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Supplemental Material

Nano-Scale Particulate Matter from Urban Traffic Rapidly Induces Oxidative Stress and Inflammation in Olfactory Epithelium with Concomitant Effects on Brain

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Figure S4. nPM in vivo exposure induced oxidative stress and inflammation in the OB. (A) TNFα mRNA transiently increased by 90% in OB after 20 h of cumulative nPM exposure vs. controls (n = 6 mice/group/time). TNFα protein was increased 60% after 45 h of total exposure. CD68 mRNA increased by 25% by 20 h and 45 h. (B) 4-HNE and 3-NT increased 50% by 45 h. (*; $p<0.05$; t-test).

Table S1. Primer sequences.

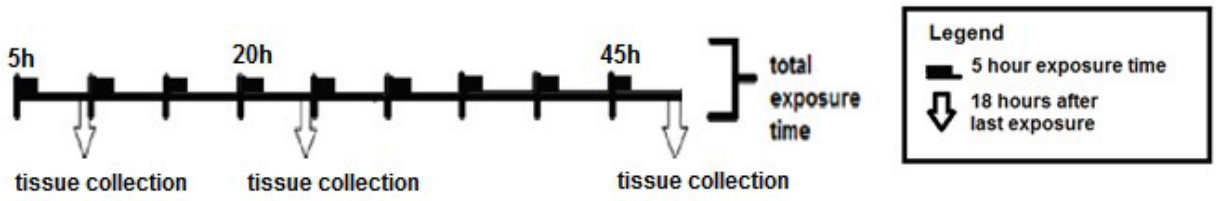


Figure S1. Time course of nPM exposure. Mice were exposed to re-aerosolized nPM (343 $\mu g/m^3$) for 5 h/day, 3 d/week for a total of 5, 20, and 45 cumulative hours. Tissues were collected 18 h after the last exposure.

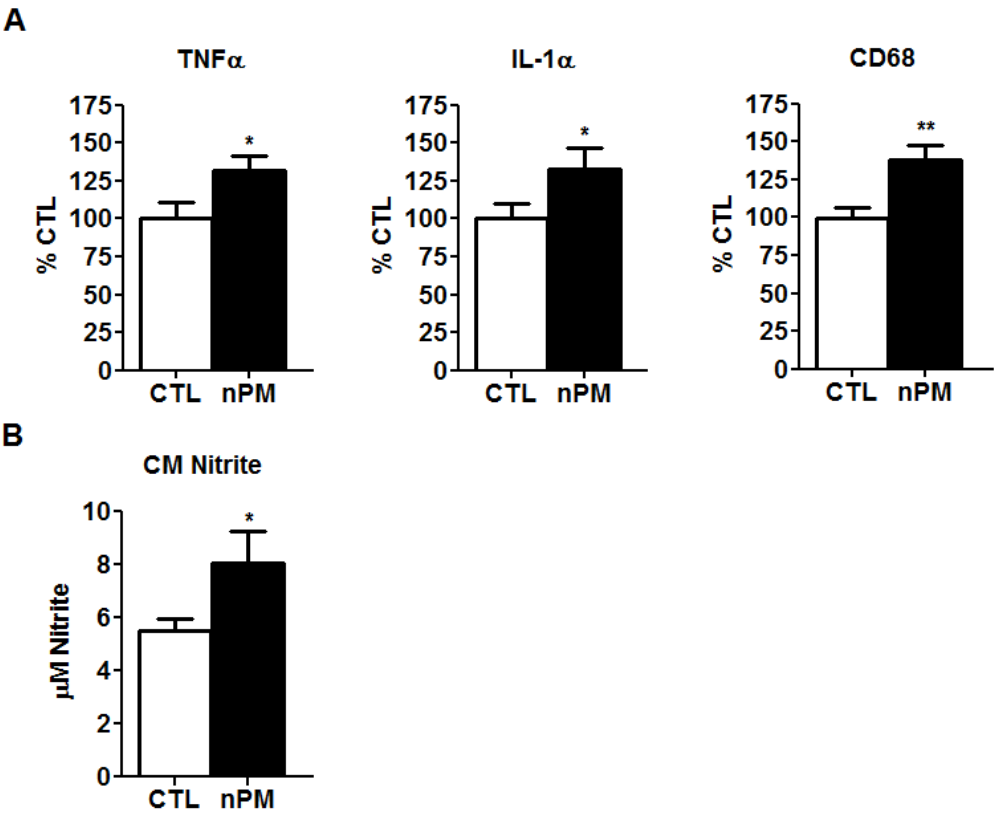


Figure S2. Ex vivo exposure to nPM rapidly induced inflammatory responses in OE. (A) Ex vivo treatment of OE for 2 h with 12 µg/ml nPM induced TNFα, IL-1α, and CD68 mRNAs by 30% (n = 8 noses/group); PCR CT range: TNFα 28-30, IL-1α 28-30, and CD68 24-26. (B) Nitrite in the ex vivo OE conditioned media (CM) increased 50%. (*; $p<0.05$; **; $p<0.01$; t-test)

