

Supplemental data

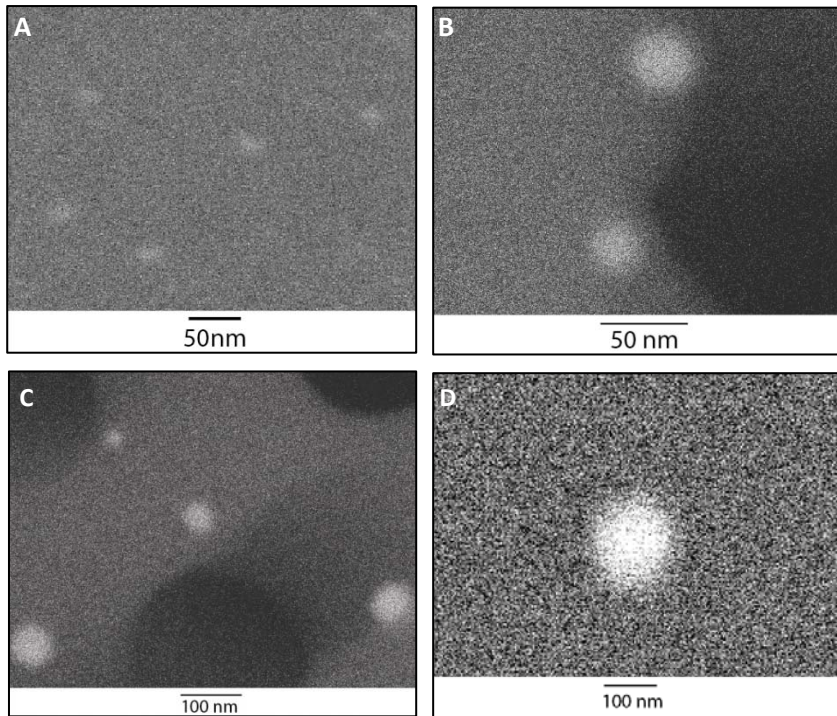
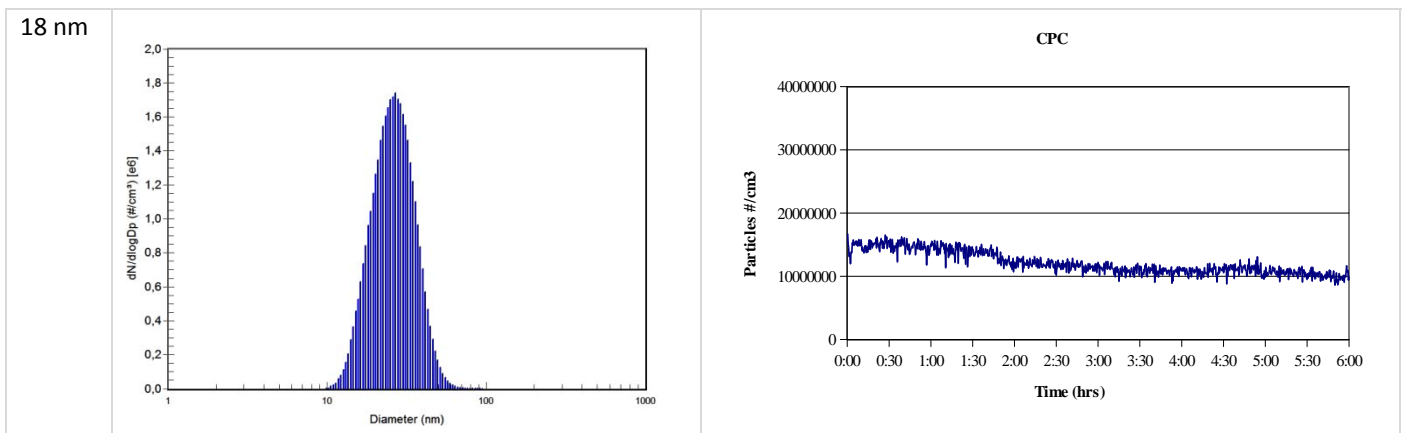


Figure S1. Scanning electron microscopy (SEM) pictures of the 18 nm silver nanoparticles (A), 34 nm silver nanoparticles (B), 60 nm silver nanoparticles (C), and the 160 nm silver particles (D) captured on polycarbonate filters with 0.22 μm pores (Pictures are made in back-scatter mode). The pictures show examples of individual particles. Per particle size, about 300 particles were analysed to confirm their size.



