

# Global DNA Sequencing: Research, Applied and Clinical Markets

<https://marketpublishers.com/r/GFA72702B4AEN.html>

Date: July 2021

Pages: 296

Price: US\$ 2,750.00 (Single User License)

ID: GFA72702B4AEN

## Abstracts

### Report Scope

The report's scope covers sequencing technologies, industries, applications, patents, initiatives and companies. The markets for sequencing services and products are given for the years 2020, 2021 and 2026.

This report reviews the leading sequencing technologies and describes why genetic variation is essential in clinical testing. It then discusses some of the important research initiatives that impact sequencing applications. The main market driving forces for sequencing services and products are listed and discussed.?

The report segments the sequencing markets by delivered format, including sequencing workflow products (sample preparation kits and reagents, informatics, and sequencing instruments and consumables) and sequencing services. The sample preparation reagents and kits market is fragmented by type, that is, DNA isolation and extraction; library preparation; and target enrichment. The sequencing instruments and consumables market are given by platform (NGS, Sanger and 3GS) and by product type (consumables, instruments).

The sequencing services market is segmented by end user applications (clinical, applied, research and development). Within sequencing services, the applied market is further analyzed by end user applications (biopharma, consumer, agriculture, microbiology, synthetic biology, population-scale genomics and others).

Also, within sequencing services, the clinical market is studied by disease category (clinical microbiology and infectious diseases, cardiovascular, mendelian disorders,

metabolic/immune disorders, oncology, neurology, reproductive health and transplant medicine).

Industry sectors analyzed include long-read sequencing; sequencing instruments; target enrichment; informatics; blockchain; gene editing; liquid biopsy; reproductive health diagnostics; agriculture; consumer genomics; and DNA data storage.

By geography, the market has been fragmented into Europe, North America, Asia-Pacific (APAC) and the Rest of the World (RoW). For market estimates, data is provided for 2020 as the base year and for 2021, and it is forecast through year-end 2026. Estimated values used are based on product manufacturers' and service providers' total revenues. Projected and forecasted revenue values are in constant U.S. dollars that have not been adjusted for inflation.

#### Report Includes:

85 tables

An updated review of the global market for DNA sequencing technologies and their applications in research, applied and clinical segments

Analyses of the global market trends, with data from 2020, estimates for 2021, and projections of compound annual growth rates (CAGRs) through 2026

Estimation of the market size and market forecast for DNA sequencing industry, and corresponding market share analysis by delivered format, product type, end use segment, application, disease category, and geography

Highlights of key market dynamics (DROs) for DNA sequencing, regulatory scenario, and impact of COVID-19 on the progress of this market

Discussion of market opportunities for DNA sequencing, industry structure, applications and business considerations of sequencing technologies, along with ongoing dramatic changes in the structure of MedTech industry

Review of the leading next-generation sequencing (NGS) technologies, emerging applications, and penetration of DNA sequencing-based diagnostics and research initiatives affecting the marketplace

Patent analysis for novel sequencing technologies, latest developments, clinical trials, and potential markets for future developments

Insight into the sequencing industry activities including major acquisitions and strategic alliances, competitive benchmarking of key sequencing industry participants and their growth strategies

Market share analysis of the key companies of the industry and their detailed company profiles including Agilent Technologies, Becton, Dickinson and Co., Bio-Rad, Danaher Corp., Illumina Inc., Merck KGaA, Roche, and Thermo Fisher

## Contents

### **CHAPTER 1 INTRODUCTION**

Study Goals and Objectives  
Reasons for Doing This Study  
What's New in This Report  
Scope of Report  
Information Sources  
Methodology  
Geographic Breakdown  
Analyst's Credentials  
BCC Custom Research  
Related BCC Research Reports

### **CHAPTER 2 SUMMARY AND HIGHLIGHTS**

### **CHAPTER 3 OVERVIEW**

Introduction  
DNA Sequencing Markets  
Sequencing Growth Driving Forces  
Sequencing Applications  
Sequencing Industry

