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# Maternal Particulate Matter Exposure Impairs Lung Health and Is Associated with Mitochondrial Damage

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## Supplementary Materials


**Figure S1**: The body weight of male offspring at 13 weeks. Results are expressed as mean ± SEM and were analysed by one-way ANOVA followed by Fisher's LSD post hoc tests. $n$ = 10. PM2.5: maternal PM2.5 exposure prior to mating for 6 weeks, during gestation and lactation. Pre-exposure: maternal exposed to PM2.5 for 6 weeks prior to mating.

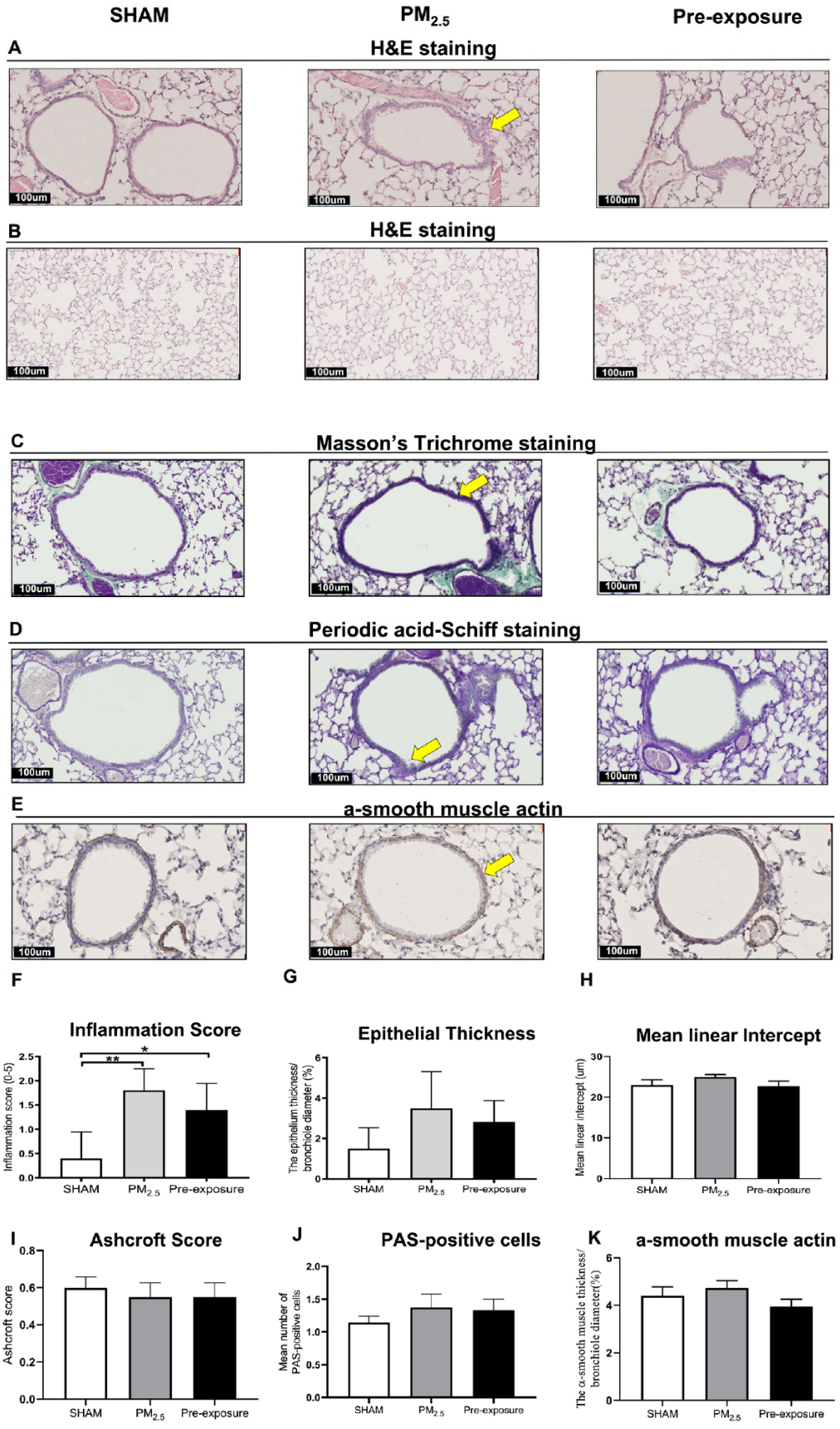


**Figure S2.** Maternal PM2.5 exposure increased inflammation in the male offspring at 13 weeks. Representative images of lung sections stained with (A) H&E staining of the airway (yellow arrow point at immune cells) and (B) parenchyma; (C) Masson's trichrome staining (yellow arrow point at collagen), (D) Periodic acid-Schiff staining (yellow arrow point at