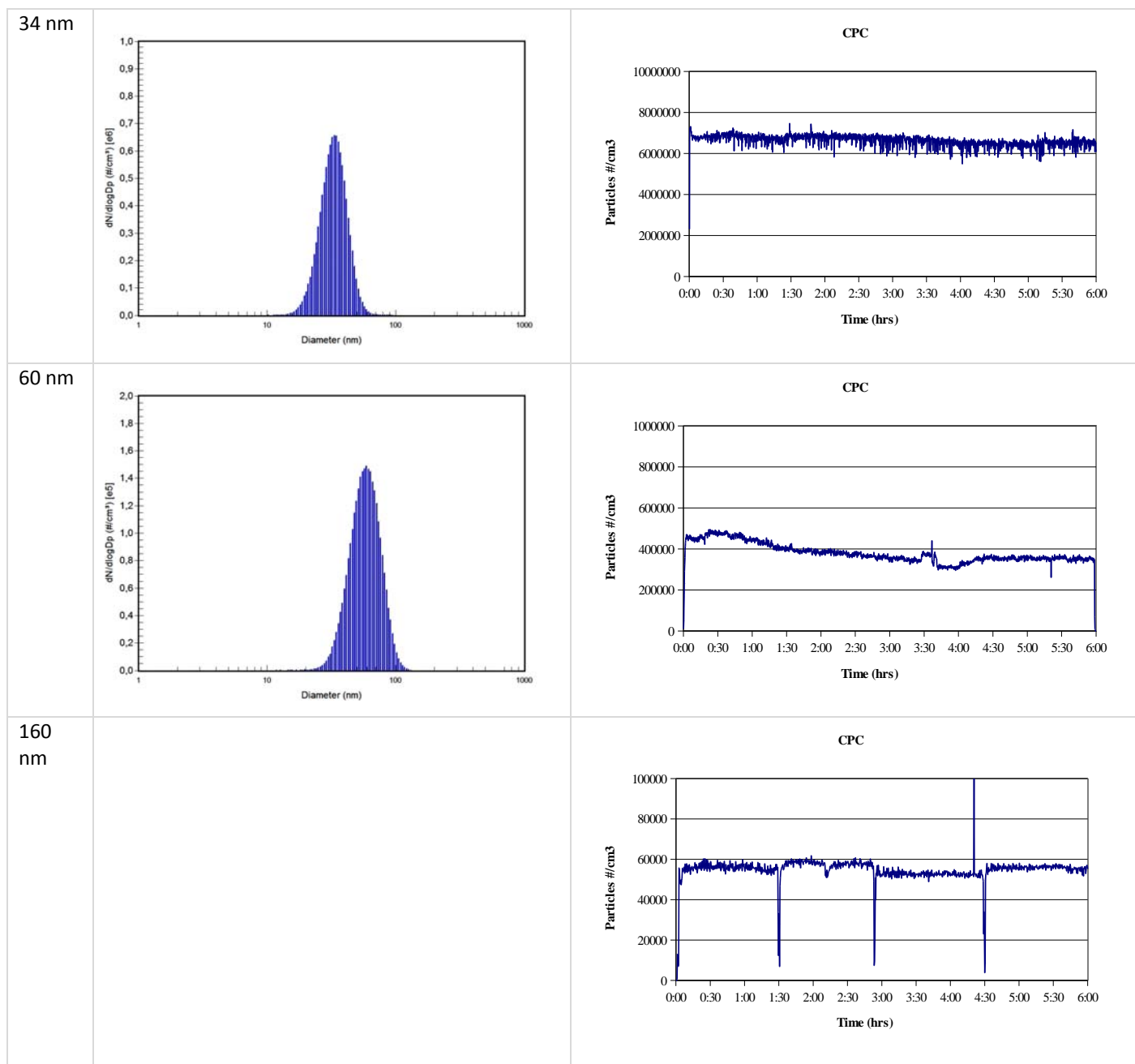


Figure S2. SMPS particle size distribution and CPC particle number concentration over time measured during exposure to 18 nm, 34 nm, 60 nm and 160 nm silver particles. The SMPS particle sizer had a cut off at 200 nm and was not able to measure the size of the largest particles, therefore we determined the particle size of the 160 nm particles based on scanning electron microscopy pictures (see Figure S1).

Table S1. Animal weights given in grams. Data shown as mean with a 95% confidence interval.

Group	Exposure concentration [$\mu\text{g}/\text{m}^3$]	Arrival	Start of exposure	24 hours after exposure	7 days after exposure
Controls	0	193 (163-223)	224 (213-235)	218 (208-228)	242 (229-255)
18 nm Ag	55	195 (193-198)	230 (230-231)	217 (215-220)	
	110	205 (202-208)	237 (233-242)	226 (223-229)	
	219	197 (181-214)	236 (230-243)	185 (124-247)	
	438	179 (155-204)	218 (198-238)	210 (192-228)	232 (215-250)
34 nm Ag	41	219 (213-225)	233 (222-245)	236 (223-249)	
	81	219 (217-221)	230 (229-232)	231 (228-234)	
	163	219 (208-229)	227 (216-237)	224 (212-236)	
	325	220 (215-226)	230 (222-238)	223 (213-233)	231 (222-240)
60 nm Ag	43	192 (165-219)	223 (217-229)	217 (212-222)	
	85	194 (171-217)	224 (212-236)	220 (208-233)	
	171	188 (166-210)	230 (223-236)	221 (215-227)	
	341	198 (184-212)	236 (223-250)	226 (215-237)	243 (235-250)
160 nm Ag	139	177 (177-178)	219 (216-223)	219 (215-222)	
	277	185 (170-201)	229 (221-236)	223 (215-231)	
	555	184 (170-199)	224 (218-231)	214 (207-220)	
	1109	186 (165-206)	222 (207-238)	213 (202-223)	241 (234-247)

