

Materials List for:

# 3D Magnetic Stem Cell Aggregation and Bioreactor Maturation for Cartilage Regeneration

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URL: <https://www.jove.com/video/55221>

DOI: [doi:10.3791/55221](https://doi.org/10.3791/55221)

## Materials

Name	Company	Catalog Number	Comments
Iron oxide (maghemite) nanoparticles ( $\gamma$ -Fe <sub>2</sub> O <sub>3</sub> )	PHENIX - University Paris 6	Made and given by C. Ménager	Mean diameter of 8.1 nm and negative surface charge
Polysaccharide Pullulan/Dextran scaffolds	LIOAD - University Nantes	Made and given by C. Le Visage	Prepared from a 75:25 mixture of pullulan/dextran in alkaline conditions (10 M NaOH). Porosity: 185-205 $\mu$ m; Thickness: 7 mm; Surface area: 1.8 cm <sup>2</sup> .
TisXell Regeneration System	QuinXell Technologies	QX900-002	Biaxial bioreactor with 500 mL culture chamber
Cage for scaffolds: Histosette II M492	VWR	720-0909	
Mesenchymal Stem Cell (MSC)	Lonza	PT-2501	Three independant batches have been used
MSCGM BulletKit medium	Lonza	PT-3001	For the complete medium, add the provided BulletKit (containing serum, glutamine and antibiotics) to the MSCGM medium
DMEM with Glutamax I	Life Technologies	31966-021	No sodium pyruvate, no HEPES
RPMI medium 1640, no Glutamine	Life Technologies	31870-025	No sodium pyruvate, no HEPES
PBS w/o CaCl <sub>2</sub> w/o MgCl <sub>2</sub>	Life Technologies	14190-094	
0.05% Trypsin-EDTA (1x)	Life Technologies	25300-054	
Penicillin (10,000 U/mL) / Streptomycin (10,000 $\mu$ g/mL)	Life Technologies	15140-122	
ITS Premix Universal Culture Supplement (20x)	Corning	354352	
Sodium pyruvate solution 100 mM	Sigma	S8636	
L-Ascorbic Acid 2-phosphate	Sigma	A8960	Prepare the concentrated solution (25 mM) in distilled water extemporaneously
L-Proline	Sigma	P5607	Prepare the 175 mM stock solution diluted in distilled water and store at 4 °C
Dexamethasone	Sigma	D4902	Prepare the 1 mM stock solution diluted in Ethanol 100% and store at -20 °C
TGF-beta 3 protein 10 $\mu$ g	Interchim	30R-AT028	
Tri-sodium citrate	VWR	33615.268	Prepare the 1 M stock solution diluted in distilled water and store at 4 °C
Pullulanase from <i>Bacillus acidopullulyticus</i>	Sigma	P2986	

Dextranase from <i>Chaetomium erraticum</i>	Sigma	D0443	
NucleoSpin RNA Extraction Kit	Macherey-Nagel	740955.5	
SuperScript II Reverse Transcriptase	Life Technologies	18064-014	
Random Primer - Hexamer	Promega	C1181	500 µg/mL: Use diluted 1/2 and put 1 µL per sample
Recombinant RNAs in ribonuclease inhibitor	Promega	N2511	40 U/µL: put 1 µL per sample
PCR nucleotide dNTP mix (10 mM each)	Roche	10842321	
SyBr Green PCR Master Mix	Life Technologies	4368708	
Step One Plus Real-Time PCR System	Life Technologies	4381792	
Formalin solution 10% neutral buffered	Sigma	HT5012	
OCT solution	VWR	361603E	
Isopentane	Sigma	M32631	
Toluidine blue O	VWR	1.15930.0025	
Ethanol absolute	VWR	20821.310	
Toluene	VWR	1.08323.1000	
Mounting medium Pertex	Histolab	840	
RPLP0 Primer for qPCR	Eurogentec		5'-TGCATCAGTAC CCCATTCTATCAT-3'; 5'-AAGGTGTAATC CGTCTCCACAGA-3'
Aggrecan Primer for qPCR	Eurogentec		5'-TCTACCGCTGCGAGGTGAT-3'; 3'- TGTAATGGAACACGATGCCTTT-5'
Collagen II Primer for qPCR	Eurogentec		5'- ACTGGATTGACCCCAACCAA-3'; 3'- TCCATGTTGCAGAAAACCTTCA-5'