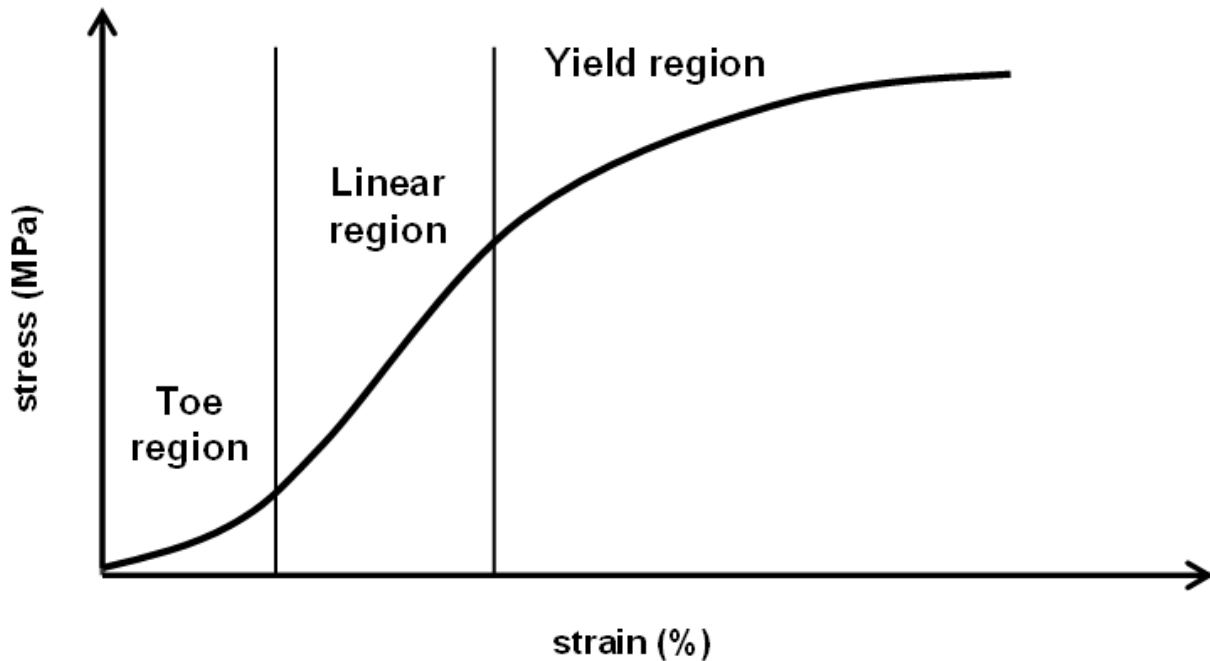


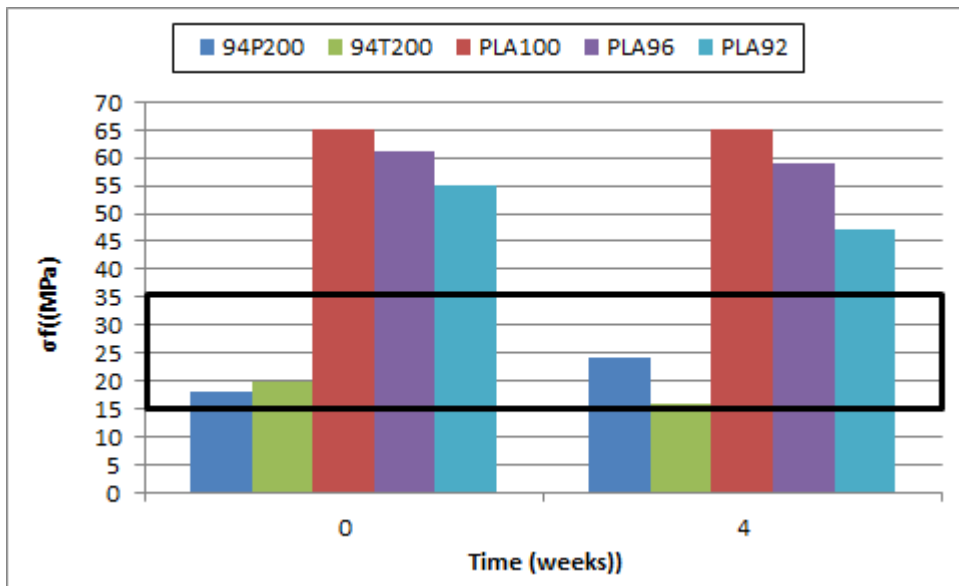
## Supporting Information

### PLA-Poloxamer/Poloxamine Copolymers for Ligament Tissue Engineering: Sound Macromolecular Design for Degradable Scaffolds and MSCs Differentiation

