LUNG TUMORS IN MICE RECEIVING DIFFERENT SCHEDULES OF URETHANE

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1. Introduction

Among the more common neoplastic reactions observed in the mouse is the primary pulmonary tumor. It was first described in 1896. (References to specific papers before 1955 are to be found in the review by Shimkin [12]). Autopsies performed by Wells, Slye and Holmes on 147,132 mice uncovered pulmonary tumors in 2,865, or two per cent, of which 104 had metastasized.

The mouse became a favorite experimental animal in cancer research through the efforts of geneticists, who developed many homozygous strains with a wide variety of neoplastic as well as other characteristics. No specific attempt was made to develop strains of high and low susceptibility to pulmonary tumors, but this phenotypic expression did become markedly segregated. Thus, there are strains such as A, in which almost all animals develop pulmonary tumors by 2 years of age, and strains such as C57 black, in which the occurrence of pulmonary tumors is a rarity. This rich material provided Heston with the opportunity of conducting his detailed studies on the relationship of genotypes to pulmonary tumors in mice. Recently, a single recessive major gene (*ptr*) conferring low susceptibility has been reported [3].

The induction of pulmonary tumors by exogenous carcinogens was first achieved by repeated applications of tar to the skin. The susceptibility to induced tumors was shown to parallel the spontaneous occurrence of the neoplasms; that is, induced tumors appeared most readily in strains that had the highest susceptibility to spontaneous pulmonary tumors.

Andervont in 1935 began his extensive studies on pulmonary tumors in mice, and showed that this reaction could be used as a test medium for a wide variety of chemical carcinogens. The number of tumor nodules observed on the lung

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