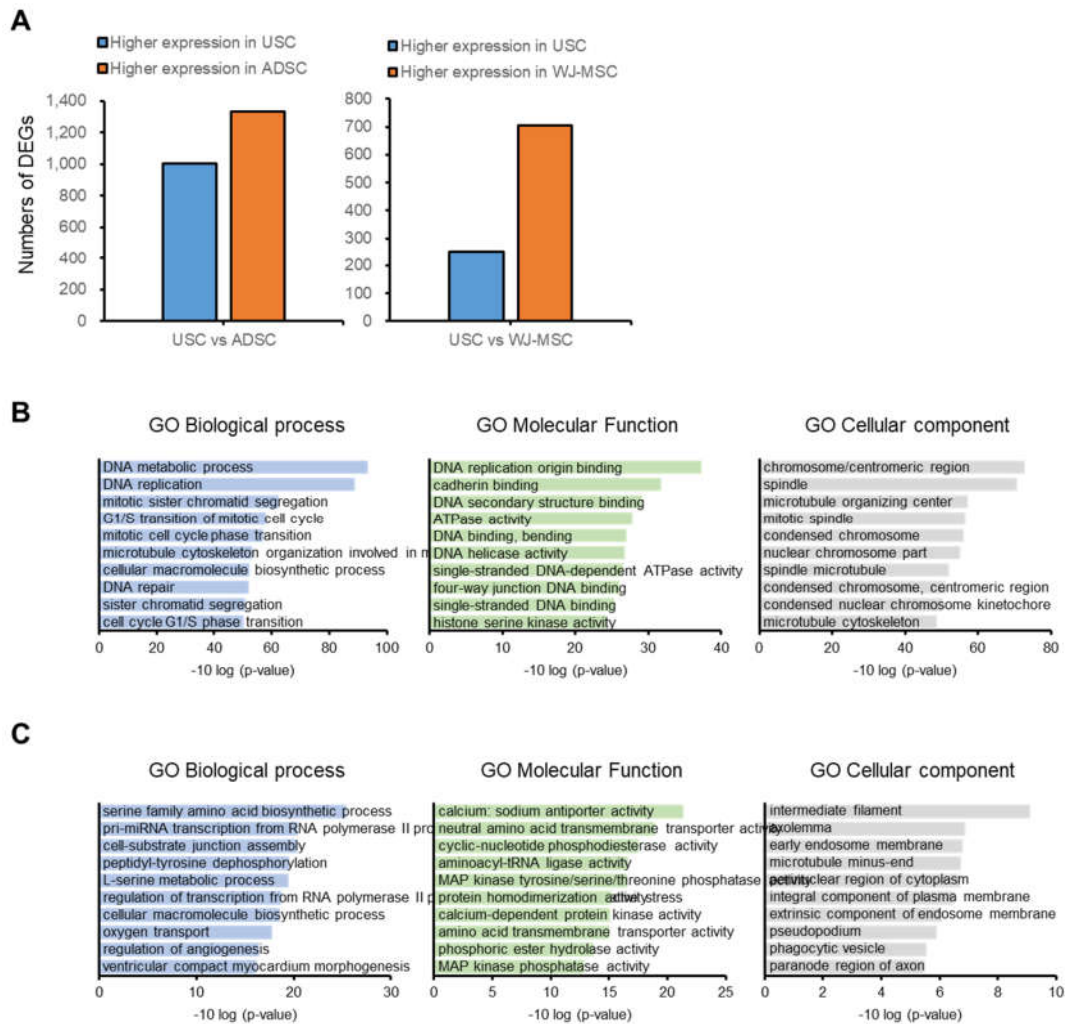


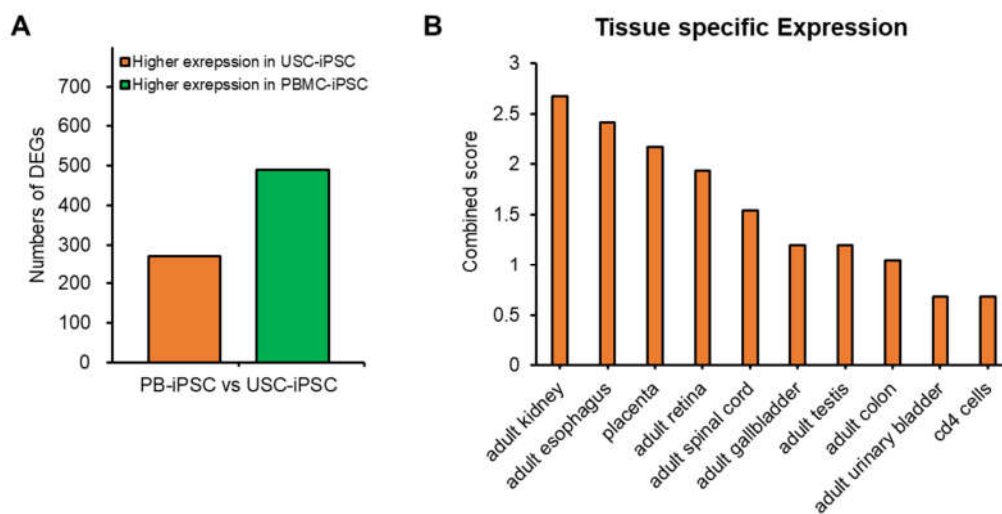


**Supplementary Table 1.** Primer sequences

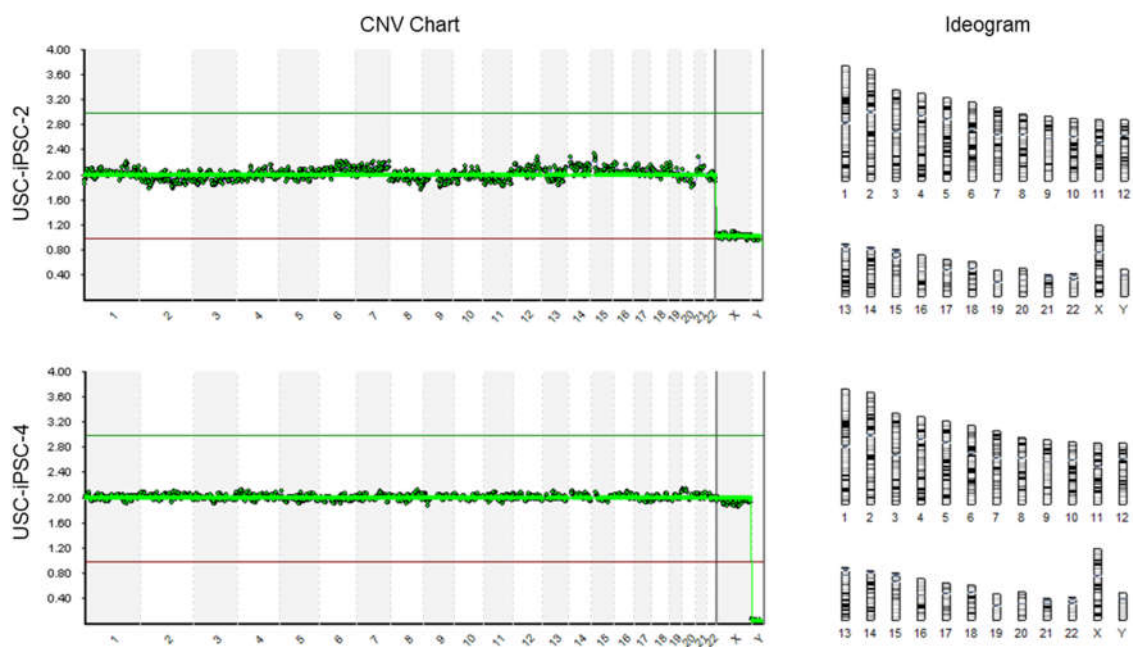
Accession no.	Gene	Forward primer sequence (5'-3')	Reverse primer sequence (5'-3')	Application
NM_004360	E-cadherin	CAGCACGTACACAGCCCTAA	ACCCACCTCTAAGGCCATCT	epithelial markers
NM_021101	Claudin1	TTGACTCCTTGCTGAATCTGAG	TTCTGCACCTCATCGTCTTC	
NM_002538	Ocludin	CTTCAGGCAGCCTCGTTACA	TCCTCCTCCAGCTCATCACA	
NM_003380	Vimentin	CTGCCTCTTCCAAACTTTTCC	GTGATGCTGAGAAGTTTCGTTG	fibroblast markers
NM_000474	Twist1	CTCAGCTACGCCTTCTCG	ACTGTCCATTTTCTCCTTCTCTG	
NM_001365518	Fibronectin	CTGGCCAGTCTACAACCAG	CGGGAATCTTCTCTGTCAGC	
NM_006516	SLC2A1	CTTTTCTGTTGGGGGCATGAT	CCGCAGTACACACCGATGAT	renal epithelial markers
NM_000425	L1CAM	CAAGCCCGAAGTGCAGTTC	CTGGCAAAGCAGCGGTAGAT	
NM_000901	NR3C2	CACAGCACTGGTTCCTCAG	TTTGCTGCTAAGCGGTGA	
NM_002046.5	GAPDH	AATCCCATCACCATCTTCCAG	ATGACCCTTTTGGCTCCC	housekeeping gene
