Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supporting Information

Combinatorial study of nanocomposite hydrogels: on-chip mechanical/viscoelastic and pre-osteoblasts interactions characterization

M. B. Oliveira,[a,b] G. M. Luz[a,b] and J. F. Mano[a,b]

[a] 3B's Research Group – Biomaterials, Biodegradables and Biomimetics, University of Minho, Headquarters of the European Institute of Excellence on Tissue Engineering and Regenerative Medicine, AvePark, 4806-909 Taipas, Guimarães, Portugal.
[b] ICVS/3B's - PT Government Associate Laboratory, Braga/Guimarães, Portugal.
* Author for correspondence. E-mail: jmano@dep.uminho.pt

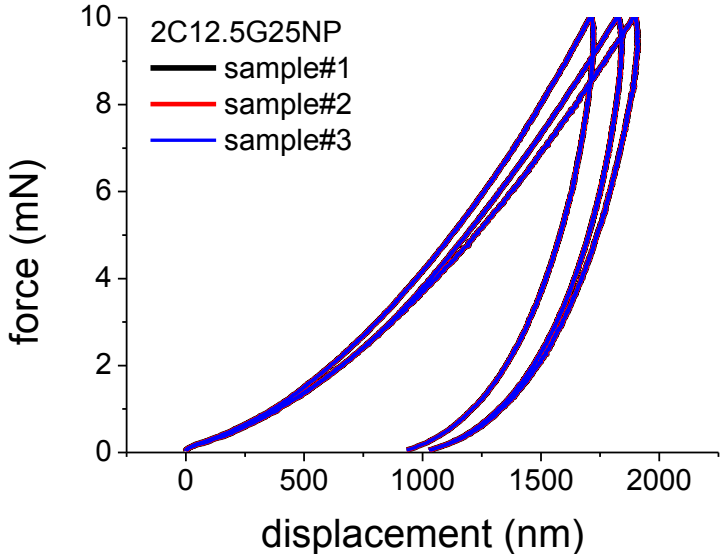

Figure S1 – Load/displacement curve obtained by nanoindentation in dry conditions for the formulation 2%Chi12.5%G25NP in three distinct points of each sample, in three distinct samples.

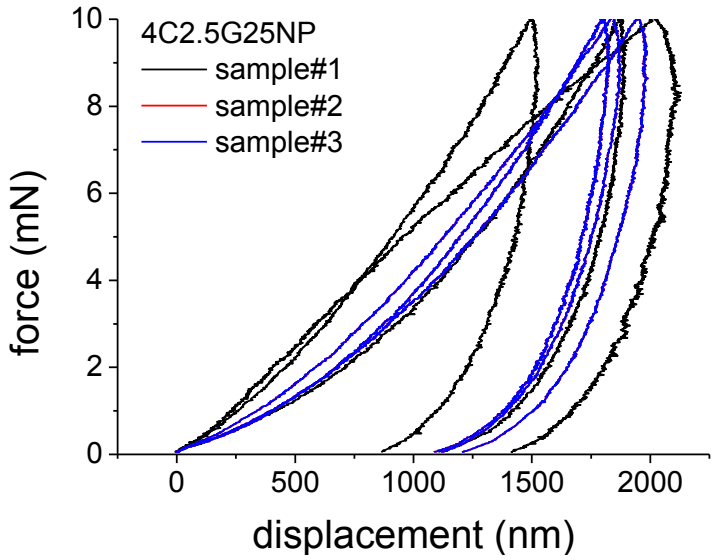

Figure S2 - Load/displacement curve obtained by nanoindentation in dry conditions for the formulation 4%Chi2.5%G25NP in three distinct points of each sample, in three distinct samples.

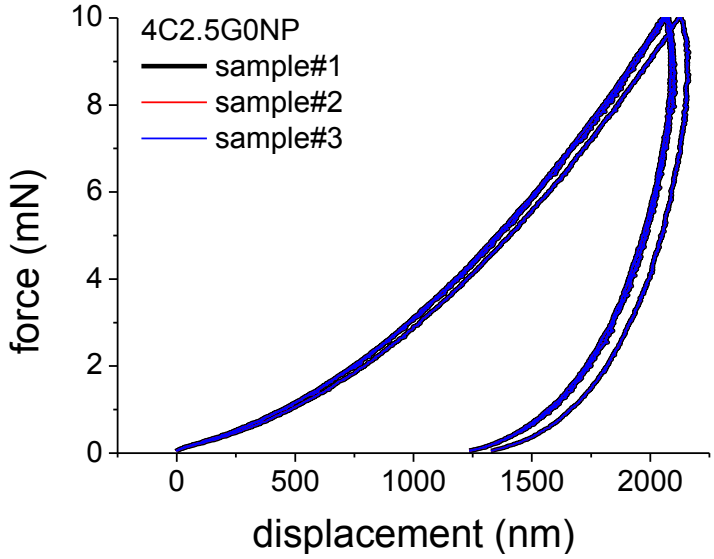

Figure S3 - Load/displacement curve obtained by nanoindentation in dry conditions for the formulation 4%Chi2.5%G0NP in three distinct points of each sample, in three distinct samples.

