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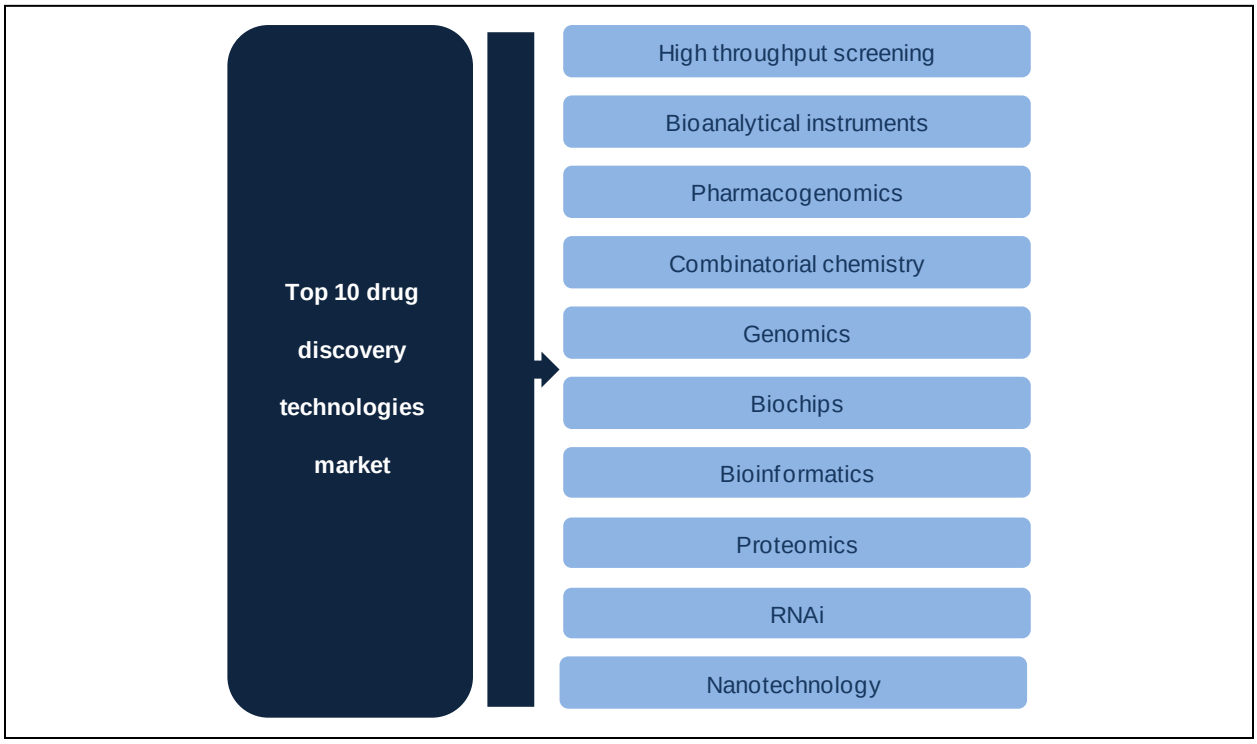
M&M covers thirteen industry verticals, including advanced materials, automotive and transportation, banking and financial services, biotechnology, chemicals, consumer goods energy and power, food and beverages, industrial automation, medical devices, pharmaceuticals, semiconductor and electronics, and telecommunications and IT.

1 INTRODUCTION

The market for global top 10 drug discovery technologies is segmented as illustrated below. These technologies include high throughput screening (robotics and automation, cell based assays, miniaturization, high content screening and ultra high throughput screening) bioanalytical instruments (mass spectrometry, NMR, micro plate readers and chemotherapy instruments), pharmacogenomics, combinatorial chemistry, genomics (functional and structural genomics), biochips (DNA microarrays, lab on a chips, proteomics microarrays), bioinformatics, proteomics (2DGE, two hybrid systems, isotope encoding and activity based assays), RNAi (siRNA, miRNA, ddRNAi, short hairpin RNAs) and nanotechnology (Atomic force microscopy, nano mass spectroscopy, dip pen nanolithography and other nanotechnologies) (This report provides an in depth analysis of these segments with respect to the trends in the industry, revenue and burning issues within each technology market. The top technologies are identified based on their utilization in the process of drug discovery by different industries such as pharmaceutical, biotechnology and academia.