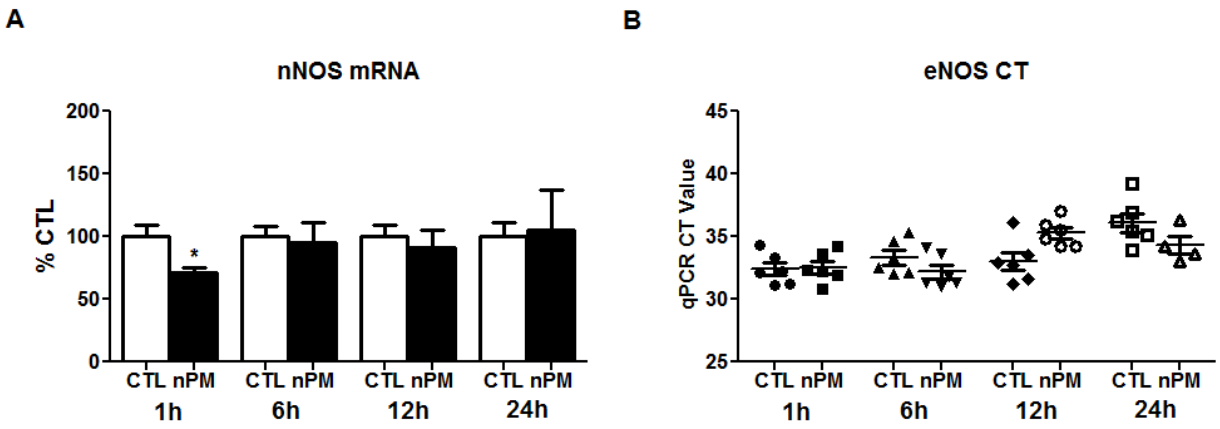
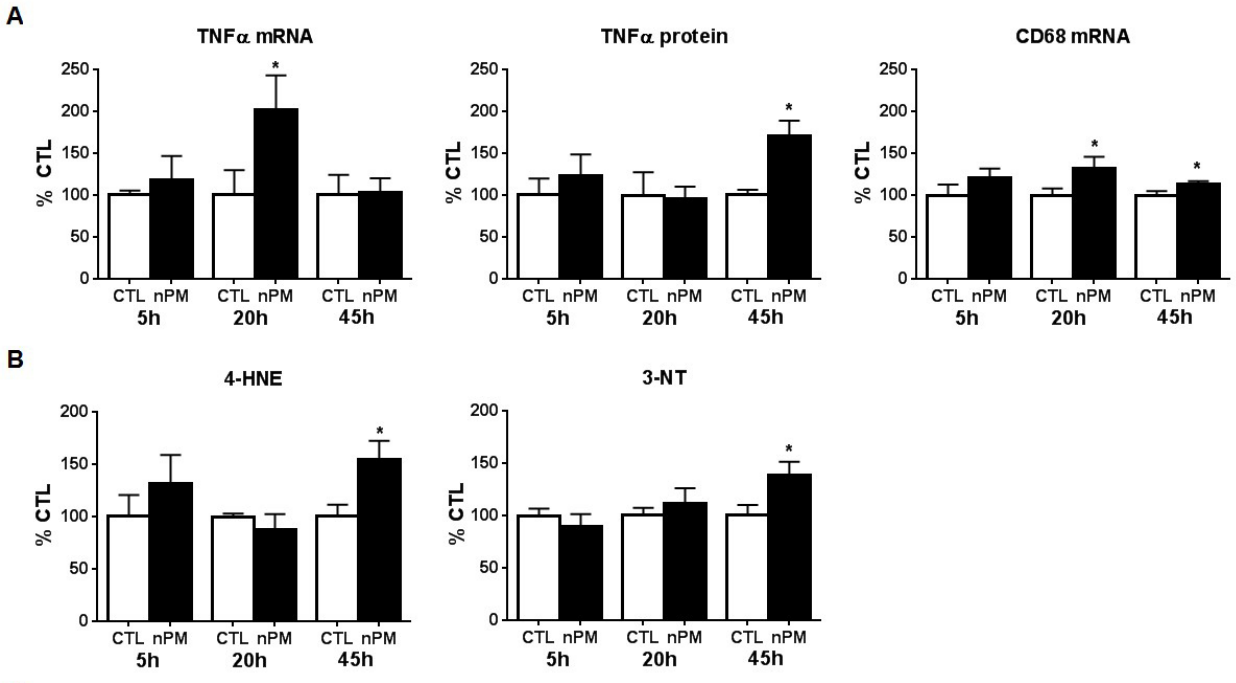


Figure S3. In vitro time course exposure to nPM did not induce nNOS or eNOS in cerebral cortex mixed glia. (A) nPM did not affect nNOS expression vs controls at any time except at 1 h, where nNOS was decreased 30%. (B) eNOS CT values were above reliable quantification (CT >30) at all times. Samples that did not yield melting curves were removed (n=6/group/time). (*; $p<0.05$; t-test).



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Gene	Forward (5' – 3')	Reverse (5' – 3')
r TNF α	CGTCAGCCGATTTGCTATCT	CGGACTCCGCAAAGTCTAAG
r IL-1 α	TCGGGAGGAGACGACTCTAA	GTGCACCCGACTTTGTTCTT
r CD68	TTCTGCTGTGGAAATGCAAG	AGAGGGGCTGGTAGGTTGAT
r iNOS	CATTGGAAGTGAAGCGTTTCG	CAGCTGGGCTGTACAAACCTT
r nNOS	GCCAAGACCCTGTGTGAGAT	AGCCGAATTTCTCCCCGTTC
r eNOS	GCAGTGGAAATTAACGTGGCT	GGCCTTCTGCTCATTTTCCAAG
r GAPDH	AGACAGCCGCATCTTCTTGT	CTTGCCGTGGGTAGAGTCAT
m TNF α	CGTCAGCCGATTTGCTATCT	CGGACTCCGCAAAGTCTAAG
m IL-1 α	TCGGGAGGAGACGACTCTAA	GTGCACCCGACTTTGTTCTT
m CD68	CCAATTCAGGGTGGAAGAAA	CTCGGGCTCTGATGTAGGTC
m GAPDH	CCAATGTGTCCGTCGTGGATCT	GTTGAAGTCGCAGGAGACAACC

m denotes mouse; r, rat

Table S1. Primer sequences.