

Supplementary Information for

***In Vitro* and *In Vivo* Comparison of Different Types of Rabbit Mesenchymal Stem Cells for Cartilage Repair**

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Table S1: Primer sequences used for real-time polymerase chain reaction

Code	Molecule	Primers (5'-3')	Product size (bp)	Annealing temp. (°C)
Rb13	<i>COL2a1</i>	F: AATCCCAGAACCCATCAGG R: CCAGTAGTCACCGGTCTTCC	325	56
Rb 12	<i>SOX9</i>	F: AAGATGACCGACGAGCAG R: GGCTTGTTCTTGCTGGAG	284	56
Rb14	<i>ACAN</i>	F: GGAGGTCGTGGTGAAAGGTG R: CTCACCTCCATCTCCTCTG	255	61
Rb11	<i>GAPDH</i>	F: GACCACCATCCATTCCTACA R: GCAAGTCAGGTCCACAACAG	276	60
rRb 17	<i>ALP</i>	F: ACTTTGTCTGGAACCGCACT R: GTGGTCAATCCTGCCTCCT	215	58
rRb 19	<i>OPN</i>	F: GGCTAAACCCTGACCCATCT R: GTGGTCATCGTCCTCATCCT	161	59
rRb 18	<i>OCN</i>	F: CTCAGCCTTCGTGTCCAA R: CTCGCACACCTCCCTCTTG	126	57
Rb 4	<i>COL1a1</i>	F: GGT GCT GCT GGT AAA GAA GG R: GTC TAC CCA AAG CAC CAG	142	60
Rb 7	<i>COLX</i>	F: GCC GAC CAA GGA AAT GAC R: GTA ACA GCC AGT CCA CCA C	267	60
rRb 20	<i>LPL</i>	F: TTCAACCACAGCAGCAAGAC R: TAACAGCCAGTCCACCACAA	141	57
rRb 21	<i>ADIPOQ</i>	F: CGGTGAGAAGGGTGAAAAAG R: GCTGAGCGGTAGACATAG	156	57
Rb 10	<i>PPARG</i>	F: CAG GAG CAG AGC AAA GAA GT R: GTC CGT CTC CGT CTT CTT TA	570	56

Table S2: Scoring system used for macroscopic evaluation of repaired defects in cartilage

Criterion	Macroscopic characteristic	Points
Filling	Distinct underneath surrounding cartilage	1
	Up to surrounding cartilage ,central depression	2
	Flush with surrounding cartilage	3
Color	Brown or yellow	1
	White	2
	Same as surrounding cartilage	3
Surface	Rough	1
	Smooth	2
Overall score		8

Table S3: Histological scoring system for evaluation of repaired defects in cartilage

Cell morphology		Thickness of cartilage (%) ^b	
Hyaline cartilage	4	121–150	1
Mostly hyaline cartilage	3	81 - 120	2
Mostly fibro cartilage	2	51–80	1
Mostly non-cartilage	1	0–50	0
Non-cartilage only	0	Integration with adjacent cartilage	
Matrix-staining (meta chromasia)		Both edges integrated	2
Normal	3	One edge integrated	1
Slightly reduced	2	Neither edge integrated	0
Markedly reduced	1	Total maximum	14
No metachromatic staining	0		
Surface regularity ^a			
Smooth	3		
Moderate	2		
Irregular	1		
Severely irregular	0		

^a; Total smooth area of the reparative cartilage compared with the entire area of the cartilage defect and ^b; Average thickness of the reparative cartilage compared with that of the surrounding area.

