

# **Preimplantation Genetic Testing Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028 Segmented By Procedure (Pre-implantation genetic diagnosis (PDS), Preimplantation Genetic Screening (PGS)) By Product (Reagents and Consumables, Instruments, Software), By Technology (Next Generation Sequencing (NGS), Polymerase Chain Reaction (PCR), Fluorescent In-Situ Hybridization (FISH), Others), By Application (Chromosomal Abnormalities, X-linked Diseases, Embryo Testing, Aneuploidy Screening, HLA Typing, Other Applications), By End-Use Industry (Fertility Centers, Hospitals, Diagnostic Centers, Research Centers and Academic Labs), By Region, Competition**

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## **Abstracts**

The Global Preimplantation Genetic Testing (PGT) Market reached a valuation of USD 557.28 Million in 2022 and is expected to experience substantial growth in the forecast period, with a projected Compound Annual Growth Rate (CAGR) of 8.22% and expected to reach USD 890.47 Million through 2028.

Introduction:

Preimplantation Genetic Testing is a medical procedure utilized within the realm of

assisted reproductive technology (ART) to screen embryos for genetic abnormalities before their implantation into the uterus. This procedure is primarily employed during in vitro fertilization (IVF) treatments to enhance the chances of a successful pregnancy while minimizing the risk of passing certain genetic disorders to the child. There are two primary types of preimplantation genetic testing:

1. **Preimplantation Genetic Testing for Aneuploidy (PGT-A):** This testing type is designed to screen embryos for numerical chromosomal abnormalities, particularly aneuploidies. Aneuploidy occurs when an embryo has an abnormal number of chromosomes, potentially leading to miscarriages or birth defects like Down syndrome. PGT-A helps identify embryos with the correct number of chromosomes, increasing the likelihood of a successful pregnancy.

2. **Preimplantation Genetic Testing for Monogenic Disorders (PGT-M):** PGT-M is employed to detect specific genetic mutations or disorders known to be present in a family's medical history. It is used when one or both parents carry a known genetic mutation that could lead to severe health conditions in their offspring, such as cystic fibrosis or Huntington's disease. PGT-M allows for the selection of embryos that do not carry the genetic mutation.

#### Key Market Drivers:

##### 1. Rising Incidence of Genetic Disorders:

The increasing occurrence of genetic disorders is a significant driver for the growth of the global Preimplantation Genetic Testing (PGT) market. Couples with a family history of genetic disorders or those carrying specific genetic mutations are increasingly turning to PGT to reduce the risk of passing these disorders on to their children. PGT offers them a way to identify unaffected embryos before implantation, increasing the chances of having healthy offspring. PGT provides comprehensive genetic screening of embryos at an early developmental stage, detecting a wide range of genetic abnormalities, including single gene disorders and chromosomal aneuploidies. The rising awareness of genetic disorders and the availability of advanced medical technologies have made more individuals and couples proactive in seeking solutions to mitigate these risks.

##### 2. Advancements in Genetic Screening Technologies:

Advancements in genetic screening technologies significantly contribute to the growth of the global Preimplantation Genetic Testing (PGT) market. These technological

innovations enhance the accuracy, efficiency, and accessibility of PGT procedures, making them more attractive and feasible for a broader range of individuals and couples. Advanced genetic screening technologies offer higher accuracy and reliability in detecting genetic abnormalities and mutations in embryos, reducing false-positive and false-negative results. Newer technologies enable comprehensive genetic analysis of embryos, allowing for simultaneous screening of multiple genetic disorders and chromosomal abnormalities. These innovations also lead to the development of non-invasive or minimally invasive techniques for embryo assessment, making the procedure less stressful and potentially safer. Automation and high-throughput screening technologies streamline the PGT process, allowing clinics to handle larger volumes of samples efficiently.

