

Molecular Diagnostics: Transforming Healthcare Through Genetic Insights

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Abstract

The integration of molecular diagnostics into clinical practice has revolutionized the way we understand and manage disease. This review explores the latest advancements in genetic testing, including whole-genome sequencing, targeted panels, and liquid biopsies, and their applications in oncology, infectious diseases, and personalized medicine. We discuss the challenges of data interpretation, ethical considerations, and the future of precision medicine.

Ke words: Molecular diagnostics; Genetic testing; Oncology; Infectious diseases; Pharmacogenomics; Personalized medicine

technologies, such as CRISPR-based diagnostics and liquid biopsies, hold promise for even more sensitive and non-invasive testing methods [5]. Additionally, the integration of artificial intelligence and machine learning in data analysis could enhance the interpretation of complex genetic information, leading to improved patient outcomes.