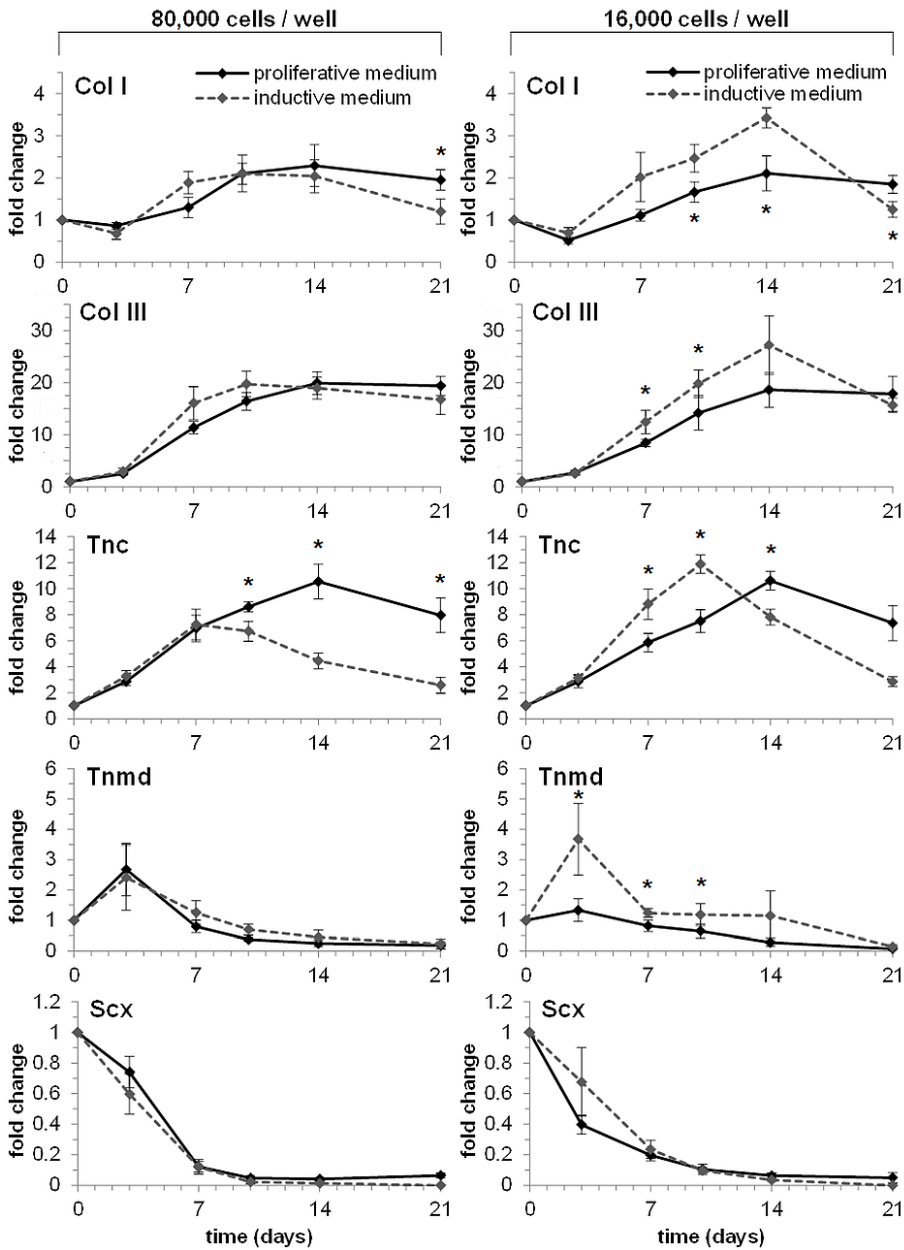
Adrien Leroy, Benjamin Nottelet\*, Claire Bony, Coline Pinese, Benoît Charlot, Xavier Garric, Danièle Noël\*, Jean Coudane



