

Supplementary Material

Article title: Characterization and *in vivo* toxicological evaluation of multi-walled carbon nanotubes: a low dose repeated intratracheal administrations study

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Supplementary Table 1 Hematology results of the study groups after 3 and 7 days of repeated MWCNT administrations

	PS80		ASB		LD401		HD401		LD403		HD403	
	Day 3	Day 7	Day 3	Day 7	Day 3	Day 7	Day 3	Day 7	Day 3	Day 7	Day 3	Day 7
<i>Red blood cells</i>												
RBC	7.35 ± 0.33	7.90 ± 0.29	7.54 ± 0.19	7.92 ± 0.12	7.82 ± 0.16	8.03 ± 0.14	7.76 ± 0.22	8.21 ± 0.14	7.47 ± 0.09	8.24 ± 0.24	7.56 ± 0.09	7.94 ± 0.31
HGB	14.03 ± 0.58	14.92 ± 0.46	14.73 ± 0.36	15.23 ± 0.28	14.86 ± 0.29	15.56 ± 0.34	14.51 ± 0.44	15.73 ± 0.31	14.83 ± 0.14	15.73 ± 0.49	14.76 ± 0.22	15.13 ± 0.61
HCT	39.80 ± 1.73	40.93 ± 1.22	41.65 ± 1.01	41.66 ± 0.64	42.16 ± 0.88	42.79 ± 0.91	41.34 ± 1.16	43.30 ± 0.94	41.29 ± 0.35	43.91 ± 1.31	40.61 ± 0.69	42.78 ± 1.74
MCV	54.17 ± 0.47	52.67 ± 0.88	55.43 ± 0.43	53.00 ± 0.41	54.00 ± 0.89	52.50 ± 0.50	53.50 ± 0.43	53.00 ± 1.08	55.38 ± 0.49	53.00 ± 0.41	53.75 ± 0.41	53.75 ± 0.25
MCH	19.22 ± 0.12	19.17 ± 0.22	19.64 ± 0.18	19.28 ± 0.31	19.14 ± 0.29	19.18 ± 0.23	18.98 ± 0.06	19.08 ± 0.22	19.84 ± 0.25	19.08 ± 0.18	19.51 ± 0.12	19.18 ± 0.15
MCHC	35.40 ± 0.15	36.30 ± 0.15	35.36 ± 0.24	36.40 ± 0.28	35.32 ± 0.16	36.33 ± 0.33	35.60 ± 0.22	36.03 ± 0.39	35.90 ± 0.17	35.90 ± 0.09	36.34 ± 0.11*	35.70 ± 0.44
RDWcv	11.43 ± 0.39	14.10 ± 0.80	11.36 ± 0.06	13.80 ± 0.49	12.66 ± 0.70	14.00 ± 0.50	13.05 ± 0.47	13.63 ± 0.68	11.79 ± 0.56	13.43 ± 0.41	12.03 ± 0.46	12.98 ± 0.56
RDWsd	22.33 ± 0.61	26.67 ± 1.33	22.71 ± 0.18	26.25 ± 0.85	24.80 ± 1.24	26.50 ± 0.64	25.00 ± 0.68	25.75 ± 0.94	23.38 ± 0.99	25.75 ± 0.63	23.13 ± 0.74	25.00 ± 0.91
<i>Platelets</i>												
PLT	463.0 ± 183.5	704.0 ± 24.2	503.8 ± 75.7	615.4 ± 40.4	328.0 ± 49.1	533.6 ± 68.1	328.9 ± 69.5	696.7 ± 55.9	453.1 ± 109.2	603.3 ± 50.1	187.3 ± 49.5	619.6 ± 76.6
MPV	6.96 ± 0.69	6.72 ± 0.10	6.58 ± 0.10	6.56 ± 0.10	7.13 ± 0.09	6.61 ± 0.11	6.91 ± 0.10	6.70 ± 0.12	6.65 ± 0.21	6.50 ± 0.14	7.03 ± 0.27	6.51 ± 0.11
<i>White blood cells</i>												
WBC	8.90 ± 1.31	7.43 ± 0.88	9.28 ± 0.85	5.87 ± 0.42	7.51 ± 0.85	6.06 ± 0.43	7.42 ± 0.58	6.57 ± 0.58	7.55 ± 0.70	6.92 ± 0.65	8.34 ± 1.17	6.51 ± 0.46
NEU	21.84 ± 3.98	20.07 ± 3.87	26.49 ± 2.71	21.85 ± 4.61	24.83 ± 3.37	25.09 ± 4.74	22.01 ± 2.72	18.71 ± 3.81	23.85 ± 3.49	23.33 ± 3.39	25.37 ± 3.84	15.91 ± 2.52
LYM	74.80 ± 3.61	76.92 ± 3.96	67.24 ± 2.36	75.49 ± 4.72	66.73 ± 2.61	68.93 ± 4.49	71.56 ± 2.94	77.75 ± 3.71	73.20 ± 3.85	72.49 ± 3.38	70.80 ± 2.83	80.33 ± 2.51
MON	5.66 ± 1.25	2.42 ± 0.24	5.15 ± 0.97	2.22 ± 0.16	7.35 ± 0.90	2.94 ± 0.54	5.08 ± 0.73	3.00 ± 0.44	5.54 ± 0.94	3.36 ± 0.65	4.74 ± 0.54	3.15 ± 0.46

