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Nota di contenuto	SCIENCE, SOCIETY, AND THE SUPERMARKET; CONTENTS; Preface; Acknowledgments; 1 NUTRITIONAL GENOMICS: OPPORTUNITIES AND CHALLENGES; 1.1 Introduction; 1.2 What is Nutritional Genomics?; 1.3 Methodology and Approach of this Book; 1.4 Opportunities and Challenges for Nutrigenomics; 1.4.1 Improved health; 1.4.2 Personalized dietary advice; 1.4.3 Improved diet; 1.4.4 More development of health-enhancing food products; 1.4.5 Consumer empowerment; 1.4.6 Reducing health disparities; 1.4.7 Health care savings; 1.5 Challenges and a Road Map of This Book; References 2 THE SCIENCE OF NUTRIGENOMICS AND NUTRIGENETICS2.1 Introduction; 2.2 The Scientific Context; 2.2.1 Nutrigenomics; 2.2.2 Nutrigenetics; 2.3 The Case of MTHFR; 2.4 Room for Improvement; 2.4.1 Study design; 2.4.2 Epigenetics; 2.4.3 SNPs and haplotypes; 2.4.4 Dietary intake assessment; 2.4.5 Biomarkers; 2.4.6 Susceptibility and predictions; 2.4.7 Analytical and clinical validity; 2.4.8 Clinical utility;

2.5 Science and Technology Assessment; 2.6 Conclusion; References; 3 THE ETHICS OF NUTRIGENOMIC TESTS AND INFORMATION; 3.1 Introduction; 3.2 Ethical Principles 3.3 Nutrigenomics Testing in the Clinical Setting 3.3.1 Informed consent; 3.3.2 Confidentiality; 3.3.3 Secondary information; 3.3.4 Families; 3.3.5 Genetic testing of children and adolescents; 3.4 Use of Nutrigenomics Information for Research; 3.5 Use of Nutrigenomics Information by Private Third Parties; 3.5.1 Insurance; 3.5.2 Employment; 3.5.3 Legal and social responses to fears of discrimination; 3.6 Conclusion; References; 4 ALTERNATIVES FOR NUTRIGENOMIC SERVICE DELIVERY; 4.1 Introduction; 4.2 Considerations for Nutrigenomic Service Delivery; 4.2.1 Strength of the science 4.2.2 Regulatory environment 4.2.3 Human resource capacity and professional competence; 4.2.4 Funding policy; 4.2.5 Professional politics and culture; 4.2.6 Consumers and patients; 4.3 Four Alternative Models; 4.3.1 Consumer model; 4.3.2 Health practitioner model; 4.3.3 Blended models; 4.3.4 Public health model; 4.4 Conclusion; References; 5 NUTRIGENOMICS AND THE REGULATION OF HEALTH CLAIMS FOR FOODS AND DRUGS; 5.1 Introduction; 5.1.1 Genetic tests, service delivery, and genetic antidiscrimination; 5.2 Food Categories: Functional Foods, Nutraceuticals, Medicinal Foods, and Dietary Supplements 5.2.1 Functional foods 5.2.2 Nutraceuticals; 5.2.3 Medical or medicinal foods; 5.2.4 Dietary supplements; 5.3 Health-Related Claims Associated with Foods Compared to Drugs; 5.3.1 Structure-function claims; 5.3.2 Health claims; 5.3.3 Medical food claims; 5.3.4 Disease risk reduction claims; 5.4 Nutrigenomic Information and the Regulation of Foods Compared to Drugs; 5.4.1 The regulation of foods; 5.4.2 The regulation of drugs; 5.5 Food and Drug Regulations in Japan, the United States, and Canada; 5.5.1 Japan; 5.5.2 United States; 5.5.3 Canada; 5.6 Conclusion; References 6 NUTRIGENOMICS: JUSTICE, EQUITY, AND ACCESS

Sommario/riassunto

The new science of nutrigenomics and its ethical and societal challenges Gene-diet interactions--which underlie relatively benign lactose intolerance to life-threatening conditions such as cardiovascular disease--have long been known. But until now, scientists lacked the tools to fully understand the underlying mechanisms that cause these conditions. In recent years, however, strides in human genomics and the nutritional sciences have allowed for the advancement of a new science--dubbed nutrigenomics. Although this science may lead to personalized nutrition and dietary recommendatio

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Nota di contenuto	1. Introduction -- 2. Causality -- 3. Causal Graphical Models -- 4. Causal Discovery from Observational Data -- 5. Causal Discovery from Interventional Data -- 6. Causal Discovery in Time Series -- 7. Causal Reinforcement Learning.
Sommario/riassunto	This book presents an overview of causal discovery, an emergent field with important developments in the last few years, and multiple applications in several fields. The book is divided into three parts. The first part provides the necessary background on causal graphical models and causal reasoning. The second describes the main algorithms and techniques for causal discovery: (a) causal discovery from observational data, (b) causal discovery from interventional data, (c) causal discovery from temporal data, and (d) causal reinforcement learning. The third part provides several examples of causal discovery in practice, including applications in biomedicine, social sciences,

artificial intelligence and robotics. Topics and features: Includes the necessary background material: a review of probability and graph theory, Bayesian networks, causal graphical models and causal reasoning Covers the main types of causal discovery: learning from observational data, learning from interventional data, and learning from temporal data Illustrates the application of causal discovery in practical problems Includes some of the latest developments in the field, such as continuous optimization, causal event networks, causal discovery under subsampling, subject specific causal models, and causal reinforcement learning Provides chapter exercises, including suggestions for research and programming projects This book can be used as a textbook for an advanced undergraduate or a graduate course on causal discovery for students of computer science, engineering, social sciences, etc. It can also be used as a complement to a course on causality, together with another text on causal reasoning. It could also serve as a reference book for professionals that want to apply causal models in different areas, or anyone who is interested in knowing the basis of these techniques. L. Enrique Sucar is Senior Research Scientist at the National Institute for Astrophysics, Optics and Electronics, Puebla, Mexico. He has published more than 400 papers in refereed journals and conferences, and is author of the Springer book, Probabilistic Graphical Models (2021, 2nd ed.).