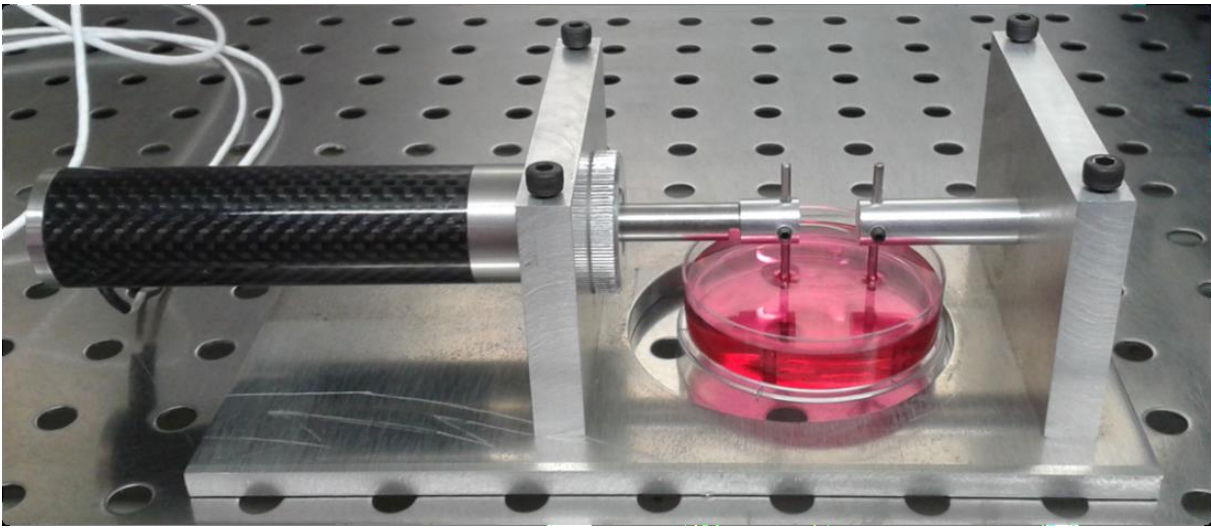
**Figure S1.** Typical stress-strain curve of ligament (adapted from A. C. Vieira, R. M. Guedes, A. T. Marques, *J. Biomech.* 2009, **42**, 2421)



**Figure S2.** Stress at failure before and after 4 weeks degradation (PBS, pH 7.4, 37°C) for polymer films prepared by compression molding of PLA homopolymers with various L-lactic contents ( $M_n = 200\,000\text{ g/mol}$ ), PLA-Pluronic copolymer ( $M_n = 200\,000\text{ g/mol}$ ) and PLA-Tetronic copolymers ( $M_n = 200\,000\text{ g/mol}$ ). Black area corresponds to the range of values reported for ACL stress at failure.<sup>[29]</sup> All data refers to results obtained by our group in previous studies (94P200 and 94T200 *Mater. Sci. Eng. C* 2013, **33**, 4133 ; PLA homopolymers *Makromol. Chem.-Macromol. Chemi. Phys.* 1981, **5**, 30)



**Figure S3.** Cell differentiation – expression of fibroblast-related markers by C3 cells maintained in proliferative or inductive culture medium on TCPS versus time ( $p < 0.05$ ) as a function of cell seeding density.



**Figure S4.** Mechanical stimulation device



supp2.avi

**Movie S1.** Live/Dead assay fluorescent microscopy 3D reconstitution: staining highlights viable cells in green and copolymer autofluorescence in blue

**Table S1.** Copolymers composition and molecular weights

Copolymer	Composition	L-LA (wt %)	DL-LA (wt %)	Initiator (wt %)	$\overline{Mn}$ (kg/mol)		<b>Tm</b> (°C)	$\Delta H_m$ (J/g)	<b>Tg</b> (°C)
					GPC	<sup>1</sup> H NMR			
94P200	PLA <sub>94</sub> Pluronic F127 200 kg·mol <sup>-1</sup>	82.5	11.2	6.3	104	169	145	20	54
94T200	PLA <sub>94</sub> Tetronic 1107 200 kg·mol <sup>-1</sup>	81.4	11.1	7.5	92	172	147	10	44

**Table S2.** List of primers used for RT-qPCR

Gene	Full name	Sequences
<b>GAPDH</b>	Glyceraldehyde-3-phosphate dehydrogenase	forward 5'-GGTGCTGAGTATGTCGTGGA-3'
		reverse 5'-GTGGTTCACACCCATCACAA-3'
<b>Col I</b>	Type I collagen	forward 5'-TGTTTCAGCTTTGTGGACCTC-3'
		reverse 5'-TCAAGCATACTCGGGTTTC-3'
<b>Col III</b>	Type III collagen	forward 5'-CGGTGAACGGGGCGAAGCTGGTT-3'
		reverse 5'-GACCCCTTTCTCCTGCGGCTCCT-3'
<b>Scx</b>	Scleraxis	forward 5'-CGGCGAGAACACCCAGCCCAA-3'
		reverse 5'-TCTTTCTGTACGGTCTTTGCTCAACT-3'
<b>Tnc</b>	Tenascin-C	forward 5'-TCGTGGGCGGTGTGTGGAGAACG-3'
		reverse 5'-GCGGTCTGAAGCAGTCGTTGGGG-3'
<b>Tnmd</b>	Tenomodulin	forward 5'-CGCCACACCAGACAAGCAAGCG-3'
		reverse 5'-AGGTTACAGACACGGCGGCA-3'