

# SUPPLEMENTAL INFORMATION

**Table S1. Mouse primer sets used in qRT-PCR.**

Target-Gene	Forward (5' - 3')	Reverse (5' - 3')	Product Size (bp)
Oct4	TCTGTTCCCGTCACTGCTCT	TGTCTACCTCCCTTGCCTTG	96
Nanog	GCAAGCGGTGGCAGAAAAA C	GCAATGGATGCTGGGATACT CA	92
Klf4	AAGCCAAAGAGGGGAAGA AG	CAGTGGTAAGGTTTCTCGCC	146
Sox2	CGAACTGGAGAAGGGGAGA G	AAGCGTTAATTGATGGGA	165
Col1	GCAGGTTACCTACTCTGTC	CTTGCCCCATTCATTGTCT	62
Col2	ACCCCCAGGTGCTAATGG	AACACCTTTGGGACCATCTTT	76
Myog	CCTAAAGTGGAGATCCTGCG	GTGGGAGTTGCATTCACTGG	147
Nestin	AGACAGTGAGGCAGATGAG	CTCTCAGCTGTGGTGGTGAA	224
Brachyury (T)	CACACCACTGACGCACAC	GAGGCTATGAGGAGGCTTTG	132
FGF5	GCTCAATGATCAGAAGGAG GA	TCAGCTGGTCTTGAATGAGG	175
GATA4	GATGGGACGGGACACTACC TG	ACCTGCTGGCGTCTTAGATTT	309

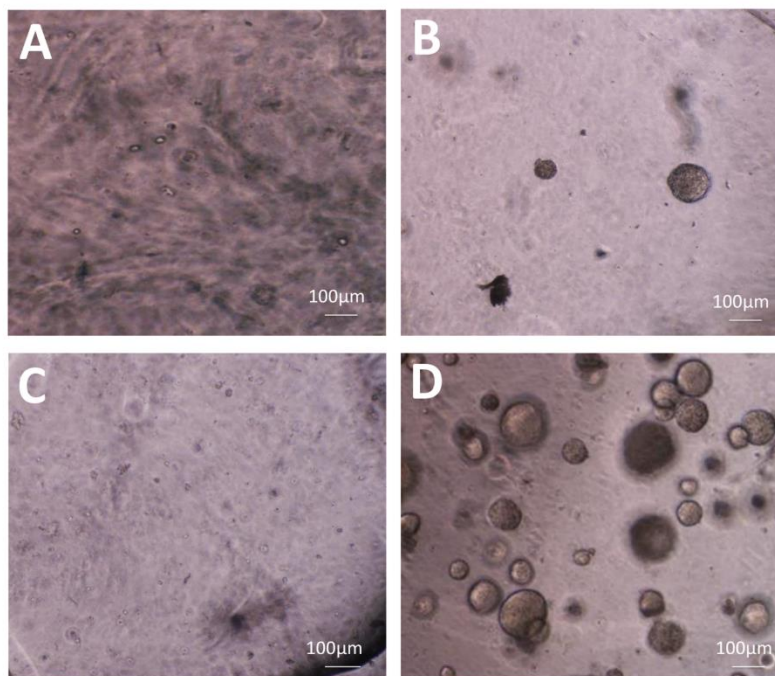
Gapdh	GCACAGTCAAGGCCGAGAA T	GCCTTCTCCATGGTGGTGAA	151
$\beta$ -Actin	AGCCATGTACGTAGCCATCC	CTCTCAGCTGTGGTGGTGAA	228

**Table S2. The effect of thiol substitutions of Dex-SH on the rate of scaffold degradation.**

Degree of Thiol Substitution of Dex-SH	Time in Degradation (in days)
4%	10 $\pm$ 2
6%	13 $\pm$ 4
7.5%	22 $\pm$ 5
12%	28 $\pm$ 6
30%	35 $\pm$ 5
33%	37 $\pm$ 5
34%	37 $\pm$ 5

**Table S3. Cell concentration for optimal growth of ESCs under 2-D and 3-D culture conditions.**

Culture Conditions	Cell Concentration	
	(cells/ml)	(cells/cm <sup>2</sup> )
2-D Culture	---	3x10 <sup>4</sup> to 5x10 <sup>4</sup> [33]
3-D Culture	1x10 <sup>4</sup>	1x10 <sup>3</sup>



**Figure S1. Growth of low concentrations of ESCs in 3-D scaffolds.** Light micrographs of the scaffolds encapsulating  $1 \times 10^4$  cells/ml at day 0 and day 7 (A and B, respectively) and  $1 \times 10^5$  cells/ml at day 0 and day 7 (C and D respectively). Scale bars =  $100\mu\text{m}$ .