SUPPORTING INFORMATION

M _n PEG (kDa)	Reaction time (min)	М	[MTOS]:[CTA]:[AIBN] (mol. %)	
4.6	180	0.5	[100]:[1]:[0.3]	
8	300	0.5	[100]:[1]:[0.3]	
10	300	0.5	[100]:[1]:[0.3]	
14	360	0.25	[100]:[1]:[0.5]	
20	360	0.25	[100]:[1]:[0.5]	

Table S1: Summary of experimental conditions for the synthesis of block copolymers by RAFT.



Figure S1: ¹H-NMR spectra of CTA-PEG₈

Table S2: Molecular weight (M_n) measured by ¹H-NMR and SEC, dispersity (Đ), PEG units (n) and T_{max} of synthesized PEG macro-CTA agents.

Sample	$M_n imes 10^{-3}$	nPEG	$M_n imes 10^{-3}$	Ð	T _{max} (°C)
	¹ H-NMR		SEC (THF, PMMA standards)		TGA
CTA-PEG ₅	5.2	111	5.8	1.13	397
CTA-PEG ₈	8.2	177	9.8	1.10	402
CTA-PEG ₁₀	10.2	223	11.1	1.14	404
CTA-PEG ₁₂	12.1	266	12.5	1.11	415
CTA-PEG ₂₂	21.8	487	16.8	1.20	418



Figure S2: Normalized SEC traces of the PEG macro-CTA agents and their corresponding PEG. Black: CTA-PEG₅; Blue: CTA-PEG₈; Green: CTA-PEG₁₂ and Red: CTA-PEG₂₂



Figure S3: Normalized derivate weight loss of PEG macro-CTA agents. Black: CTA-PEG₅; Blue: CTA-PEG₁₀ and Red: CTA-PEG₂₂.



Figure S4: ¹H-NMR spectra of MTOS.



Figure S5: SEC traces of PEG-71 (Red), PEG-76 (orange), PEG-82 (Green) and PEG-87 (Blue) at the end of the RAFT copolymerization. Solid line: before purification by dialysis and dashed line: after purification by dialysis



Figure S6: Comparative of normalized curves of derivative weight loss of PEG-71 (Red), PEG-76 (Grey), PEG-82 (Green) and PEG-87 (Blue) polymeric systems, measured by TGA under a nitrogen atmosphere.