL1-F	AGACGGGAGTTTCTCCTCGG
COL-R	CGGAGGTCCACAAAGCTGAA
ALP-F	CTT CAA ACC GAG ATA CAA GC
ALP-R	TCA GCT CGT ACT GCA TGT C
RUNX2-F	GGTTCAACGATCTGAGATTTGTGGG
RUNX2-R	CACTGAGGCGGTCAGAGAACAAACTAG
PPARγ-F	TGT CGT GTC TGT GGA GAT
PPARγ-R	AAC CCT TGC ATC CTT CAC

Genes for mESCs	Sequence
GAPDH-F	GCACAGTCAAGGCCGAGAAT
GAPDH-R	GCCTTCTCCATGGTGGTGAA
OCT4-F	TCTGTTCCCGTCACTGCTCT
OCT4-R	TGTCTACCTCCCTTGCCTTG
KLF4-F	AAGCCAAAGAGGGGAAGAAG
KLF4-R	CAGTGGTAAGGTTTCTCGCC
MHC-F	AACATTATGGGCTGGCTGGAAAAGAAC
MHC-R	GGTGGAGAGCAGACACTGTTTGGAAGG
GATA6-F	GAGTGGAAGGTCATGTCCGA
GATA6-R	GTAGTGGTTGTGGTGTGACAGTTG
COL1-F	GCAGGTTCACCTACTCTGTC
COL1-R	CTTGCCCCATTCATTTGTCT
COL2-F	ACCCCCAGGTGCTAATGG
COL2-R	AACACCTTTGGGACCATCTTT
MYOG-F	CCTAAAGTGGAGATCCTGCG
MYOG-R	GTGGGAGTTGCATTCACTGG
NESTIN-F	AGACAGTGAGGCAGATGAG
NESTIN-R	CTCTCAGCTGTGGTGGTGAA
PDGFR-a-F	GGAGACGAAGTACCCAGACGTG
PDGFR-a-R	AGGTTACTTGAGTCTGCGGATCTG
a-AFP-F	CCAGGACCAGGAAGTCTGTT
a-AFP-R	TAAGCCAAAAGGCTCACACC
ALB-F	GCAAGGCTGCTGACAAGGA
ALB-R	GGCGTCTTTGCATCTAGTGACA

Figure S1

A.



B.

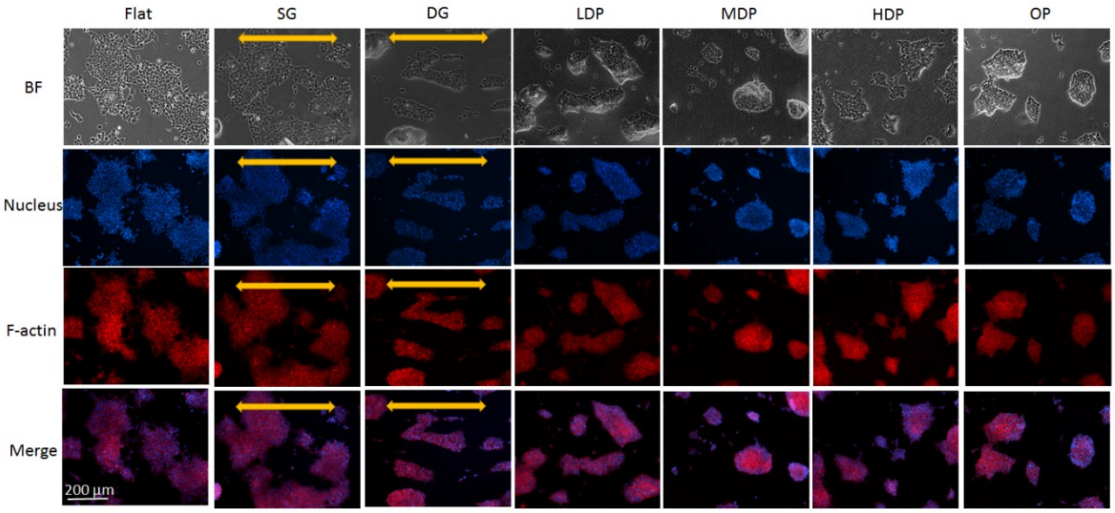
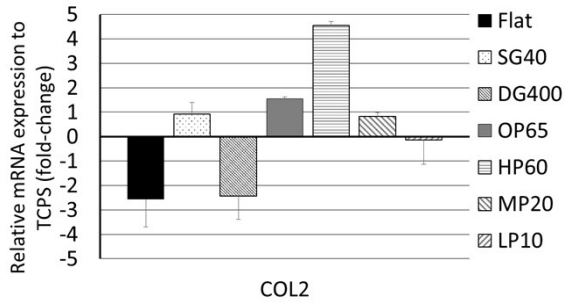


Figure S1: Nanotopography-induced changes in cell morphology of A) hAM-MSCs and B) mESCs after 3 days. After 3 days of culture on patterned substrates (including flat substrates serving as a control), cells were stained with DAPI and Phalloidin-TRITC, then imaged using fluorescent microscopy. Merged images were produced by combining DAPI and TRITC images. Arrows indicate direction of grooves in DG and SG substrates. Legend: BF, bright field; DAPI, DAPI stain; DG, deep grooves; HDP, high density pillars; LDP, low density pillars; MDP, medium density pillars; OP, ordered pillars; SG, shallow grooves; TRITC, Phalloidin-TRITC stain.

