Mechanistic studies on the degradation and protein release characteristics of poly(lactic-co-glycolic-co-hydroxymethylglycolic acid) nanospheres

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Supporting Information:

Supplementary table 1

Characteristics of protected (pLGBMGA) and deprotected (pLGHMGA) copolymers.

Composition x:y [a]			(protected) Theoretical [c]	(protected) Measured [d]		(deprotected) Theoretical [c]	(deprotected) Measured [d]		Tg ºC	
eed ratio	Copolymer ratio [b]	M/I(mol)	M_n (kg/mol)	M_n	M_w	M_n (kg/mol)	M_n	M_w	protected polymer	deprotected
5:65	37:63	100	17.6	12	27	14	12	21	33	54
5:65	36:64	300	54	27	57	43	24	44	42	57
5:75	26:74	100	17	12	23	14	13	21	33	53
5:75	26:74	300	50	40	85	43	43	80	37	57

[a] x:y denotes the ratio of BMG/D,L-Lactide

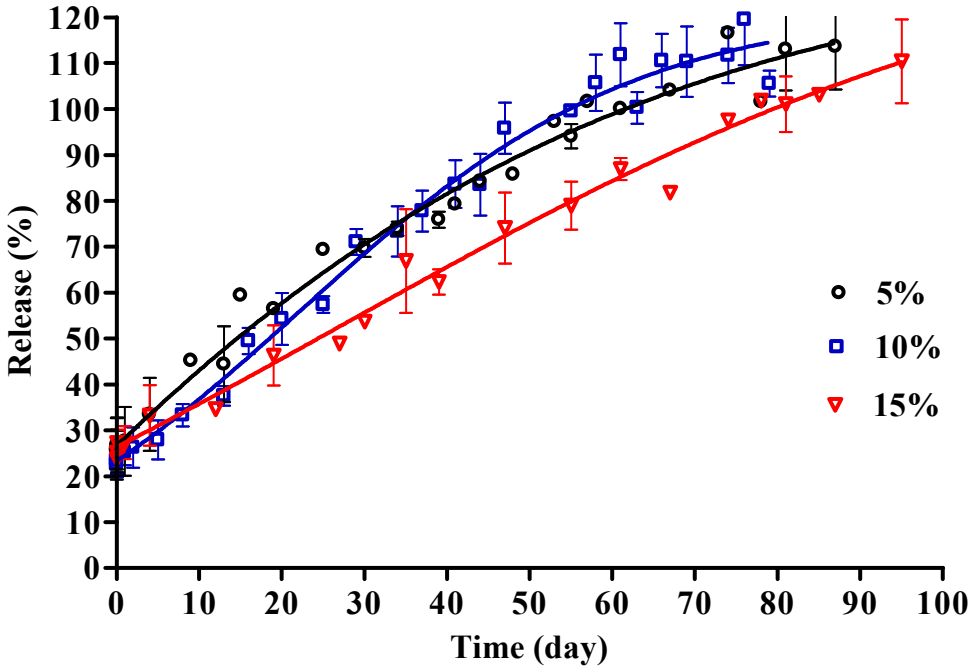
[b] Determined by ^{1}H-NMR.

[c] The theoretical M_n is calculated from the [monomer]/[initiator] molar ratio.

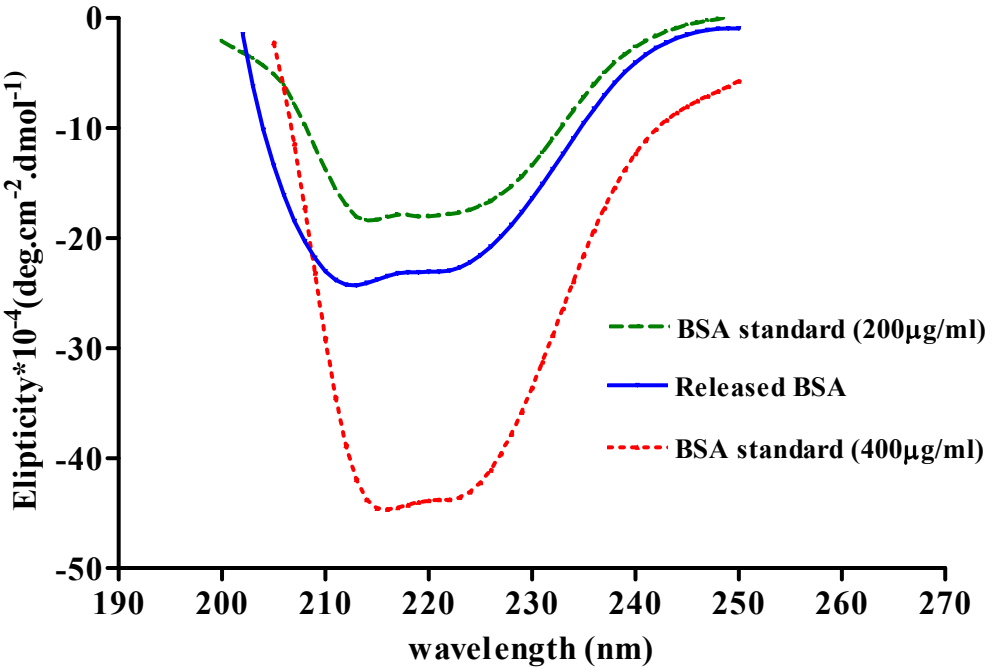
[d] Determined by GPC.

