

1 **Supplementary data of TX-ART-12-2018-000333.R1**

2 **Figures**

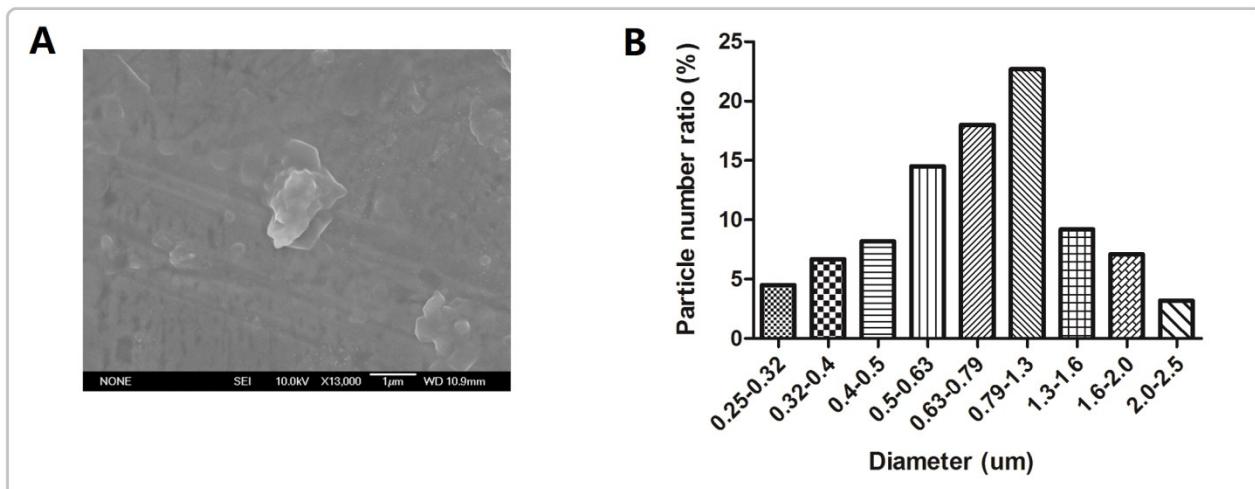


Fig.S1. (A) Morphological characteristics of PM2.5 (SEM). (B) Particle diameter distribution

5

6 **Tables**

7 **Table S1. Concentration (mg/Kg) of elements in PM2.5**

| Element | Concentration | Element | Concentration |
|---------|--------------------|---------|--------------------|
| Al | 2.09×10^3 | As | 738 |
| Cr | 4.36 | Cu | 7.40 |
| Fe | 1.35×10^3 | Mn | 42.4 |
| Ni | 0.934 | Pb | 8.25 |
| Sb | 16.9 | Zn | 4.08×10^3 |
| Ca | 1.67×10^4 | K | 1.94×10^3 |
| Mg | 5.28×10^3 | Na | 5.72×10^3 |
| Si | 4.23×10^4 | Cd | ---- |
| OC | 1.17×10^5 | EC | 1.35×10^4 |

8 EC: element carbon; OC: organic carbon.

9

10

11

12

13

14

Table S2. Concentration (mg/Kg) of water soluble components in PM2.5

| Element | Concentration | Element | Concentration |
|------------------------------|---------------|-------------------------------|----------------------|
| Cl ⁻ | 552 | SO ₄ ²⁻ | 1.25×10 ⁴ |
| NO ₃ ⁻ | 386 | NH ₄ ⁺ | 646 |

15

16

Table S3. Concentration (mg/Kg) of PAHs in PM2.5

| Element | Concentration | Element | Concentration |
|------------------------|---------------|------------------------|---------------|
| Naphthalene | 0.076 | Acenaphthylene | ---- |
| Acenaphthene | ---- | Fluorene | 0.017 |
| Phenanthrene | 0.47 | Anthracene | 0.014 |
| Fluoranthene | 1.43 | Pyrene | 1.28 |
| Benzo [a] anthracene | 16.9 | Chrysene | 0.818 |
| Benzo [a] pyrene | 0.463 | Benzo [k] fluoranthene | 0.164 |
| Benzo [b] fluoranthene | 0.157 | Dibenzo[a,h]anthracene | 0.088 |
| Benzo[g,h,i]perylene | 0.325 | Indeno[1,2,3-cd]pyrene | 0.10 |

17

18

Table S4. The number of cerebral

| Group (mg/Kg/day) | Cell number (Mean±SD) | P value |
|----------------------|--------------------------|---------|
| Control | 180.67±25.56 | |
| 0.193 | 185±23.11 | |
| 1.93 | 159.5±13.13 | |
| 19.3 | 144.67±27.26 (*) | <0.05 |
| PM2.5+Vit E | 181±24.56 (#) | <0.05 |

19 * p < 0.05, compared with the control group. # p < 0.05, compared with the 19.3 mg/Kg/day PM2.5

20 exposure group

21

22

Table S5. The average optical density (OD) of A β ₁₋₄₂, Iba1, GFAP

| Group (mg/Kg/day) | A β ₁₋₄₂ | | Iba1 | | GFAP | |
|----------------------|-----------------------------|-----------------------------|---------------------------------------|-----------------------------|-----------------------|---------------------------|
| | HIS | IF | HIS | IF | HIS | IF |
| Control | 0.0015±2.174E ⁻⁴ | 0.0018±6.850E ⁻⁵ | 0.0012±3.738E ⁻⁴ | 0.0016±1.554E ⁻⁴ | 0.0786±0.0092 | 0.0157±0.0024 |
| 0.193 | 0.0019±3.670E ⁻⁴ | 0.0019±7.394E ⁻⁵ | 0.0012±2.475E ⁻⁴ | 0.0016±1.346E ⁻⁴ | 0.0854±0.0094 | 0.0163±0.0014 |
| 1.93 | 0.0216±0.0073(**) | 0.0305±0.0021(**) | 0.0528±0.0082(**) | 0.0024±0.0029(**) | 0.1001±0.0184(*) | 0.0195±0.0023(*) |
| 19.3 | 0.0313±0.0062(**) | 0.0341±0.0036(**) | 0.1176±0.0221(**) | 0.0481±0.0092(**) | 0.1064±0.0147(**) | 0.0274±0.0045(**) |
| PM2.5+Vit E | 0.0159±0.0019 (**, ##) | 0.0156±0.0017 (**, ##) | 0.086±5.631E ⁻⁴ (**, #) | 0.0198±0.007 (**, ##) | 0.0865±0.0089 (##) | 0.0205±0.0036 (**, ##) |

24 * $p < 0.05$, ** $p < 0.01$, compared with the control group. # $p < 0.05$, ## $p < 0.01$, compared with the 19.3 mg/Kg/day PM2.5 exposure group