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ENHANCEMENT OF OZONE-INDUCED LUNG LESIONS BY ACIDIC AEROSOLS IN THE RAT. Michael T. Kleinman*, William J. Mautz*, Thomas McClure*, Robert F. Phalen and T. Timothy Crocker*. UCI, Irvine, Ca. 92717

Sprague-Dawley rats were exposed to clean air, ozone (0.6 and 0.8 ppm), and to an aged (30 minutes) complex mixture with and without ozone (0.6 ppm); the mixture contained sulfur dioxide (5 ppm) and sulfuric acid aerosol (1 mg/m^3) to which manganese sulfate (0.02 mg/m^3) and ferric sulfate (1.2 mg/m^3) were added as catalytic agents. Exposures were conducted with animals at rest and while the rats exercised on a specially designed treadmill. Lungs were removed, fixed, stained and scored for the percent of lung area involved in focal lesions (typical of ozone-induced lung damage). Neither clean air exposure nor complex aerosol exposure in the absence of ozone produced lesion counts detectable above normal background levels. Ozone induced lesions which were observed in rats exposed at rest; exercise significantly increased lesion areas at a given exposure level. The complex mixture significantly enhanced the effect of ozone both in resting and exercising animals. The apparent enhancement might be due to changes in ozone dose distribution or possibly to formation of additional toxins in the aged, complex mixture. (Funded by Electric Power Research Institute Contract No. RP-1962-1 and Southern California Edison Contract No. C-1022901.)