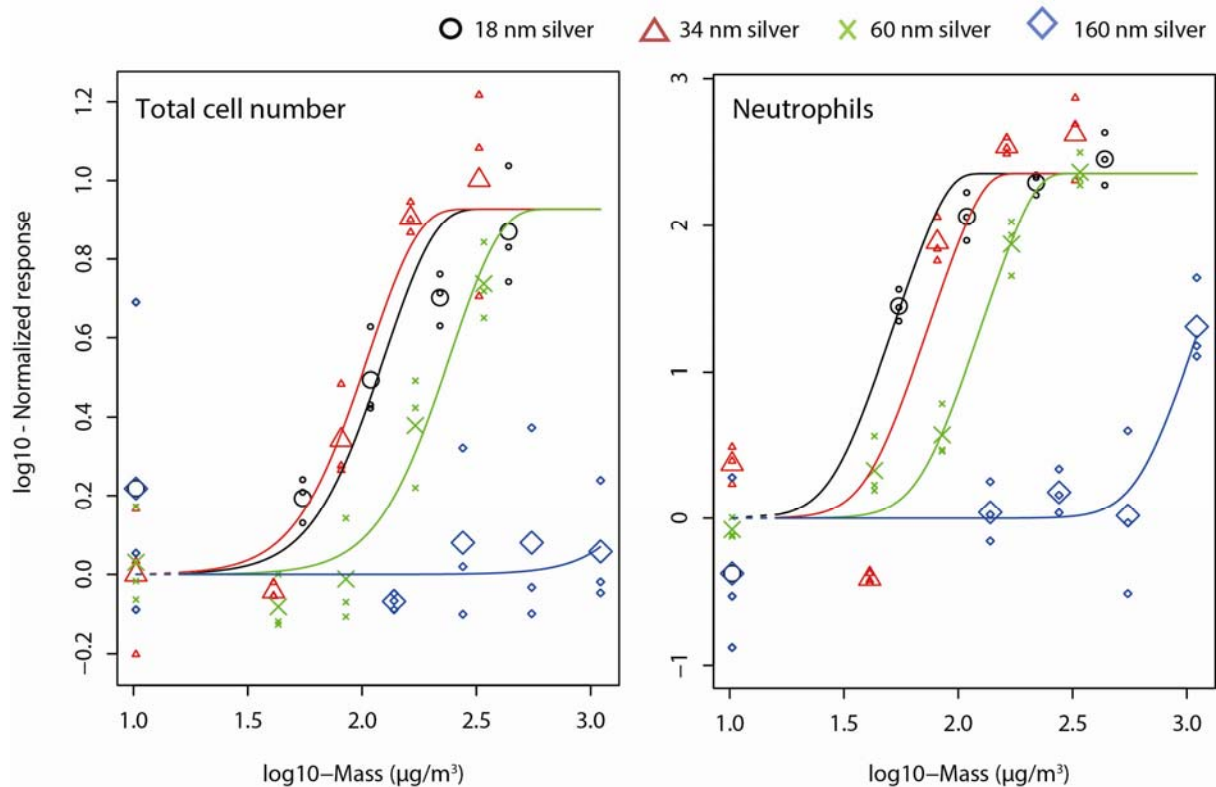


Figure S3. Total cell number (left) and number of neutrophils (right) in the BALF at 24 hours after inhalation exposure to different sizes of silver nanoparticles based on the mass exposure concentrations. All particle sizes show an exposure concentration dependent increase in the total number of cells and the number of neutrophils. The effect of the different particle sizes does not overlap based on the exposed mass. The small symbols represent individual animals and the larger symbols represent mean values of animals within the same exposure-group.

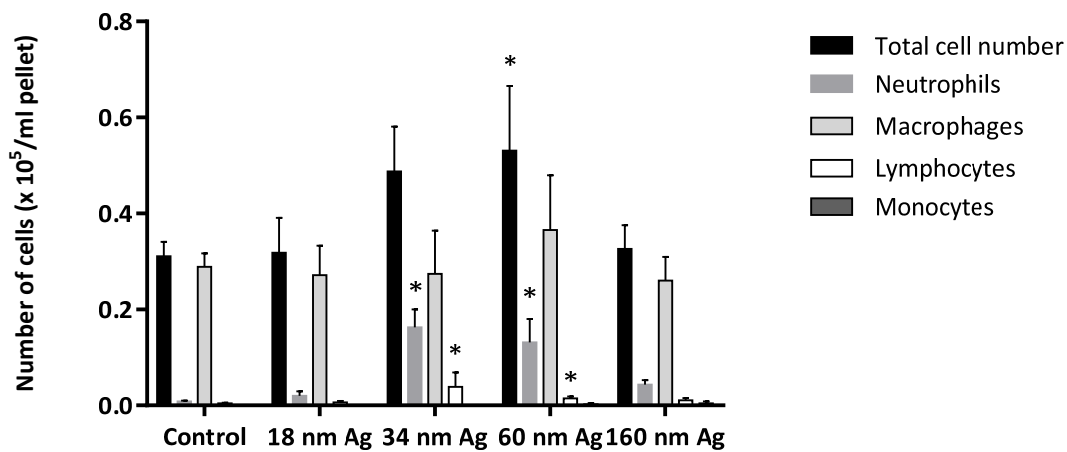


Figure S4. The total cell number, the number of neutrophils, macrophages, lymphocytes, and monocytes at 7 days after inhalation exposure to silver particles of 18 nm ($438 \mu\text{g}/\text{m}^3$), 34 nm ($325 \mu\text{g}/\text{m}^3$), 60 nm ($341 \mu\text{g}/\text{m}^3$), and 160 nm ($1105 \mu\text{g}/\text{m}^3$). For the animals exposed to 60 nm silver nanoparticles, the total cell number was significantly increased compared to the controls ($p < 0.05$). The number of neutrophils and lymphocytes was significantly increased compared to the controls for the animals exposed to 34 nm ($p < 0.001$ and $p < 0.01$) and 60 nm silver particles ($p < 0.01$ and $p < 0.05$).

