



Supporting Information

for

Characterization, bio-uptake and toxicity of polymer-coated silver nanoparticles and their interaction with human peripheral blood mononuclear cells

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Supplementary figures and tables

Table S1: Extinction coefficients. Extinction coefficient calculated based on the Beer–Lambert law.

		Extinction Coefficients (Lmg ⁻¹ cm ⁻¹)					
		0h	1h	3h	6h	12h	24h
Concentration (µg L ⁻¹)	100 µg L ⁻¹	8.88 × 10 ⁻³	7.42 × 10 ⁻³	8.97 × 10 ⁻³	4.51 × 10 ⁻³	6.59 × 10 ⁻³	6.06 × 10 ⁻³
	500 µg L ⁻¹	2.47 × 10 ⁻³	1.92 × 10 ⁻²	1.31 × 10 ⁻³	1.88 × 10 ⁻²	2.12 × 10 ⁻³	1.7 × 10 ⁻³
	1000 µg L ⁻¹	5.88 × 10 ⁻⁴	1.04 × 10 ⁻³	6.42 × 10 ⁻⁴	7.36 × 10 ⁻⁴	5.24 × 10 ⁻⁴	9.23 × 10 ⁻⁴

Table S2: Mass balance of Ag. Ag mass balance (ng) in 2.5 × 10⁵ cells (absorbed or cell surface-attached) in AgNP and AgNO₃ treatments for each six individual measured by ICP-MS. Data are presented as mean ± standard error (n = 3).

Person 1

		Mass of Ag in exposure (ng)			
		10	100	500	1000
PVP-AgNP	cell	0.06	0.31	1.76	5.41
	Supernatant	6.23	38.02	153.61	312.95
	Total loss	3.71	61.67	344.62	681.63
AgNO ₃	cell	0.05	0.32	4.54	8.14
	Supernatant	5.85	57.03	120	119.42
	Total loss	4.1	42.65	375.46	872.43

Person 2

		Mass of Ag in exposure (ng)			
		10	100	500	1000
PVP-AgNP	cell	0.06	0.34	2.13	4.57
	Supernatant	3.59	33.17	163.68	425.14
	Total loss	6.53	66.49	334.19	570.3
AgNO ₃	cell	0.05	0.3	4.98	14.44
	Supernatant	6.21	41.29	119.86	142.15
	Total loss	3.74	58.4	375.16	843.42

Person 3

		Mass of Ag in exposure (ng)			
		10	100	500	1000
PVP-AgNP	cell	0.07	0.51	2.75	5.96
	Supernatant	4.53	39.64	301.33	457.06
	Total loss	5.4	59.85	195.93	536.97
AgNO ₃	cell	0.06	0.42	4.97	6.95
	Supernatant	4.78	43.79	121.87	198.16
	Total loss	5.16	55.79	373.16	794.88

Person 4		Mass of Ag in exposure (ng)			
		10	100	500	1000
PVP-AgNP	cell	0.07	0.46	3.58	6.78
	Supernatant	4.55	48.19	206.93	404.74
	Total loss	5.38	51.35	289.49	588.48
AgNO ₃	cell	0.08	0.51	5.5	11.86
	Supernatant	5.35	70.86	119.85	163.53
	Total loss	4.57	28.64	374.65	824.61

Person 5		Mass of Ag in exposure (ng)			
		10	100	500	1000
PVP-AgNP	cell	0.08	0.38	2.63	4.31
	Supernatant	6.15	45.34	213.65	409.12
	Total loss	3.76	54.28	283.73	586.57
AgNO ₃	cell	0.08	0.39	4.47	13.54
	Supernatant	5.19	69.46	120.05	158.99
	Total loss	4.73	30.16	375.48	827.47

Person 6		Mass of Ag in exposure (ng)			
		10	100	500	1000
PVP-AgNP	cell	0.07	0.32	1.56	2.79
	Supernatant	5.99	50.41	237.4	510.26
	Total loss	3.94	49.27	261.04	486.95
AgNO ₃	cell	0.07	0.23	2.91	8.84
	Supernatant	5.57	76.22	120.41	199.83
	Total loss	4.36	23.55	376.68	791.32