### **CHAPTER 4 TECHNOLOGY BACKGROUND**

Importance of DNA  
Genetic Variation and Analysis  
History of Sequencing  
Sequencing Technologies  
Sanger Sequencing  
Next-Generation Sequencing (NGS)  
Short-Read Platforms  
Long-Read Platforms  
Informatics Technologies  
Base Calling  
Mapping to a Reference Sequence  
Variant Analysis

## Clinical Sequencing Technology Challenges

### **CHAPTER 5 SEQUENCING INITIATIVES**

#### Sequencing Initiatives

#### R&D Initiatives and Programs

#### 1+ Million Genomes

#### Access to Comprehensive Genomic Profiling Coalition (ACGP)

#### Access to Treatment and Testing (ACTT)

#### Africa Pathogen Genomics Initiative

#### Blood Profiling Atlas

#### Cancer-ID

#### Cancer Moon Shots Program

#### China Precision Medicine Initiative

#### ClinGen

#### Early Cancer Detection Consortium

#### EpiFemCare

#### France Genomic Medicine Plan

#### Friends of Cancer Research Project

#### Genomic Medicine Sweden

#### HCA-Organoid

#### Human Cell Atlas

#### Human Immunomics Initiative

#### Immunomonitor Consortium

#### Integration of Imaging and Fluid-Based Tumor Monitoring in Cancer Therapy Program

#### Intervene

#### Liquid Biopsies and Imaging for Improved Cancer Care

#### Liquid Biopsy-Based Malignant Tumor Early Screening Technology Research and Development Project

#### Lung-Map

#### Matchmaker Exchange

#### Metagenomics and Metadesign of Subways and Urban Biomes (MetaSub)

#### Medical Genome Initiative

#### Million Veteran Program (MVP)

#### MIND (Molecular Integration in Neurological Diagnosis)

#### MedSeq

#### National Microbiome Initiative (NMI)

#### Next Generation Single Cell Analysis Program

#### Precision Medicine Initiative

Prospective Registry of Multiplex Testing (PROMPT)  
Quality Assurance Initiative Pathology (QuIP) Initiative  
TopMed (Trans Omics for Precision Medicine)  
Treehouse Childhood Cancer Initiative  
Very Rare Cancer Consortium (VRCC)  
Worldwide Innovative Networking (WIN) Consortium  
Single-Cell Research  
Cambridge Single-Cell Analysis Core Facility  
Harvard Medical School Single-Cell Core  
Mayo Medical Genome Facility  
National Center for Single-Cell Biology  
Next-Generation Single-Cell Analysis Program  
Single-Cell Analysis Core  
UC San Francisco Single-Cell Analysis Center  
Population Sequencing Projects

## **CHAPTER 6 IMPACT OF COVID-19 PANDEMIC**

Introduction  
Impact on MedTech  
Elective and Noncritical Procedures  
Shift in Manufacturing  
Regulatory Delays, Clinical Trials and Product Launches  
Supply Chain Disruptions  
Impact of COVID-19 on DNA Sequencing

## **CHAPTER 7 RESEARCH AND APPLIED APPLICATIONS**

Introduction  
Research and Development Applications  
Applied Applications  
Direct to Consumer  
Biopharma  
Agriculture  
Forensics  
Microbiome  
Synthetic Biology

## **CHAPTER 8 CLINICAL APPLICATIONS**

Introduction  
Cancer Applications  
Mendelian Disorders Applications  
Reproductive Health Applications  
Microbiology and Infectious Disease Applications  
Complex Disorders Applications  
Transplant Diagnostics Applications

## **CHAPTER 9 SEQUENCING INDUSTRY**

Introduction  
Sequencing Instruments Industry  
Companies  
Long-Read Sequencing Industry  
Target Enrichment and Amplification Industry  
Gene Editing Industry  
Sequencing Informatics Industry  
Liquid Biopsy Assay Industry  
Reproductive Health Diagnostics Industry  
Noninvasive Prenatal Testing (NIPT) Industry  
Agriculture Industry  
Consumer Genomics Industry  
DNA Data Storage Industry

## **CHAPTER 10 DNA SEQUENCING MARKETS**

Market Dynamics  
Market Drivers  
Market for DNA Sequencing  
Sequencing Services Market  
Sample Prep Kits and Reagents Market  
Informatics Market  
Sequencing Instruments and Consumables Market  
Agriculture Market  
Biopharma Market  
Consumer Genomics Market  
Microbiology Market  
Population Genomics Market