goblet cells), and (E) α-smooth muscle actin (yellow arrow point at α-smooth muscle actin). Quantitative results of (F) inflammation score, (G) epithelial thickness, (H) mean linear intercept, (I) Ashcroft score, (J) PAS-positive cells and (K) α-smooth muscle actin. Data were analysed by one-way ANOVA followed by Fisher's LSD. N=8. *$p < 0.05$, **$p < 0.01$. $PM_{2.5}$: dams exposed to $PM_{2.5}$ (5μg/day) prior to mating for 6 weeks, during gestation and lactation. Pre-exposure : dams exposed to $PM_{2.5}$ for only 6 weeks prior to mating.

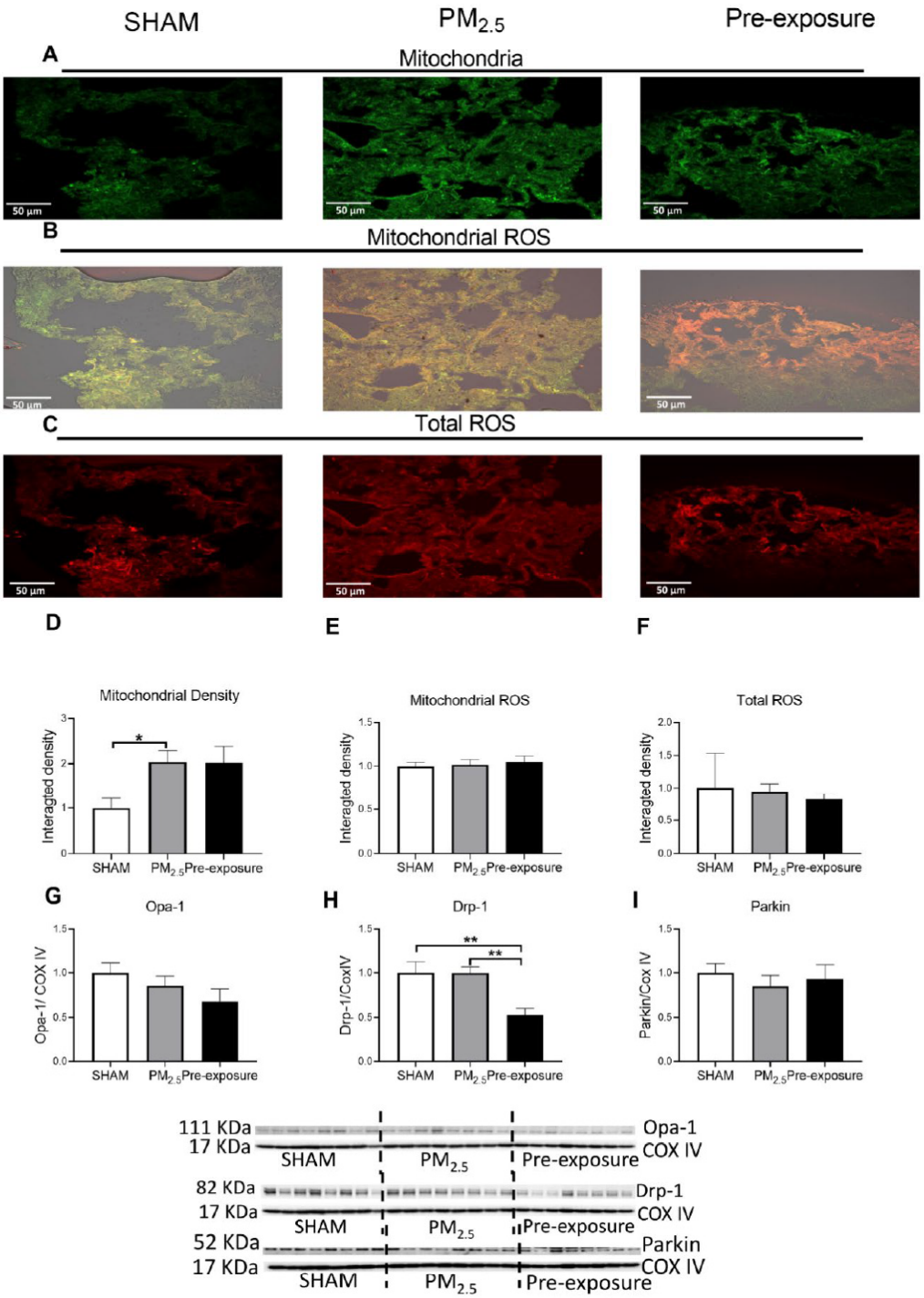


**Figure S3.** Maternal PM2.5 exposure changed mitochondrial density in the male offspring at 13 weeks. Representative images of (A) mitochondria (green), (B) mitochondrial specific ROS (orange), and (C) total ROS staining (red) and (D-F) quantitative results. Protein levels of (G) Opa-1, (H) Drp-1 and (I) Parkin. Data were analysed by