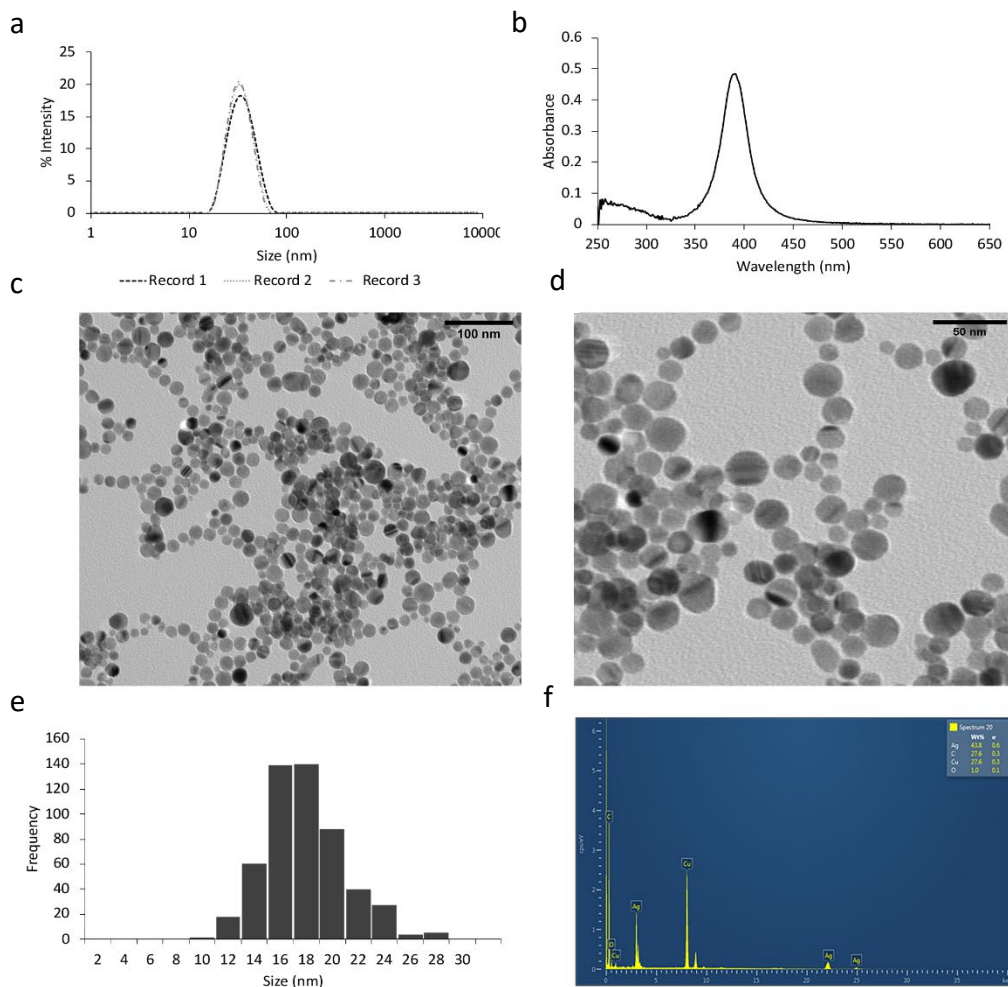


Figure S1: NP characterization results. Characterization of stock PVP-AgNPs using DLS (a), UV-vis spectra (b), TEM images with different magnifications (16.9 nm) and particle size distribution (c-e), and EDX imaging (f).

