

# **Optogenetics Market Size, Trends, Analysis, and Outlook By Light Equipment (Laser, Light-emitting Diode (LED)), By Actuator (Channelrhodopsin, Halorhodopsin, Archaerhodopsin), By Sensor (Calcium, Chloride, Membrane-gated (Mermaid), Others), By Application (Neuroscience, Behavioral Tracking, Retinal Disease Treatment, Others), by Region, Country, Segment, and Companies, 2024-2030**

<https://marketpublishers.com/r/OA7F014E5225EN.html>

Date: March 2024

Pages: 190

Price: US\$ 3,980.00 (Single User License)

ID: OA7F014E5225EN

## **Abstracts**

The global Optogenetics market size is poised to register 4.9% growth from 2024 to 2030, presenting significant growth prospects for companies operating in the industry. The industry study analyzes the global Optogenetics market across By Light Equipment (Laser, Light-emitting Diode (LED)), By Actuator (Channelrhodopsin, Halorhodopsin, Archaerhodopsin), By Sensor (Calcium, Chloride, Membrane-gated (Mermaid), Others), By Application (Neuroscience, Behavioral Tracking, Retinal Disease Treatment, Others).

The Optogenetics market is experiencing rapid growth attributed to the expanding research in neuroscience, advancements in gene editing technologies, and increasing applications in neuroscience research, biotechnology, and drug discovery. Optogenetics is a revolutionary technique that combines genetic engineering with optics to control the activity of specific neurons or cells using light-sensitive proteins, known as opsins. Key factors driving market growth include the rising demand for optogenetic tools for studying neural circuits and brain function, as well as the development of novel optogenetic therapies for neurological disorders such as Parkinson's disease, epilepsy, and depression. Additionally, the growing availability of optogenetic equipment and

reagents, along with the integration of optogenetics with other technologies like electrophysiology and imaging, is expanding its utility in preclinical research and drug development. Moreover, ongoing advancements in gene delivery methods and opsin engineering are enhancing the precision and efficiency of optogenetic techniques, enabling researchers to address complex questions in neuroscience with greater accuracy and control. Furthermore, the increasing investment in research and development by academic institutions, pharmaceutical companies, and government agencies, coupled with the growing adoption of optogenetics in translational medicine and therapeutic applications, is driving market expansion. With the continuous innovation in optogenetic tools and the expanding scope of applications in neuroscience and biomedicine, the optogenetics market is poised for continued growth and transformative impact on understanding brain function and treating neurological disorders.

### Optogenetics Market Drivers, Trends, Opportunities, and Growth Opportunities

This comprehensive study discusses the latest trends and the most pressing challenges for industry players and investors. The Optogenetics market research analyses the global market trends, key drivers, challenges, and opportunities in the industry. In addition, the latest Future of Optogenetics survey report provides the market size outlook across types, applications, and other segments across the world and regions. It provides data-driven insights and actionable recommendations for companies in the Optogenetics industry.

### Key market trends defining the global Optogenetics demand in 2024 and Beyond

The industry continues to remain an attractive hub for opportunities for both domestic and global vendors. As the market evolves, factors such as emerging market dynamics, demand from end-user sectors, a growing patient base, changes in consumption patterns, and widening distribution channels continue to play a major role.

### Optogenetics Market Segmentation- Industry Share, Market Size, and Outlook to 2030

The Optogenetics industry comprises a wide range of segments and sub-segments. The rising demand for these product types and applications is supporting companies to increase their investment levels across niche segments. Accordingly, leading companies plan to generate a large share of their future revenue growth from expansion into these niche segments. The report presents the market size outlook across segments to support Optogenetics companies scaling up production in these sub-

segments with a focus on expanding into emerging countries.

Key strategies adopted by companies within the Optogenetics industry

Leading Optogenetics companies are boosting investments to capitalize on untapped potential and future possibilities across niche market segments and surging demand conditions in key regions. Further, companies are leveraging advanced technologies to unlock opportunities and achieve operational excellence. The report provides key strategies opted for by the top 10 Optogenetics companies.

