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THE ROLE OF N-SULFATION IN THE PROMOTION PHASE OF CARCINOGENESIS BY N-HYDROXY-2-ACETYLAMINOFUROENE IN MALE RAT LIVER.

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The liver is one of the organs in the male rat that is highly susceptible to the carcinogetic action of N-hydroxy-2-acetylaminofluorene (N-OH-AAF). A major route for the formation of reactive intermediates and macromolecular adducts from the carcinogen is N-sulfonation through sulfo-
transferases. The role of this N-sulfation in the promotion phase of carcinogenesis by N-OH-AAF was the objective of this study. We used an initiation-promotion (selection) model for tumor-induction as originally developed by Roberts and colleagues (1). This model consists of treatment with diethylaminoethane (single dose; initiation) followed by N-OH-AAF (several doses) coupled with partial hepatectomy (promotion/selection). The focal liver cell populations (foci), which are the first aberrant cells that appear with this treatment are considered to be preneoplastic lesions and can be detected by γ-glutamyl-
transpeptidase staining (GTT). The effects of inhibition of sulfo-
transferase activity towards N-OH-AAF with pentachlorophenol (PCP) (2), during N-OH-AAF treatment on the number and volume of GTT foci was investigated. PCP treatment during promotion with N-OH-AAF reduced the volume occupied by GTT -cells by 55%, without significantly affecting the number of GTT -foci found per cubic cm. In the theoretical model developed by Roberts et al., that promotion (selection) by N-OH-AAF of initiated cells depends for a large part on the sulfo-
transferase pathway.


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