# Chronic pulmonary exposure to traffic-related fine particulate matter causes brain impairment in adult rats

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**Table S1. Meteorological and gaseous data measured by the traffic-related EPA Yonghe air quality monitoring stations during the study period**

|  |  |
| --- | --- |
| Meteorological and gaseous data (unit) | Mean ± SD (Min~Max) |
| Temperature (°C) | 20 ± 4 (12~29) |
| Relative humidity (%) | 72 ± 9 (47~92) |
| NOx (ppb) | 32.9 ± 16.4 (8.4~86.6) |
| SO2 (ppb) | 2.5 ± 1.0 (0.2~5.0) |
| O3 (ppb) | 29.7 ± 11.0 (6.7~58.2) |

NOx: nitrogen oxides; SO2: sulfur dioxide; O3: ozone.

**Table S2. Instruments used to characterize the exposure conditions for rats**

|  |  |  |  |
| --- | --- | --- | --- |
| Instrument | Pollutant (unit) | Flow rate (lpm) | Time resolution |
| TEOM, Thermo Scientific 1400a | PM1 (µg/m3) | 3 | 5 min |
| SMPS, TSI 3080 | PNC (#/cm3) | 0.6 | 5 min |
| APS, TSI 3321 | PNC (#/cm3) | 5 | 5 min |
| NSAM, TSI 3550 | LDSA(µm2/cm3) | 2.5 | 5 min |
| Magee, AE-33 | BC (ng/m3) | 5 | 1 min |
| AIO Weather, Climatronics | RH (%)Temperature (oC) | ̶ | 1s |

TEOM: tapered element oscillating microbalance; SMPS: scanning mobility particle sizer; APS: aerodynamic particle sizer; NSAM: nanoparticle surface area monitor; AE: Aethalometer; PM1: particulate matter less than 1 μm in aerodynamic diameter; PNC: particle number concentration; LDSA: lung deposition surface area; BC: black carbon; RH: relative humidity.



**Figure S1. Characterization of particle size and penetration distribution (between outdoor and whole-body exposure system) determined using a scanning mobility particle sizer (SMPS, TSI 3936; upper size limit: 710 nm). (a) The exposure cages (yellow marked: 1-1, 1-3, 1-5, 2-3, 3-1, 3-3 and 3-5) were measured for size-penetration distribution. (b) The individual cage for animal exposure showed a consistent size-penetration distribution. The geometric mean diameter (GMD) was 50 nm.**