### 3. Rising Demand for IVF (In Vitro Fertilization):

The increasing demand for IVF procedures significantly drives the growth of the global Preimplantation Genetic Testing (PGT) market. IVF and PGT are often combined to enhance the success rates of fertility treatments and ensure healthier pregnancies. PGT is commonly used alongside IVF to assess the genetic health of embryos before implantation. As the demand for IVF rises, more individuals and couples are exposed to the option of combining IVF with PGT, leading to higher adoption rates of PGT services. The combination of IVF with PGT allows healthcare providers to select embryos with a lower risk of genetic abnormalities for implantation, increasing the chances of successful pregnancies and live births.

### Key Market Challenges:

#### 1. Ethical and Moral Concerns:

The use of PGT to select for specific traits, such as eye color or intelligence, raises ethical concerns about potential discrimination against individuals without those traits. It could lead to societal divisions based on genetic makeup. Additionally, PGT's application to screen for genetic diseases may raise moral questions about abortion, as some individuals believe it is morally wrong, while others justify it in cases of serious genetic diseases.

#### 2. Inaccuracies and False Positives/Negatives:

Inaccuracies in PGT can lead to the selection of embryos with genetic diseases or the discarding of healthy embryos, affecting the chances of a successful pregnancy. False

positives and false negatives can have significant consequences for patients undergoing PGT, emphasizing the need for highly accurate testing methods.

### 3. Limited Access and Awareness:

PGT is relatively new, and its availability varies by region. Limited access to PGT services, especially in rural areas, can be a barrier for some individuals or couples. Additionally, many people are not aware of PGT and its benefits, which can impact their ability to make informed decisions about its use.

### Key Market Trends:

#### 1. Growing Number of Fertility Clinics Offering PGT Services:

The global Preimplantation Genetic Testing market is witnessing a growing number of fertility clinics offering PGT services. This trend makes PGT procedures more accessible to a larger population, allowing individuals and couples to access genetic testing and make informed decisions about family planning. It also fosters competition among fertility clinics, potentially leading to improvements in service quality, technology offerings, and pricing.

### Segmental Insights:

#### Procedure Insights:

In 2022, the Preimplantation Genetic Testing market was predominantly dominated by Pre-implantation genetic diagnosis (PGD), and this trend is expected to continue. PGD is used to identify specific genetic defects or chromosomal abnormalities in embryos before implantation. It is commonly employed by couples who are carriers of genetic disorders and want to prevent the transmission of these conditions to their offspring.

#### Product Insights:

In 2022, the Preimplantation Genetic Testing market was primarily dominated by the reagents and consumables segment, and this dominance is expected to persist. Reagents and consumables are essential components for conducting PGT procedures, encompassing various products required for accurate and effective testing.

#### Technology Insights:

In 2022, the Preimplantation Genetic Testing market was mainly dominated by the polymerase chain reaction (PCR) segment, and this trend is expected to continue. PCR is widely recognized for its high accuracy and sensitivity in amplifying specific DNA sequences, making it well-suited for precise genetic analysis in PGT.

#### Application Insights:

In 2022, the Preimplantation Genetic Testing market was primarily dominated by aneuploidy screening, which is expected to continue its growth. Aneuploidy screening helps fertility clinics select embryos with the correct chromosomal content, increasing the chances of successful implantation and reducing the risk of miscarriages.

#### End-Use Industry Insights:

In 2022, the Preimplantation Genetic Testing market was mainly dominated by the hospital segment, and this trend is expected to continue. Hospitals attract a high volume of patients seeking fertility treatments, and many offer comprehensive reproductive services, including PGT. Advanced technology and research conducted in hospitals contribute to higher testing rates.

#### Regional Insights:

The Europe region has established itself as the leader in the global Preimplantation Genetic Testing Market. Europe's well-developed healthcare systems, advanced medical facilities, and regulatory frameworks governing assisted reproductive technologies and genetic testing contribute to the region's prominence in PGT adoption. The region also exhibits a substantial demand for fertility treatments, driven by factors such as delayed parenthood and increased awareness of genetic disorders.