Optogenetics Market Study- Strategic Analysis Review

The Optogenetics market research report dives deep into the qualitative factors shaping the market, empowering you to make informed decisions-

**Industry Dynamics:** Porter's Five Forces analysis to understand bargaining power, competitive rivalry, and threats that impact long-term strategy formulation.

**Strategic Insights:** Provides valuable perspectives on key players and their approaches based on comprehensive strategy analysis.

**Internal Strengths and Weaknesses:** Develop targeted strategies to leverage strengths, address weaknesses, and capitalize on market opportunities.

**Future Possibilities:** Prepare for diverse outcomes with in-depth scenario analysis. Explore potential market disruptions, technology advancements, and economic changes.

Optogenetics Market Size Outlook- Historic and Forecast Revenue in Three Cases

The Optogenetics industry report provides a detailed analysis and outlook of revenue generated by companies from 2018 to 2023. Further, with actual data for 2023, the report forecasts the market size outlook from 2024 to 2030 in three case scenarios- low case, reference case, and high case scenarios.

Optogenetics Country Analysis and Revenue Outlook to 2030

The report analyses 22 countries worldwide including the key driving forces and market size outlook from 2021 to 2030. In addition, region analysis across Asia Pacific, Europe, the Middle East, Africa, North America, and South America is included in the study. For each of the six regions, the market size outlook by segments is forecast for 2030.

#### North America Optogenetics Market Size Outlook- Companies plan for focused investments in a changing environment

The US continues to remain the market leader in North America, driven by a large consumer base, the presence of well-established providers, and a strong end-user industry demand. Leading companies focus on new product launches in the changing environment. The US economy is expected to grow in 2024 (around 2.2% growth in 2024), potentially driving demand for various Optogenetics market segments. Similarly, Strong end-user demand is encouraging Canadian Optogenetics companies to invest in niche segments. Further, as Mexico continues to strengthen its trade relations and invest in technological advancements, the Mexico Optogenetics market is expected to experience significant expansion, offering lucrative opportunities for both domestic and international stakeholders.

#### Europe Optogenetics Market Size Outlook-Companies investing in assessing consumers, categories, competitors, and capabilities

The German industry remains the major market for companies in the European Optogenetics industry with consumers in Germany, France, the UK, Spain, Italy, and others anticipated to register a steady demand throughout the forecast period, driving the overall market prospects. In addition, the proactive approach of businesses in identifying and leveraging new growth prospects positions the European Optogenetics market for an upward trajectory, fostering both domestic and international interest. Leading brands operating in the industry are emphasizing effective marketing strategies, innovative product offerings, and a keen understanding of consumer preferences.

#### Asia Pacific Optogenetics Market Size Outlook- an attractive hub for opportunities for both local and global companies

The increasing prevalence of indications, robust healthcare expenditure, and increasing investments in healthcare infrastructure drive the demand for Optogenetics in Asia Pacific. In particular, China, India, and South East Asian Optogenetics markets present a compelling outlook for 2030, acting as a magnet for both domestic and multinational

manufacturers seeking growth opportunities. Similarly, with a burgeoning population and a rising middle class, India offers a vast consumer market. Japanese and Korean companies are quickly aligning their strategies to navigate changes, explore new markets, and enhance their competitive edge. Our report utilizes in-depth interviews with industry experts and comprehensive data analysis to provide a comprehensive outlook of 6 major markets in the region.

**Latin America Optogenetics Market Size Outlook-** Continued urbanization and rising income levels

Rising income levels contribute to greater purchasing power among consumers, spurring consumption and creating opportunities for market expansion. Continued urbanization and rising income levels are expected to sustainably drive consumption growth in the medium to long term.