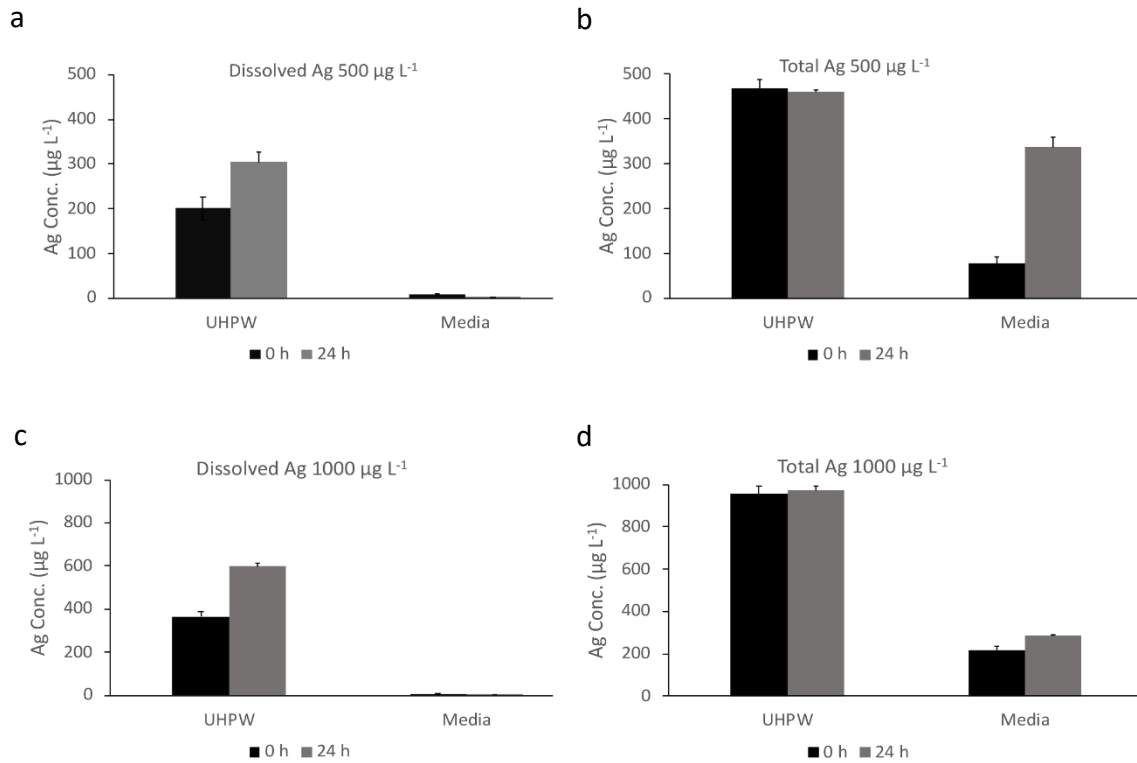


Figure S2: Dissolved and total concentration of Ag in AgNO_3 in UHPW and RPMI medium. Dissolved Ag concentration measurements using centrifugal ultrafiltration units (a and c) and total Ag concentration (b and d) in UHPW and RPMI medium at $T = 0$ and $T = 24$ h measured by ICP-MS. Data are reported as mean \pm SE ($n = 3$).