#### Key Market Players

California Pacific Medical Center (CPMC)

CombiMatrix Corp

CooperSurgical, Inc.

F. Hoffmann-La Roche Ltd.

Genea Limited

Genesis Genetics

Good Start Genetics, Inc.

IGENOMIX

Illumina, Inc.

Invitae Corporation

Laboratory Corporation of America Holdings

#### Report Scope:

In this report, the Global Preimplantation Genetic Testing Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Preimplantation Genetic Testing Market, By Procedure:

Pre-implantation genetic diagnosis (PDS)

Preimplantation Genetic Screening (PGS)

Preimplantation Genetic Testing Market, By Product:

Reagents and Consumables

Instruments

Software

Preimplantation Genetic Testing Market, By Technology:

Next Generation Sequencing (NGS)

Polymerase Chain Reaction (PCR)

Fluorescent In-Situ Hybridization (FISH)

Others

Preimplantation Genetic Testing Market, By Application:

Chromosomal Abnormalities

X-linked Diseases

Embryo Testing

Aneuploidy Screening

HLA Typing

Other Applications

Global Preimplantation Genetic Testing Market, By region:

North America

United States

Canada

Mexico

Asia-Pacific

China

India

South Korea

Australia

Japan

Europe

Germany

France

United Kingdom

Spain

Italy

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Preimplantation Genetic Testing Market.

Available Customizations:

*Preimplantation Genetic Testing Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-...*



Global Preimplantation Genetic Testing Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

#### Company Information

Detailed analysis and profiling of additional market players (up to five).

## Contents

### **1. PRODUCT OVERVIEW**

- 1.1. Market Definition
- 1.2. Scope of the Market
  - 1.2.1. Markets Covered
  - 1.2.2. Years Considered for Study
  - 1.2.3. Key Market Segmentations

### **2. RESEARCH METHODOLOGY**

- 2.1. Objective of the Study
- 2.2. Baseline Methodology
- 2.3. Key Industry Partners
- 2.4. Major Association and Secondary Sources
- 2.5. Forecasting Methodology
- 2.6. Data Triangulation & Validation
- 2.7. Assumptions and Limitations

### **3. EXECUTIVE SUMMARY**

- 3.1. Overview of the Market
- 3.2. Overview of Key Market Segmentations
- 3.3. Overview of Key Market Players
- 3.4. Overview of Key Regions/Countries
- 3.5. Overview of Market Drivers, Challenges, Trends

### **4. VOICE OF CUSTOMER**

### **5. GLOBAL PREIMPLANTATION GENETIC TESTING MARKET OUTLOOK**

- 5.1. Market Size & Forecast
  - 5.1.1. By Value
- 5.2. Market Share & Forecast
  - 5.2.1. By Procedure (Pre-implantation genetic diagnosis (PGD), preimplantation genetic screening (PGS))
  - 5.2.2. By Product (Reagents and Consumables, Instruments, Software)