Synthetic Biology Market  
Clinical Diagnostic Sequencing  
Cardiology Market  
Clinical Microbiology and Infectious Disease Market  
Mendelian Disorders Market  
Metabolic/Immune Disorders Market  
Neurology Market  
Oncology Market  
Reproductive Health Market  
Transplant Market  
Cancer Clinical Diagnostics Sequencing  
Lung Cancer  
Breast Cancer  
Colorectal Cancer  
Pan-Cancer  
Other Cancers  
Oncology Screening/Early Detection  
Oncology Diagnosis  
Oncology Therapy Guidance  
Oncology Monitoring  
Reproductive Health  
IVF  
Newborn Screening  
Carrier Screening  
NIPT  
Transplant  
Geographical Markets

## **CHAPTER 11 PATENT REVIEW/ NEW DEVELOPMENTS**

Patents on Circulating Tumor Cells  
Patents on Exosomes  
Patents on Cell-Free DNA  
Patents Related to Biomarkers  
Sequencing-Related Patent Disputes

## **CHAPTER 12 COMPETITIVE LANDSCAPE**

Acquisitions



Strategic Alliances

## **CHAPTER 13 COMPANY PROFILES**

ADMERA HEALTH  
ADAPTIVE BIOTECHNOLOGIES INC.  
AGILENT TECHNOLOGIES INC.  
AMBRY GENETICS  
ASURAGEN INC.  
ATHENA DIAGNOSTICS INC.  
BAYLOR GENETICS  
BECTON, DICKINSON AND CO.  
BERRY GENOMICS CO. LTD.  
BGI SHENZHEN  
BIODESIX INC.  
BIO-RAD LABORATORIES INC.  
CAREDX INC.  
CARIS LIFE SCIENCES  
CEGAT GMBH  
CELLMAX LIFE  
CENTOGENE AG  
COOPERSURGICAL INC.  
CYGNUS BIOSCIENCES CO. LTD.  
DANAHER CORP.  
DARUI BIOTECHNOLOGY CO. LTD.  
DEVYSER AB  
DIACARTA INC.  
DNA ELECTRONICS  
ELECTRONIC BIOSCIENCES  
EPIC SCIENCES INC.  
EUROFINS SCIENTIFIC  
FRY LABORATORIES LLC  
GENAPSYS INC.  
GENDX BV  
GENE BY GENE LTD.  
GENOMATIX SOFTWARE GMBH  
GENOME PROFILING LLC  
GOLDEN HELIX  
GRANDOMICS BIOSCIENCES CO. LTD.

GUARDANT HEALTH INC.  
HELIX OPCO LLC  
HISTOGENETICS LLC  
HTG MOLECULAR DIAGNOSTICS INC.  
ILLUMINA INC.  
INEX INNOVATIONS EXCHANGE PTE. LTD.  
INIVATA LTD.  
INTERPACE DIAGNOSTICS LLC  
INVIVOSCRIBE INC.  
IREPERTOIRE INC.  
KEW INC.  
LABORATORY CORP. OF AMERICA INC.  
MACROGEN INC.  
MDXHEALTH INC.  
MERCK KGAA  
MYRIAD GENETICS INC.  
NATERA INC.  
NEOGENOMICS LABORATORIES  
NEW ENGLAND BIOLABS  
NGENEBIO CO., LTD.  
NOVOGENE CO. LTD.  
NUGEN TECHNOLOGIES INC.  
OMNISEQ CORP.  
OXFORD NANOPORE TECHNOLOGIES LTD.  
PACIFIC BIOSCIENCES OF CALIFORNIA INC.  
PARADIGM DIAGNOSTICS INC.  
PARSEQ LAB CO. LTD.  
PERKINELMER INC.  
PERSONAL GENOME DIAGNOSTICS INC.  
PERSONALIS INC.  
PREDICINE INC.  
PREVENTIONGENETICS INC.  
QIAGEN N.V.  
QUANTUM BIOSYSTEMS INC.  
QUEST DIAGNOSTICS INC.  
REAL TIME GENOMICS INC.  
ROCHE HOLDING AG  
SEEKIN  
SEQUENCING.COM

