**Equity Research**

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# Codexis, Inc. (CDXS-$9.97)

**Rating: BUY**

**Target Price: $13.00**

## Initiating Coverage -- Enabling Pharma/Fuels Enzymes -- BUY $13 Price Target

| EPS | 1Q | 2Q | 3Q | 4Q |
|---|---|---|---|---|
| 2008A | --- | --- | --- | --- |
| 2009A | --- | --- | --- | --- |
| 2010E | (0.50)A | (0.15)E | (0.17)E | (0.09)E |
| 2011E | (0.15)E | (0.16)E | (0.16)E | (0.05)E |

| FY | 2008A | 2009A | 2010E | 2011E |
|---|---|---|---|---|
| EPS | (18.96)A | (7.74)A | (0.58)E | (0.53)E |
| P/E | NM | NM | NM | NM |

*Sum of quarterly EPS may not equal full-year total due to rounding and/or change in share count.*

- We are initiating coverage of Codexis with a BUY rating and a $13 price target. We think CDXS is under valued at its current market capitalization. Codexis' technology platform has broad applications in multiple bioindustrial markets with substantial commercial opportunities, in our view.
- Codexis is part of a key alliance with Shell (NYSE:RDS,NC) developing cellulases and other biocatalysts to convert cellulosic biomass into sugars and biodiesel/ethanol-producing yeasts to convert sugars into two advanced biofuels, cellulosic ethanol and biohydrocarbon diesel.
- That said, we think Codexis could become a key player in bioenergy via partner Shell by leveraging its proprietary technology platform to generate enabling enzymes required for cellulosic ethanol production and into additional carbon-related businesses.
- Codexis currently sells biocatalysts (enzymes, microbes) and value-added pharmaceutical intermediates/APIs through a green chemistry manufacturing alternative to conventional processes that has potential to improve pharma customers' gross margins while reducing environmental impact. Management has guided to additional pharma partnerships that we think could contribute to near-term revenue growth.
- We consider Codexis' steady revenue stream and strong partnerships key de-risking factors to secure near- and long-term cash flow. However, we think the service nature of its business model could preclude long-term margin expansion of its pharma business and margin pressure from pharma could eventually erode near-term process advantages to its pharma partners and therefore dampen long-term revenue generation of this business.

**Current Statistics**

| | | | |
|---|---|---|---|
| **Market Cap ($Mil)** | **$339.8** | **Institutional Holdings:** | **NA** |
| **Avg. Daily Trading Volume (3 mo.):** | **NA** | **Technology Value (TV):** | **$279.837** |
| **Shares Out (Mil):** | **34.084** | **Cash (Mil):** | **$55.563** |
| **Float Shares (Mil):** | **6.104** | **Short Interest (Mil):** | **0.118** |

**Company Description**

*Codexis (www.codexis.com) applies its proprietary technology to create and optimize biocatalysts that enable the manufacture of products cost-effectively, at commercial scale and with significantly reduced environmental impact relative to conventional manufacturing processes. The company develops products for energy, pharmaceutical, and environmental industries. Codexis has alliances with market leading companies including Pfizer, Merck, Roche, Teva, and Shell.*

The Disclosure Section may be found on pages 28 - 31 of this report.

## Executive Summary

We are initiating coverage of Codexis with a BUY rating and a $13 price target. We think CDXS is under valued at its current market capitalization. Codexis' technology platform has broad applications in multiple bioindustrial markets with substantial commercial opportunities, in our view. That said, we await proof-of-technology of the new biofuels and carbon-related businesses and market adoption in the company's pharma biocatalyst business.

### Near-term biocatalysts business expansion – riding the generics growth curve

We think the company is benefiting from the significant interests of the pharmaceutical industry in green chemistry to improve gross margin while reducing environmental impact — a steady and sustainable stream of revenue with the potential to expedite growth in 2014-2016 riding the generics growth curve — low manufacturing costs as the main competitive advantage for generics.

### Mid- to long-term cash flow strength – becoming a key player in the biofuels market

The company is positioned to compete in the cellulosic ethanol market as part of a key alliance with Shell, to produce commercially viable biofuels from cellulosic biomass — a core long-term revenue/value driver for Codexis, in our view.

### Low risk contract service business model – leveraging the financial strength of large partners

We consider Codexis' steady revenue stream and strong partnerships in both the pharma and biofuels markets key de-risking factors to secure near- and long-term cash flow via product sales and royalties without significant capital investments. Codexis' partners include major pharma and energy companies such as Pfizer, Merck, and Shell. The company also adopts a relatively capital-efficient and low risk collaboration model on the product supply side.

### Financial stability – steady cash flows warrant a long-term investment

We project steady revenue / cash flow growth driven by market demand from both the pharmaceuticals and biofuels market. We expect the company to achieve cash flow breakeven in 2013 and profitability in 2014 assuming maturation of the specialty enzyme business with faster sales ramp up and royalty income from the cellulosic ethanol alliance.

### Fair value justified by risk / return equation – with potential upsides to be proven

We applied a discount rate of 15% to account for CDXS' relatively low risk business model and project a 12 month price target of $13 use a sum-of-the-parts analysis. Codexis plans to leverage its intellectual properties portfolio in additional bioindustrial markets, including carbon management, water treatment and chemicals.

## Valuation

**Exhibit 1: CDXS sum-of-the parts analysis**

| Valuation | | NPV $MM | $ / share |
|---|---|---|---|
| Cash 2Q:11 | | $85 | $2 |
| Share 2Q:11 | | 39.2 | |
| | | | |
| **Biocatalysts** | | | |
| 10-y NPV | | $64 | $2 |
| Terminal value | | $94 | $2 |
| Total value | | $157 | $4 |
| | | | |
| **Biofuels** | | | |
| 10-y NPV | | $221 | $6 |
| Terminal value | | $161 | $4 |
| Total value | | $382 | $10 |
| Total discounted value | 3-y | $251 | $6 |
| | | | |
| **Total value** | | **$494** | **$13** |

| | | Biofuels royalty rate | | |
|---|---|---|---|---|
| | | 6% | 7% | 8% |
| **Discount rate** | 13% | $14 | $16 | $17 |
| | 15% | $11 | **$13** | $14 |
| | 17% | $9 | $10 | $11 |

*Source: Cantor Fitzgerald*

Our 12-month price target of $13 is based on the following assumptions:

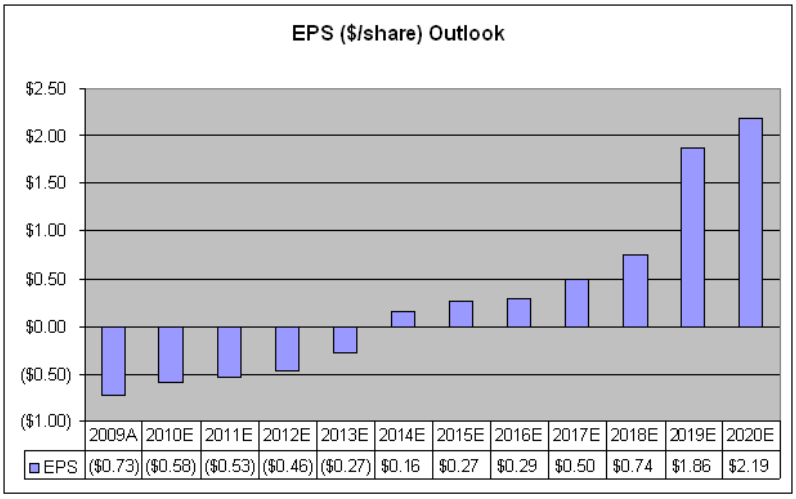
- We applied a discount rate of 15% to account for CDXS' relatively low risk business model, a contract service/manufacturing leveraging its enzyme optimization technology platform in exchange for product revenues / royalties and service fees.
- We assume a nominal terminal growth rate of 2% after 2020 to reflect a sustainable long-term business.
- We provide a detailed NPV model with market size and penetration assumptions for the specialty enzyme business.
- For the Shell biofuels alliance, we assume a two stage expansion from 500 million gallon per year (MPY) plant online in 2014 to 1.5 billion MPY online in 2019, approximately 10% of EISA RFS cellulosic biofuel requirement, based on Shell's capability and industry progress. Due to the product royalty arrangement with BP, we assume a total 7% royalty payment to CDXS, of which 2% is payable to Maxygen (NASDAQ: MAXY, NC) according to the company's licensing agreement.