FIGURE 1

TOP 10 DRUG DISCOVERY TECHNOLOGIES MARKET SEGMENTATION



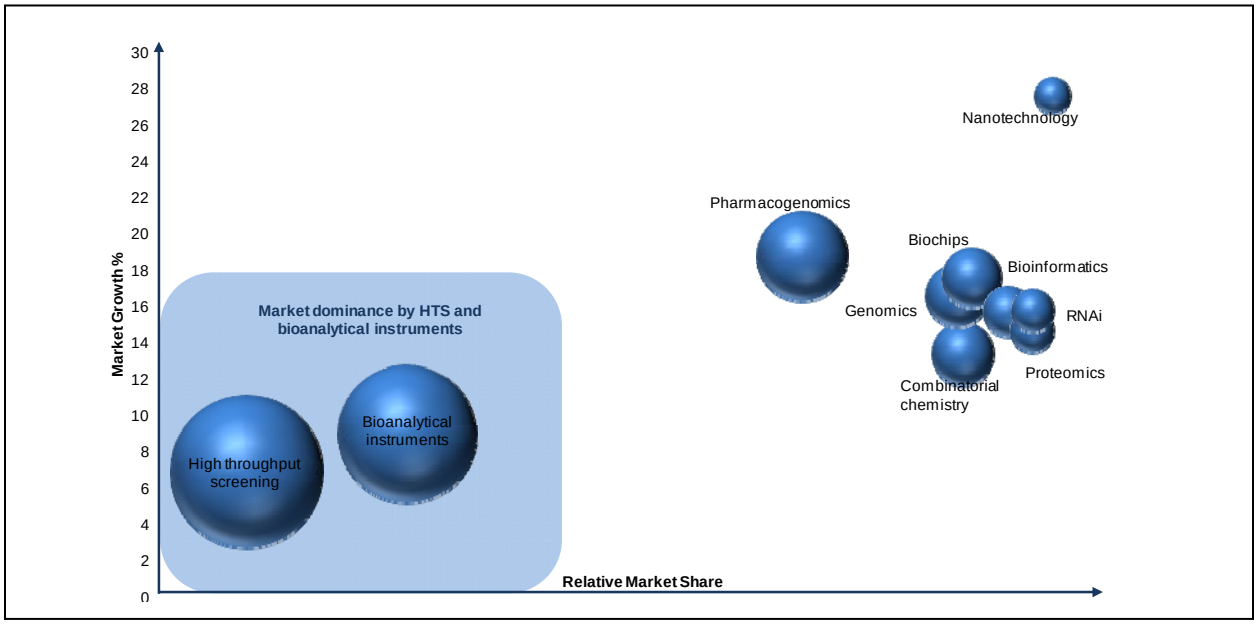
Source: MarketsandMarkets

1.1 HIGH THROUGHPUT SCREENING & BIOANALYTICAL INSTRUMENTS LEADING THE MARKET

The process of drug discovery is highly complex, requiring multidisciplinary processes. Screening of approximately a million compounds leads to the development of one marketable drug. High throughput screening (HTS) accounts for the largest share – XX% in the drug discovery technologies; it has the capability to collect significant amount of data at short intervals and can test thousands of compounds in a day. High utility of cell based assays, high content screening and ultra high throughput screening in the process of drug discovery makes HTS the major segment. The increasing utilization of HTS in the lead generation and increasing adoption of the technology by the academia are some of the prime market boosters for high throughput screening. Bioanalytical instruments account for 28% share in the global top 10 drug discovery technologies. Increasing applications of mass spectrometry -a blockbuster technology, along with microplate readers and NMR have resulted in the increased market share for bioanalytical instruments. Nanotechnology is one of the fastest growing segments among the drug discovery technologies which is estimated to grow at a CAGR of XX% from 2010-2015. Atomic force microscopy is one of the leading technologies under this segment as it offers high resolution analysis while observing atomic level features. Biochips and pharmacogenomics are other markets growing at a significant growth rate.

FIGURE 2

RELATIVE MARKET SCENARIO (2010)