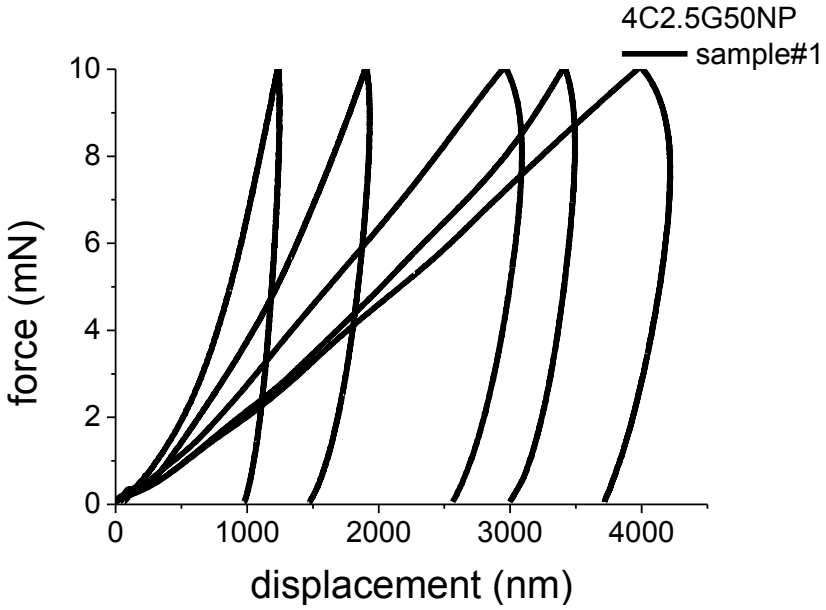

Figure S4 - Load/displacement curve obtained with nanoindentation in dry conditions for the formulation 4%Chi2.5%G50NP, in five distinct points of a single sample.

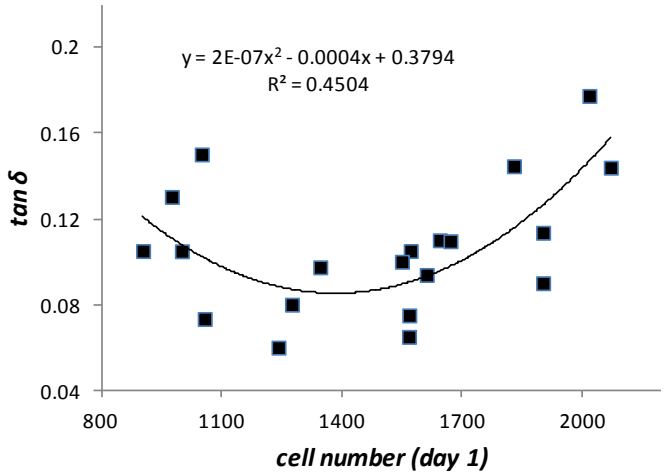

Figure S5 – Average values of *tan* δ measured on-chip and respective cell number adhered to each formulation after 1 day of cell culture, and respective polynomial fitting.

Table S1 – Average values ± standard deviation of tan δ measured on-chip.

		tan δ		
		2%Chi	**3%Chi**	**4%Chi**
2.5% G	50NP	0.105±0.03	0.076±0.02	0.07±0.04
	25NP	0.08±0.04	0.065±0.01	0.11±0.03
	12.5NP	0.10±0.03	0.068±0.01	0.09±0.03
	6.25NP	0.13±0.06	0.08±0.01	0.06±0.04
	0NP	0.14±0.03	0.09±0.01	0.11±0.08
12.5% G	50NP	0.07±0.02	0.10±0.04	0.18±0.03
	25NP	0.075±0.03	0.08±0.04	0.20±0.07
	12.5NP	0.09±0.04	0.06±0.01	0.14±0.05
	6.25NP	0.11±0.04	0.08±0.04	0.10±0.03
	0NP	0.11±0.04	0.09±0.03	0.09±0.03

Table S2 - Average values ± standard deviation of specific E', calculated from the values of E' measured on-chip.

		Specific E' **(mm^2s^{-2})**		
		2%Chi	**3%Chi**	**4%Chi**
2.5% G	50NP	5.73±2.7	22.03±10.1	55.44±10.7
	25NP	1.76±0.9	26.34±2.3	36.74±5.8
	12.5NP	1.03±0.2	16.39±6.2	28.57±7.1
	6.25NP	0.49±0.1	11.86±0.2	24.36±0.3
	0NP	0.19±0.1	9.13±2.1	30.61±11.1
12.5% G	50NP	28.08±11.3	21.74±5.0	59.22±29.9
	25NP	26.53±0.3	21.89±4.1	44.35±8.1
	12.5NP	15.84±6.7	23.82±7.4	48.47±9.1
	6.25NP	8.93±3.0	16.85±5.0	43.58±13.9
	0NP	10.03±4.6	12.00±2.7	32.07±2