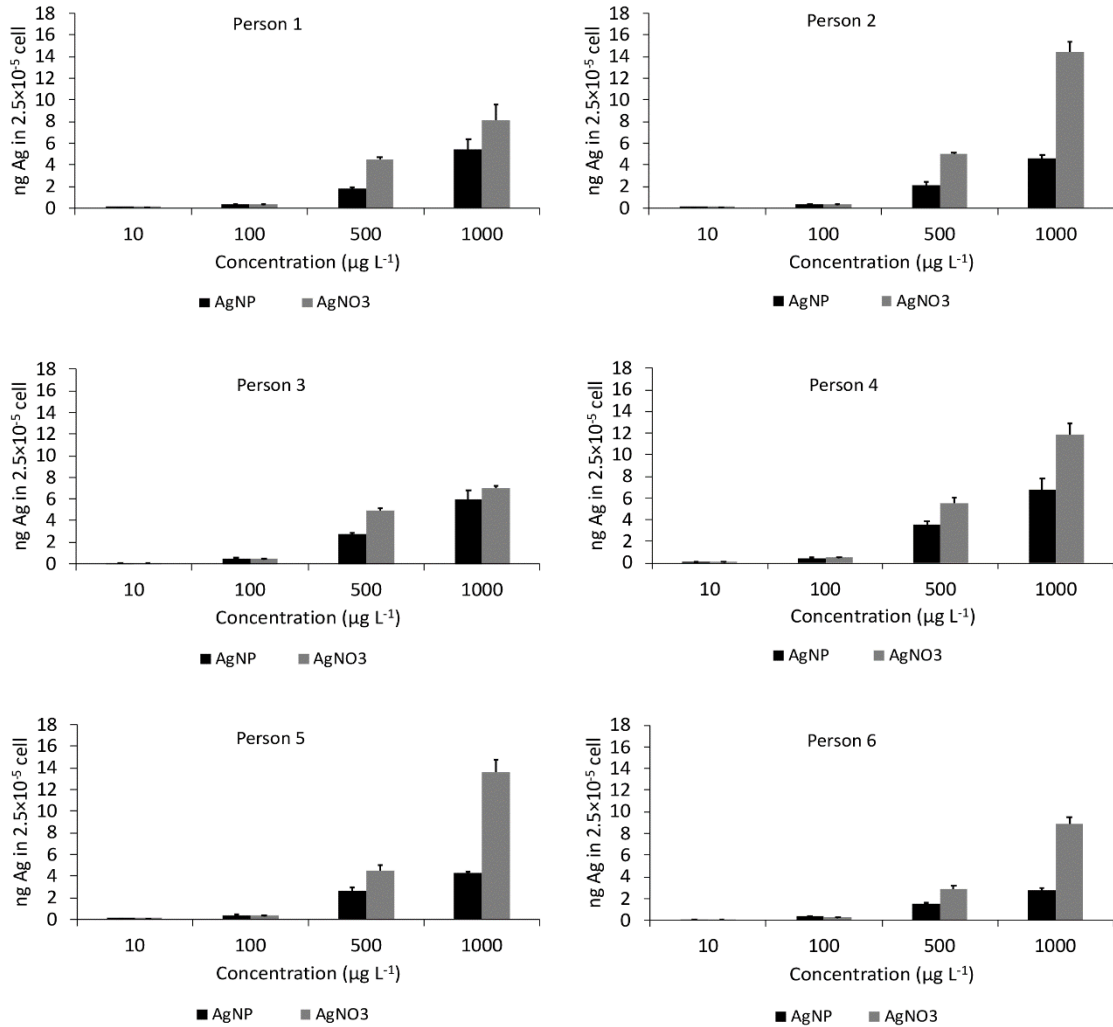


Figure S3: Ag uptake (ng) in 2.5×10^5 cells. Results for absorbed or cell surface-attached Ag after treatment of PBMCs in six individuals. The amount of Ag in cells after three washes with buffer was measured by ICP-MS.

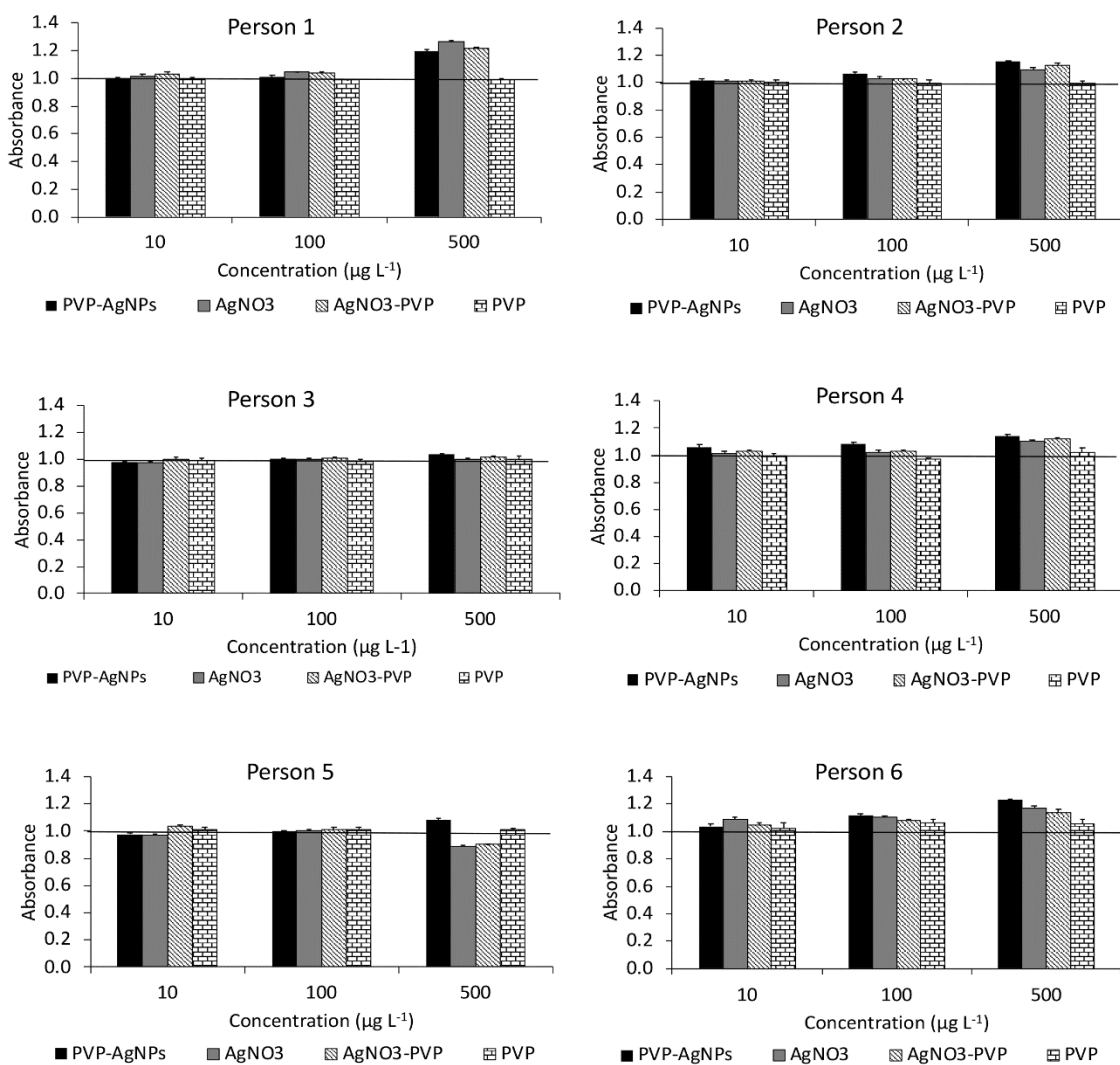


Figure S4: Cell viability test. Cell viability of PBMCs assessed by LDH leakage after 24 h of treatment with the given concentrations PVP-AgNPs, AgNO₃, AgNO₃-PVP, and PVP. Data represents the means of six replicates ± standard error.

