

# **CRISPR-Based Diagnostics Global Market Insights 2025, Analysis and Forecast to 2030, by Market Participants, Regions, Technology, Application, Product Type**

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## **Abstracts**

### **CRISPR-Based Diagnostics Market Summary**

#### **Introduction and Market Overview**

CRISPR-based diagnostics leverage CRISPR-Cas systems to detect nucleic acids with high specificity and sensitivity, enabling rapid identification of pathogens, genetic mutations, and biomarkers. These diagnostics are pivotal in addressing infectious diseases, genetic disorders, and cancer, offering point-of-care (POC) solutions that require minimal equipment. The market is driven by the global burden of infectious diseases, with 10.8 million new tuberculosis cases and 39 million HIV infections in 2023, alongside the need for rapid diagnostics post-COVID-19. CRISPR's ability to deliver results in under 30 minutes, combined with its low-cost potential, makes it ideal for low-resource settings. The aging population and rising cancer incidence, with 19.2 million new cases in 2020, further fuel demand for precise genetic diagnostics. The global CRISPR-based diagnostics market is estimated at USD 1.8-3.0 billion in 2025, with a compound annual growth rate (CAGR) of 13%-19% through 2030.

#### **Regional Market Trends**

North America: The U.S. leads with strong investment in biotech and regulatory support, while Canada focuses on POC diagnostics for remote communities.

Europe: Germany, France, and the UK drive growth with advanced research

infrastructure, emphasizing infectious disease and cancer diagnostics.

Asia Pacific: China and India see rapid adoption due to high infectious disease prevalence, with Japan prioritizing precision medicine applications.

Rest of the World: Africa expands CRISPR diagnostics for tuberculosis and HIV, while Latin America invests in affordable POC solutions.

## Application Analysis

Hospitals and Clinics Diagnostic: Expected growth of 13.5%-19.5%, driven by rapid pathogen detection needs. Trends focus on POC devices for emergency diagnostics.

Laboratories: Projected growth of 13.2%-19.2%, linked to high-throughput testing. Advances emphasize multiplexed pathogen detection.

Pharmaceutical and Biotechnology Companies: Anticipated growth of 13.0%-19.0%, tied to drug development and companion diagnostics. Trends highlight genetic mutation screening.

Others: Expected growth of 12.8%-18.8%, covering public health surveillance. Developments prioritize low-cost field testing.

## Type Analysis

Cas9: Expected growth of 13.3%-19.3%, valued for its precision in DNA detection. Trends focus on integration with isothermal amplification.

Cas12: Projected growth of 13.6%-19.6%, favored for its collateral cleavage activity, ideal for POC diagnostics. Advances emphasize lateral flow readouts.

Others: Anticipated growth of 12.9%-18.9%, covering Cas13 and novel systems. Trends highlight RNA detection for viral diagnostics.

## Key Market Players

Sherlock Biosciences: Develops rapid POC CRISPR diagnostics for infectious diseases.

Mammoth Biosciences: Offers DETECTR platform for pathogen and mutation detection.

CrisprBits: Focuses on affordable diagnostics for low-resource settings.

Thermo Fisher Scientific: Provides CRISPR tools for research and diagnostics.

Molbio Diagnostics: Integrates CRISPR with portable PCR systems.

### Porter's Five Forces Analysis

Threat of New Entrants: Moderate, due to high R&D costs and intellectual property barriers, but open-source CRISPR tools lower entry hurdles.

Threat of Substitutes: Moderate, with PCR and NGS competing, but CRISPR's speed and simplicity offer advantages in POC settings.

Bargaining Power of Buyers: Moderate, as hospitals seek cost-effective diagnostics, but specialized CRISPR applications limit options.

Bargaining Power of Suppliers: Low, with multiple providers of reagents and enzymes.

Competitive Rivalry: High, with players competing on speed, cost, and multiplexing capabilities.

### Market Opportunities and Challenges

#### Opportunities:

Addressing infectious diseases, with 10.8 million TB cases annually, using rapid CRISPR tests.

Leveraging COVID-19-driven demand for POC diagnostics, as seen with

Sherlock's FDA-approved kits.

Supporting cancer and genetic disease diagnostics, with 19.2 million cancer cases in 2020.

Utilizing portable devices like DETECTR for low-resource settings.

Aligning with WHO's genomic strategy for standardized diagnostics.

Attracting investment, with health tech funding up 15% from 2020-2023.

#### Challenges:

High development costs for multiplexed assays.

Regulatory delays, with FDA approvals taking 1-2 years.

Intellectual property disputes limiting commercialization.

Limited infrastructure in low-income regions.

Competition from established PCR and NGS technologies.

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