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Estrogen Deficiency Promotes Cigarette Smoke-Induced Changes in the Extracellular Matrix in the Lungs of Aging Female Mice

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2 the Lungs of Aging Female Mice

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15 **Short running title:** Estrogen deficiency, age, and cigarette smoke

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17 **Abbreviations:** CS – cigarette smoke; E<sub>2</sub> - 17 $\beta$ -estradiol; NCS – no smoke control; ROS – reactive  
18 oxygen species; MMP – matrix metalloproteinases; COPD – chronic obstructive pulmonary disease;  
19 FEV<sub>1</sub> – forced expiratory volume in 1 second; TIMP – tissue inhibitor of metalloproteinases; ECM –  
20 extracellular matrix; ER – estrogen receptor; pla – placebo; TSP – total suspended particulate; CO –  
21 carbon monoxide; ELISA – enzyme-linked immunosorbent assay; HCl – hydrochloric acid; SDS -  
22 sodium dodecyl sulfate; BCA - bicinchoninic acid; PBS – phosphate-buffered saline; CML - N( $\epsilon$ )-  
23 carboxy methyl lysine; TUNEL - terminal deoxynucleotidyl transferase-mediated dUTP nick-end  
24 labeling; DAPI - 4',6-diamidino-2-phenylindole; ANOVA – analysis of variance; MCP-1 - monocyte

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