We think that CDXS is under valued given its current market capitalization and relatively low risk / low return business model. As a result of the exclusive agreement with Shell, the company could not license any technology developed under the collaboration for the patent life of such technology should Shell not pursue the commercialization of any cellulosic sugars, biofuels or related products developed under the collaborative agreement, a significant competitive disadvantage in the biofuels market, in our view. However, the company is positioned to pursue alternative businesses outside of the field of fuels and lubricants leveraging its technology developed in the biofuels alliance – providing upsides should these new ventures become successful. Base on our risk / return analysis, we assign a BUY rating and a $13 price target.

## Financial Performance and Outlook

**Earnings per share:** we project an EPS loss up to 2013 (Exhibit 2). We expect the company to achieve profitability in 2014 assuming maturation of the biocatalysts business with faster sales ramp up and royalty income from the cellulosic ethanol alliance (see Revenue Model).

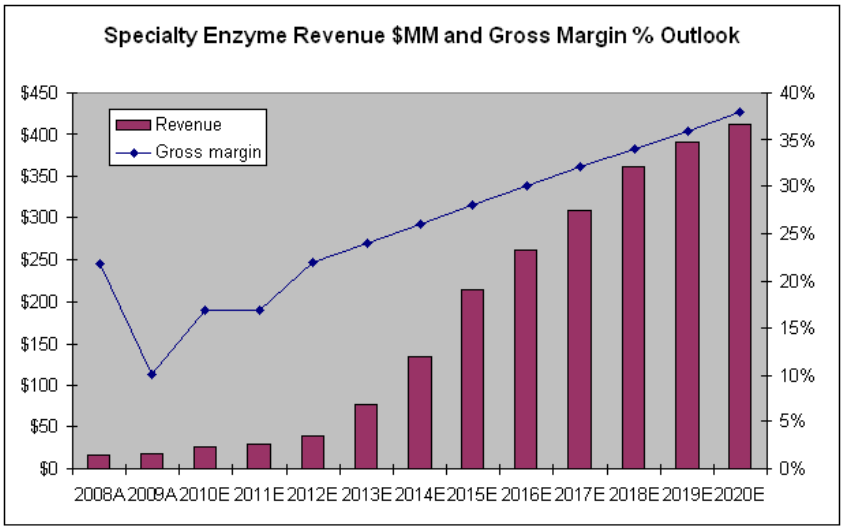
**Exhibit 2: CDXS EPS ($/share) Outlook, 2009A-2020E**




*Source: Company Reports and Cantor Fitzgerald*

**Biocatalyst revenues and gross margin:** we project a steady growth of biocatalyst product revenue with more rapid growth in the midterm riding the generics market growth curve (Exhibit 3). The company experienced a margin reduction in 2009 primarily due to write downs of $2.0 million of inventory items, as well as a change in sales mix towards lower margin product sales. We expect margin stabilization and cost reduction in the future.

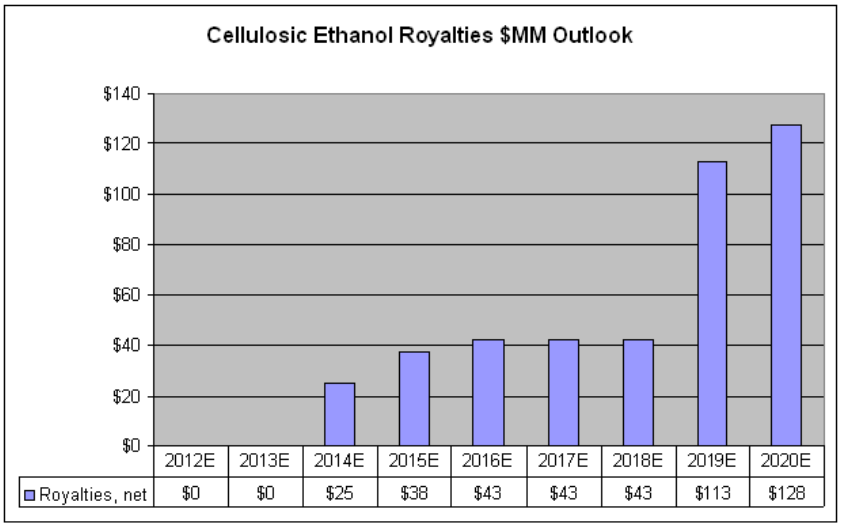
**Exhibit 3: CDXS Specialty Enzyme Revenue ($MM) and Gross Margin Outlook, 2008A-2020E**




*Source: Company Reports and Cantor Fitzgerald*

**Cellulosic ethanol royalties:** we project royalty income of approximately $25 million in 2014 and $128 million in 2020 assuming second stage plant expansion to 1.5 billion gallon per year capacity at 85% capacity utilization rate (Exhibit 4). We assume a total royalty rate of 7%, of which 2% payable to Maxygen based on the company's technology licensing agreement.

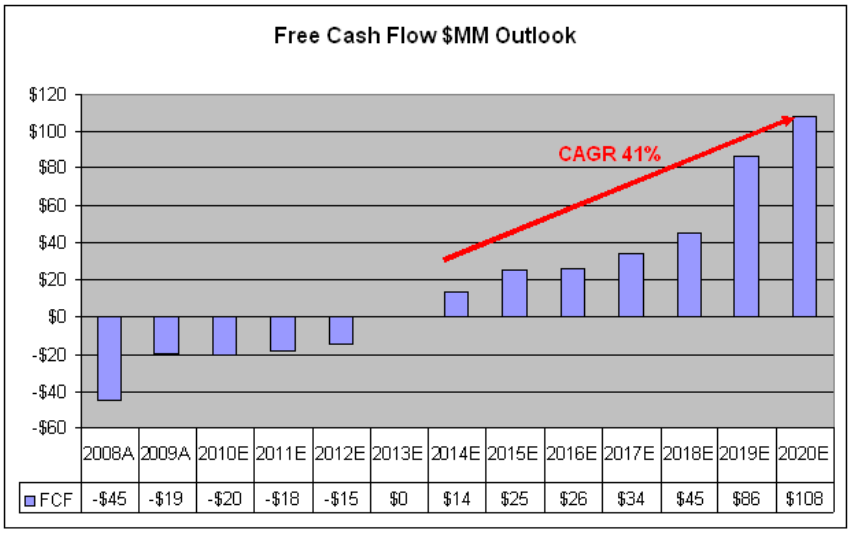
**Exhibit 4: CDXS Cellulosic Ethanol Royalties ($MM) Outlook, 2014E-2020E**




*Source: Company Reports and Cantor Fitzgerald*

**Free cash flow:** we project a breakeven free cash flow in 2013 and a 6-year FCF CAGR of 41% from 2014 to 2020 upon achievement of significant milestones in both the biocatalysts and biofuels businesses (Exhibit 5).

**Exhibit 5: CDXS Free Cash Flow ($MM) Outlook, 2008A-2020E**




*Source: Company Reports and Cantor Fitzgerald*

## Company Overview

Codexis (www.codexis.com) applies its proprietary technology to create and optimize biocatalysts that enable the manufacture of products cost-effectively, at commercial scale and with significantly reduced environmental impact relative to conventional manufacturing processes.

- The company has commercialized biocatalysts in the pharmaceutical industry delivering both biocatalysts and drug intermediates/APIs to some of the world's leading pharmaceutical companies, including Dr. Reddy's Laboratories (RDDA, NC), Merck (NYSE: MRK, NC), Pfizer (NYSE: PFE, NC) and Ranbaxy Laboratories (RLYG, NC).
- Further, the company is developing biocatalysts for use in producing advanced biofuels from renewable sources of non-food crop materials, cellulosic biomass under a multi-year research and development collaboration with Shell.
- Codexis is also pursuing biocatalyst-enabled solutions based on its proprietary technology platform in other bioindustrial markets, including carbon management, water treatment and chemicals.

