Rapid Growth in the Cystic Fibrosis Market is Expected from 2012 to 2017

GlobalData estimates the 2012 sales for cystic fibrosis (CF) to be approximately $1.2 billion across the six markets covered in this forecast: the US, France, Germany, Italy, Spain and the UK. By the end of the forecast period, sales will grow to approximately $4.6 billion, with a compound annual growth rate (CAGR) of 31.9%. The majority of sales will come from the US, which represents more than 65% of the market.

Major drivers to the growth of the CF market over the forecast period will include:

- The introduction of the high-priced, first-in-class, disease-modifying drug, Vertex Pharmaceuticals’ Kalydeco (ivacaftor) in 2012, followed by the introduction of novel, high-priced, disease-modifying cystic fibrosis transmembrane conductance regulator (CFTR) modulators during the forecast period
- The growing prevalence of CF due to the overall population growth and continuously increasing life expectancy of CF patients

Major barriers to the growth of the CF market will include:

- The high price of CFTR modulators, which may prevent their reimbursement by local health authorities and health insurance companies
- The complexity inherent in the pathophysiology and molecular mechanisms involved in the development of CF, which will continue to hinder the development of safe and effective agents for the management of CF
Below mentioned figure illustrates the CF sales for the six major markets during the forecast period.

**Emerging Market Players are Employing Diverse R&D Strategies to Gain Entry in the CF Market**

The CF market has historically been dominated by two players: Novartis and Roche. Novartis developed the first inhaled antibiotic, TOBI (tobramycin) for the treatment of chronic lung infections due to *Pseudomonas aeruginosa* in patients with CF, and Roche the first mucolytic agent, Pulmozyme (dornase alfa), for clearing the blocked airways of the sticky mucus in the CF lungs. Both regimens were introduced into the CF market more than a decade ago and to date remain the gold-standard therapies for the management of CF.

The CF therapeutic area, however, is becoming increasingly populated with new products and market players. R&D strategies are diverse. For inhaled antibiotics, the focus is on the development of new classes and formulations of inhaled antibiotics that can reduce therapy burden and improve compliance for the management of chronic lung infections. Examples include the development of Novartis’ TOBI Podhaler (tobramycin dry powder) and Forest Laboratories’ Colobreathe (colistimethate sodium dry powder) that reduce time of administration by more than 70%. Another example includes the development of a first-in-class liposomal reformulation of amikacin by Insmed for more optimal delivery of the antibiotic into the lungs and reduced overall therapy burden.

The approval of Vertex’s Kalydeco (ivacaftor) in 2012, a CFTR modulator and the first disease-modifying drug that entered the CF market, paved the way for this new class of therapies. Vertex is at the forefront with the development of novel CFTR modulators that can potentially treat the vast majority of CF patients. PTC Therapeutics is also aligning its strategy to target this lucrative and exciting segment of the CF market.
Eli Lilly is developing the first pancreatic enzyme product that is not derived from an animal source, while a large number of small-sized pharmaceutical and biotechnology companies are pursuing proof-of-concept strategies for the development of novel agents that can exert mucolytic, anti-inflammatory and anti-microbial properties.

Other corporate trends include entering partnerships and acquisitions in a bid for companies to broaden their pipeline portfolio to include orphan diseases such as CF or to build important experience in this niche market. Examples include the acquisitions of Mpex Pharmaceuticals by Aptalis and Alnara Pharmaceuticals by Eli Lilly, and the licensing of Bramitob to Cornerstone Therapeutics by Chiesi Farmaceutici. With the vast majority of novel therapeutic agents for CF being developed by small to medium-sized pharmaceutical and biotechnology companies, GlobalData anticipates that licensing activity and the formation of new partnerships will steer these companies to continue researching novel compounds for CF.

A Curative Therapy is the Most Pressing Unmet Need in CF

The development of therapies that can effectively address the underlying cause of CF and provide a cure for this disease is the greatest unmet need. Kalydeco is the only marketed drug that improves the function of the defective CFTR protein and offers significant improvements in CF patients’ lives. However, it is only indicated for patients with the G551D mutation (approximately 4% of all CF patients), and diseased patients (patients that have developed lung disease) are not recommended to discontinue from symptomatic treatments. CF patients have to deal with an enormous daily therapy burden and very limited treatment options. There is a significant need for new symptomatic treatment options that can reduce therapy burden and improve compliance, as well as offer options to patients that are unresponsive or cannot tolerate the available treatments. This includes new classes and formulations of inhaled antibiotics and mucolytic therapies. Another significant unmet need is the lack of safe and effective anti-inflammatory agents that can control chronic inflammation and lung damage which occur in patients with CF.

