

## Supplementary information

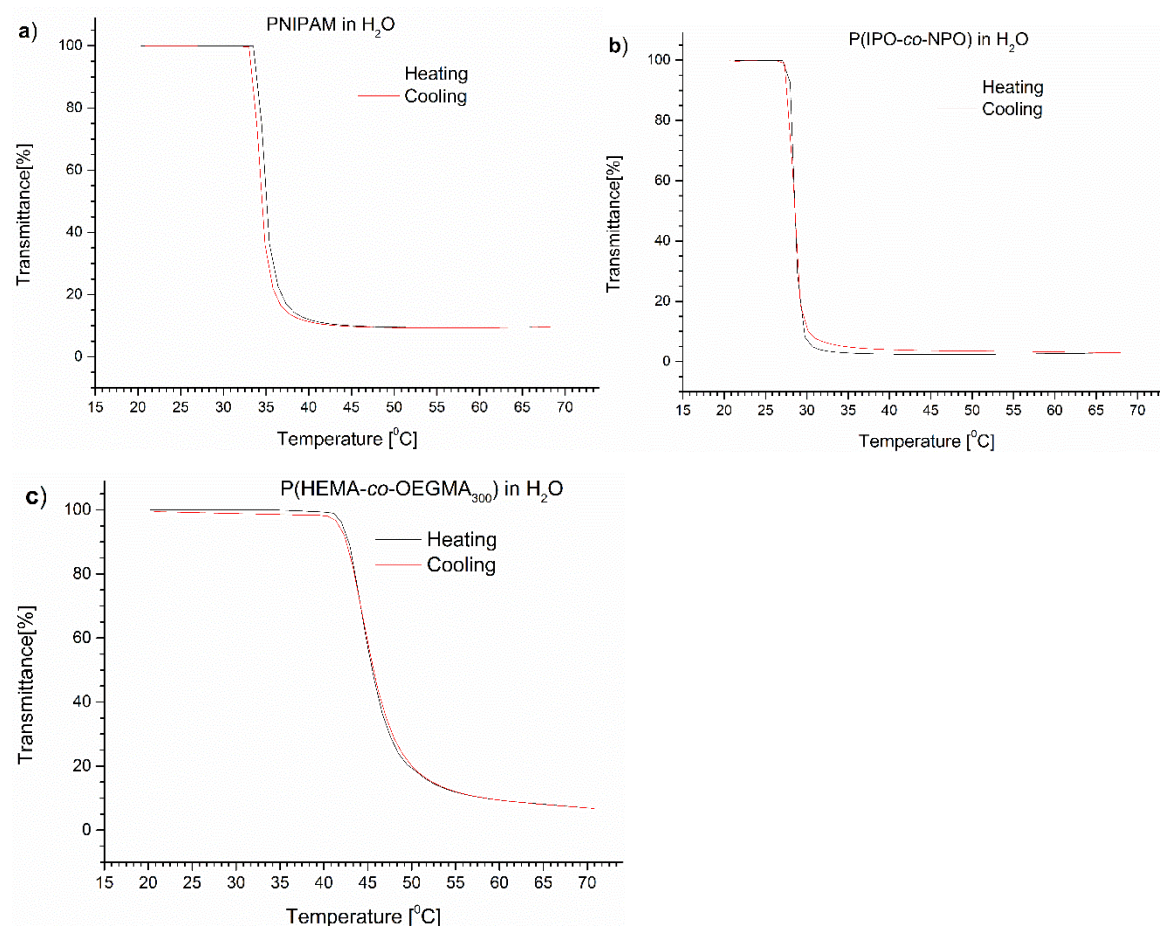
### Thermal behaviour of common thermoresponsive polymers in phosphate buffer and in its salt solutions

Łukasz Otulakowski<sup>1</sup>, Maciej Kasprów<sup>1</sup>, Aleksandra Strzelecka<sup>1</sup>, Andrzej Dworak<sup>1</sup>, Barbara Trzebicka<sup>1\*</sup>

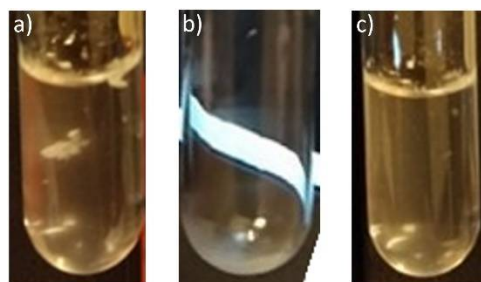
<sup>1</sup>Centre of Polymer and Carbon Materials, Polish Academy of Sciences, M. Curie-Skłodowskiej 34, Zabrze, 41-819, Poland