	0.87 ± 0.20	0.40 ± 0.28	0.73 ± 0.11	0.26 ± 0.06	0.48 ± 0.06	0.57 ± 0.15	0.93 ± 0.19	0.38 ± 0.14	0.55 ± 0.19	0.66 ± 0.19	0.91 ± 0.36	0.40 ± 0.17
EOS	0.13 ± 0.02	0.20 ± 0.03	0.12 ± 0.03	0.17 ± 0.02	0.23 ± 0.09	0.16 ± 0.02	0.15 ± 0.02	0.15 ± 0.02	0.10 ± 0.02	0.16 ± 0.04	0.18 ± 0.05	0.21 ± 0.03
BAS												

Abbreviations: red blood cell count (RBC, $\times 1.000.000/\text{mm}^3$), hemoglobin (HGB, g/dL), hematocrit (HCT, %), mean corpuscular volume (MCV, fL), mean corpuscular hemoglobin (MCH, pg), mean corpuscular hemoglobin concentration (MCHC, g/dL), red cell distribution width (RDW), platelet count (PLT, $\times 1.000/\text{mm}^3$), mean platelet volume (MPV, μm^3), white blood cell count (WBC, $\times 1.000/\text{mm}^3$), and neutrophils (NEU, %), lymphocytes (LYM, %), monocytes (MON, %), eosinophils (EOS, %) and basophils (BAS, %). *Significantly altered compared to PS80 (ANOVA/Bonferroni, $p < 0.05$). Data are shown as mean $\pm$ SEM (n = 6-8/group)

Supplementary Table 2 Hematology results of the study groups after 30 and 90 days of repeated MWCNT administrations

	PS80		ASB		LD401		HD401		LD403		HD403	
	Day 30	Day 90	Day 30	Day 90	Day 30	Day 90	Day 30	Day 90	Day 30	Day 90	Day 30	Day 90
<i>Red blood cells</i>												
RBC	7.61 ± 0.13	6.89 ± 0.42	7.64 ± 0.11	7.55 ± 0.26	7.13 ± 0.37	6.98 ± 0.50	7.97 ± 0.09	6.93 ± 0.44	8.07 ± 0.09	7.01 ± 0.40	7.82 ± 0.07	7.61 ± 0.26
HGB	14.69 ± 0.25	13.30 ± 0.88	15.06 ± 0.19	14.53 ± 0.43	13.79 ± 0.76	13.54 ± 0.97	15.26 ± 0.12	13.43 ± 0.83	15.84 ± 0.20	13.38 ± 0.77	15.10 ± 0.14	14.38 ± 0.53
HCT	40.93 ± 0.63	37.90 ± 2.37	41.95 ± 0.58	41.66 ± 1.23	39.29 ± 2.10	38.86 ± 2.75	43.36 ± 0.51	38.39 ± 2.28	45.00 ± 0.55	38.55 ± 2.08	43.20 ± 0.41	41.46 ± 1.43
MCV	54.14 ± 0.34	54.80 ± 0.37	54.86 ± 0.41	55.17 ± 0.40	55.00 ± 0.45	55.43 ± 0.43	56.00 ± 0.57	55.50 ± 0.84	55.50 ± 0.28	55.00 ± 0.57	55.43 ± 0.43	54.67 ± 0.56
MCH	19.33 ± 0.12	19.10 ± 0.07	19.81 ± 0.08	19.38 ± 0.21	19.27 ± 0.18	19.31 ± 0.12	19.37 ± 0.14	19.38 ± 0.24	19.55 ± 0.15	19.06 ± 0.24	19.34 ± 0.14	18.82 ± 0.19
MCHC	35.80 ± 0.24	34.86 ± 0.20	36.00 ± 0.11	34.95 ± 0.15	35.10 ± 0.22	34.69 ± 0.08	34.73 ± 0.55	34.89 ± 0.21	35.15 ± 0.14	34.61 ± 0.19	34.91 ± 0.21	34.42 ± 0.12

