Table S1. Primers for qPCR gene expression analysis.

GENE	FORWARD	REVERSE
CD44	GTGGCACACAGCTTGGGGA	TCAGAGCCAGTGCCAGGAGAGAT
COL1A1	GCTCCTCTTAGGGGCCACT	CCACGTCTCACCATTGGGG
RUNX2	TGGCCGGGAATGATGAGAAC	TGAAACTCTTGCCTCGTCCG
SP7	GGGCGTTCTACCTGCGACTG	ATCGGGGCGGCTGATTG
GAPDH	CGTCCCGTAGACAAAATGGT	TTGATGGCAACAATCTCCAC
CTGF	GGCCTCTTCTGCGATTTCG	GCAGCTTGACCCTTCTCGG
YAP1	ACCCTCGTTTTGCCATGAAC	TGTGCTGGGATTGATATTCCGTA
AREG	GGTCTTAGGCTCAGGCCATTA	CGCTTATGGTGGAAACCTCTC
VCL	TCTCGCACCTGGTGATTATGC	TGAACAGTCTCTTTTCCAACCC
ZYX	CCGATGATCGAGGAACCATTC	CGTTCTTGGTCATGTCGTCCA
TLN1	TACTACATGCTCCGAAATGGGG	CACCGTTCCGTCTAACATCCG
TLN2	GCCACTGCAATGTGGTGAAG	TCTCCCTAATGACTCGACAAGC
RHOA	GAAACTGGTGATTGTTGGTGATG	ACCGTGGGCACATAGACCT
GPRCA5	ACCACAGACTTTGTGACCTGG	CGAGTGCAAACATGCAAGCC
MCAM	CCCAAACTGGTGTGCGTCTT	GGAAAATCAGTATCTGCCTCTCC
KDNL2	TGGACGGGATAAGGATGCCA	TGACATCGAGTTTTTCCACCAAC
LMNA	GGATGCTGAGAACAGGCTACA	GCTTGGCGGAGTATGTCTTTT
NCAD	AGGCTTCTGGTGAAATTGCAT	GTCCACCTTGAAATCTGCTGG
CX45	AGATCCACAACCATTCGACATTT	TCCCAGGTACATCACAGAGGG
NESTIN	CCCTGAAGTCGAGGAGCTG	CTGCTGCACCTCTAAGCGA
CX23	GAAGGATGTGTTAAGCCTCCAA	CTCATTCCCGTAGACAGCAAAG