Source: MarketsandMarkets

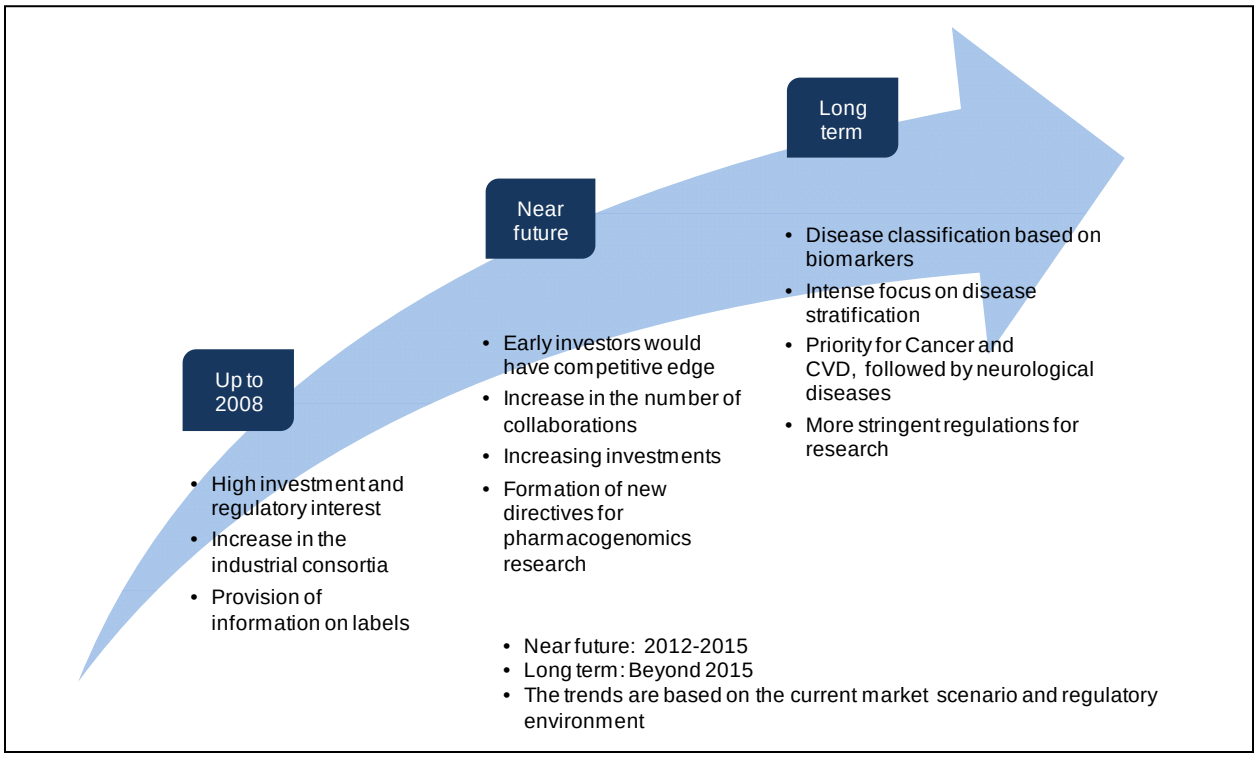
The pharmaceutical industry has started focusing on personalized medicine approach due to following factors:

- Rise in the demand by patients for safe and effective drugs
- Need for increased productivity
- Highly competitive environment
- Huge advancements in the pharmacogenomics technology

Although there have been continuous efforts for reduction of drug development time period, the time taken for the introduction of a new drug into the market is around XX-XX years. The research and development expenses have also increased significantly over the past decade. With the decrease in the new drugs entering the pharmaceutical market, pharmacogenomics is expected to bring more opportunities for enhancing the productivity for the pharmaceutical industry.

FIGURE 3

FUTURE ADVANCEMENTS IN THE PHARMACOGENOMICS RESEARCH

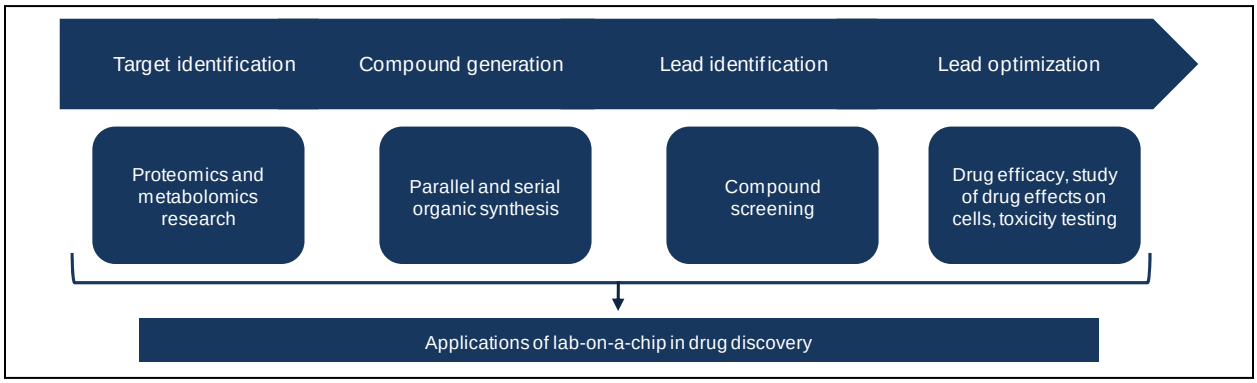


Source: MarketsandMarkets

Lab- on-a-chip technology is used in the research which requires miniaturizing of biological and chemical process. Life science researchers have been increasingly applying lab on a chip technology in the drug discovery process for the reduction of costly reagents and speeding up the biological and chemical reactions. Lab-on-a-chip technology has diverse applications in the different stages of drug discovery such as compound generation, lead optimization, lead identification and target identification.

FIGURE 4

APPLICATIONS OF LAB-ON-A-CHIP TECHNOLOGY IN DRUG DISCOVERY



Source: MarketsandMarkets