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Nota di contenuto	Cover -- Title -- Copyright -- End User License Agreement -- Contents -- Foreword -- Preface -- List of Contributors -- The Need for Artificial Intelligence in Cancer Nanomedicine -- Fahima Dilnawaz1, * -- INTRODUCTION -- CONCLUSION -- CONSENT FOR PUBLICATION -- CONFLICT OF INTEREST -- ACKNOWLEDGEMENTS -- REFERENCES -- Application of Artificial Intelligence for Designing Cancer Nanomedicine -- Fahima Dilnawaz1,* -- INTRODUCTION -- USE OF NANOMATERIALS AND AI IN PRECISION DIAGNOSTICS -- PREDICTION OF PERSONALIZED DRUG POTENCY BY NANOTECHNOLOGY -- UTILIZING COMPUTATIONAL MODELLING IN NANOTHERAPEUTICS FOR TARGETING AND PERSONALIZED DOSING -- UTILIZING AI AND NANOMATERIALS FOR DRUG DOSING AND IMPROVED THERAPEUTIC EFFICACY -- EXPLOITING THE USE OF AI AND NANOTECHNOLOGY FOR PERSONALIZED GENE THERAPY -- CONCLUSION AND FUTURE PERSPECTIVE -- CONSENT FOR PUBLICATION -- CONFLICT OF INTEREST -- ACKNOWLEDGEMENTS --