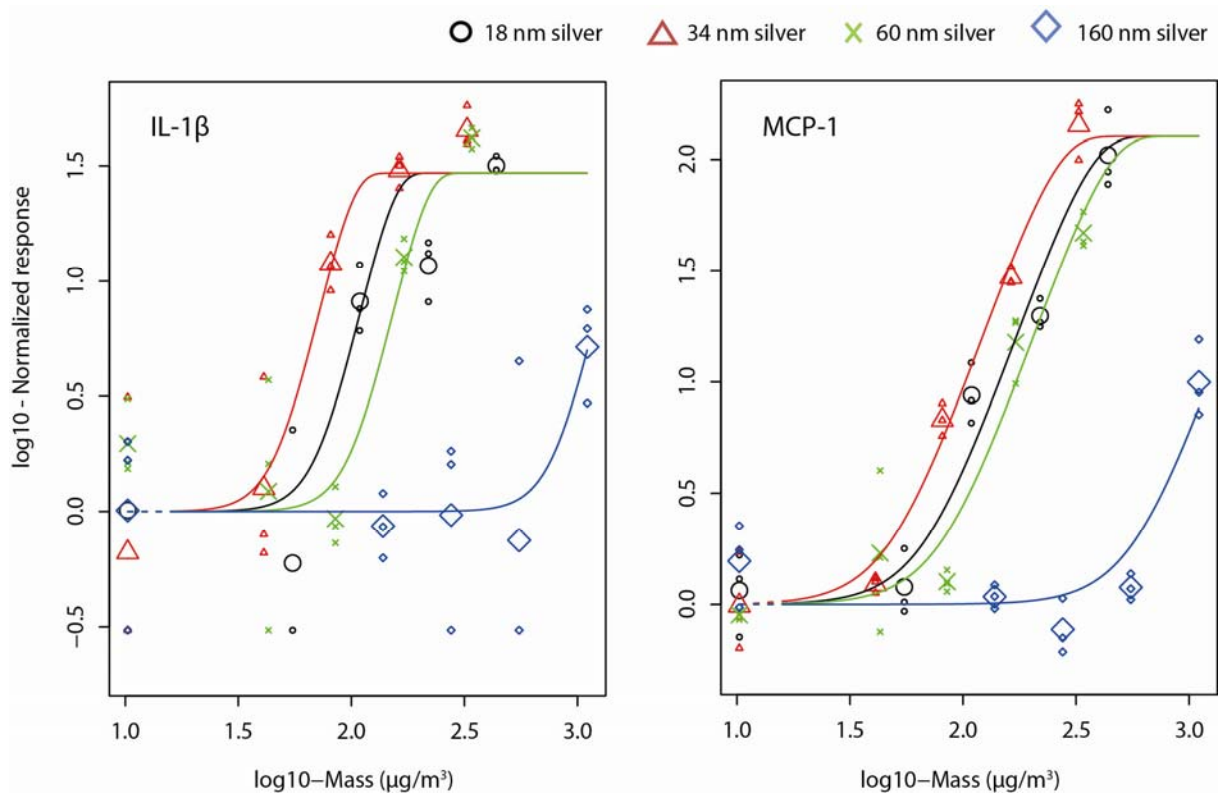


Figure S5. The level of IL1- β (left) and MCP-1 (right) in the BALF after inhalation exposure to different sizes of silver nanoparticles based on the mass exposure concentrations. All particle sizes show an exposure concentration dependent increase in the level of IL1- β and MCP-1. The effect of the different particle sizes does not overlap based on the exposed mass. The small symbols represent individual animals and the larger symbols represent mean values of animals within the same exposure-group.