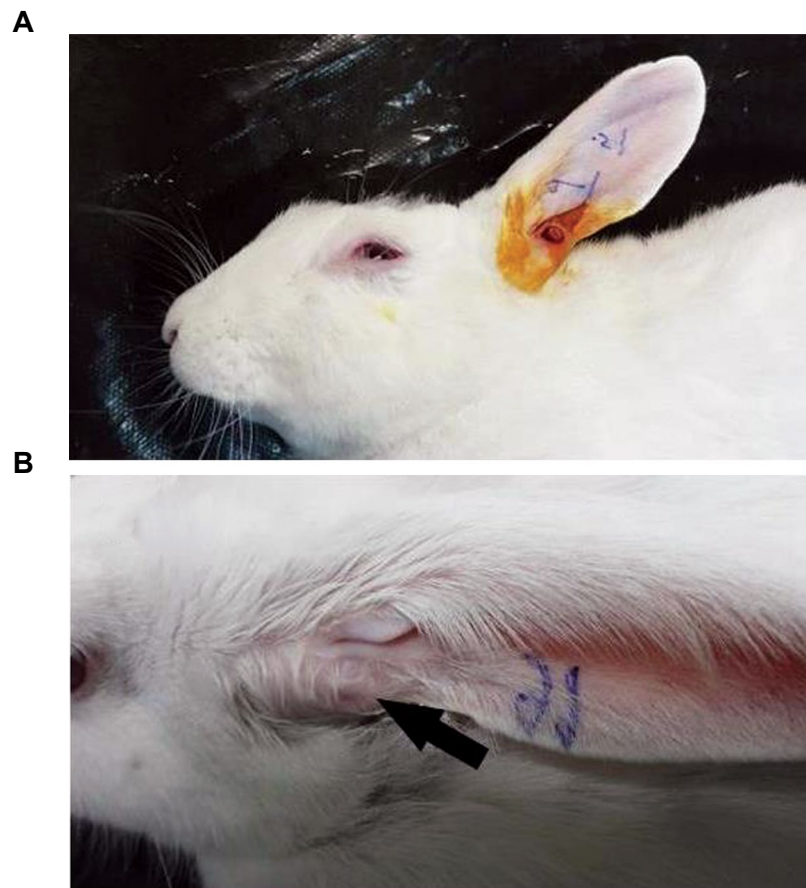


Fig.S1: Rabbit ear punching for the isolation of EMSCs and healing. **A.** The wound area was disinfected with oxytetracycline spray after punching and **B.** The ears of rabbits healed after 8 weeks because of the high intrinsic regeneration potential (black arrow).

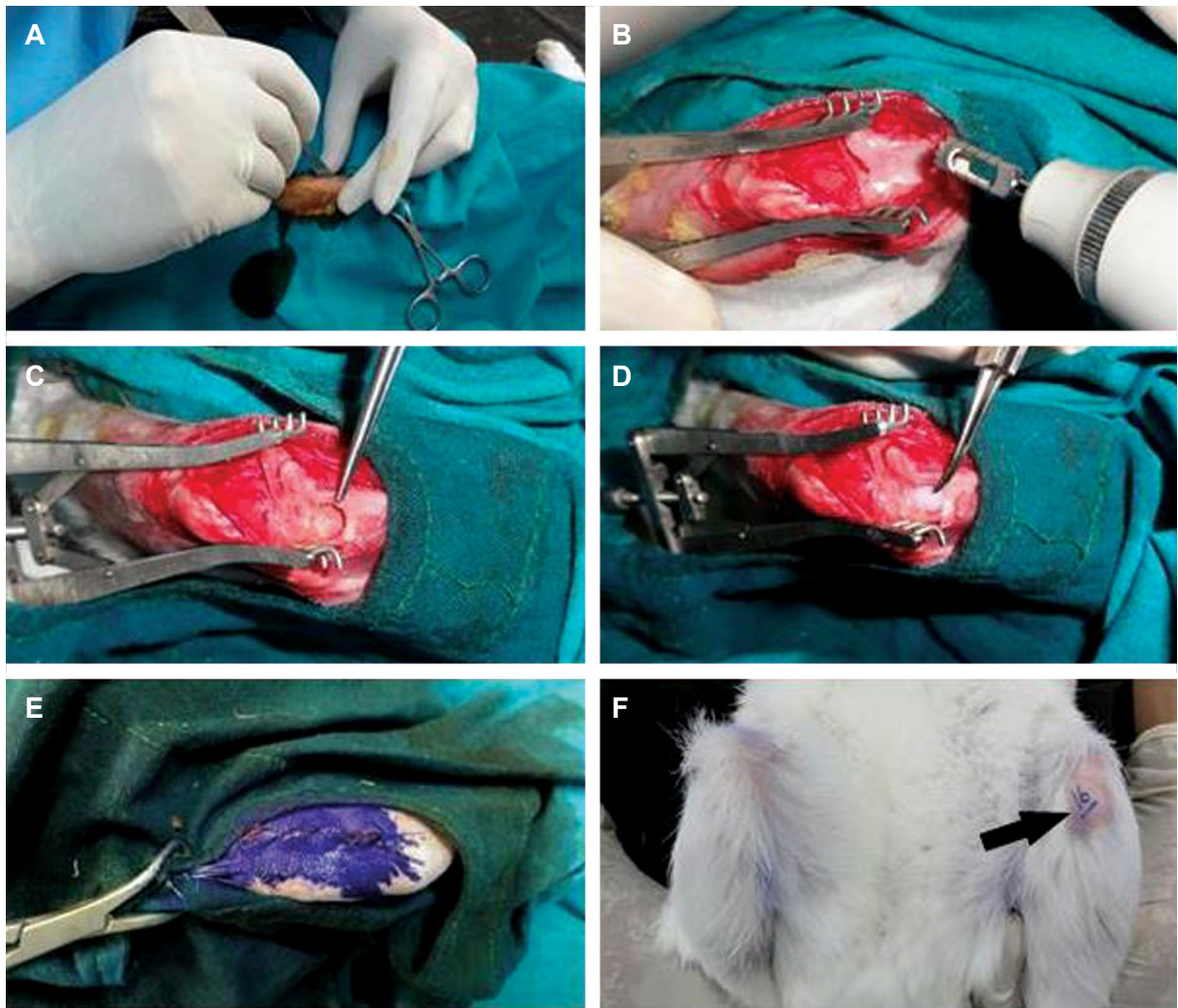


Fig.S2: Different stages of knee surgery and transplantation. **A.** Medial parapatellar incision, **B.** Retraction of patella, articular capsule and skin and make defect with dental trephine, **C.** The defect, **D.** Transplantation of the scaffold and the cells, **E.** Sutures the capsule and skin, layer by layer, and **F.** Wound healing and repair.