Codexis possesses and uses advanced biotechnology methods, bioinformatics and years of accumulated know-how to significantly expedite the process of developing optimized biocatalysts. Several key components of its technology platform include gene shuffling, whole genome shuffling, multiplexed gene SOEing (Splicing by Overlap Extension), and proprietary bioinformatic software tools that enable the identification and quantification of the potential value of beneficial mutations and avoid detrimental mutations.

Codexis was incorporated in Delaware in January 2002 as a wholly-owned subsidiary of Maxygen, Inc. The company commenced independent operations in March 2002, after licensing core enabling technology from Maxygen. As of March 31, 2010, Maxygen beneficially owned approximately 21.4% of Codexis' common stock. Other CDXS investors include Shell (NYSE: RDS, NC), Chevron Corporation (NYSE: CVX, NC), Pfizer and The General Electric Company (NYSE: GE, NC). The company's headquarters is located in Redwood City, California. As of December 31, 2009, the company has 290 employees, consisting of 181 R&D, 44 manufacturing and operations, and 65 general and administrative employees.

On April 22, 2010, Codexis raised $78 million by offering 6.0 million shares at $13.00 in its initial public offering and trades on the NASDAQ under the symbol "CDXS".

## Business Model

Codexis' technology platform has broad applications in multiple bioindustrial markets with substantial commercial opportunities. In the near-term, the company is benefiting from the significant interests of the pharmaceutical industry in green chemistry to improve gross margin while reducing environmental impact — a steady and sustainable stream of revenue with potential to expedite growth in 2014-2016 riding the generics growth curve — low manufacturing costs as the main competitive advantage for generics. Over the mid- to long-term, the company is competing in the cellulosic ethanol market and is part of a key alliance with Equilon Enterprises LLC dba Shell Oil Products US, or Shell, an affiliate of Royal Dutch Shell plc, producing commercially viable biofuels from cellulosic biomass — the core revenue/value driver for Codexis, in our view.

We consider Codexis' steady revenue stream and strong partnerships in both the pharma and biofuels markets key de-risking factors to secure near- and long-term cash flow with potential upsides leveraging its intellectual properties portfolio in additional bioindustrial markets, including carbon management, water treatment and chemicals.

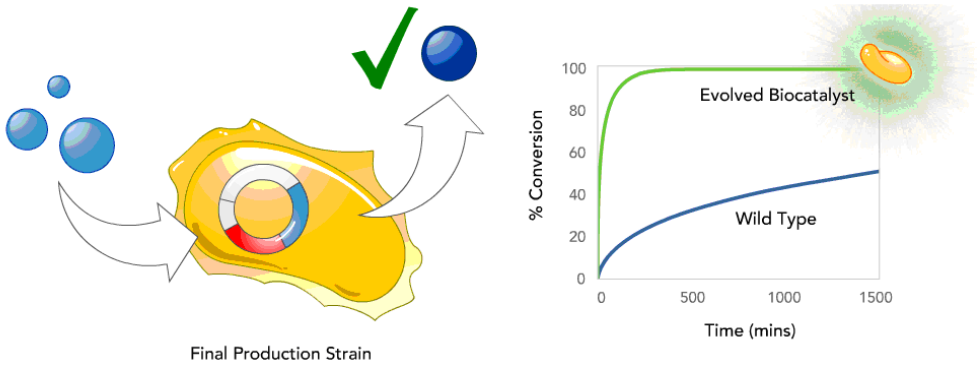
On the supply side, Codexis adopts a relatively capital-efficient and low risk collaboration model that leverages its collaborators' engineering, manufacturing and commercial expertise, their distribution infrastructure and their ability to fund commercial scale production facilities.

- In the pharmaceuticals market, the company relies on two primary contract manufacturers, CPC Biotech srl, or CPC, located in Italy, and Lactosan GmbH & Co. KG, or Lactosan, located in Austria, to manufacture substantially all of the biocatalysts used in the pharmaceutical business. Other contract manufacturers have been qualified for the manufacture, but not in use currently. The company also has a supply relationship with Arch Pharmalabs Limited, or Arch, of Mumbai, India since 2006 bringing higher value-added intermediates and APIs for branded pharmaceutical products to market with very limited additional capital. In February 2010, the company entered into an exclusive collaboration with Dishman Pharmaceuticals and Chemicals, Ltd., (Dishman), a global manufacturer of intermediates and APIs located in India, regarding to the manufacture and supply of intermediates / APIs using its biocatalysts for a select group of branded pharmaceutical companies.
- In the biofuels market, if successful, either Shell or other parties selected by Shell will design and build the commercial scale fuel production facilities and distribute the final fuel product.
- The company continues to evaluate whether to develop internal capabilities to manufacture biocatalysts at commercial scale depending on multiple factors including costs, cash, time, location and taxes.

## Biocatalysts — Game Changing Catalysts for Pharma Manufacturing

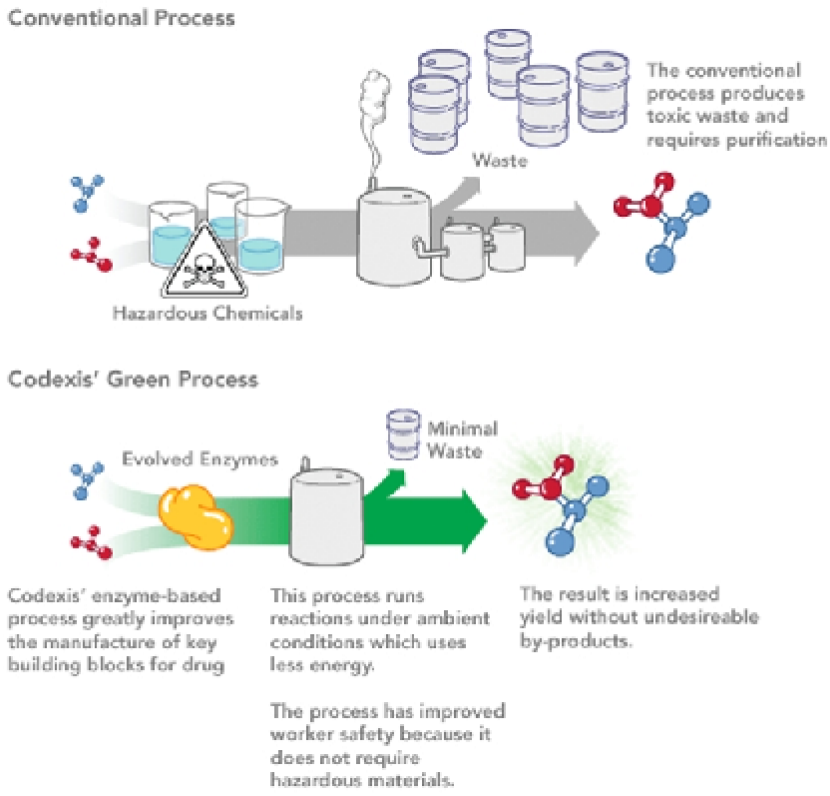
We expect Codexis to become a key game changing catalyst for pharmaceutical manufacturing industry, replacing hazardous conventional chemistry-based processes while improving yield and quality.