\*Corresponding author: Barbara Trzebicka

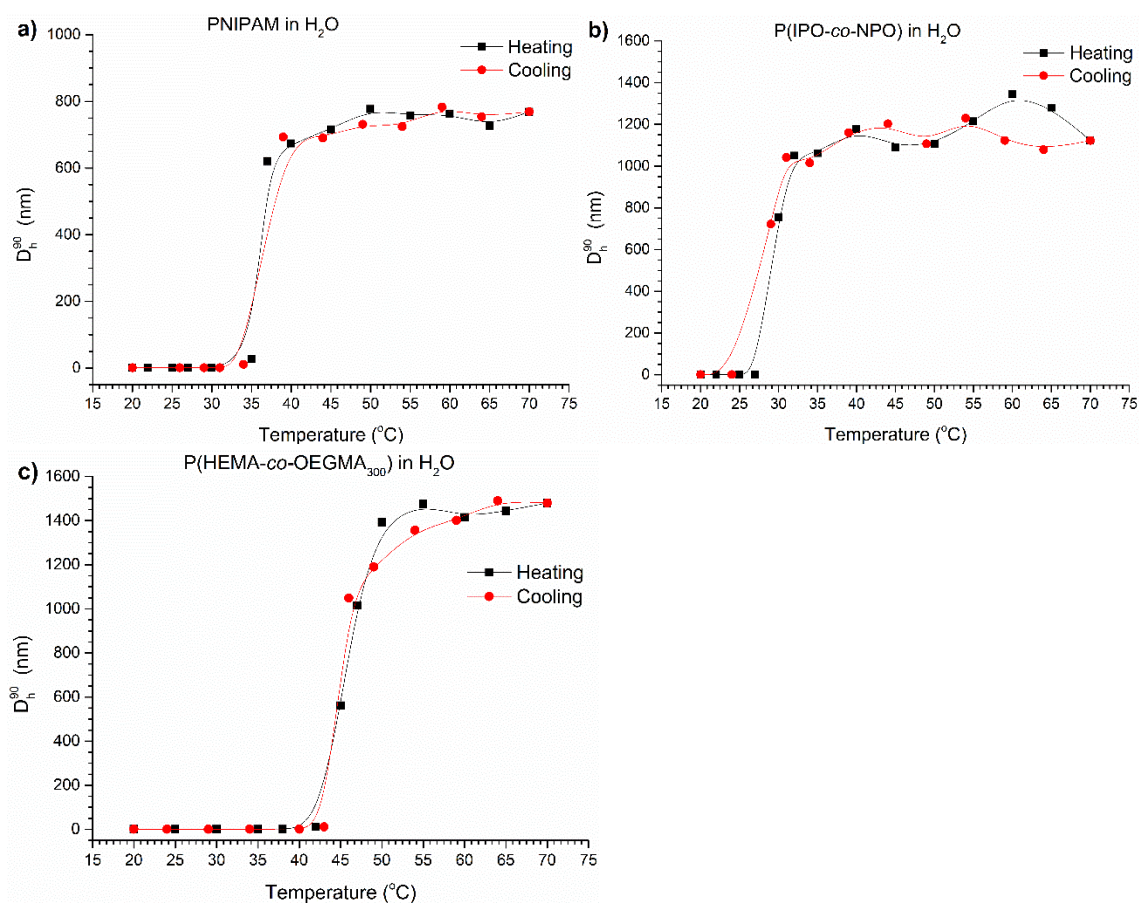
e-mail: btrzebicka@cmpw-pan.edu.pl



**Figure S1.** Transmittance versus temperature curves of aqueous solutions of a) PNIPAM, b) P(IPO-co-NPO) c) P(HEMA-co-OEGMA<sub>300</sub>). Total solute concentration 0.5 g/L, heating/cooling rate 1 °C/min. Heating - black, cooling - red.