5.2.3. By Technology (Next Generation Sequencing, Polymerase Chain Reaction, Fluorescent In-Site Hybridization, Others)

5.2.4. By Application (Chromosomal Abnormalities, X-linked Diseases, Embryo Testing, HLA Typing, Others)

5.2.5. By End-Use Industry (Fertility Centres, Hospitals, Diagnostics Centres, Research Centres And Academic Labs)

5.2.6. By Company (2022)

5.2.7. By Region

5.3. Market Map

## **6. NORTH AMERICA PREIMPLANTATION GENETIC TESTING MARKET OUTLOOK**

6.1. Market Size & Forecast

6.1.1. By Value

6.2. Market Share & Forecast

6.2.1. By Procedure

6.2.2. By Product

6.2.3. By Application

6.2.4. By End-Use Industry

6.2.5. By Country

6.3. North America: Country Analysis

6.3.1. United States Preimplantation Genetic Testing Market Outlook

6.3.1.1. Market Size & Forecast

6.3.1.1.1. By Value

6.3.1.2. Market Share & Forecast

6.3.1.2.1. By Procedure

6.3.1.2.2. By Product

6.3.1.2.3. By Application

6.3.1.2.4. By End-Use Industry

6.3.2. Mexico Preimplantation Genetic Testing Market Outlook

6.3.2.1. Market Size & Forecast

6.3.2.1.1. By Value

6.3.2.2. Market Share & Forecast

6.3.2.2.1. By Procedure

6.3.2.2.2. By Product

6.3.2.2.3. By Application

6.3.2.2.4. By End-Use Industry

6.3.3. Canada Preimplantation Genetic Testing Market Outlook

6.3.3.1. Market Size & Forecast

- 6.3.3.1.1. By Value
- 6.3.3.2. Market Share & Forecast
  - 6.3.3.2.1. By Procedure
  - 6.3.3.2.2. By Product
  - 6.3.3.2.3. By Application
  - 6.3.3.2.4. By End-Use Industry

## **7. EUROPE PREIMPLANTATION GENETIC TESTING MARKET OUTLOOK**

- 7.1. Market Size & Forecast
  - 7.1.1. By Value
- 7.2. Market Share & Forecast
  - 7.2.1. By Procedure
  - 7.2.2. By Product
  - 7.2.3. By Application
  - 7.2.4. By End-Use Industry
  - 7.2.5. By Country
- 7.3. Europe: Country Analysis
  - 7.3.1. France Preimplantation Genetic Testing Market Outlook
    - 7.3.1.1. Market Size & Forecast
      - 7.3.1.1.1. By Value
    - 7.3.1.2. Market Share & Forecast
      - 7.3.1.2.1. By Procedure
      - 7.3.1.2.2. By Product
      - 7.3.1.2.3. By Application
      - 7.3.1.2.4. By End-Use Industry
  - 7.3.2. Germany Preimplantation Genetic Testing Market Outlook
    - 7.3.2.1. Market Size & Forecast
      - 7.3.2.1.1. By Value
    - 7.3.2.2. Market Share & Forecast
      - 7.3.2.2.1. By Procedure
      - 7.3.2.2.2. By Product
      - 7.3.2.2.3. By Application
      - 7.3.2.2.4. By End-Use Industry
  - 7.3.3. United Kingdom Preimplantation Genetic Testing Market Outlook
    - 7.3.3.1. Market Size & Forecast
      - 7.3.3.1.1. By Value
    - 7.3.3.2. Market Share & Forecast
      - 7.3.3.2.1. By Procedure

- 7.3.3.2.2. By Product
- 7.3.3.2.3. By Application
- 7.3.3.2.4. By End-Use Industry
- 7.3.4. Italy Preimplantation Genetic Testing Market Outlook
  - 7.3.4.1. Market Size & Forecast
    - 7.3.4.1.1. By Value
  - 7.3.4.2. Market Share & Forecast
    - 7.3.4.2.1. By Procedure
    - 7.3.4.2.2. By Product
    - 7.3.4.2.3. By Application
    - 7.3.4.2.4. By End-Use Industry
- 7.3.5. Spain Preimplantation Genetic Testing Market Outlook
  - 7.3.5.1. Market Size & Forecast
    - 7.3.5.1.1. By Value
  - 7.3.5.2. Market Share & Forecast
    - 7.3.5.2.1. By Procedure
    - 7.3.5.2.2. By Product
    - 7.3.5.2.3. By Application
    - 7.3.5.2.4. By End-Use Industry

