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Nota di contenuto	Chapter 1. Introduction: The Application of AI in Precision Oncology: Tailoring Diagnosis, Treatment, and the Monitoring of Disease Progression to the Patient -- Part I. Artificial Intelligence for Screening, Diagnosis, Monitoring in Precision Oncology -- Chapter 2. Application of AI in Novel Biomarkers Detection that Induce Drug Resistance, Enhance Treatment Regimens and Advancing Precision Oncology --

Chapter 3. Use of Artificial Intelligence in Implementing Mainstream Precision Medicine to Improve Traditional Symptom-driven Practice of Medicine: Allowing Early Interventions and Tailoring better-personalized Cancer Treatments -- Chapter 4. AI as a Novel Approach for Exploring ccfNAs in Personalized Clinical Diagnosis and Prognosis: Providing Insight into the Decision-Making in Precision Oncology -- Chapter 5. AI-Enhanced Digital Pathology and Radiogenomics in Precision Oncology -- Part II. Artificial Intelligence and Omics in Precision Oncology -- Chapter 6. Epigenetics Analysis Using Artificial Intelligence in the Era of Precision Oncology -- Chapter 7. Association of Metabolomics with AI in Precision Oncology: Emerging Perspectives for More Effective Cancer Care -- Chapter 8. Artificial Intelligence Application to Microbiomics Data for Improved Clinical Decision Making in Precision Oncology -- Part III. Artificial Intelligence in Cancer Therapy and the Clinical Applications -- Chapter 9. AI and Nanotechnology in Realizing the Goal of Precision Medicine: Tailoring the Best Treatment for Personalized Cancer Treatment -- Chapter 10. Artificial Intelligence-Based Medical Devices Revolution in Cancer Screening: Impact into Clinical Practice -- Chapter 11. Intelligent Drug Design and Use for Cancer Treatment: The Roles of AI and Precision Oncology in Targeting Patient-Specific Splicing Profiles -- Chapter 12. Applying Artificial Intelligence Prediction Tools for Advancing Precision Oncology in Immunotherapy: Future Perspectives in Personalized Care -- Chapter 13. Employing AI-Powered Decision Support Systems in Recommending the Most Effective Therapeutic Approaches for Individual Cancer Patients: Maximizing Therapeutic Efficacy -- Chapter 14. AI-Pathway Companion in Clinical Decision Support: Enabling Personalized and Standardized Care Along Care Pathways in Oncology -- Chapter 15. AI Tools Offering Cancer Clinical Applications for Risk Predictor, Early Detection, Diagnosis, and Accurate Prognosis: Perspectives in Personalised Care -- Chapter 16. Conclusion and Insights into the Future of AI in Precision Oncology.

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Sommario/riassunto

This book highlights the use of artificial intelligence (AI), big data and precision oncology for medical decision making in cancer screening, diagnosis, prognosis and treatment. Precision oncology has long been thought of as ideal for the management and treatment of cancer. This strategy promises to revolutionize the treatment, control, and prevention of cancer by tailoring tests, treatments and predictions to specific individuals or population groups. In order to accomplish these goals, vast amounts of patient or population group specific data needs to be integrated and analysed to be able to identify key patterns or features which can be used to define or characterize the disease or the response to the disease in these individuals. These patterns or features can be as varied as molecular patterns or features in medical images. This level of data analysis and integration can only be achieved through the use of AI. The book is divided into three parts starting with a section on the use of artificial intelligence for screening, diagnosis and monitoring in precision oncology. The second part: Artificial intelligence and Omics in precision oncology, highlights the use of AI and epigenetics, metabolomics, microbiomics in precision oncology. The third part covers artificial intelligence in cancer therapy and its clinical applications. It also highlights the use of AI tools for risk prediction, early detection, diagnosis and accurate prognosis. This book, written by experts in the field from academia and industry, will appeal to cancer researchers, clinical oncologists, pathologists, medical students, academic teaching staff and medical residents interested in cancer research as well as those specialising as clinical oncologists.

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