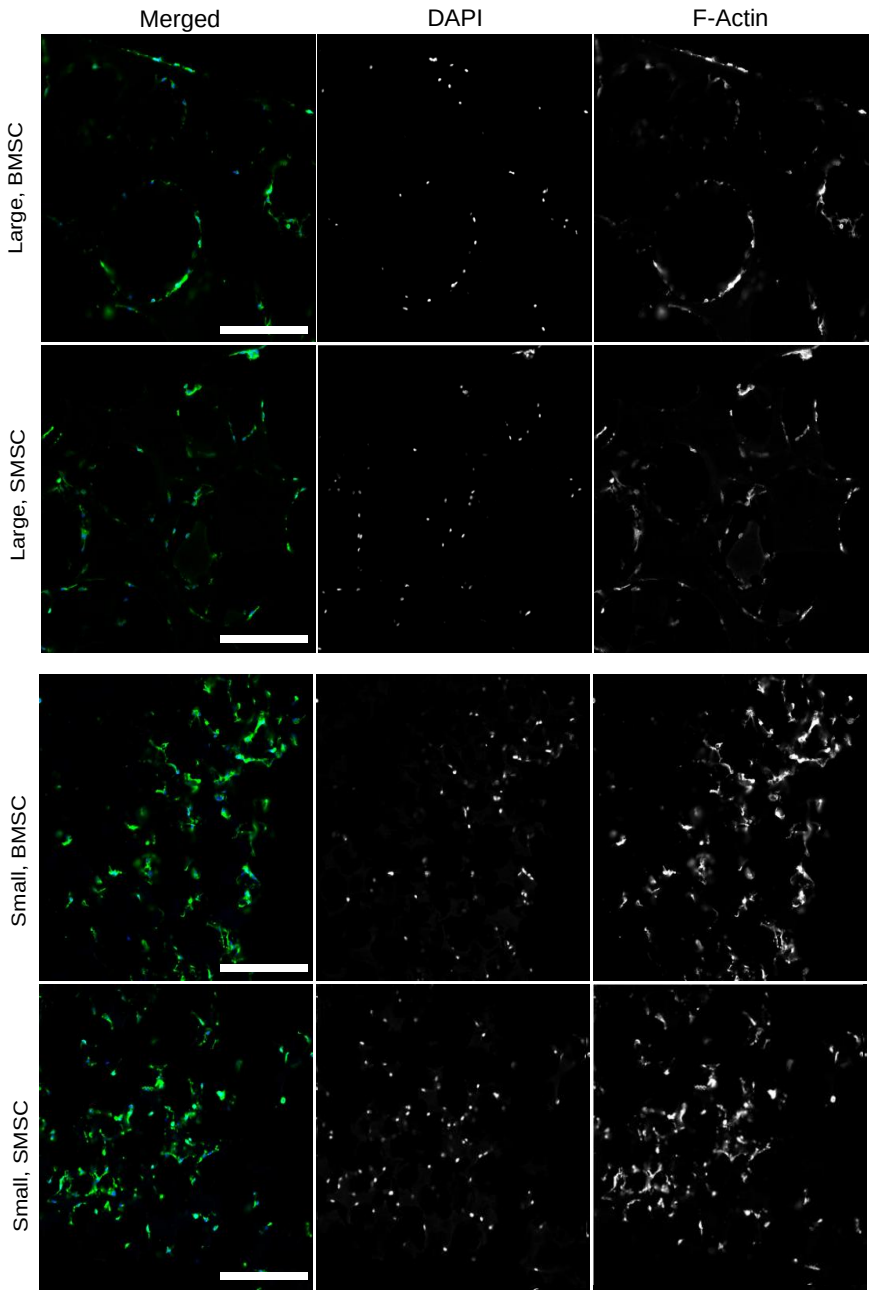

Figure S1. Confocal laser microscopy of cell-seeded scaffolds cultured for 1 week in vitro demonstrate uniform cell seeding density at low magnification (green: actin, blue: DAPI/nucleus; scale = 250 um).

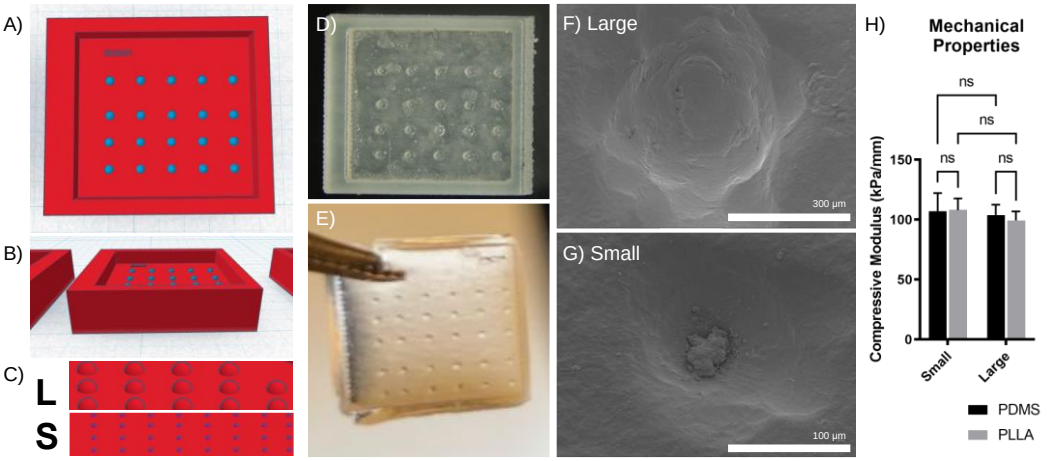

Figure S2. Pore hemisphere tools were designed in Tinker CAD (**A**–**C**) and 3D printed (**D**). Imaging tools were cast in polydimethylsiloxane (PDMS) by soft lithography and cured by heat-induced polymerization (**E**). The surface morphology and pore size of PDMS constructs (laden with cells) is visualized by scanning electron microscopy (**F**,**G**). PDMS synthesis was optimized to match the mechanical properties of PLLA scaffolds (H, all combinations are non-significant (n.s.)).