**Middle East and Africa Optogenetics Market Size Outlook-** continues its upward trajectory across segments

Robust demand from Middle Eastern countries including Saudi Arabia, the UAE, Qatar, Kuwait, and other GCC countries supports the overall Middle East Optogenetics market potential. Fueled by increasing healthcare expenditure of individuals, growing population, and high prevalence across a few markets drives the demand for Optogenetics.

**Optogenetics Market Company Profiles**

The global Optogenetics market is characterized by intense competitive conditions with leading companies opting for aggressive marketing to gain market shares. The report presents business descriptions, SWOT analysis, growth strategies, and financial profiles. Leading companies included in the study are Addgene, AHF analysentechnik AG, Axion BioSystems Inc, Bruker Corp, Coherent Inc, Digital Light Innovations, Doric Lenses, GenSight Biologics S.A., HUBNER GmbH and Co. KG, Inscopix Inc, Judges Scientific plc, Laserglow Technologies, Neurolux, Noldus Information Technology BV, Novanta Inc, Plexon Inc, Prizmatix Ltd, RPMC Lasers Inc, Shanghai Laser and Optics Century Co. Ltd, The Jackson Laboratory, Thorlabs Inc

**Recent Optogenetics Market Developments**

The global Optogenetics market study presents recent market news and developments

including new product launches, mergers, acquisitions, expansions, product approvals, and other updates in the industry.

## Optogenetics Market Report Scope

Parameters: Revenue, Volume Price

Study Period: 2023 (Base Year); 2018- 2023 (Historic Period); 2024- 2030 (Forecast Period)

Currency: USD; (Upon request, can be provided in Euro, JPY, GBP, and other Local Currency)

## Qualitative Analysis

Pricing Analysis

Value Chain Analysis

SWOT Profile

Market Dynamics- Trends, Drivers, Challenges

Porter's Five Forces Analysis

Macroeconomic Impact Analysis

Case Scenarios- Low, Base, High

## Market Segmentation:

By Light Equipment

Laser

Light-emitting Diode (LED)

By Actuator

*Optogenetics Market Size, Trends, Analysis, and Outlook By Light Equipment (Laser, Light-emitting Diode (LED))...*

Channelrhodopsin

Halorhodopsin

Archaerhodopsin

By Sensor

Calcium

Chloride (Clomeleon)

Membrane-gated (Mermaid)

Others

By Application

Neuroscience

Behavioral Tracking

Retinal Disease Treatment

Others

Geographical Segmentation:

North America (3 markets)

Europe (6 markets)

Asia Pacific (6 markets)

Latin America (3 markets)

Middle East Africa (5 markets)

## Companies

Addgene

AHF analysentechnik AG

Axion BioSystems Inc

Bruker Corp

Coherent Inc

Digital Light Innovations

Doric Lenses

GenSight Biologics S.A.

HUBNER GmbH and Co. KG

Inscopix Inc

Judges Scientific plc

Laserglow Technologies

Neurolux

Noldus Information Technology BV

Novanta Inc

Plexon Inc

Prizmatix Ltd

RPMC Lasers Inc

Shanghai Laser and Optics Century Co. Ltd



The Jackson Laboratory

Thorlabs Inc

Formats Available: Excel, PDF, and PPT

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    - Light-emitting Diode (LED)
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Channelrhodopsin

Halorhodopsin

Archaeorhodopsin

By Sensor

Calcium

Chloride (Clomeleon)

Membrane-gated (Mermaid)

Others

By Application

Neuroscience

Behavioral Tracking

Retinal Disease Treatment

Others

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Addgene

AHF analysentechnik AG

Axion BioSystems Inc

Bruker Corp

Coherent Inc

Digital Light Innovations

Doric Lenses

GenSight Biologics S.A.

HUBNER GmbH and Co. KG

Inscopix Inc

Judges Scientific plc

Laserglow Technologies

Neurolux

Noldus Information Technology BV

Novanta Inc

Plexon Inc

Prizmatix Ltd

RPMC Lasers Inc

Shanghai Laser and Optics Century Co. Ltd

The Jackson Laboratory

Thorlabs Inc

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