SEVEN BRIDGES GENOMICS INC.  
SISTEMAS GENOMICOS SL  
SOPHIA GENETICS  
TAKARA BIO INC.  
THERMO FISHER SCIENTIFIC INC.  
UBIQUITY GENOMICS INC.  
VORTEX BIOSCIENCES  
YOURGENE HEALTH PLC

## **CHAPTER 14 APPENDIX: ACRONYMS**

## List Of Tables

### LIST OF TABLES

Summary Table: Global Market for DNA Sequencing, by Major Segment, Through 2026

Table 1: Global Market for DNA Sequencing, by Product Type, Through 2026

Table 2: Market for DNA Sequencing Growth Driving Forces

Table 3: Sequencing End Users and Applications

Table 4: Key Sequencing Industry Participants, by Sector

Table 5: DNA Chemical Building Blocks

Table 6: DNA Translation and Transcription

Table 7: Long-Range DNA Structure

Table 8: Genetic Variant Types

Table 9: Molecular Diagnostic Technology Platforms

Table 10: Genome Coverage of PCR, Microarray and NGS Technology Platforms

Table 11: DNA Sequencing Historical Timeline

Table 12: Sequencing Technology Development, 1990-2020

Table 13: Cost to Sequence a Single Human Genome, 2001-2021

Table 14: Sequencing Technology Summary

Table 15: Summary of Sanger Sequencing

Table 16: Improvements in Sanger Sequencing

Table 17: NGS Technologies

Table 18: Illumina NGS Workflow

Table 19: Thermo Fisher Scientific NGS Workflow

Table 20: NGS Bioinformatics Workflow

Table 21: Sequence Annotation Steps

Table 22: Future Challenges in Implementing Clinical NGS

Table 23: Key Sequencing Research and Development Programs

Table 24: Single-Cell Core Research Facilities

Table 25: Population Sequencing Projects

Table 26: Number of Sequencing Projects in GOLD Database, 2018-2020

Table 27: Main Sequencing Applications

Table 28: Genetic Analysis Platform Comparison

Table 29: Sequencing Impact on Agricultural Product Classes

Table 30: Key Applications in Forensics/Human Identity Sequencing

Table 31: Key Applications in Microbial Sequencing

Table 32: Genetic Testing Scope

Table 33: Key Applications for Sequencing-Based Diagnostics

Table 34: Cancer Applications

- Table 35: Mendelian Disorders Applications
- Table 36: Reproductive Health Screening Applications
- Table 37: Ethical Issues Associated with NIPT
- Table 38: Microbiology/Infectious Disease Applications
- Table 39: Complex Disorder Applications
- Table 40: Transplant Diagnostics Applications
- Table 41: Subsectors within the Sequencing Industries
- Table 42: NGS and 3GS Industry Company Positioning
- Table 43: Long-Read Sequencing Industry
- Table 44: NGS Target Enrichment Industry
- Table 45: Gene Editing Tools Industry
- Table 46: Agricultural Gene Editing Industry
- Table 47: Sequencing Informatics Industry
- Table 48: Liquid Biopsy Assay Industry: Company Focus
- Table 49: Example of NGS-Based Liquid Biopsy Market Differentiation
- Table 50: NIPT Industry
- Table 51: Key Players in Synthetic Biology Agriculture Industry
- Table 52: Players in Consumer Genomics Industry
- Table 53: Key Forces Driving Growth in Market for DNA Sequencing and Their Implications
- Table 54: Global Market for DNA Sequencing, by Format, Through 2026
- Table 55: Global Market for Sequencing Instruments and Consumables, by Product Type, Through 2026
- Table 56: Global Market for Sequencing Instruments and Consumables, by Product Generation, Through 2026
- Table 57: Global Market for Sample Preparation, by Product Type, Through 2026
- Table 58: Global Market for Sequencing Services, by End User, Through 2026
- Table 59: Global Market for Applied Sequencing Services, by Application, Through 2026
- Table 60: Global Market for Clinical Diagnostic Sequencing, by Disease Category, Through 2026
- Table 61: NGS-Based Dilated Cardiomyopathy Test Providers
- Table 62: NGS-Based Infectious Disease Landscape
- Table 63: Multiple Sclerosis Diagnostic Technologies
- Table 64: Limitations of Tissue Biopsy in Cancer Applications
- Table 65: National Institutes of Health Liquid Biopsy Early Detection Initiative
- Table 66: Clinical Trials on Lung Cancer Liquid Biopsies
- Table 67: Five-Year Survival Rate for Ovarian Cancer
- Table 68: MRI and Liquid Biopsy Methods
- Table 69: Early Detection Tissue of Origin Approaches

