Supplementary Information

Mixed amphiphilic polymeric nanoparticles of chitosan, poly(vinyl alcohol) and poly(methyl methacrylate) for intranasal drug delivery: A preliminary *in vivo* study

Inbar Schlachet, Hen Moshe Halamish and Alejandro Sosnik^{1,*}

- ¹ Laboratory of Pharmaceutical Nanomaterials Science, Department of Materials Science and Engineering, Technion-Israel Institute of Technology, Haifa, Israel
- * Correspondence: Laboratory of Pharmaceutical Nanomaterials Science, De-Jur Bldg., Office 607, Department of Materials Science and Engineering, Technion-Israel Institute of Technology, 3200003 Haifa, Israel; Email: sosnik@technion.ac.il, alesosnik@gmail.com; Tel.: +972-77-887-1971

Supplementary Table 1. Hydrodynamic diameter (Dh), size distribution (expressed as PDI) and Z-potential of CS-PMMA30, PVA-PMMA16 and mixed CS-PMMA30:PVA-PMMA16 nanoparticles (total copolymer concentration of 0.1% w/v), as determined by DLS. Nanoparticle crosslinking was carried out with 1% w/v TPP. Data are reproduced from Refs. 32-34 and 43.

Nanoparticle	TPP volume (µL) ª	D_h – Intensity (nm) (± S.D.)	PDI (± S.D.)	Z-potential (mV) (± S.D.)
CS-PMMA30	-	184 (4)	0.20 (0.01)	+39 (1)
	5	332 (54)	0.33 (0.03)	+28 (2)
PVA-PMMA16	-	92 (4)	0.14 (0.01)	-17 (1)
CS-PMMA30:PVA- PMMA16 (1:1)	-	193 (62)	0.23 (0.06)	+30 (1)
	2.5	249 (26)	0.26 (0.01)	+10 (1)

^a Volume of 1% w/v TPP solution per mL of nanoparticle dispersion.

Supplementary Table 2. Statistical analysis of AFR data in the different organs and time points after i.v. and i.n. administration of mixed CS-PMMA30:PVA-PMMA16 nanoparticles, as analyzed by the IVIS Spectrum In Vivo Imaging System (P <0.05).

Organ	Time point					
Organ	0.5 h	1 h	2 h	4 h		
"Top" brain	Statistically	Statistically	Statistically	Statistically		
	different	different	different	different		
Lungs	Statistically	Statistically	No statistical	Statistically		
	different	different	difference	different		
Heart	No statistical	No statistical	No statistical	Statistically		
	difference	difference	difference	different		
Spleen	No statistical	No statistical	No statistical	No statistical		
	difference	difference	difference	difference		
Kidney	No statistical	Statistically	Statistically	Statistically		
	difference	different	different	different		
Liver	No statistical	No statistical	Statistically	Statistically		
	difference	difference	different	different		