

Mechanisms and Prevention of Environmentally Caused Cancers

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Environmental factors, whether natural, such as radon, or man-made, such as chlorinated water, are thought to play an important role in the etiology of human cancers. The purpose of this monograph is to promote the exchange of information between scientists interested in the basic mechanisms of environmentally caused cancer and investigators focusing on preventing cancer development with chemointervention strategies.

Ames provides the theme in his article, which discusses the interrelationship between environmental insults with aging and cancer. Other papers deal with functional significance of oncogenes and tumor suppressor genes, their implications for therapy, and whether they could be used as biomarkers for molecular epidemiology and human risk assessment. Other potential biomarkers of exposure or cancer risk such as numerical chromosomal changes, altered gene methylation, metabolic and DNA adducts, and mutational spectra, are described. The role of ethnicity, gender, genetic susceptibility, and species differences and similarities are related to problems in cancer risk estimates. Environmental exposures to ionizing radiation, mycotoxins, urban

genotoxicants, and chlorinated water products and their potential for inducing cancer are also reported, as is the role of environmental factors in the development of breast cancer. The prospects and progress of clinical chemoprevention trials are reported, as are the role and significance of agents such as polyphenols, monoterpenes, phenethylisothiocyanate, retinoids, and dietary restriction in reducing the incidence of human cancers.

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