Table 70: Global Market for DNA Sequencing, by Region, Through 2026

Table 71: North American Market for DNA Sequencing, by Country, Through 2026

Table 72: North American Market for DNA Sequencing, by Major Segment, Through 2026

Table 73: European Market for DNA Sequencing, by Country, Through 2026

Table 74: European Market for DNA Sequencing, by Major Segment, Through 2026

Table 75: Asia-Pacific Market for DNA Sequencing, by Country, Through 2026

Table 76: Asia-Pacific Market for DNA Sequencing, by Major Segment, Through 2026

Table 77: Rest of the World Market for DNA Sequencing, by Major Segment, Through 2026

Table 78: Patent Activity on Circulating Tumor Cells (CTCs), by Country/Region, January 2010–June 2020

Table 79: Patent Activity on Exosomes, by Country/Region, January 2010–December 2020

Table 80: Patent Activity on Cell-Free DNA, by Country/Region, January 2010–December 2020

Table 81: Patent Activity on Cancer Biomarkers, by Country/Region, January 2010–December 2020

Table 82: Status of NGS-Based Liquid Biopsy Patent Disputes

Table 83: Sequencing Industry Acquisitions

Table 84: Sequencing Industry Strategic Alliances

Table 85: Acronyms Used in the DNA Sequencing Industry

## List Of Figures

### LIST OF FIGURES

Summary Figure: Global Market for DNA Sequencing, by Major Segment, 2020-2026

Figure 1: Agilent: Annual Revenue, 2018–2020

Figure 2: Agilent: Revenue Share, by Region, 2020

Figure 3: Agilent: Revenue Share, by Segment, 2020

Figure 4: BD: Annual Revenue, 2018-2020

Figure 5: BD: Revenue Share, by Geography, 2020

Figure 6: BD: Revenue Share, by Segment, 2020

Figure 7: Bio-Rad: Annual Revenue, 2018–2020

Figure 8: Bio-Rad: Revenue Share, by Segment, 2020

Figure 9: Danaher Corp.: Annual Revenue, 2018-2020

Figure 10: Danaher Corp.: Revenue Share, by Region, 2020

Figure 11: Danaher Corp.: Revenue Share, by Segment, 2020

Figure 12: Illumina Inc.: Annual Revenue, 2018–2020

Figure 13: Illumina Inc.: Revenue Share, by Region/ Country, 2020

Figure 14: Illumina Inc.: Revenue Share, by Segment, 2020

Figure 15: Merck KGaA: Annual Revenue, 2019 and 2020

Figure 16: Merck KGaA: Revenue Share, by Region, 2020

Figure 17: Merck KGaA: Revenue Share, by Segment, 2020

Figure 18: Thermo Fisher Scientific: Annual Revenue, 2019 and 2020

Figure 19: Thermo Fisher Scientific: Revenue Share, by Segment, 2020

## I would like to order

Product name: Global DNA Sequencing: Research, Applied and Clinical Markets

Product link: <https://marketpublishers.com/r/GFA72702B4AEN.html>

Price: US\$ 2,750.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

[info@marketpublishers.com](mailto:info@marketpublishers.com)

## Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/GFA72702B4AEN.html>

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:  
Last name:  
Email:  
Company:  
Address:  
City:  
Zip code:  
Country:  
Tel:  
Fax:  
Your message:

**\*\*All fields are required**

Customer signature \_\_\_\_\_

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at <https://marketpublishers.com/docs/terms.html>

To place an order via fax simply print this form, fill in the information below and fax the completed form to +44 20 7900 3970