**Exhibit 6: Biocatalyst Optimization from Wild Type**




*Source: Company Reports and Cantor Fitzgerald*

**Exhibit 7: Conventional vs. Codexis Green Process**



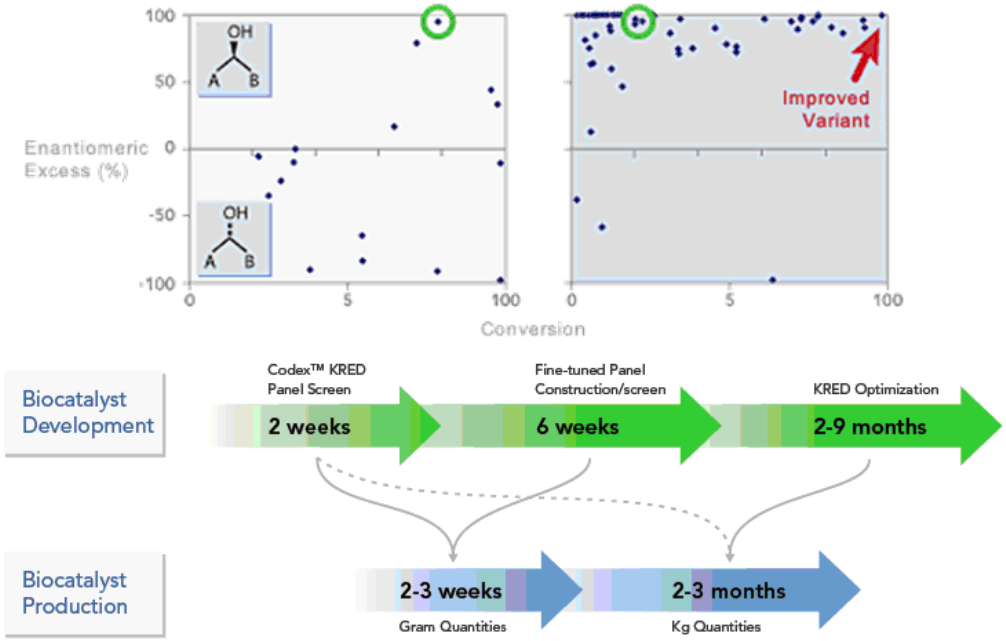

*Source: Company Reports and Cantor Fitzgerald*

Biocatalyst-enabled manufacturing processes may address a number of the drawbacks of conventional chemistry-based manufacturing including creating products with the same or higher quality as chemistry-based manufacturing processes, while reducing risks associated with extreme manufacturing environments (e.g. high temperature and pressure) and without generating the high volumes of hazardous waste typically associated with conventional chemistry-based manufacturing processes. In general, the mild operating condition biocatalysts may result in lowering the complexity and expense of manufacturing equipment, a potential reduction in both capital requirement and operating expenses in addition to better product quality and yield.

The pharmaceutical industry represents a market opportunity for Codexis' biocatalysts, in our view. Pharmaceutical companies are now under significant competitive pressure both to reduce costs and increase the speed to market for their products and are increasingly seeking manufacturing processes for their new products and existing drugs that reduce overall costs, simplify production and increase efficiency and product yield, while not affecting drug safety and efficacy. In particular, for intermediates or APIs with chirality, manufacturing the pure configurations via conventional chemistry-based processes is rarely possible in a cost-effective manner at commercial scale, because conventional processes typically require late-stage purification steps that reduce product yield and can significantly increase costs,. As a result, significant opportunities exist for alternatives, biocatalysts that can produce pure configurations using more efficient and less costly methods (Exhibits 6 and 7).

Codex biocatalyst Panels have been applied to a number of commercially relevant projects to identify and optimize enzyme variants with enhanced specificities and activities (Exhibit 8). For example, Codexis' KRED biocatalysts have been produced at the level of 100s of kilograms. The entire process, from initial screen to optimized KRED delivered at kilo scale, takes about 2-12 months, to design an economical route suitable for pharmaceutical manufacture. When commercial quantities are desired, the biocatalyst can be optimized to generate, in many cases, ~100% ee at 100-200g/L substrate loading with as low as 1g/L enzyme load.

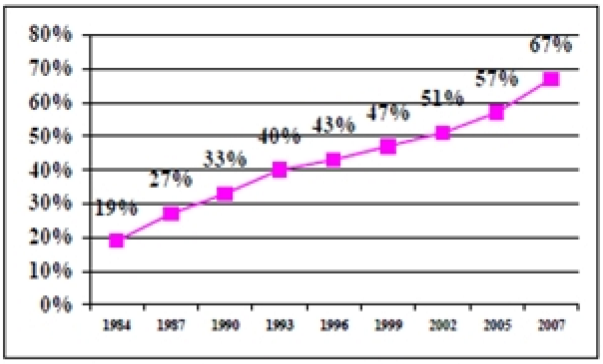
**Exhibit 8: Codex KRED Panel – ketoreductase with enantioselectivity and activity plus comparable development timeline**




*Source: Company Reports and Cantor Fitzgerald*

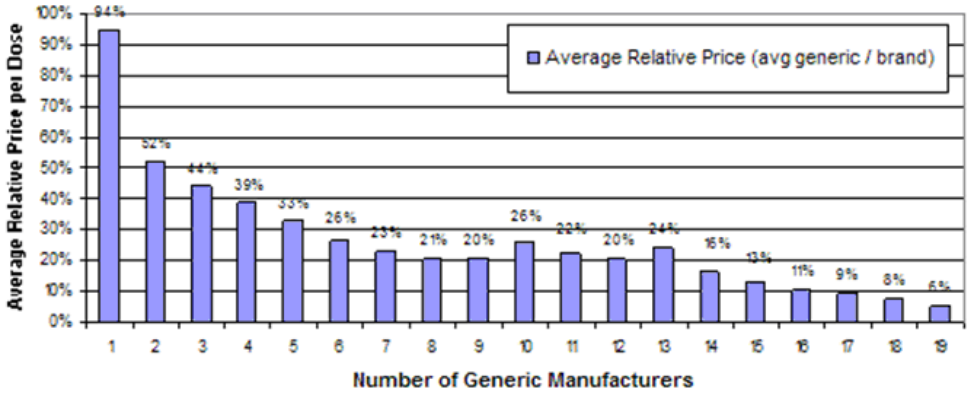
We think the rapid growth of generics market due to unprecedented and prolonged wave of patent expirations, as well as support by governments for lower-cost alternatives to branded drugs has significant implication for Codexis' biocatalyst business. In the U.S., generic prescription drugs now account for approximately two-thirds (~$58.5 billion IMS 2007) of the prescriptions that are dispensed (Exhibit 9). According to Datamonitor, generic competition is expected to eliminate $117 billion from top branded drugs worldwide sales between 2008 and 2014 due to patent expiration of approximately three dozen drugs. According to IMS, the generic industry is growing at more than 7.8%, a pace that is faster than the world pharmaceutical market.

**Exhibit 9: Generics' Share of the US Prescription Drug Market 1984-2007**




Sources: Pharmaceutical Research and Manufacturers of America (PhRMA), *2007 Annual Report,* August 2007; and IMS Health, "IMS Health Reports U.S. Prescription Sales Grew 3.8 Percent in 2007, to $286.5 Billion," Press Release, March 12, 2008.

**Exhibit 10: Relationship between Drug Price and Number of Generics Introduced**

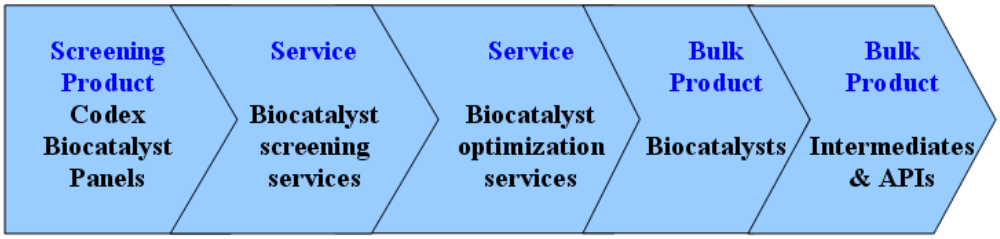



Source: FDA analysis of retail sales data from IMS Health, IMS National Sales Perspective (TM), 1999-2004, extracted February 2005

Branded drugs generally lose market share quickly once generic versions are on the market. Based on an analysis by the FDA (Exhibit 10), on average, the first generic competitor prices its product only slightly lower than the brand-name manufacturer. However, the introduction of a second generic manufacturer reduces the average generic price to nearly half the branded price. As additional generic manufacturers come into the market, the prices continue to fall, but more slowly. The average generic price falls to 20% of the branded price and lower, if there are a large number of generic manufacturers. Due to such price pressure, generics manufacturers are more cost sensitive and are increasingly seeking cost reduction solution. Lower manufacturing costs for intermediates and APIs is the key factor that helps generics companies compete and win market share.

