

Article

In Vitro High-Throughput Toxicological Assessment of Nanoplastics

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Supplementary

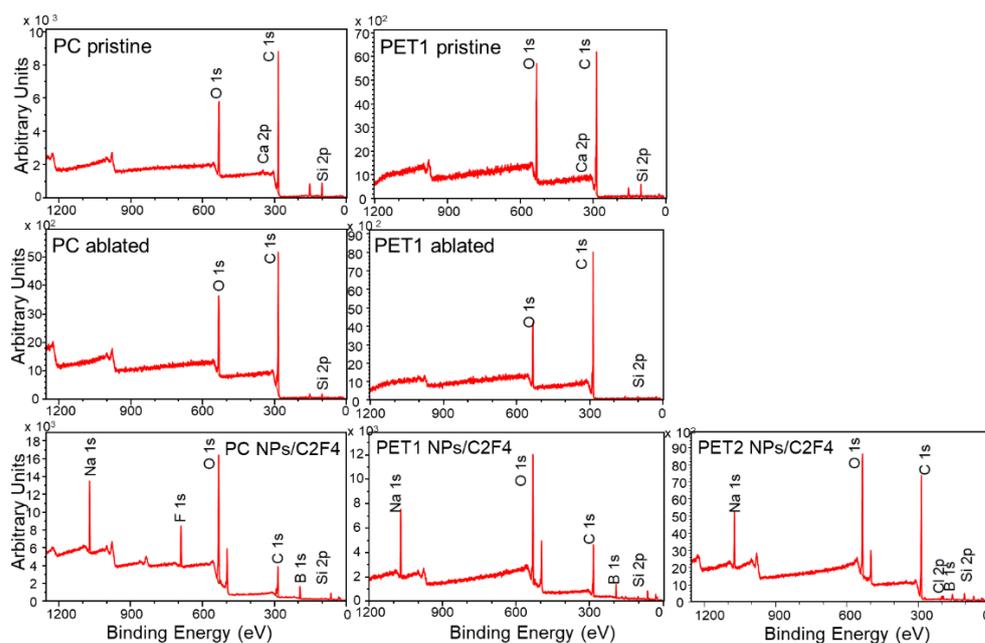


Figure S1. Survey XPS spectra of the pristine polymer and of the as-synthesized NPs with the respective elemental composition.

Table S1. Percentage of the respective elemental composition of survey spectra.

	Binding Energy	PC pristine	PC ablated	PC NPs/C2F4
C 1s	284.7 eV	78.60%	81.44%	29.66%
O 1s	532.2 eV	16.17%	16.65%	45.37%
Si 2p	102.2 eV	5.22%	1.91%	0.40%
B 1s	192.7 eV			14.52%
Ca 2p	347.3 eV	0.31%		
F 1s	689.7 eV			8.9%
Na 1s	1071.16 eV			10.05%
	Binding Energy	PET1 pristine	PET1 ablated	PET1 NPs/C2F4
C 1s	284.7 eV	74.64%	81.55%	57.59%
O 1s	532.2 eV	23.39%	16.29%	33.72%
Si 2p	102.2 eV	1.86%	2.17%	2.87%
B 1s	192.7 eV			10.39%
Ca 2p		0.12%		
Na 1s	1071.16 eV			3.49%
	Binding Energy			PET2 NPs/C2F4
C 1s	284.7 eV			66.71%
O 1s	532.2 eV			20.70%
Si 2p	102.2 eV			3.29%
B 1s	192.7 eV			2.94%
Cl 2p	197.8 eV			0.75%
Na 1s	1071.16 eV			5.61%

