

"For the experimental investigation of the elutable trace-metal concept of asbestotic carcinogenesis, we added synthetic chrysotile to solutions of various metallic salts such as nickel chloride, chromic chloride, cobaltic chloride, and potassium permanganate. During constant stirring, a proper reagent was added to each of these solutions in turn so as to precipitate an insoluble compound of each of these metals. The sediment, consisting of amorphous precipitate and of the insoluble metallic compound bound to the synthetic chrysotile, was washed free of unreacted chemicals. Standardized suspensions of these materials were injected intratracheally into rats.

"Other rats were injected intratracheally with oxides of nickel, chromium, manganese, and cobalt, alone and in combination, with and without added benzopyrene. Added groups of rats were similarly injected with suspensions of talc with a naturally high nickel content and talc with a naturally low nickel content, respectively. All of these animals were allowed to live out their lives but no lung cancer developed in any of them.

"In retrospect, we believe that the main reasons for the negative results were the insolubility of the metallic additives, as well as insufficient dosage. We are continuing this study, using finely divided pure metals and more soluble compounds of these metals.

"Following intrapleural injections of chrysotile dust into hamsters, we obtained several undifferentiated cellular tumors without glandular components. These tumors were classified as undifferentiated sarcomas.

"Intra-abdominal injections of chrysotile dust into rats resulted in the formation of generalized, highly vascular granulations from which extensive bleeding occurred and many animals died of intra-abdominal hemorrhage. Many of the peritoneal bleeding granulations proved to be acellular, fibrous tumor tissue very similar to that comprising the subcutaneous fibrosarcomas so common to this animal species. Because of this similarity and the absence of any epithelial tissue components, these tumors were classified as fibrosarcomas. In one of these tumors, extensive bone formation was present.

"It seems, therefore, that although much work has been done attempting to explain the mechanism of experimental asbestotic carcinogenesis, no definitive results can be reported at this time."

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