Codexis' technology platform delivers solutions to its pharma customers by developing and optimizing biocatalysts that perform chemical transformations at a lower cost, and improve the efficiency and productivity of manufacturing processes. The company also provides value throughout the pharmaceutical product lifecycle (Exhibit 11). Currently, Codexis is working with its pharma customers including Pfizer (NYSE: PFE, NC), Merck (NYSE: MRK, NC), Teva (NASDAQ: TEVA, NC), Roche (RHHBY, NC) on approximately 35 products in various stages of the pharmaceutical product lifecycle.

**Exhibit 11: Codexis Pharma products and services**




*Source: Company Reports and Cantor Fitzgerald*

Overall, Codexis brings four key benefits to pharma customers summarized below — a sustainable cash flow with significant growth potential in the next five years, in our view.

- reduced costs, including capital and operating costs;
- simplified production processes;
- decreased environmental impact;
- and increased efficiency and product yield.

**Biofuels — Biocatalysts for Energy Independence**

We think Codexis could become a key participant among several competitors including Verenium (NASDAQ: VRNM, BUY) in the emerging cellulosic ethanol segment of the bioenergy industry delivering RFS2 mandated cellulosic biofuels based on a commercially viable second generation technology. According to U.S. Energy Information Administration, global petroleum demand in 2008 reached 86 million barrels per day, of which, approximately 25% has been refined into liquid transportation fuels for use in automobiles. High-quality, energy-rich fuels produced through biocatalyst-enabled transformation of renewable cellulosic biomass sources represent a promising alternative liquid fuel supply.

A National Effort – DOE Vision and Mission

**Exhibit 12: EISA Renewable Fuel Volume Requirements (billion gallons)**

| Year | Cellulosic biofuel requirement | Biomass-based diesel requirement | Total Advanced biofuel requirement | Total renewable fuel requirement |
|---|---|---|---|---|
| 2008 | n/a | n/a | n/a | 9.0 |
| 2009 | n/a | 0.5 | 0.6 | 11.1 |
| 2010 | 0.1 | 0.65 | 0.95 | 12.95 |
| 2011 | 0.25 | 0.80 | 1.35 | 13.95 |
| 2012 | 0.5 | 1.0 | 2.0 | 15.2 |
| 2013 | 1.0 | a | 2.75 | 16.55 |
| 2014 | 1.75 | a | 3.75 | 18.15 |
| 2015 | 3.0 | a | 5.5 | 20.5 |
| 2016 | 4.25 | a | 7.25 | 22.25 |
| 2017 | 5.5 | a | 9.0 | 24.0 |
| 2018 | 7.0 | a | 11.0 | 26.0 |
| 2019 | 8.5 | a | 13.0 | 28.0 |
| 2020 | 10.5 | a | 15.0 | 30.0 |
| 2021 | 13.5 | a | 18.0 | 33.0 |
| 2022 | 16.0 | a | 21.0 | 36.0 |
| 2023+ | b | b | b | b |

*[a] To be determined by EPA through a future rulemaking, but no less than 1.0 billion gallons.*

*[b] To be determined by EPA through a future rulemaking.*

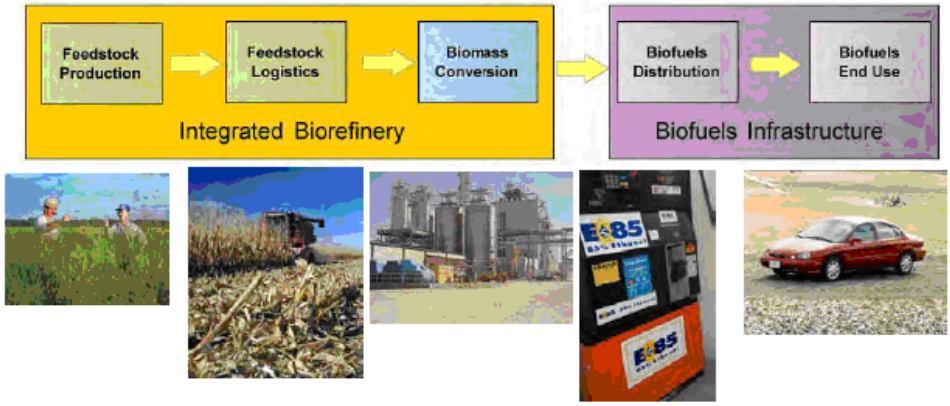
*Source: Company Reports and EPA*

An alternative fules mandate, the Energy Independence and Security Act (EISA) of 2007, passed by the U.S. Congress, calls for approximately 13 billion gallons of liquid transportation fuels sold in 2010 to come from alternative sources, including biofuels, a mandate that grows to 20.5 billion gallons by 2015 and 36 billion gallons by 2022. In addition, 21 billion gallons of the total 36 billion gallons must be advanced biofuels. Further, in February 2010, the U.S. Environmental Protection Agency (EPA) revised the annual renewable fuel standard (RFS2), calling, for the first time, annual volume requirements for specific categories of renewable fuels, including cellulosic biofuels and biomass-based diesel (Exhibit 12). From 6.5 million gallons cellulosic biofuels used in liquid transportation fuels in 2010 to three billion gallons in 2015 and 16 billion gallons in 2022, cellulosic biofuels represent approximately 15% and 44% of the total renewable fuel requirement under RFS2 in 2015 and 2022, respectively. This new mandate includes a waiver credit (penalty) for

cellulosic biofuels of $1.56 per gallon for gasoline and diesel fuel refiners and importers who will not be able to meet their annual compliance obligations -- significant incentive for biofuel production, in our view.

To support its goal to promote energy security through a diverse energy supply that is reliable, clean, and affordable, US DOE Energy Efficiency and Renewable Energy (EERE) formed the Office of Biomass Program (OBP) in 2002 which established a Multi-Year Program Plan (MYPP) details the strategic and performance goals, targets, activities and milestones across the supply chain, progressively enabling increasing amounts of biofuels, bioproducts and biopower to be deployed across the nation from a widening array of feedstocks (see Exhibit 13, 14, 15).

**Exhibit 13: From Biomass to Biofuels – Supply Chain Illustration**

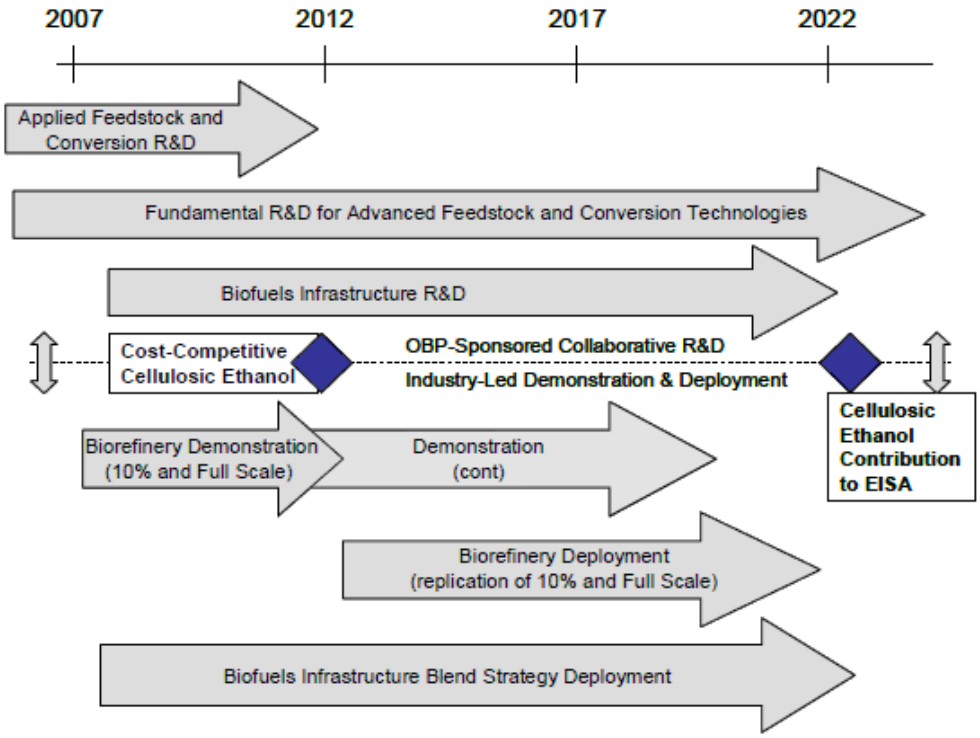



*Source: OBP, EERE, DOE*

Based on EIA's 2009 projected reference wholesale gasoline price estimate, OBP established program performance goals / cost targets for each of the technical program elements (reference: OBP MYPP Mar2010).