NM_004364.5	C/EBP $\alpha$	CCACGCCTGTCTTAGAAAG	CCCTCCACCTTCATGTAGAAC	adipogenic markers
NM_138712.4	PPAR $\gamma$	GAGCCCAAGTTTGAGTTTGC	GCAGGTTGTCTTGAATGTCTTC	
NM_001442.3	FABP4	CATGTGCAGAAATGGGATGG	AACTTCAGTCCAGGTCAACG	
NM_001177800.2	Adiponectin	AAGGAGATCCAGGTCTTATTGG	ACCTTCAGCCCCGGGTAC	
NM_152860	Osterix	CTCCTCTCCCTTTTCTCTCT	GGAGCCATAGTGAACCTCCTC	osteogenic markers
NM_001015051	Runx2	CGCCTCACAAACAACCACAG	TCACTGTGCTGAAGAGGCTG	
NM_004598	Osteonectin	ATGGGAATGAGTTGGCTGG	CCTCTTGTCTTTGGTCCC	
NM_000088	COL1A1	CCCCTGGAAAGAATGGAGATG	TCAAACCACTGAAACCTCTG	osteogenic/ chondrogenic marker
NM_000493	COL10A1	ACGATACCAAATGCCACAG	GTACCTTGCTCTCCTTACTG	chondrogenic markers
NM_000346	SOX9	ACTTGCACAACGCCGAG	CTGGTACTTGTAATCCGGGTG	
NM_001135	Aggrecan	TGTGGGACTGAAGTTCTTGG	AGCGAGTTGTCATGGTCTG	
NM_002701	OCT4	CAATTGCCAAGCTCCTGAAG	GTTGCCTCTCACTCGGTTC	hPSC pluripotency markers
NM_003106	SOX2	TTCACATGTCCAGCACTAC	TCCATGCTGTTTCTTACTCTC	
NM_024865	NANOG	CAGAAATACCTCAGCCTCCAG	GCCACCTTTAGATTTTCTCTCTG	