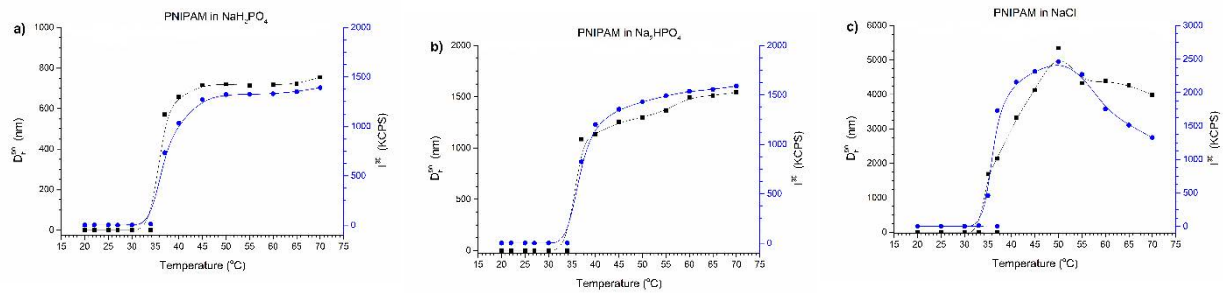
**Figure S2.** Representative pictures of precipitates formed in NaCl solution of a) PNIPAM, b) P(IPO-co-NPO) c) P(HEMA-co-OEGMA<sub>300</sub>)



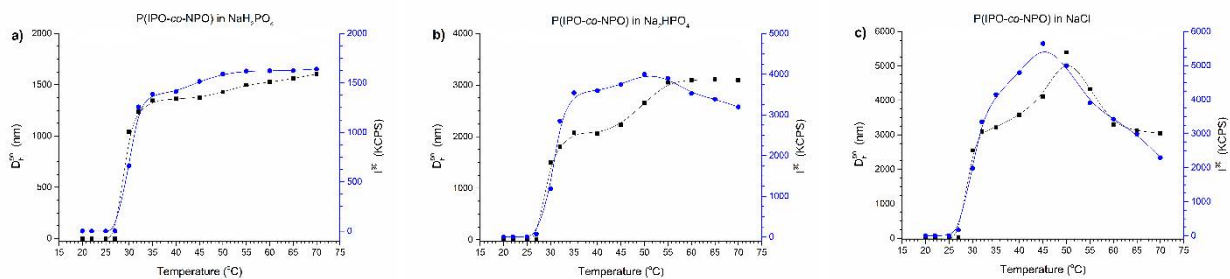
**Figure S3.**  $D_h^{90}$  versus temperature plots of water solution of a) PNIPAM, b) P(IPO-co-NPO), c) P(HEMA-co-OEGMA<sub>300</sub>). Total solute concentration 0.5 g/L. Heating - black, cooling - red.

**Table S1.** Diameters of polymers aggregates after gradual heating depicted from DLS at 70 °C.

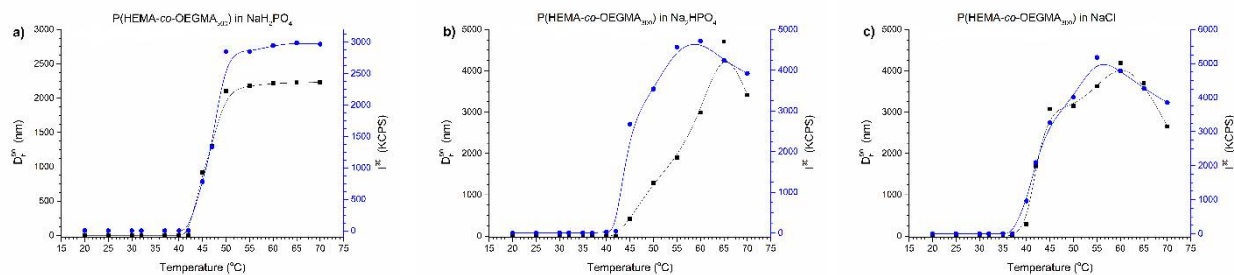
Copolymer	Hydrodynamic diameter at 70 °C [nm]				
	Water	PBS	NaH <sub>2</sub> PO <sub>4</sub> solution	Na <sub>2</sub> HPO <sub>4</sub> solution	NaCl solution
PNIPAM	770	4370	750	1540	4000
P(IPO-co-NPO)	1120	4000	1600	3100	3050
P(HEMA-co-OEGMA <sub>300</sub> )	1480	3800	2230	3420	2650