Supplementary table 2: Change in copolymer composition and glass transition temperature of nanospheres made of pLGHMGA 68/16/16 (L/G/HMG) (24 kg/mol) during degradation.

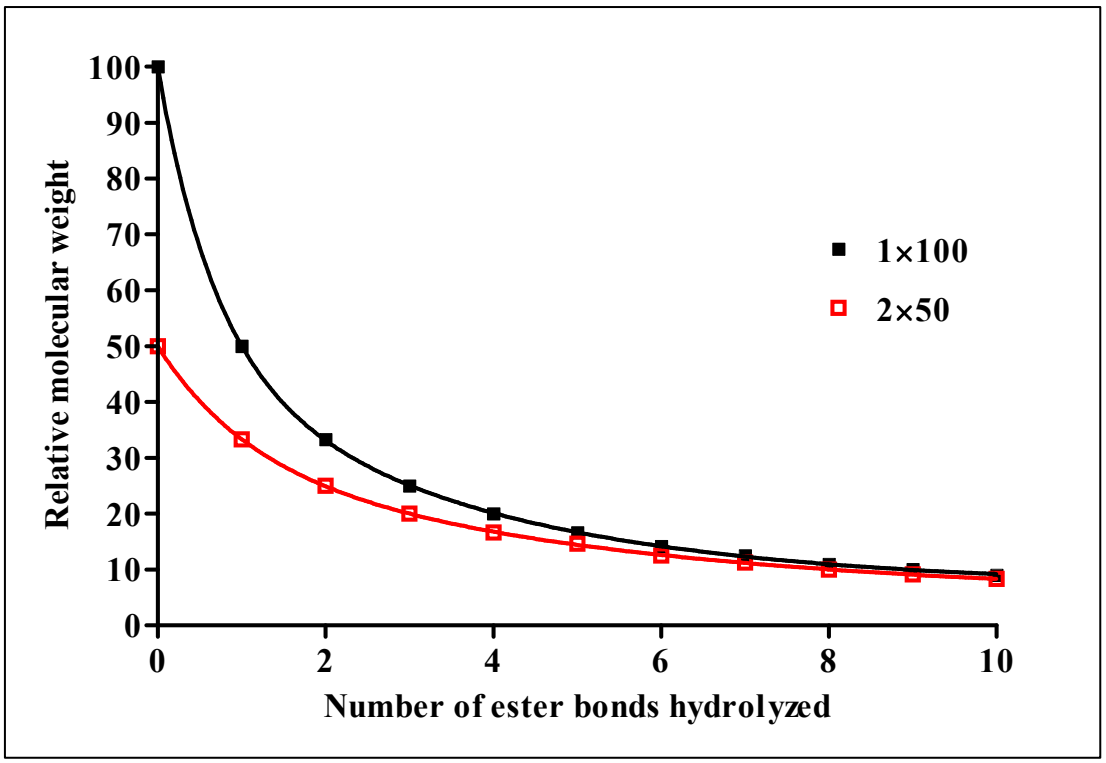
Day	Copolymer composition			
	HMG	Glycolic acid	Lactic acid	Tg ºC
0	18	18	64	57
4	15	19	65	54
8	15	16	69	54
11	13	15	71	54
19	13	14	73	54
94	11	11	78	54



Supplementary Fig.1: BSA release from nanospheres of pLGHMGA 64/18/18 (L/G/HMG) 12 kg/mol, prepared by using different polymer concentrations (w/w %) in the organic phase.



Supplementary Fig. 2: Circular Dichroism spectra of native and released BSA in very last days of release.



Supplementary Fig. 3: Theoretical model calculation showing the change in relative M_n upon hydrolysis of one polymer chain of high molecular weight (1×100) and two polymer chains with half initial molecular weight (2×50).