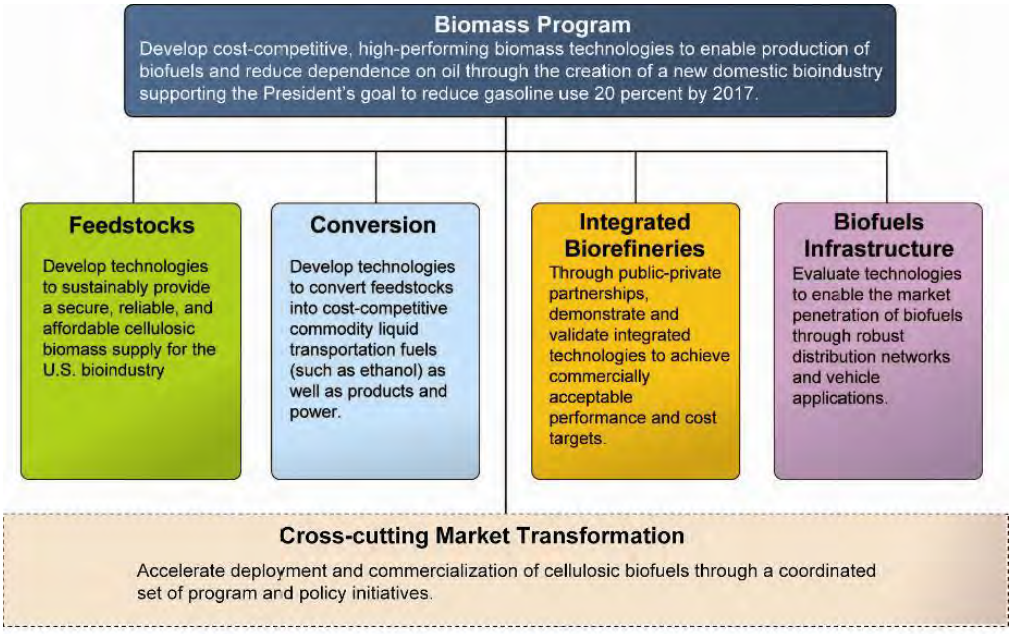
- Feedstock: reduce logistics costs (including harvesting, storage, preprocessing, and transportation) to $0.39/gallon in 2012 and $0.33/gallon in 2017 and validate a sufficient, high-quality feedstock supply of 130 million dry tons/year (MDT/yr) by 2012 and 250 MDT/yr by 2017.
- Conversion: reduce the processing cost of converting cellulosic feedstocks to ethanol to $0.92/gallon by 2012 and $0.60/gallon by 2017.
- Integrated Biorefineries: validate the total production capacity of 100 million gallons of advanced biofuels by 2014 and validate mature plant modeled cost of ethanol production based on pioneer plant performance and compare to the target of $2.62/GGE by 2017.
- Biofuels Infrastructure: partnership with EPA and DOT, complete standards development and testing of E15 and E20 distribution systems and vehicles. Develop capacity to transport and distribute 36 billion gallons of biofuel by 2022.

**Exhibit 14: DOE Biomass Program High-Level Timeline**




*Source: OBP, EERE, DOE*

**Exhibit 15: Strategic Goals for the Biomass Program**

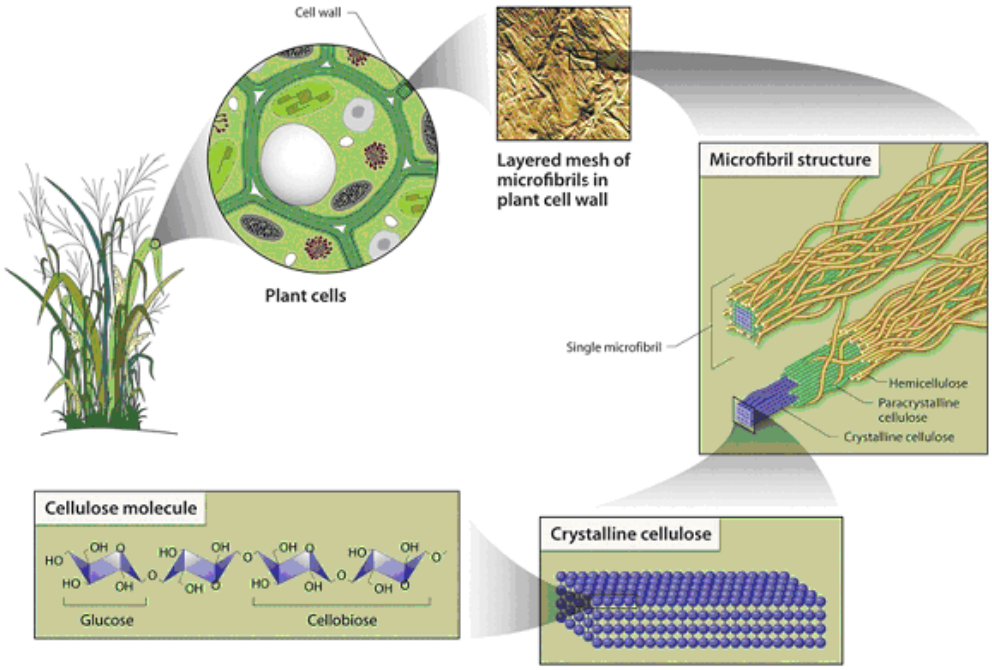



*Source: OBP, EERE, DOE*

## Biofuels – Enabling Next Generation Technology

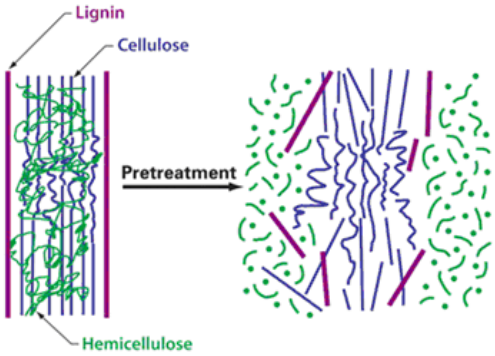
Over the past, biofuels have been criticized for diverting food away from the human/animal food chain, leading to food shortages and price rises. The first generation biofuels are biofuels made from sugar, starch, vegetable oil, or animal fats using conventional technology and basic feedstocks such as grains which yields starch that is fermented into bioethanol, or seeds, which are pressed to yield vegetable oil that can be used in biodiesel. In addition to the diversion of food crops, fuels produced from these food sources do not provide an optimal solution to the petroleum dependence problem because only a modest reduction in carbon dioxide generation due to the energy inefficiency of producing biofuels from food crops.

**Exhibit 16: Accessing Cellulosic Sugars**




*Source: U.S. Department of Energy Genome Programs http://genomics.energy.gov*

**Exhibit 17: Enzymes Can Break Down Cellulose**




*Source: U.S. Department of Energy Genome Programs http://genomics.energy.gov*

Second generation biofuel technologies have been developed from cellulosic biomass to address these issues with the potential to supply affordable biofuels on a sustainable base. Cellulosic biomass can be found in virtually all plant material, including sustainable non-food crops such as switch grass and wood chips, and agricultural plant wastes such as corn stover

and sugar cane bagasse. Cellulose and hemicellulose, which are linked long chains of six and five carbon sugars, respectively are the main sugar components of cellulosic biomass.