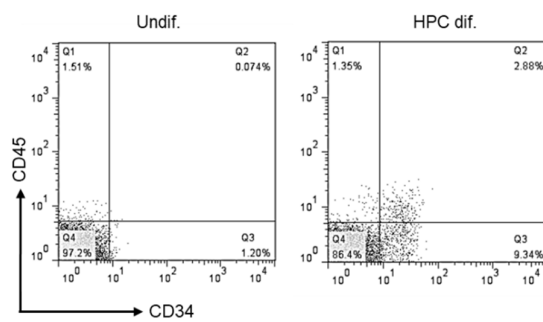
**Supplementary Figure 1.** RNA sequencing of USCs, ADSCs, and WJ-MSCs. (A) The number of differentially expressed genes between USCs and ADSCs, and between USCs and WJ-MSCs ( $q$ -value  $\leq 0.01$ ). (B) Functional enrichment analysis of more highly expressed genes in USCs (ADSC vs USC) and (C) Functional enrichment analysis of more highly expressed genes in USCs (WJ-MSC vs USC).



**Supplementary Figure 2.** RNA sequencing of PBMCs, USCs, ESCs, USC-iPSCs, and PBMC-iPSCs. (A) The differentially expressed genes between PBMC-iPSCs and USC-iPSCs are shown as upregulated genes ( $q$ -value  $\leq 0.01$ ). (B) Tissue-specific gene expression in USC-iPSCs compared with PBMC-iPSCs.



Supplementary Figure 3. Chromosome abnormalities of USC-iPSCs.



**Supplementary Figure 4.** Flow cytometry analysis of HPC markers of differentiated USC-iPSC-2 derived HPCs.