Carcinogenesis and their characteristics
The potential implications of the stages of carcinogenesis in animals and the human was reviewed. The analogies between the stages of initiation and promotion in rodent hepatic carcinogenesis and epidermal carcinogenesis were compared. The potential implications of the stages of carcinogenesis and their characteristics to human risk were explored. [The SC/@ indites]

The evidence for and the characteristics of the stages of initiation and promotion in hepatic carcinoma had been recognized by several laboratories, notably that induced enzyme-altered focal lesions, which was completely analogous in format to the earlier studies in multistage epidermal carcinogenesis in the mouse as a model, a number of other models of multistage hepatic carcinogenesis in the rodent were published. Thus, at the invitation of the editor of Biochimica et Biophysica Acta, we reviewed the evidence for the multistage nature of neoplastic development in rodent liver to that time. This review included references to the evidence for the multistage nature of carcinogenesis in several other organs and tissues in the experimental animal, alluding to a similar multistage nature of cancer in the human. In addition, the first efforts at comparison of the multistage nature of neoplastic development in murine liver and mouse skin was presented, demonstrating that the similarities far outweighed the differences in this process in the two different tissues of two different species. The importance of the spontaneous initiation of the carcinogenic process in the absence of exogenous experimental carcinogenic influences was also emphasized for the first time in the oncologic literature.

In reference to this review, it is of interest that, during the 1980s, our knowledge of the mechanisms and the characteristics of multistage carcinogenesis in a variety of different tissues has expanded dramatically. Furthermore, more important are the potential practical applications of a knowledge of the characteristics of multistage nature of carcinogenesis, initiation, promotion, and, as newly defined, progression. The relationship of the genetic characteristics of neoplastic development to this multistage nature of carcinogenesis has placed our understanding of cancer in a much more defined light. The reversible nature of the intermediate stage of promotion which is likely important in the development of the more common types of human cancer, is critical to the rational development of effective methods for cancer prevention in the human. In all, as our understanding of the multistage nature of cancer development increases and the action of specific agents (chemical, physical, biologic, and genetic) at each of these stages becomes defined, our ability to prevent, diagnose, and ultimately control cancer as a disease in the human is being greatly enhanced.


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