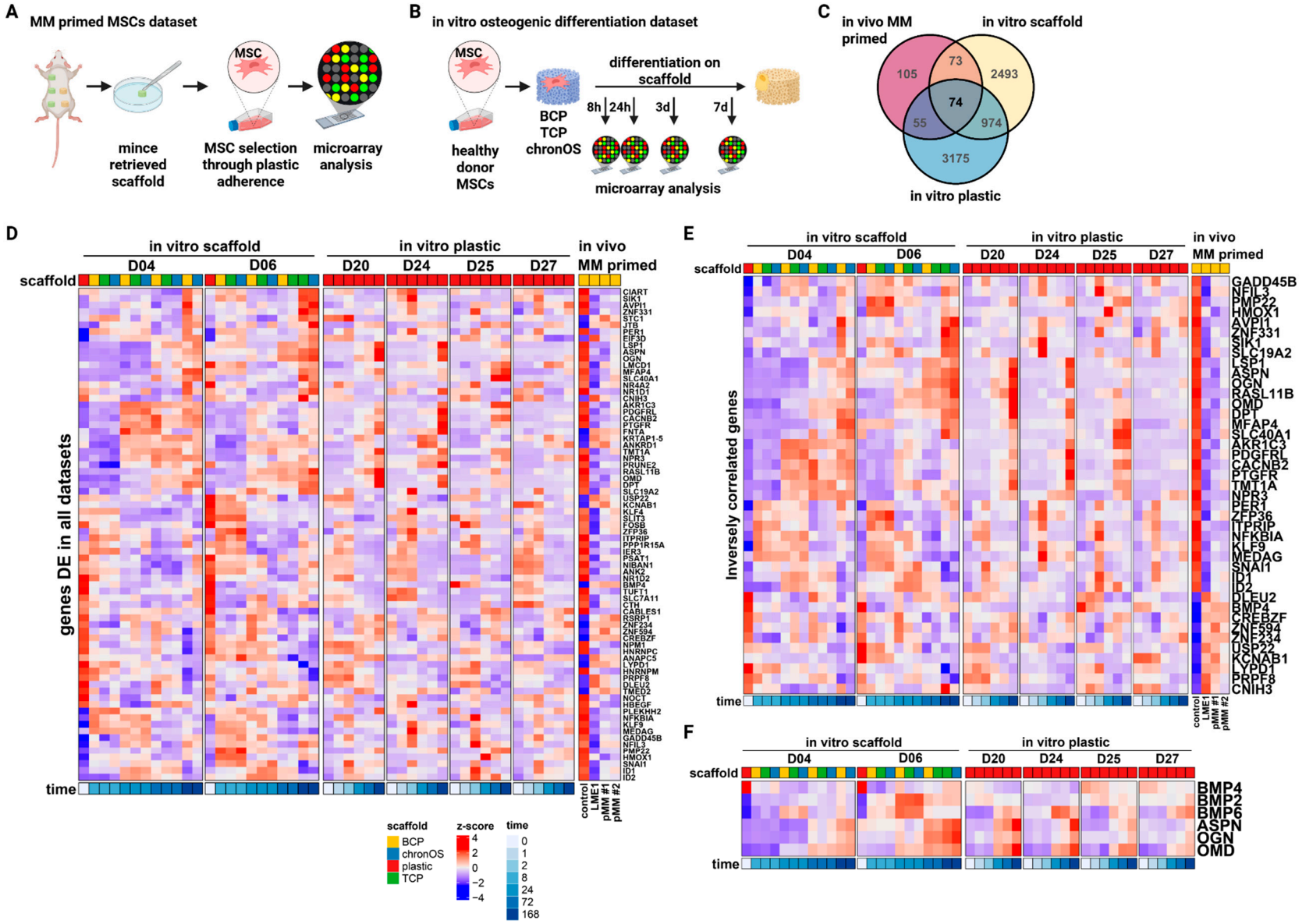

A
MM primed MSCs dataset
MSC
mince retrieved scaffold
MSC selection through plastic adherence
microarray analysis
B
in vitro osteogenic differentiation dataset
MSC
healthy donor MSCs
BCP
TCP
chronOS
differentiation on scaffold
8h
24h
3d
7d
microarray analysis
C
in vivo MM primed
in vitro scaffold
in vitro plastic
105
73
2493
74
55
974
3175
D
in vitro scaffold
in vitro plastic
in vivo MM primed
D04
D06
D20
D24
D25
D27
scaffold
genes DE in all datasets
time
control
LME1
pMM #1
pMM #2
scaffold
BCP
chronOS
plastic
TCP
z-score
4
2
0
−2
−4
time
0
1
2
8
24
72
168
E
in vitro scaffold
in vitro plastic
in vivo MM primed
D04
D06
D20
D24
D25
D27
scaffold
Inversely correlated genes
time
GADD45B
NFIL3
PMP22
HMOX1
AVPI1
ZNF331
SIK1
SLC19A2
LSP1
ASPN
OGN
RASL11B
OMD
DPT
MFAP4
SLC40A1
AKR1C3
PDGFRL
CACNB2
PTGFR
TMT1A
NPR3
PER1
ZFP36
ITPRIP
NFKBIA
KLF9
MEDAG
SNAI1
ID1
ID2
DLEU2
BMP4
CREBZF
ZNF594
ZNF234
USP22
KCNAB1
LYPD1
PRPF8
CNIH3
control
LME1
pMM #1
pMM #2
F
in vitro scaffold
in vitro plastic
D04
D06
D20
D24
D25
D27
scaffold
time
BMP4
BMP2
BMP6
ASPN
OGN
OMD

Supplemental Figure S1. Sample collection and supporting transcriptomic data. (**A**-**B**) Schematic overview of the workflow leading to the collection of transcriptomic data from (**A**) in vivo primed MSCs by MM and (**B**) a time series of MSCs osteogenically differentiated in vitro on ceramic scaffolds (BCP, TCP and chronOS). (**C**) Venn diagram showing the overlap of all differentially expressed genes in MM-primed MSC dataset ("in vivo MM primed") with our osteogenic differentiation dataset ("in vitro scaffold") and a third publicly