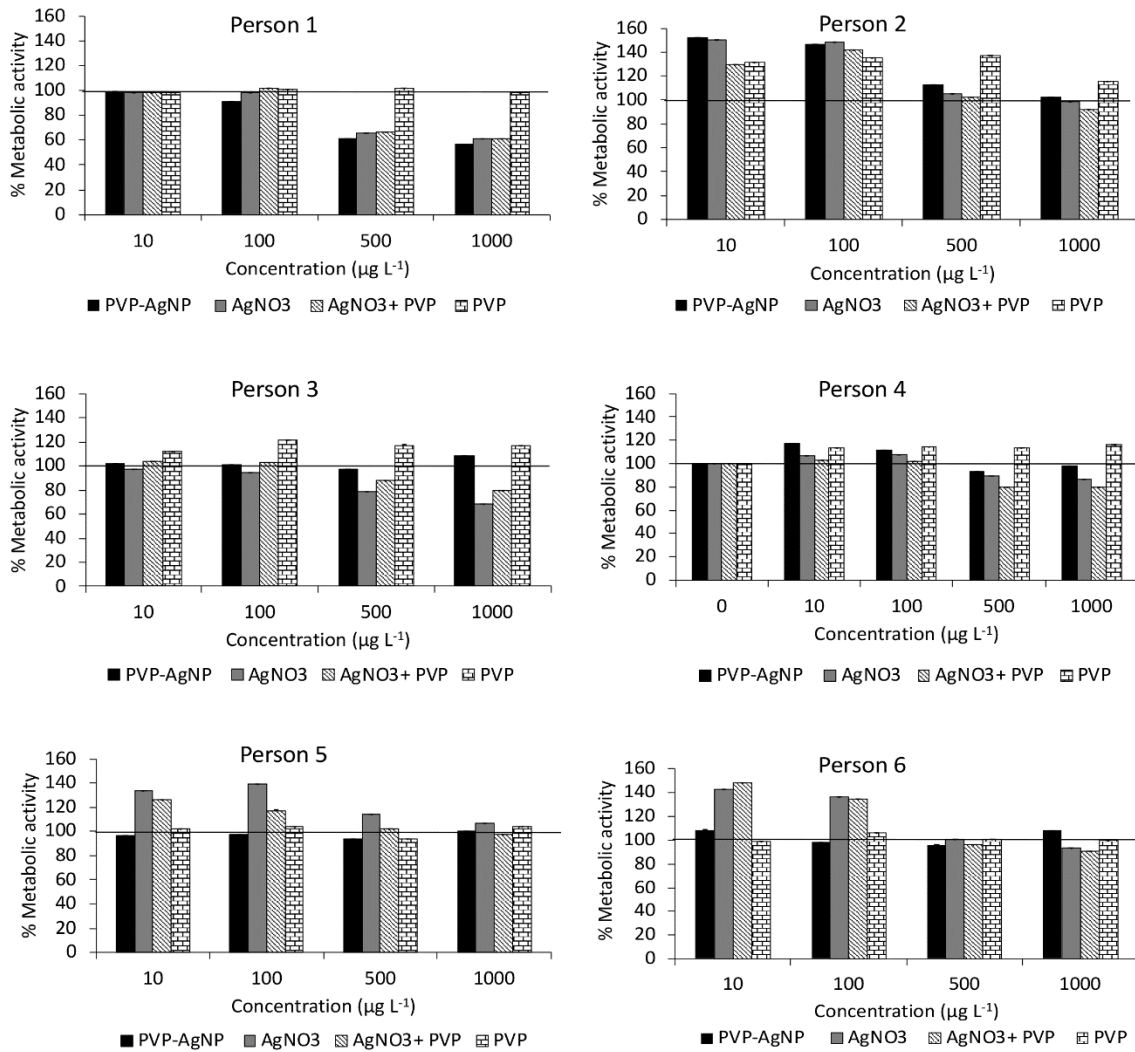


Figure S5: Cell metabolic activity. Metabolic activity of PBMCs measured by MTS assay after 24 h of exposure at the given concentrations for six individuals. Data represents the means of six replicates \pm standard error.