REFERENCES -- Artificial Intelligence and its Application in Cancer Nanomedicine -- Sweta Mohanty<sup>1</sup>, Sarbari Acharya<sup>1</sup> and Chandana Mohanty<sup>1,\*</sup> -- INTRODUCTION -- CANCER NANOMEDICINE -- ARTIFICIAL INTELLIGENCE (AI) -- ROLE OF AI IN DRUG DISCOVERY -- APPLICATION OF AI TECHNOLOGIES IN CANCER NANOMEDICINE -- CONCLUSION -- CONSENT FOR PUBLICATION -- CONFLICT OF INTEREST -- ACKNOWLEDGEMENTS -- REFERENCES -- Artificial Intelligence-based Diagnostic Design for Precision Cancer Nanomedicine -- Ranjita Misra<sup>1,\*</sup> and Malathi Sampath<sup>2</sup> -- INTRODUCTION -- ROLE OF NANOMEDICINES IN CANCER DIAGNOSIS -- NANOMEDICINES USED FOR CANCER DIAGNOSIS -- ARTIFICIAL INTELLIGENCE AND ITS SIGNIFICANCE -- APPLICATION OF ARTIFICIAL INTELLIGENCE TOWARDS CANCER DIAGNOSIS -- ADVANTAGE OF INTEGRATION OF ARTIFICIAL INTELLIGENCE AND NANOMEDICINES -- CONCLUSION -- CONSENT FOR PUBLICATION -- CONFLICT OF INTEREST -- ACKNOWLEDGEMENTS -- REFERENCES. Artificial Intelligence-based Nanosensors to Compose the Patient's Cancer Biomarker Profile -- Malathi Sampath<sup>1</sup> and Ranjita Misra<sup>2,\*</sup> -- INTRODUCTION -- NANOSENSORS AND THEIR ROLE IN BIOMARKERS PROFILING -- TYPES OF NANOSENSORS -- Affinity Based Biosensors -- Catalytic Based Sensors -- Enzymes -- Microbes -- Organelles -- Tissue Samples -- OPTICAL NANOSENSORS -- ELECTROCHEMICAL SENSORS -- CHEMICAL NANOSENSORS -- DEPLOYABLE SENSOR -- ELECTROMETERS -- BIOSENSOR -- ADVANTAGES OF AMALGAMATION OF NANOSENSORS WITH ARTIFICIAL INTELLIGENCE -- FUTURE PERSPECTIVES -- CONCLUSION -- CONSENT FOR PUBLICATION -- CONFLICT OF INTEREST -- ACKNOWLEDGEMENTS -- REFERENCES -- Artificial Intelligence as a Putative Tool for Newer Drug Development Approach in Cancer Nanomedicine -- Pooja Jain<sup>1</sup>, Sradhanjali Mohapatra<sup>1</sup>, Nazia Hassan<sup>1</sup>, Manvi Singh<sup>2</sup>, Uzma Farooq<sup>1</sup>, Mohd. Aamir Mirza<sup>1</sup> and Zeenat Iqbal<sup>1,\*</sup> -- INTRODUCTION -- CANCER -- Cancer Diagnosis and Treatment Approaches -- Cancer Nanomedicines -- ARTIFICIAL INTELLIGENCE -- Integration of AI and Nanotechnology for Cancer Therapy -- Artificial Intelligence-Driven Approach for Future Healthcare System -- CONCLUSION -- CONSENT FOR PUBLICATION -- CONFLICT OF INTEREST -- ACKNOWLEDGMENT -- REFERENCES -- Artificial Intelligence-Enabled Model for Predicting the Metastatic Potential of Cancer Cells -- Sarbari Acharya<sup>1,\*</sup> and Chandana Mohanty<sup>1</sup> -- INTRODUCTION -- CANCER METASTASIS -- DIAGNOSIS OF CANCER METASTASIS -- ARTIFICIAL INTELLIGENCE AND CANCER DETECTION -- ROLE OF AI MODELS FOR PREDICTING CANCER METASTASIS -- FUTURE PERSPECTIVES AND CONCLUSION -- CONSENT FOR PUBLICATION -- CONFLICT OF INTEREST -- ACKNOWLEDGEMENTS -- REFERENCES -- Artificial Intelligence for Cancer Nanotheranostics -- Sarbari Acharya<sup>1,\*</sup> -- INTRODUCTION -- CANCER IMAGING -- THERANOSTICS AND NANOTHERANOSTICS -- ROLE OF NANOTHERANOSTICS IN CANCER MANAGEMENT. AI IN NANOMEDICINE FOR CANCER THERAPY -- AI AND NANOTHERANOSTICS -- CONCLUSION -- CONSENT FOR PUBLICATION -- CONFLICT OF INTEREST -- ACKNOWLEDGEMENTS -- REFERENCES -- Ethical Dimensions of Using Artificial Intelligence in Healthcare -- Ajit Kumar Behura<sup>1,\*</sup> -- INTRODUCTION -- ETHICAL CONSIDERATIONS WHEN USING AI IN HEALTH CARE -- CONCLUSIONS -- CONSENT FOR PUBLICATION -- CONFLICT OF INTEREST -- ACKNOWLEDGEMENTS -- REFERENCES -- Subject Index -- Back Cover.

dose. The drug action is time-dependent, dose-dependent and patient-specific. To overcome challenges of nanomedicine testing, artificial intelligence (AI) serves as a helping tool for optimizing the drug and dose parameters. Real time conversions between these two features enables upgradation of patient data acquisition and improved design of nanomaterials. In this scenario, AI-based pattern analysis and algorithms models can greatly improve accuracy of diagnostics and therapeutics. This book gives a comprehensive explanation of the role of machine learning and artificial intelligence in cancer nanomedicine. It presents 10 chapters that cover multiple dimensions of the subject. These dimensions are:- The need of AI and ML in designing new cancer drugs- Application of AI in cancer drug design- AI-based drug delivery models for cancer drugs- Diagnostic applications of AI- Intelligent nanosensors for biomarker profiling- Predictive models for metastatic cancer- Cancer nanotheranostics- Ethics of AI in medicine Contributions have been made by 16 researchers who are experts in pharmacology and drug design. The contents of the book bridge knowledge gaps between the fields of biomedical engineering, pharmacology and clinical medicine, with a focus on cancer treatment. The book serves as a reference for scholars learning about cancer diagnostics and therapeutics. Biomedical engineers who are involved in healthcare projects will also find the concepts and techniques highlighted in the book informative for understanding modern computer-based approaches used to solve clinical problems.

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