available RNA-sequencing time-course of MSC osteogenesis ("in vitro plastic"). (**D**) Heatmaps showing the 74 differentially expressed genes that overlap between in vitro osteogenic differentiation on plastic, all scaffold types and in vivo primed MSCs by MM. (**E**) Heatmap showing the inversely correlation between in vitro osteogenic differentiation on plastic, all scaffold types and in vivo primed MSCs by MM. (**F**) Heatmap illustrating how the expression of *BMP2*, *BMP4* and *BMP6* aligns with *ASPN*, *OGN* and *OMD* during in vitro osteogenic differentiation (plastic and all scaffold-types). Created in BioRender. Themeli, M. (2025) https://BioRender.com/4fca5fb.

Tabel S1. Primer sequences.

gene	primer name	primer sequence
GAPDH	qGAPDH_For	TGATGACATCAAGAAGGTGGTGAAG
	qGAPDH_Rev	TCCTTGGAGGCCATGTGGGCCAT
SP7	qSP7_For	TGCTTGAGGAGGAAGTTCAC
	qSP7_Rev	AGGTCACTGCCCACAGAGTA
RUNX2	qRUNX2_For	TCCGGAATGCCTCTGCTGTTATGA
	qRUNX2_Rev	AAGGTGAAACTCTTGCCTCGTCCA
COL1A1	qCOL1A1_For	AGGGCCAAGACGAAGACATC
	qCOL1A1_Rev	AGATCACGTCATCGCACAACA
ALPL	qALPL_For	ACAAGCACTCCCACTTCATCTGGA
	qALPL_Rev	TCACGTTGTTCCTGTTCAGCTCGT
SPP1	qSPP1_For	TCTCCTAGCCCCACAGACC
	qSPP1_Rev	TGGTGAGACTCATCAGACTGG
BGLAP	qBGLAP_For	GGCAGCGAGGTAGTGAAGAG
	qBGLAP_Rev	GATGTGGTCAGCCAACTCGT
ASPN	qASPN_For	CAACAAGAGAGCCAAGAAGCC
	qASPN_Rev	GTTGGTTGGGACTGAGGTCAA
OGN	qOGN_For	GATGAAATGCCCACGTGTCTG
	qOGN_Rev	GCTTGGGAGGAAGAACTGGAA
OMD	qOMD_For	CCCTGTCTGGACACAGAGTTA
	qOMD_Rev	TCATCATCTGGCTCTTGGTCAT
IL6	qIL6_For	AGAGGCACTGGCAGAAAACA
	qIL6_Rev	CAGCTCTGGCTTGTTCCTCA
LIF	qLIF_For	GCCAATGCCCTCTTTATT

	qLIF_Rev	GGAGGTGCCAAGGTACA
IL1R1	qIL1R1_For	GCTGCAGTTGCTGATTCTGG
	qIL1R1_Rev	AATGACTTGTGCGCCCTGTA