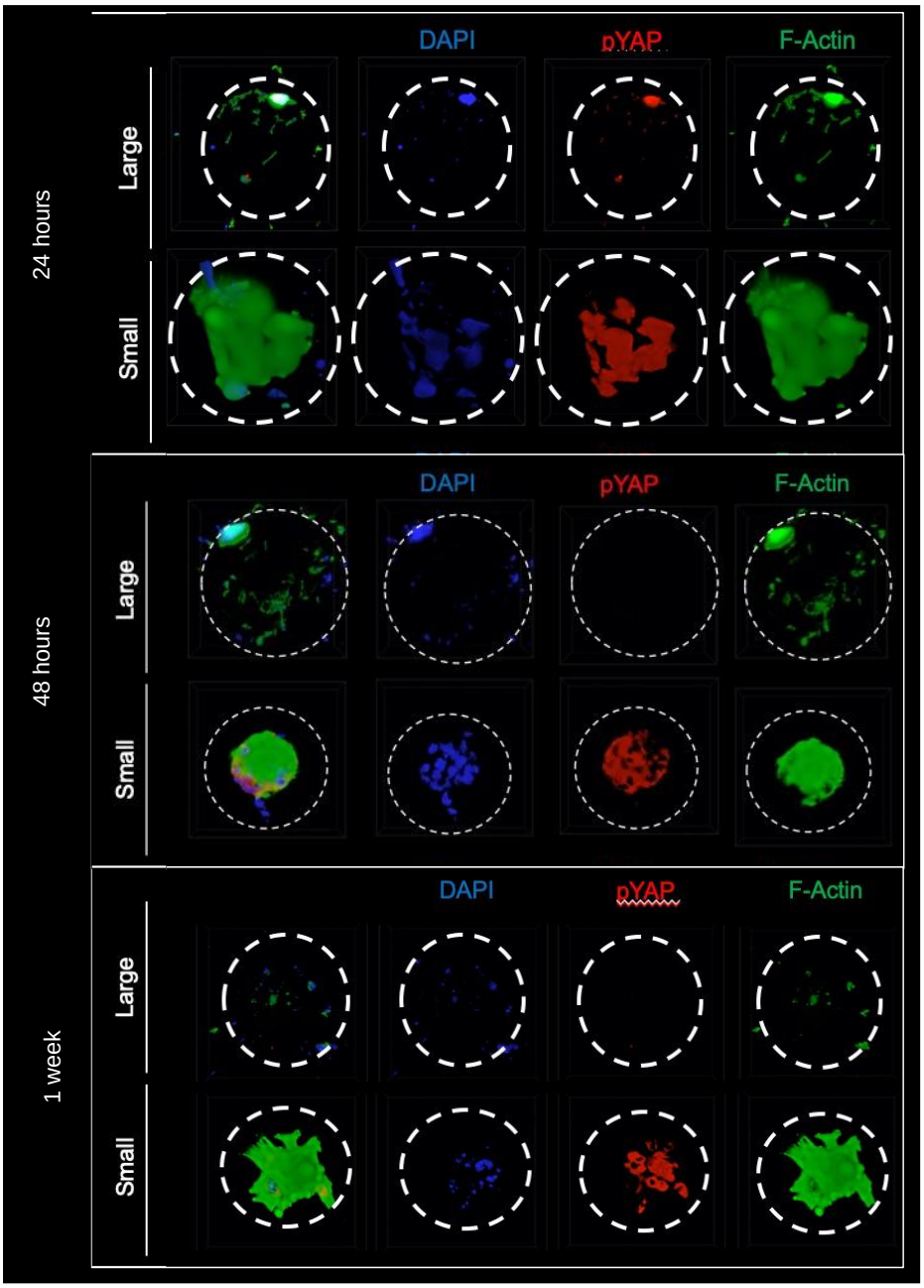

Figure S3. Suture mesenchymal stem cells (SMSCs) are cultured on PDMS macropore-mimetic hemispheres for up to 1 week in vitro; changes in YAP phosphorylation (red) are observed by confocal laser microscopy and immunofluorescence. Hemisphere perimeters are outlined in white.

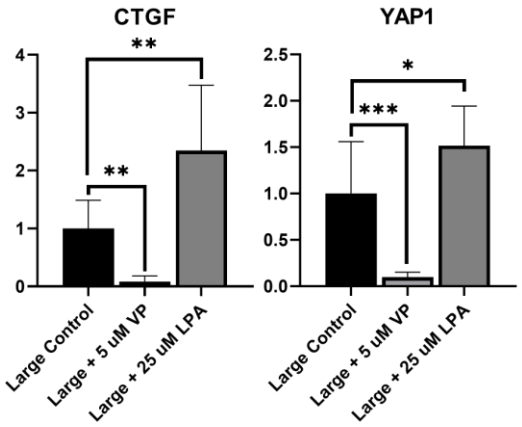

Figure S4. Pharmacologic administration of verteporfin (VP, 5 uM) and lysophosphatidic acid (LPA, 25 uM) inhibit and activate YAP signaling, respectively, compared to vehicle control. * = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$, **** = $p < 0.0001$.