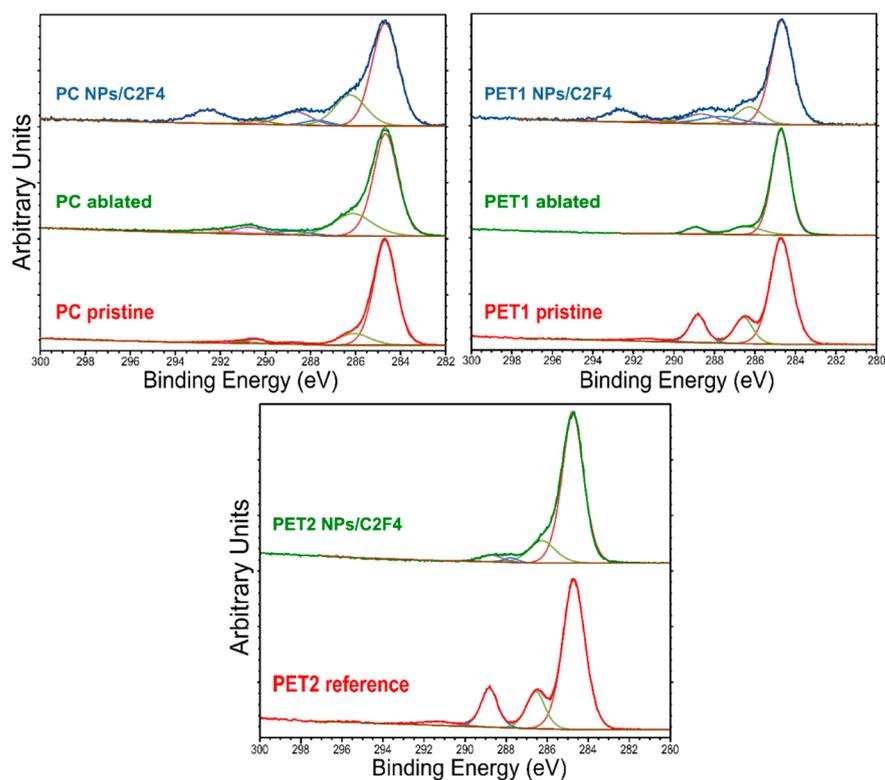


Figure S2. XPS C1s high resolution spectra of the pristine polymer and of the as-synthesized NPs with the corresponding deconvolutions.

Table S2. Percentage of corresponding deconvolutions results of C1s spectra.

C 1s	Binding Energy	PC pristine	PC ablated	PC NPs/C2F4
C-C (ar)	284.6 eV	60.93%	48.07%	58.38%
C-C (al)	285.1 eV	22.53%	17.77%	
C-O-C, C-OH	286.3 eV	8.67%	19.22%	17.79%
C=O	287.7 eV			3.27%
O=C-O	288.7 eV	1.87%	4.01%	8.02%
O=C(-O)2	290.4 eV	2.61%	3.73%	2.02%
C-C sh.-up (I)	291.3 eV	2.17%	2.27%	
C-C sh.-up (II)	292.5 eV	1.23%	4.94%	
C-F2	292.5 eV			10.52%
C 1s	Binding Energy	PET1 pristine	PET1 ablated	PET1 NPs/C2F4
C-C (ar)	284.6 eV	37.31%	78.08%	58.92%
C-C (al)	285.1 eV	24.62%		
C-O-C, C-OH	286.3 eV	15.68%	13.50%	16.82%
C=O	287.7 eV			3.96%
O=C-O	288.7 eV	15.42%	6.31%	10.92%
C-C sh.-up (I)	291.3 eV	5.54%	1.52%	2.84%

C-C sh.-up (II)	292.5 eV	1.43%	0.60%	
C 1s	Binding Energy	PET2 reference		PET2 NPs/C2F4
C-C (ar)	284.6 eV	37.31%		82.94%
C-C (al)	285.1 eV	24.62%		
C-O-C, C-OH	286.3 eV	15.68%		12.81%
C=O	287.7 eV			
O=C-O	288.7 eV	15.42%		4.25%
C-C sh.-up (I)	291.3 eV	5.54%		
C-C sh.-up (II)	292.5 eV	1.43%		