## **8. ASIA-PACIFIC PREIMPLANTATION GENETIC TESTING MARKET OUTLOOK**

- 8.1. Market Size & Forecast
  - 8.1.1. By Value
- 8.2. Market Share & Forecast
  - 8.2.1. By Procedure
  - 8.2.2. By Product
  - 8.2.3. By Application
  - 8.2.4. By End-Use Industry
  - 8.2.5. By Country
- 8.3. Asia-Pacific: Country Analysis
  - 8.3.1. China Preimplantation Genetic Testing Market Outlook
    - 8.3.1.1. Market Size & Forecast
      - 8.3.1.1.1. By Value
    - 8.3.1.2. Market Share & Forecast
      - 8.3.1.2.1. By Procedure
      - 8.3.1.2.2. By Product
      - 8.3.1.2.3. By Application
      - 8.3.1.2.4. By End-Use Industry

### 8.3.2. India Preimplantation Genetic Testing Market Outlook

#### 8.3.2.1. Market Size & Forecast

##### 8.3.2.1.1. By Value

#### 8.3.2.2. Market Share & Forecast

##### 8.3.2.2.1. By Procedure

##### 8.3.2.2.2. By Product

##### 8.3.2.2.3. By Application

##### 8.3.2.2.4. By End-Use Industry

### 8.3.3. South Korea Preimplantation Genetic Testing Market Outlook

#### 8.3.3.1. Market Size & Forecast

##### 8.3.3.1.1. By Value

#### 8.3.3.2. Market Share & Forecast

##### 8.3.3.2.1. By Procedure

##### 8.3.3.2.2. By Product

##### 8.3.3.2.3. By Application

##### 8.3.3.2.4. By End-Use Industry

### 8.3.4. Japan Preimplantation Genetic Testing Market Outlook

#### 8.3.4.1. Market Size & Forecast

##### 8.3.4.1.1. By Value

#### 8.3.4.2. Market Share & Forecast

##### 8.3.4.2.1. By Procedure

##### 8.3.4.2.2. By Product

##### 8.3.4.2.3. By Application

##### 8.3.4.2.4. By End-Use Industry

### 8.3.5. Australia Preimplantation Genetic Testing Market Outlook

#### 8.3.5.1. Market Size & Forecast

##### 8.3.5.1.1. By Value

#### 8.3.5.2. Market Share & Forecast

##### 8.3.5.2.1. By Procedure

##### 8.3.5.2.2. By Product

##### 8.3.5.2.3. By Application

##### 8.3.5.2.4. By End-Use Industry

## **9. SOUTH AMERICA PREIMPLANTATION GENETIC TESTING MARKET OUTLOOK**

### 9.1. Market Size & Forecast

#### 9.1.1. By Value

### 9.2. Market Share & Forecast

#### 9.2.1. By Procedure

- 9.2.2. By Product
- 9.2.3. By Application
- 9.2.4. By End-Use Industry
- 9.2.5. By Country
- 9.3. South America: Country Analysis
  - 9.3.1. Brazil Preimplantation Genetic Testing Market Outlook
    - 9.3.1.1. Market Size & Forecast
      - 9.3.1.1.1. By Value
    - 9.3.1.2. Market Share & Forecast
      - 9.3.1.2.1. By Procedure
      - 9.3.1.2.2. By Product
      - 9.3.1.2.3. By Application
      - 9.3.1.2.4. By End-Use Industry
  - 9.3.2. Argentina Preimplantation Genetic Testing Market Outlook
    - 9.3.2.1. Market Size & Forecast
      - 9.3.2.1.1. By Value
    - 9.3.2.2. Market Share & Forecast
      - 9.3.2.2.1. By Procedure
      - 9.3.2.2.2. By Product
      - 9.3.2.2.3. By Application
      - 9.3.2.2.4. By End-Use Industry
  - 9.3.3. Colombia Preimplantation Genetic Testing Market Outlook
    - 9.3.3.1. Market Size & Forecast
      - 9.3.3.1.1. By Value
    - 9.3.3.2. Market Share & Forecast
      - 9.3.3.2.1. By Procedure
      - 9.3.3.2.2. By Product
      - 9.3.3.2.3. By Application
      - 9.3.3.2.4. By End-Use Industry