Significant Opportunities Exist for New CFTR Modulators

Following the approval of Kalydeco, there is currently enormous excitement for CFTR modulators that modify the course of the disease and potentially turn this life-threatening condition into a chronic one. New CFTR modulators that can target patients with specific mutations will have significant market opportunities. Due to chronic administration of antibiotics and the development of antibiotic resistance the demand for new classes of antibiotics will be high. Inhaled antibiotics that are also easy, are quick to administer, and improve compliance will have a competitive edge over currently available gold-standard inhaled antibiotic therapies.

Only three mucolytic agents are available for patients with CF, and ibuprofen is the only anti-inflammatory agent that is recommended for use. Mucolytic agents that are more effective and longer lasting, and anti-inflammatory agents that are safe to use and can effectively regulate chronic inflammatory responses in the lungs of CF patients, will be highly welcomed by the CF community.
What do the Physicians Think?

- The Key Opinion Leaders (KOLs) interviewed for this report highlighted the significant unmet needs for managing CF and the remaining market opportunities.

  "We are still in the Stone Age in terms of treating CF. The therapies are late, they are certainly not ideal, there is no [therapy that is a] blockbuster, there is no therapy that’s been shown that changed mortality and we have a long way to go. On the positive side, we do have a number of well-known targets to go after."


- KOLs reaffirmed their excitement for disease-modifying CFTR modulators and stressed the importance of developing new treatment options and improving symptomatic therapies.

  "I would say [that Kalydeco] is the most interesting new drug that has ever appeared in my entire career."

  [EU] Key Opinion Leader, February 2013

  "People are certainly enthusiastic, because of Kalydeco, and I think it is interesting looking at the combination therapy with the two Vertex drugs and other CFTR modulating therapies."

  [US] Key Opinion Leader, January 2013

  "We have a long way to go in terms of trying to optimize that particular therapeutic arm. We have TOBI, Cayston, Colistin, but they are late therapies and their benefits, even though they are there, in truth they are very mild."


- Physicians' experience with products plays a very important role in selecting symptomatic therapy treatments.

  "I would advocate looking in that [mucolytics] particular area, we are sort of stagnated, we have Pulmozyme which is not very aiding, hypertonic saline, which has come and gone, and even in terms of the mechanic measures they are limited also, so we still have a long way to go in terms of optimizing airway clearance."


- Despite the great drug and therapy development challenges for CF, pharmaceutical and biotechnology companies will benefit from a very supportive scientific and patient community.

  "We have come a long way, but everything that comes along, we are going to advocate and we are going to uptake, and we are going to use and we are going to fight to gain reimbursement for and we are going to do the studies that are necessary."


  "We want to do clinical research and bring new medicines to patients as quickly as possible."

  [EU] Key Opinion Leader, January 2013
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2 Introduction

2.1 Catalyst

The CF market reached approximately $1.2 billion in 2012 and is set to enter an exciting phase with:

- The approval of the first disease-modifying drug Vertex's CFTR modulator, Kalydeco (ivacaftor) in 2012. The approval of Kalydeco has paved the way for a new class of therapies, known as CFTR modulators, for the management of CF. These therapies offer a personalized treatment approach, which can have a significant impact on patients' lives and be highly profitable for its developers. Two other CFTR modulators are in the pipeline awaiting approval, Vertex's Lumacaftor/Kalydeco combination therapy and PTC Therapeutics’ Ataluren (PTC124).

- The impending patent expires in 2014 of Novartis’ TOBI (tobramycin) and Roche’s Pulmozyme (dornase alfa), the two gold-standard therapies for the management of CF.

- The increasingly competitive inhaled antibiotics segment of the CF market, with the impending approval of two pipeline drugs, Aptalis’ Aeroquin (levofloxacin) and Insmed’s Arikace (amikacin).

- The development of Eli Lilly’s liprotamase (LY3031642), the first pancreatic enzyme product that does not derive from an animal source.

2.2 Related Reports


2.3 Upcoming Related Reports

10.7 About GlobalData

GlobalData is a leading global provider of business intelligence in the Healthcare industry. GlobalData provides its clients with up-to-date information and analysis on the latest developments in drug research, disease analysis, and clinical research and development. Our integrated business intelligence solutions include a range of interactive online databases, analytical tools, reports and forecasts. Our analysis is supported by a 24/7 client support and analyst team.

GlobalData has offices in New York, Boston, London, India and Singapore.

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