There are three main processes involved in producing cellulosic ethanol (Exhibit 16, 17):
1) Pretreatment: often using sulfuric acid at 130° C (thermochemical process) to make cellulose more accessible for enzyme saccharification later in the process by partial solubilization – breaking down the hemicellulose fraction of the feedstock into a mixture of soluble five carbon sugars – xylose and arabinose, and soluble six-carbon sugars – mannose, galactose, and glucose;

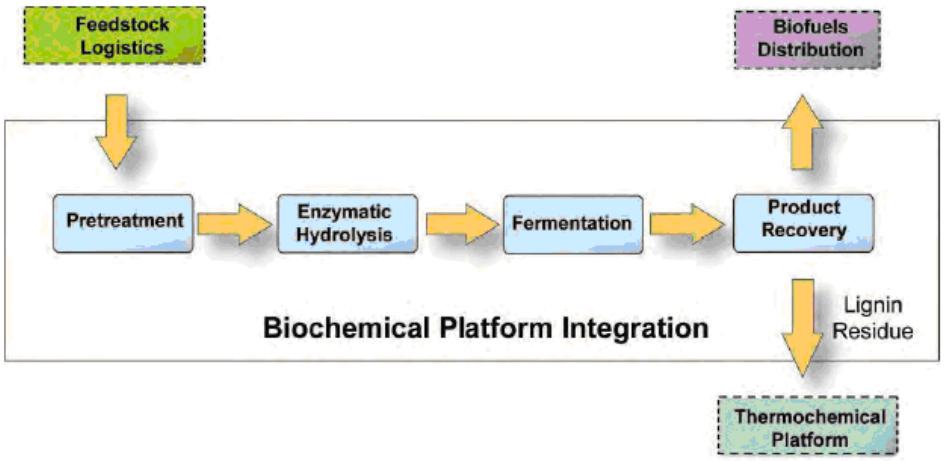
2) Hydrolysis to produce sugars: the pretreated material, with the remaining solid carbohydrate fraction being primarily cellulose, is saccharified with cellulose enzymes to release glucose. Other enzymes (e.g. xylanases) used in this step may enable less severe pretreatment condition, resulting in a reduced overall pretreatment and hydrolysis cost. Combine the enzymatic hydrolysis and fermentation steps may further improve operating efficiency;

3) Fermentation to alcohol: fermentation of sugars to ethanol is achieved through the addition of fermenting organisms to yield beer (low-concentration ethanol).

4) Product recovery: distilling the beer to separate the ethanol from the water and residual solids followed by dehydration step removing any remaining water from the ethanol. The residual solids are composed primarily of lignin, a co-product that can be thermochemically converted to synthesis gas or pyrolysis oil intermediates for other uses or burned for combined heat and power generation.

To convert feedstocks into cost-competitive liquid fuels as well as byproducts and biopower, the industry is working to address several technical challenges and barriers including biomass fractionation / variability / recalcitrance, pretreatment / conversion costs (enzyme and operating efficiency), and biological process integration. Based on DOE analysis (Exhibit 18, 19), the largest potential reduction in the cost of sugars can be obtained with bioconversion technology development in enzymes and fermentation areas, as a result, significant R&D activities are focused to impact this cost.

**Exhibit 18: Biomass to Biofuels Conversion Route**

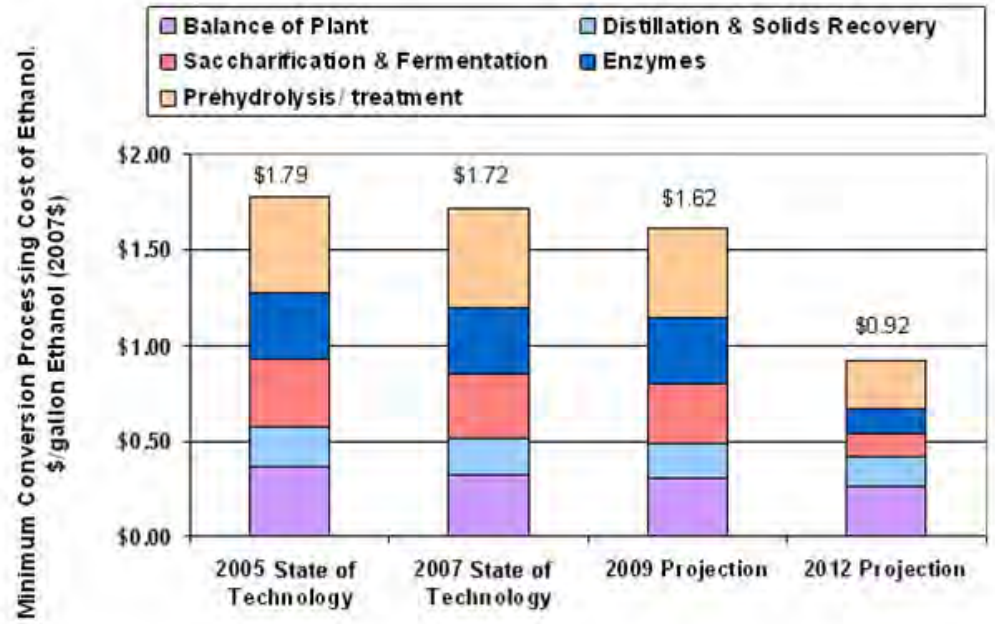



*Source: OBP, EERE, DOE*

Codexis has been working with Shell in the following two key steps to increase production rate / yield and enable feedstock / process flexibility.

- convert cellulosic biomass into sugars by improving cellulases and other biocatalysts;
- convert the resulting sugars into two advanced biofuels, cellulosic ethanol and biohydrocarbon diesel by developing and improving biodiesel- and ethanol-producing yeasts.

**Exhibit 19: DOE Analysis of Biochemical Conversion of Corn Stover to Ethanol ($/gal in 2007$s)**




| | 2005 State of Technology | 2007 State of Technology | 2009 Projection | 2012 Projection |
|---|---|---|---|---|
| **Processing Total** | **$1.79** | **$1.72** | **$1.62** | **$0.92** |
| Prehydrolysis/ treatment | $0.50 | $0.51 | $0.47 | $0.26 |
| Enzymes | $0.35 | $0.35 | $0.35 | $0.12 |
| Saccharification & Fermentation | $0.35 | $0.34 | $0.31 | $0.12 |
| Distillation & Solids Recovery | $0.21 | $0.19 | $0.18 | $0.16 |
| Balance of Plant | $0.37 | $0.32 | $0.31 | $0.26 |

*Source: OBP, EERE, DOE*

## New Ventures — Versatility of Biocatalysts for Industry Application

### Carbon Management Opportunity

The rising global temperature calls for a commercially viable method to manage carbon dioxide emissions given growing demand for power alongside a growing population projecting to rise from 29 billion metric tons in 2006 to 33 billion metric tons in 2015 and 40 billion metric tons in 2030.

Codexis is seeking to apply its technology platform to the management of carbon dioxide emissions from stationary point sources such as coal-fired power plants as part of a key alliance with CO2 Solution. In December 2009, the company entered into an exclusive joint development agreement with CO2 Solution combining its biocatalyst-enabled technology platform with CO2 Solution's proprietary enzymatic methods for the efficient capture of carbon dioxide from coal-fired power plants and other large sources of carbon dioxide emissions.

The company has filed provisional patent applications relating to biocatalysts that may optimize the process of removing carbon dioxide from flue gases by improving the effectiveness of amine solvents, one of the leading potential technologies to remove carbon dioxide from flue gas. The initial researches indicate that Codexis' biocatalysts may reduce the parasitic energy loss by up to 35% — addressing a major drawback of the current amine solvent technologies. Further, Codexis' biocatalysts have also exhibited increased tolerance for flue stack-type operating conditions, though not yet at target commercial levels. The company continues to improve its early stage technologies towards a cost-effective biocatalyst-enabled model to separate carbon dioxide from other exhaust gases and direct them to separate sequestration mechanisms.

### Water Treatment Opportunity

Another potential market opportunity for biocatalyst-enabled solutions is water treatment, a natural and effective way to decontaminate fresh water resources and oceans from various types of pollution including pesticides, industrial chemicals and municipal wastes — a complex and challenging problem with significant unmet needs.

### Biomass Derived Chemicals Opportunity

Sugars from cellulosic biomass may serve as an alternate source of carbon for use in the manufacture of many industrial chemicals, currently mainly produced from petrochemical feedstocks. According to the EIA, about 214 million barrels of petroleum were used in petrochemical feedstocks in 2008.