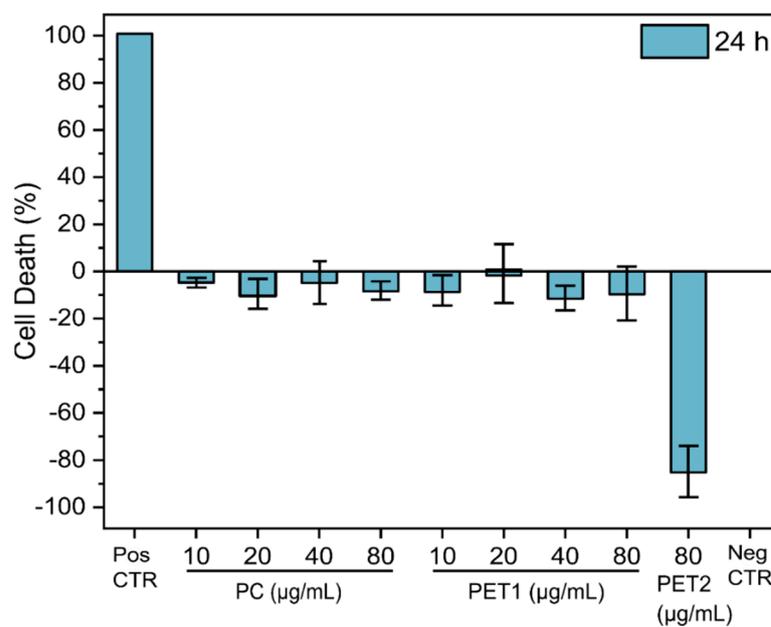


Figure S3. HepG2 cell viability after exposure to NPs at the concentration of 10, 20, 40, 80 $\mu\text{g/mL}$ for 24 or 48 h. In the case of PET2, data are represented only at 80 $\mu\text{g/mL}$ (LDH assay). Data are reported as % of cell death (average of three independent experiments \pm SD).