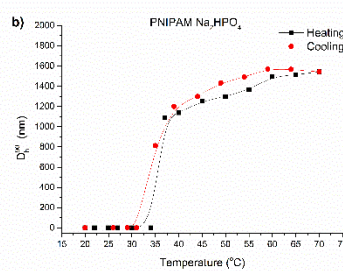
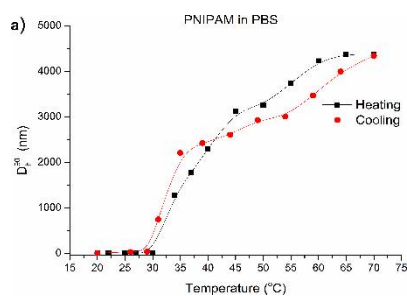
**Figure S4.**  $D_h^{90}$  and  $I^{90}$  versus temperature plots of PNIPAM in a) monosodium phosphate, b) disodium phosphate, c) sodium chloride solutions. Polymer concentration 0.5 g/L, gradual heating.

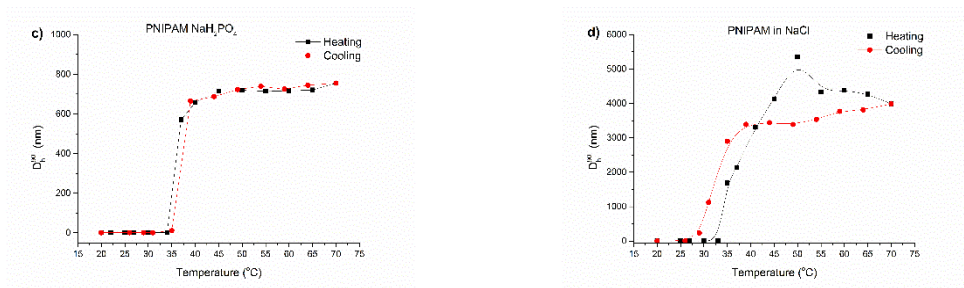


**Figure S5.**  $D_h^{90}$  and  $I^{90}$  versus plots of P(IPO-co-NPO) in a) monosodium phosphate, b) disodium phosphate, c) sodium chloride solutions. Polymer concentration 0.5 g/L, gradual heating.

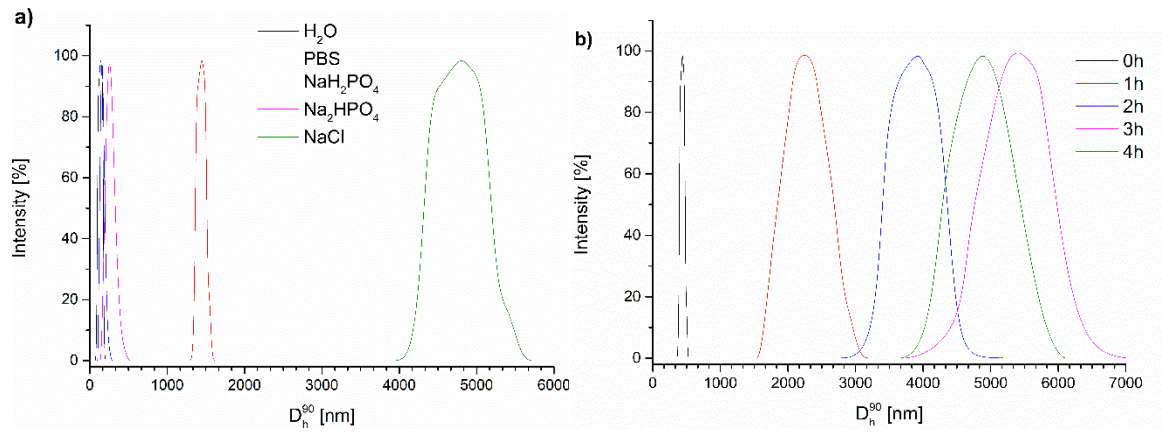


**Figure S6.**  $D_h^{90}$  and  $I^{90}$  versus temperature plots of P(HEMA-co-OEGMA<sub>300</sub>) in a) monosodium phosphate, b) disodium phosphate, c) sodium chloride solutions. Polymer concentration 0.5 g/L, gradual heating.





**Figure S7.**  $D_h^{90}$  versus temperature plots during heating and cooling of PNIPAM in a) commercial PBS b) disodium phosphate, c) sodium phosphate d) sodium chloride solutions. Polymer concentration 0.5 g/L, gradual heating.



**Figure S8.** Particles size distribution of PNIPAM in abrupt heating a) in different solutions after 4h, b) in solution of NaCl after different times periods.