

SCE and CA Frequencies in Peripheral Blood Lymphocytes and
Pulmonary Macrophages in Rats Exposed 21-Days to Sidestream
Cigarette Smoke

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Adult male Sprague Dawley rats were exposed head-only to 2 different concentrations (60 and 130 micrograms total particulate matter/liter) of sidestream (SS) cigarette smoke on 21 consecutive days for 7 hours daily. To investigate systemic and local genotoxic effects of SS in rats, 20 hours after the last daily inhalation blood lymphocytes and pulmonary macrophages were sampled for in vitro analyses of SCE and CA frequencies (SCE or CA per metaphase). Cyclophosphamide treatment (8 milligram/kilogram body weight, positive control) evoked statistically significantly elevated SCE and CA frequencies in lymphocytes (SCE: 29.9 ± 1.2 , N = 12 rats, CA: 0.214 ± 0.020 , N = 12 rats) as compared to sham-exposed negative control rats (SCE: 9.1 ± 0.5 , N = 20 rats, CA: 0.069 ± 0.008 , N = 20 rats). SS exposure influenced neither SCE nor CA frequencies in lymphocytes. In pulmonary macrophages (cells lavaged from 2 to 4 rats pooled) a statistical significant trend of elevated SCE frequencies with unknown biological significance was observed after SS smoke exposure (negative control: 5.9 ± 0.3 , low and high SS concentrations: 8.1 ± 0.7 and 8.5 ± 1.7 respectively, N = 3 or 4 pools). The CA frequency in pulmonary macrophages was not affected by SS smoke exposure.

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