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metabolism; 2.5.4 DNA repair; 2.5.5 Cell cycle control
2.5.6 Immune status2.6 New tools in molecular epidemiology; 2.6.1 Microarrays and toxicogenomics; 2.6.2 Proteomics; 2.6.3 Promising directions for cancer diagnosis and cancer biomarker discovery; 2.7 Conclusions; 3. Genetic Polymorphisms in Metabolising Enzymes as Lung Cancer Risk Factors; 3.1 Introduction; 3.1.1 Studies investigating genetic polymorphisms as lung cancer risk factors; 3.2 Methodological aspects; 3.2.1 Planning of the study; 3.2.2 Laboratory analyses; 3.2.3 Statistical analyses; 3.3 Examples; 3.3.1 N-Acetyltransferases (NAT1 and NAT2) and lung cancer risk
3.3.2 Glutathione-S-transferases and lung cancer risk3.3.3 Myeloperoxidase and lung cancer risk; 3.3.4 CYP3A4 and CYP3A5 and lung cancer risk; 3.4 Discussion; Acknowledgements; 4. Biological Carcinogenesis: Theories and Models; 4.1 Introduction; 4.2 Models of human carcinogenesis; 4.2.1 Prostate cancer; 4.2.2 Colorectal cancer; 4.2.3 Endometrial cancer; 4.3 The multistage mouse skin carcinogenesis model; 4.4 Epilogue; 5. Biological and Mathematical Aspects of Multistage Carcinogenesis; 5.1 Introduction; 5.2 Features of multistage carcinogenesis; 5.2.1 Colorectal cancer
5.2.2 The role of genomic instability in colon cancer5.2.3 Barrett's esophagus; 5.2.4 Intermediate lesions; 5.3 Generalized TSCE model; 5.3.1 Model building; 5.3.2 Mathematical development and the hazard function; 5.4 Modeling cancer incidence; 5.4.1 Age-cohort-period models; 5.4.2 Age-specific incidence; 5.4.3 Colorectal cancer in the SEER registry; 5.4.4 Analysis of occupational cohort data; 5.5 Summary; 6. Risk Assessment and Chemical and Radiation Hormesis: A Short Commentary and Bibliographic Review; 6.1 Introduction; 6.2 The concept of hormesis; 6.3 Chemical hormesis
6.3.1 The -shaped and -shaped dose-response curve

Sommario/riassunto

Human health risk assessment involves the measuring of risk of exposure to disease, with a view to improving disease prevention. Mathematical, biological, statistical, and computational methods play a key role in exposure assessment, hazard assessment and identification, and dose-response modelling. Recent Advances in Quantitative Methods in Cancer and Human Health Risk Assessment is a comprehensive text that accounts for the wealth of new biological data as well as new biological, toxicological, and medical approaches adopted in risk assessment. It provides an authoritative compendiu