

1. Record Nr.	UNINA9911019647203321
Titolo	Recent advances in quantitative methods for cancer and human health risk assessment / / edited by Lutz Edler, Christos P. Kitsos
Pubbl/distr/stampa	Chichester, England ; ; Hoboken, N.J., : J. Wiley, c2005
ISBN	9786610287758 9781280287756 1280287756 9780470300084 0470300086 9780470857700 0470857706 9780470857663 0470857668
Descrizione fisica	1 online resource (504 p.)
Collana	Wiley series in probability and statistics
Altri autori (Persone)	EdlerLutz <1945-> KitsosChristos Par. <1951->
Disciplina	616.99/4071/015118
Soggetti	Cancer - Risk factors - Mathematical models
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di contenuto	Recent Advances in Quantitative Methods in Cancer and Human Health Risk Assessment; Contents; Contributors; Preface; Introduction; I CANCER AND HUMAN HEALTH RISK ASSESSMENT Introductory remarks; 1. Principles of Cancer Risk Assessment: The Risk Assessment Paradigm; 1.1 The risk assessment paradigm; 1.2 Hazard identification; 1.3 Dose-response assessment; 1.3.1 Different objectives, different data sets, different approaches; 1.3.2 Extrapolations in dose-response assessment; 1.3.3 Safety assessment; 1.3.4 Modelling to estimate risk at low doses; 1.3.5 Uncertainty and human variation II BIOLOGICAL ASPECTS OF CARCINOGENESIS Introductory remarks2. Molecular Epidemiology in Cancer Research; 2.1 Introduction; 2.2 From carcinogen exposure to cancer; 2.3 Biomarkers; 2.3.1 Biomarkers of exposure; 2.3.2 Biomarkers of susceptibility; 2.3.3 Biomarkers of effect; 2.4 Validation of biomarkers; 2.4.1 Study design; 2.4.2 Genetic

and statistical analysis; 2.4.3 Sample size requirements; 2.4.4 Sources of potential bias; 2.5 Factors influencing cancer risk; 2.5.1 Environmental factors; 2.5.2 Genetic factors; 2.5.3 Carcinogen metabolism; 2.5.4 DNA repair; 2.5.5 Cell cycle control; 2.5.6 Immune status; 2.6 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 risk; 3.3.3 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 cancer; 5.2.3 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 U-shaped and J-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 compendium

---