	13.39 ± 0.42	13.08 ± 1.04	12.83 ± 0.34	11.88 ± 0.17	12.93 ± 0.33	12.43 ± 0.26	12.63 ± 0.40	12.46 ± 0.42	11.70 ± 0.13	12.60 ± 0.39	12.47 ± 0.29	12.80 ± 0.37
RDWcv	25.71 ± 0.68	25.60 ± 1.96	25.29 ± 0.61	23.67 ± 0.21	25.67 ± 0.56	24.86 ± 0.41	25.33 ± 0.88	24.50 ± 0.63	23.50 ± 0.28	24.88 ± 0.58	24.86 ± 0.46	25.17 ± 0.70
RDWsd	<i>Platelets</i>											
	306.7 ± 104.0	525.0 ± 97.1	637.6 ± 38.7	552.7 ± 62.1	406.8 ± 124.0	465.3 ± 74.5	372.2 ± 140.0	687.6 ± 72.8	573.7 ± 66.9	556.3 ± 53.3	517.9 ± 79.5	537.1 ± 83.8
PLT	7.16 ± 0.20	6.70 ± 0.15	6.72 ± 0.11	7.17 ± 0.20	6.95 ± 0.24	6.97 ± 0.23	7.61 ± 0.64	6.68 ± 0.06	7.03 ± 0.18	6.71 ± 0.12	7.14 ± 0.19	6.87 ± 0.15
MPV	<i>White blood cells</i>											
	6.72 ± 0.72	5.73 ± 0.51	6.61 ± 0.50	5.51 ± 0.41	6.32 ± 0.44	6.20 ± 0.52	6.55 ± 0.79	6.05 ± 0.78	7.94 ± 0.48	6.46 ± 0.47	6.84 ± 0.32	6.81 ± 0.79
WBC	22.98 ± 2.54	32.61 ± 5.36	23.13 ± 3.37	25.58 ± 4.07	24.20 ± 5.65	25.90 ± 2.99	26.08 ± 4.83	21.00 ± 2.55	14.08 ± 0.91	20.80 ± 2.21	26.76 ± 3.37	20.23 ± 3.10
NEU	71.73 ± 2.72	63.13 ± 5.62	73.33 ± 3.46	66.33 ± 5.54	69.99 ± 5.28	70.05 ± 2.98	68.92 ± 4.79	74.86 ± 2.52	77.93 ± 2.51	74.81 ± 2.72	67.70 ± 3.37	75.71 ± 3.13
LYM	4.06 ± 0.86	2.78 ± 0.35	2.77 ± 0.30	3.83 ± 1.03	4.87 ± 1.09	2.86 ± 0.40	4.17 ± 0.50	3.38 ± 0.32	4.73 ± 0.81	3.24 ± 0.33	4.32 ± 0.55	3.24 ± 0.33
MON	0.97 ± 0.27	1.21 ± 0.32	0.62 ± 0.17	0.47 ± 0.19	0.44 ± 0.09	1.05 ± 0.43	0.70 ± 0.15	0.43 ± 0.14	0.54 ± 0.16	1.00 ± 0.53	1.03 ± 0.24	0.63 ± 0.16
EOS	0.26 ± 0.11	0.18 ± 0.05	0.15 ± 0.06	0.08 ± 0.01	0.11 ± 0.02	0.13 ± 0.07	0.13 ± 0.06	0.11 ± 0.02	0.14 ± 0.04	0.15 ± 0.04	0.17 ± 0.06	0.08 ± 0.02
BAS												

Abbreviations: red blood cell count (RBC, $\times 1.000.000/\text{mm}^3$), hemoglobin (HGB, g/dL), hematocrit (HCT, %), mean corpuscular volume (MCV, fL), mean corpuscular hemoglobin (MCH, pg), mean corpuscular hemoglobin concentration (MCHC, g/dL), red cell distribution width (RDW), platelet count (PLT, $\times 1.000/\text{mm}^3$), mean platelet volume (MPV, μm^3), white blood cell count (WBC, $\times 1.000/\text{mm}^3$), and neutrophils (NEU, %), lymphocytes (LYM, %), monocytes (MON, %), eosinophils (EOS, %) and basophils (BAS, %). Data are shown as mean $\pm$ SEM (n = 6-8/group)