## **10. MIDDLE EAST AND AFRICA PREIMPLANTATION GENETIC TESTING MARKET OUTLOOK**

- 10.1. Market Size & Forecast
  - 10.1.1. By Value
- 10.2. Market Share & Forecast
  - 10.2.1. By Procedure
  - 10.2.2. By Product
  - 10.2.3. By Application

- 10.2.4. By End-Use Industry
- 10.2.5. By Country
- 10.3. MEA: Country Analysis
  - 10.3.1. South Africa Preimplantation Genetic Testing Market Outlook
    - 10.3.1.1. Market Size & Forecast
      - 10.3.1.1.1. By Value
    - 10.3.1.2. Market Share & Forecast
      - 10.3.1.2.1. By Procedure
      - 10.3.1.2.2. By Product
      - 10.3.1.2.3. By Application
      - 10.3.1.2.4. By End-Use Industry
  - 10.3.2. Saudi Arabia Preimplantation Genetic Testing Market Outlook
    - 10.3.2.1. Market Size & Forecast
      - 10.3.2.1.1. By Value
    - 10.3.2.2. Market Share & Forecast
      - 10.3.2.2.1. By Procedure
      - 10.3.2.2.2. By Product
      - 10.3.2.2.3. By Application
      - 10.3.2.2.4. By End-Use Industry
  - 10.3.3. UAE Preimplantation Genetic Testing Market Outlook
    - 10.3.3.1. Market Size & Forecast
      - 10.3.3.1.1. By Value
    - 10.3.3.2. Market Share & Forecast
      - 10.3.3.2.1. By Procedure
      - 10.3.3.2.2. By Product
      - 10.3.3.2.3. By Application
      - 10.3.3.2.4. By End-Use Industry

## **11. MARKET DYNAMICS**

- 11.1. Drivers
- 11.2. Challenges

## **12. MARKET TRENDS & DEVELOPMENTS**

- 12.1. Recent Developments
- 12.2. Product Launches
- 12.3. Mergers & Acquisitions



## **13. PESTLE ANALYSIS**

## **14. PORTER'S FIVE FORCES ANALYSIS**

- 14.1. Competition in the Industry
- 14.2. Potential of New Entrants
- 14.3. Power of Suppliers
- 14.4. Power of Customers
- 14.5. Threat of Substitute Product

## **15. COMPETITIVE LANDSCAPE**

- 15.1. Business Overview
- 15.2. Company Snapshot
- 15.3. Products & Services
- 15.4. Financials (In case of listed companies)
- 15.5. Recent Developments
- 15.6. SWOT Analysis
  - 15.6.1. California Pacific Medical Center (CPMC)
  - 15.6.2. CombiMatrix
  - 15.6.3. CooperSurgical, Inc.
  - 15.6.4. F. Hoffmann-La Roche Ltd.
  - 15.6.5. Genea Limited
  - 15.6.6. Genesis Genetics
  - 15.6.7. Good Start Genetics, Inc.
  - 15.6.8. IGENOMIX
  - 15.6.9. Illumina, Inc.
  - 15.6.10. Invitae Corporation
  - 15.6.11. Laboratory Corporation of America Holdings

## **16. STRATEGIC RECOMMENDATIONS**

## I would like to order

Product name: Preimplantation Genetic Testing Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028 Segmented By Procedure (Pre-implantation genetic diagnosis (PDS), Preimplantation Genetic Screening (PGS)) By Product (Reagents and Consumables, Instruments, Software), By Technology (Next Generation Sequencing (NGS), Polymerase Chain Reaction (PCR), Fluorescent In-Situ Hybridization (FISH), Others), By Application (Chromosomal Abnormalities, X-linked Diseases, Embryo Testing, Aneuploidy Screening, HLA Typing, Other Applications), By End-Use Industry (Fertility Centers, Hospitals, Diagnostic Centers, Research Centers and Academic Labs), By Region, Competition

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