Figure S2

A



B

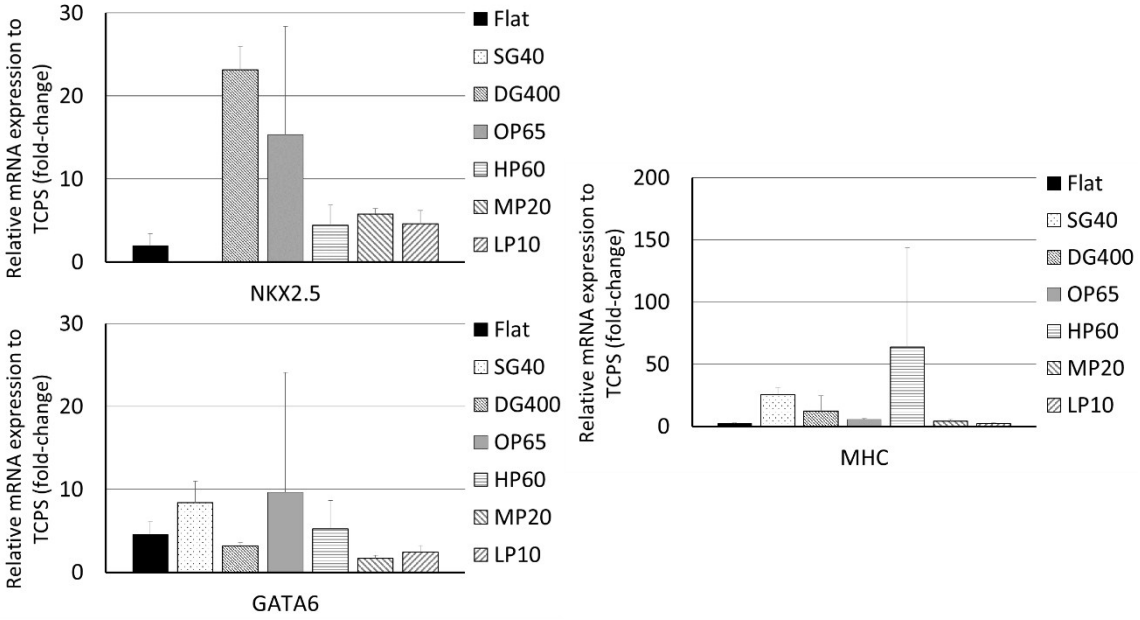


Figure S2. Gene expression of different lineage markers for (A) hAM-MSCs and (B) mEBs on nanotopographies. hAM-MSCs were cultured on nanopatterns for 14 days while mEBs were cultured for 7 days in the normal culture medium. All gene expression was normalized to TCPS (value = 1). These genes have no or low expression due to Ct > 38.

Figure S3.

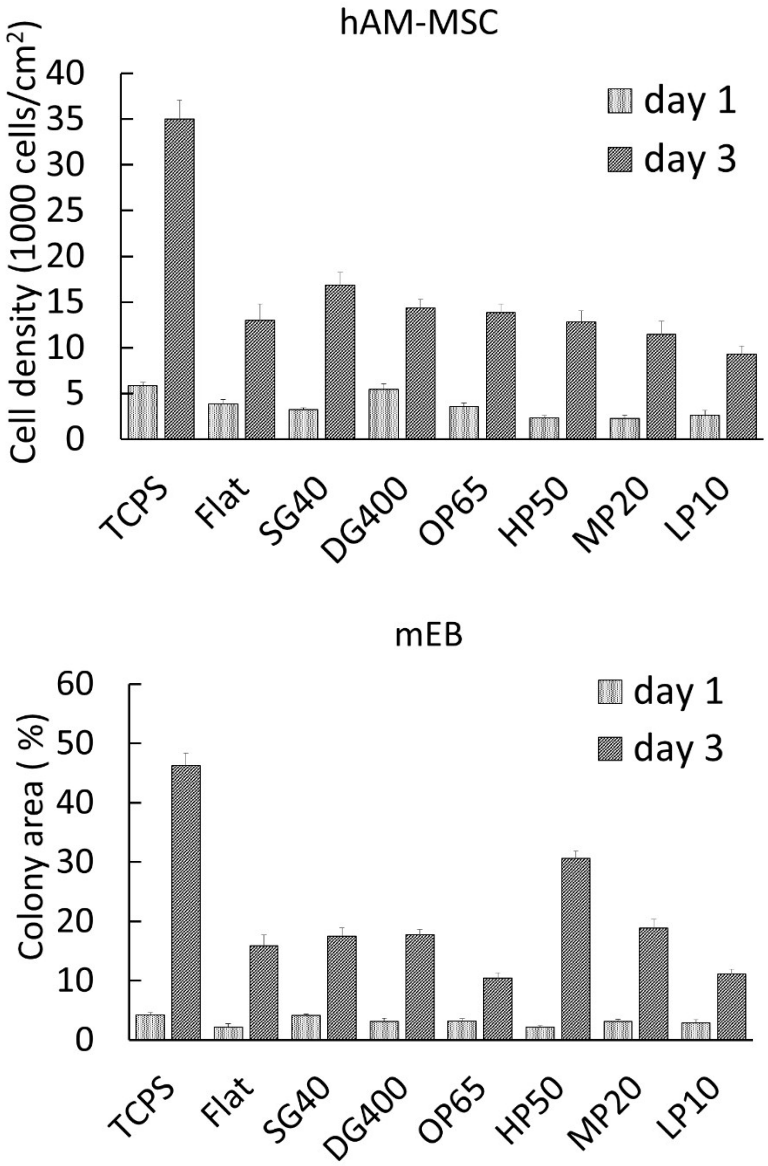


Figure S3. Cell density of hAM-MSCs and colony size of mEBs on different surfaces at day 1 and day 3. Value = mean ± SEM (n = 10-12).