

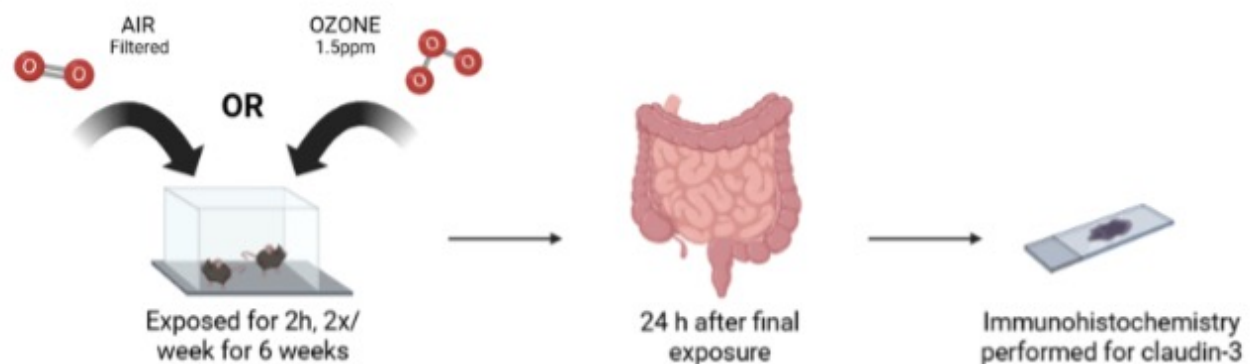
The Effects of Prolonged Ozone Exposure on Intestinal Tight Junction Protein Expression

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Ozone is an urban air pollutant known to induce pulmonary injury, oxidative stress, and systemic inflammation. Increases in circulating inflammatory molecules following ozone inhalation have been linked to intestinal epithelial barrier disruption and gastrointestinal distress. Tight junction proteins, specifically claudins, are located between intestinal endothelial and epithelial cells and are important mediators of intestinal permeability and health. Disruption of these tight junction proteins is associated with gastrointestinal diseases. However, little is known regarding the effects of prolonged ozone exposure on intestinal tight junction protein expression and thus represent the focus of these studies. Wild type C57BL/6J male and female mice were exposed to filtered air or ozone for 2 h, 2x/wk, for 6 wks in whole body exposure chambers; intestinal samples were collected 24 h after the final exposure. Ileum and colon tissues were fixed in a 3% paraformaldehyde 2% sucrose solution, paraffin-embedded, and sectioned for claudin-3 using immunohistochemistry. Stained slides were scanned on a VS-120 microscope, and images were evaluated using Olympus software. Following prolonged ozone exposure, no visible differences in claudin-3 expression were identified in the ileum or colon of male or female mice to air-exposed animals. Future studies will assess other tight junction proteins, such as zonulins and occludins, to better understand the impact of ozone on the intestinal epithelial barrier. Funding was supported by NIH R25ES020721

Methods



Mechanisms

