

THE EFFECTS OF TOBACCO SMOKE AND TOBACCO SMOKE
CONDENSATE ON THE ANIMAL LUNG AND LUNG TISSUES

Because bronchogenic carcinoma can be produced in animals by other means, failure to induce the lesion in animals exposed to tobacco smoke is not due to any inherent refractoriness of the animal lung tissues to develop this type of tumour. Nor is failure due to tobacco smoke constituents not being absorbed by the tissues of the respiratory tract because there is no doubt that the contact time with the aerosol is long enough to allow smoke constituents to be incorporated into the cells of the bronchial epithelium. The rate of absorption of tobacco smoke into the tissues has been measured by following the distribution and rate of disappearance of fluorescence in the mouse, guinea pig and monkey⁷⁰ and fluorescence microscopy has been used in the same way¹⁷⁹ to show that smoke constituents are undoubtedly absorbed permanently by the cells of the bronchial mucosa. Fluorescent material from inhaled cigarette smoke has been found to be retained by the pulmonary macrophages²⁹¹ and a direct positive proportional relationship was found between the number of cigarettes smoked per week, the intensity of fluorescence in the cells and the number of fluorescent macrophages present in the average field of a sputum smear. Absorption of cigarette smoke by the pulmonary tissues of rabbits was demonstrated with smoke from cigarettes labelled with $As^{74,125}$.

100159077

REFERENCES

- 70 ERMALA, P. and HOLSTI, L.R. Distribution and absorption of tobacco tar in the organs of the respiratory tract. CANCER, N.Y., 1955, 8, 673-678.
- 179 MELLORS, R.C. Microscopic localization of tobacco smoke products in the respiratory tracts of animals exposed to cigarette smoke. PROC. AMER. ASS. CANCER RES., 1958, 2 (4), 325.
- 291 VASSAR, P.S., et al. Fluorescent histiocytes in sputum related to smoking. ARCH. PATH., 1960, 70, 649-652.
- 74 ESSENBERG, J.W., et al. Possible carcinogenic agent in cigarettes. PROC. AMER. ASS. CANCER RES., 1955, 2, 14-15.
- 125 HOLLAND, R.H., et al. The effect of cigarette smoke on the respiratory system of the rabbit. A preliminary report. CANCER, N.Y., 1958, 11 (4), 709-712.

100159073