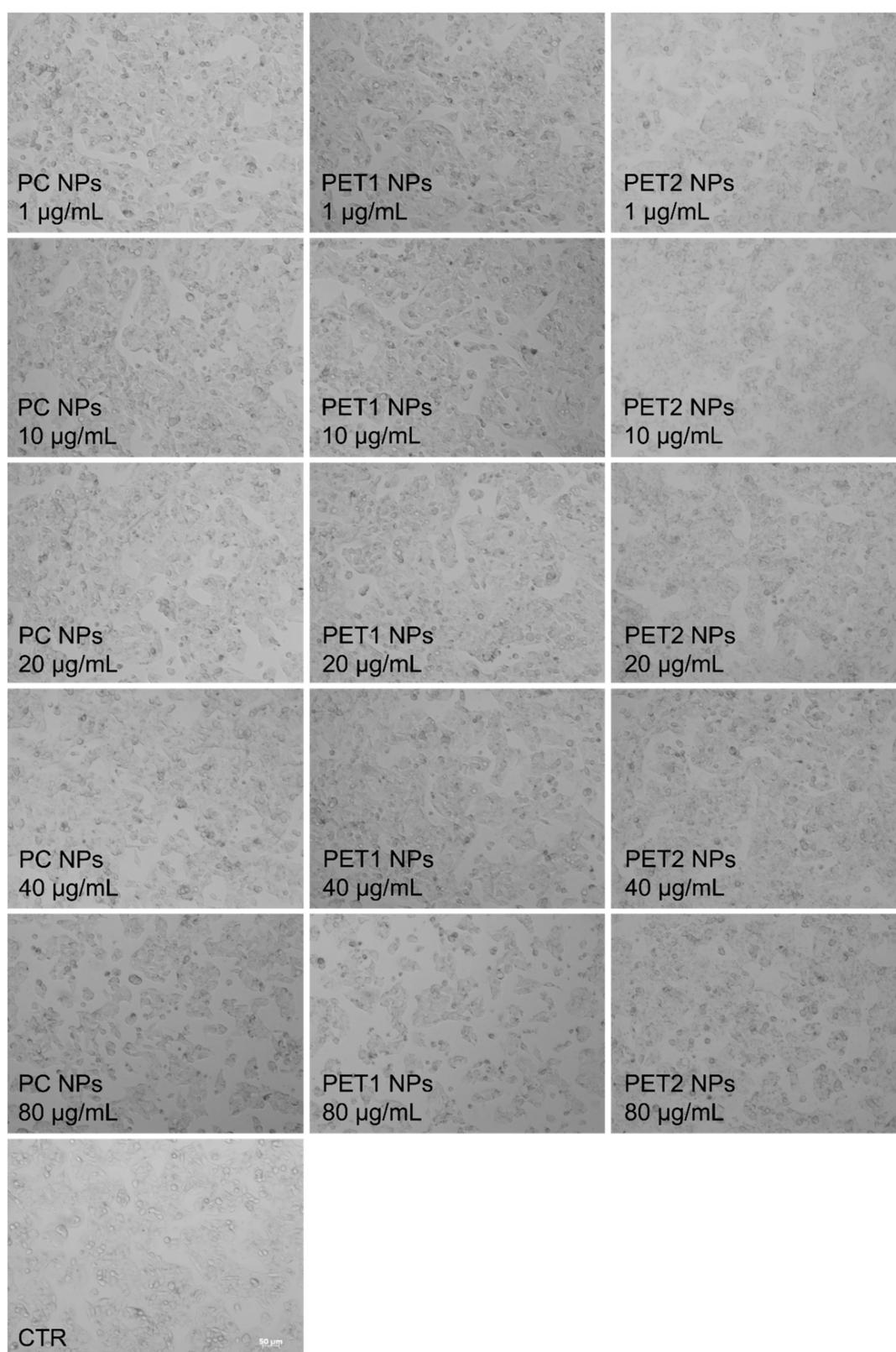


Figure S4. Representative morphological images of HePG2 cells after different treatments for 24 h. Scale bar at 50 µm for all images.

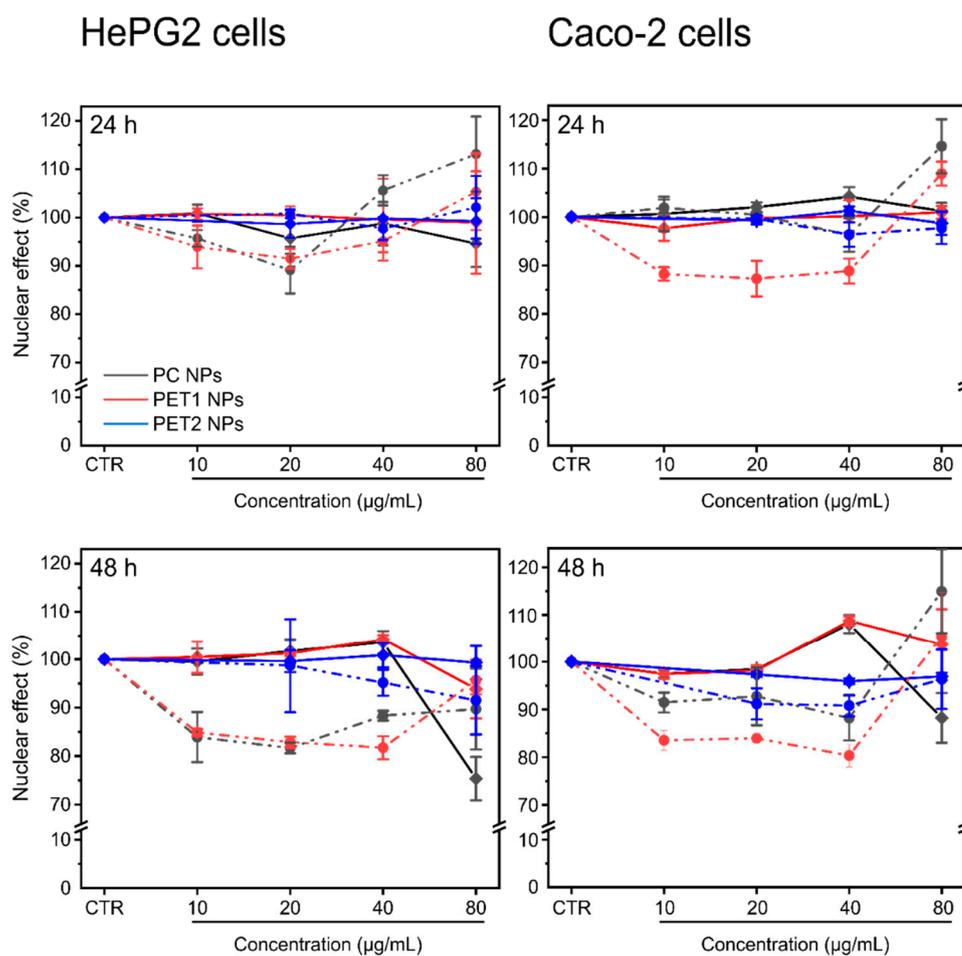


Figure S5. NPs effects on HePG2 or Caco-2 cells on nuclear size (line) and nuclear intensity (dash dot). Cells were exposed to PC, PET1 or PET2 NPs at concentrations between 10 and 80 µg/mL for 24 or 48 h, stained with Hoechst 33342 and analyzed by HCl. Data are expressed as % nuclear effect normalized to the control (untreated cells) and reported as mean of three independent experiments \pm SD.