one-way ANOVA followed by Fisher's LSD post hoc tests. *$p < 0.05$, **$p < 0.01$. N=5 in mitochondrial fluorescence staining, N=8 in western blot. Drp-1, dynamin-related protein; Opa-1, optic atrophy-1; $PM_{2.5}$: dams exposed to $PM_{2.5}$ (5μg/day) prior to mating for 6 weeks, during gestation and lactation. Pre-exposure: dams exposed to $PM_{2.5}$ for 6 weeks prior to mating.

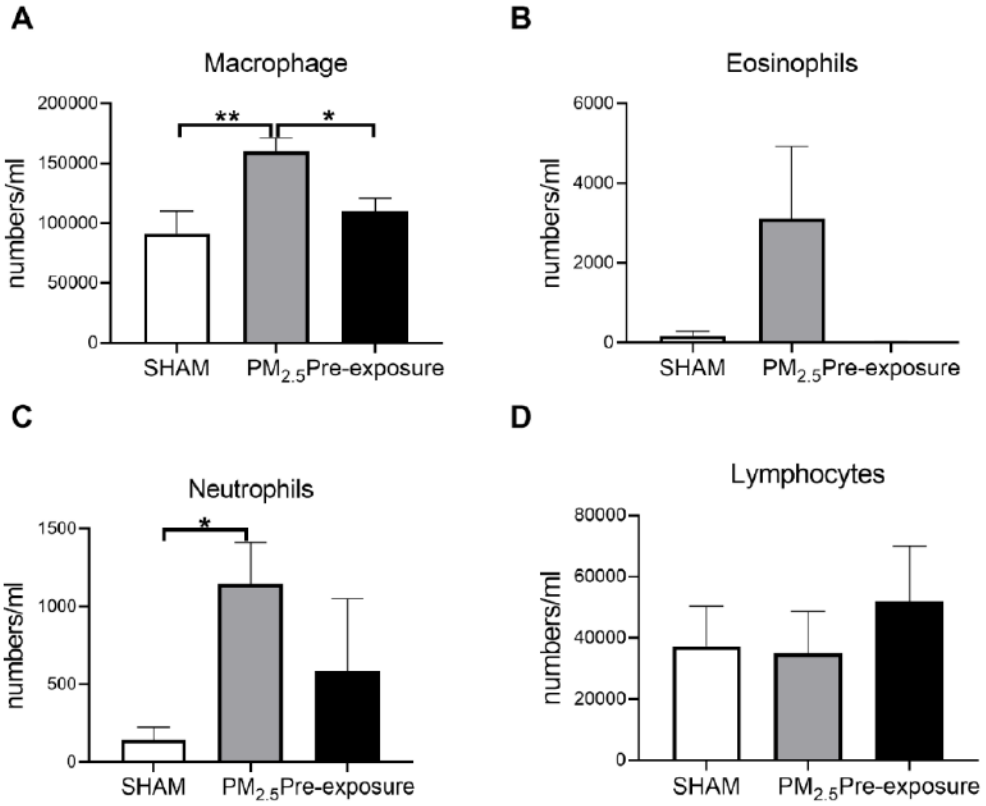


**Figure S4.** The leukocyte numbers in the male offspring at 13 weeks. The number of (A) macrophages, (B) eosinophils, (C) neutrophils and (D) lymphocytes in the male offspring. Results are expressed as means ± SEM. Data were analysed by one-way ANOVA followed by Fisher's LSD post hoc tests. N=8. *$p < 0.05$, **$p < 0.01$. $PM_{2.5}$: dams exposed to $PM_{2.5}$ (5µg/day) prior to mating for 6 weeks, during gestation and lactation. Pre-exposure: dams exposed to $PM_{2.5}$ for only 6 weeks prior to mating.