In 2002, the U.S. DOE Office of Energy Efficiency and Renewable Energy formed a Biomass Program combining previously separate biofuels, biopower, and biobased products programs to promote biorefineries producing multiple products, including higher-value chemicals as well as fuels and power. Based on the request from the Office of the Biomass Program, National Renewable Energy Laboratory (NREL) and Pacific Northwest National Laboratory (PNNL) identified the top ten opportunities among a group of over 300 promising sugar-derived building blocks for the production of value-added chemicals from biomass that would economically and technically support the production of fuels and power in an integrated biorefinery.

Codexis may develop enabling biocatalysts in the non-fuels chemicals industry leveraging its technology co-developed with Shell per the company's license agreement with Shell permitting the use of technology developed for Shell outside of the field of fuels and lubricants. The company also has rights to pursue a number of chemical market opportunities under its license agreement with Maxygen.

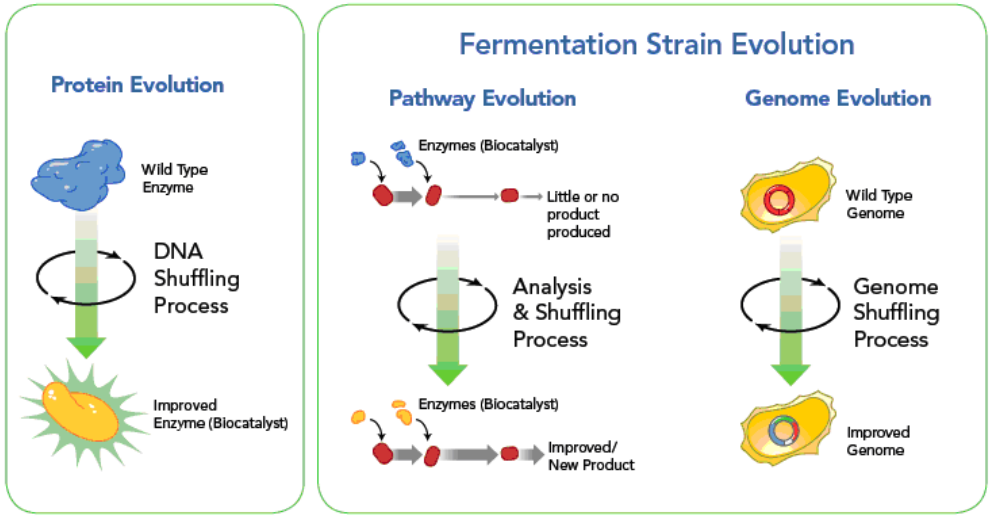
## Technology

Codexis' technology platform (Exhibit 20) uses the directed evolution of enzymes and microbes to enable industrial biocatalytic reactions and fermentations via an integrated expertise in a number of technical disciplines including molecular biology, enzymology, microbiology, cellular engineering, metabolic engineering, bioinformatics, biochemistry, high throughput analytical chemistry, and chemical and fermentation engineering and process development.

Catalytic enzyme identification – Codexis identifies gene sequences in published databases, synthesizes candidates with given sequences, and diversifies these genes through random mutagenesis and site-directed (included structure-guided) mutagenesis.

Enzyme optimization – Codexis optimizes resulting enzymes through testing combinations of various mutations in libraries made using its proprietary gene recombination methodologies, gene shuffling and multiplexed gene SOEing. Codexis developed a proprietary methodology for rapidly generating gene variants, called mutiplexed gene SOEing, based on a traditional biotechnology technique, Splicing by Overlap Extension (SOEing), generally used to make a hybrid, or spliced, gene from fragments of two genes and/or to introduce a specific mutation into a splice between fragments of one gene. The company automated the basic process to robotically make, in parallel, one hundred to several hundred variants, each with a predetermined combination of the mutations for subsequent screening which yields more optimal results for ProSAR analysis.

**Exhibit 20: Codexis Technology Platform – DNA Shuffling and Evolution of Fermentation Strain**




The Codexis technology platform combines DNA shuffling, which produces a new custom biocatalyst tailored to perform a specific task, with evolution of high capability fermentation strains. These customized strains, resulting from a suite of systems biology tools, can lead to evolution of new pathways or whole genomes.

*Source: Company Reports and Cantor Fitzgerald*

The general process is described below:

1. generate libraries of genes that have random combinations of the mutations using gene shuffling methodology;
2. introduce the various genes, one each, into host cells;
3. segregate cells, grown into colonies, and culture in high throughput to produce the enzyme encoded by the shuffled gene in those cells;
4. screen enzymes in high throughput using test conditions relevant to the desired process to identify beneficial mutations;
5. analyze protein sequence-activity relationships using proprietary bioinformatics software tool, ProSAR, to identify specific mutations that are beneficial, neutral or detrimental with respect to the desired performance characteristics, including the capability to evaluate

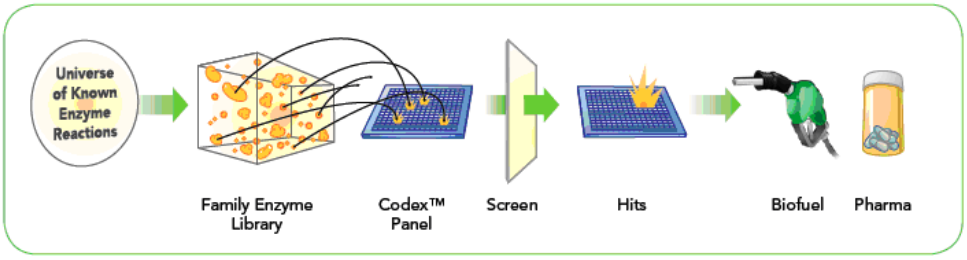
individual mutations in libraries of variants which carry multiple mutations leading to mixed performance;
6. test the best variants identified in the desired chemical process at laboratory scale, for in-process confirmation;
7. repeat the optimization steps adding new diversity to the pool in each iteration of shuffling and screening given more stringent screening conditions to achieve performance goal.

Microbe optimization using gene optimization – Codexis uses gene/enzyme optimization (described above) for fermentation microbes to improve the production and/or productivity of one or more enzymes in a series of in vivo reactions that make a desired product. Using its gene shuffling technology in combination with synthetic biology, the company enhances the existing metabolic pathway in the microbe or introduces a new metabolic pathway to produce a desired product. For example, the company is optimizing native and introduced cellulase genes for increased productivity in the cellulase production microbes, an introduced pathway in yeast for the conversion of xylose, a cellulose-derived sugar, to ethanol, and an introduced pathway in a microbe for the production of biodiesel.

Microbe optimization using whole genome shuffling – Codexis developed Whole Genome Shuffling technology to improve the performance of a fermentation microbe by shuffling unidentified mutations in unidentified genes across the genome. The Whole Genome Shuffling technology involves introducing the entire genome of two or more cells into a single cell via protoplast fusion (regenerate normal cells via fusing cells without cell walls), resulting in shuffling of the genomes of the combined cell. Using this technology, the company is optimizing enzyme production hosts for increased production of cellulase enzymes, ethanol-producing yeasts for improved xylose utilization, ethanol productivity, and tolerance to higher ethanol concentrations, and biodiesel producing strain for increased productivity.

Codex Biocatalyst Panels (Exhibit 21) – Codexis developed sample plates, diversified variants of a parent enzyme pre-optimize for stability in industrial chemical processes, to facilitate internal and external screening conveniently both in the field of pharmaceutical and biofuels research. For example, the company may produce a customized Codex Biocatalyst Panel of cellulases that can be used at each advanced biofuels production facility to accommodate a wide variety of cellulosic biomass sources from region to region and season to season.

**Exhibit 21: From Codex Biocatalyst Panels to Commercial Application**




From the universe of known enzyme reactions, a family of potential candidates is selected according to specific reaction criteria and conditions. These potential candidates are then assembled into panels. Using Codexis proprietary technology, enzymes from the panels are screened to select optimized "hits" for process development and scale up.

*Source: Company Reports and Cantor Fitzgerald*

## Intellectual Property

Codexis owns or has licensed rights to approximately 235 issued patents and approximately 280 pending patent applications in the United States and in several foreign jurisdictions, with the earliest IP rights expiring 2014 and the fundamental shuffling technologies patents ending as late as 2019. Most Of the company's licensed patents and patent applications are owned by Maxygen and exclusively licensed to Codexis for use in certain fields covering enabling technologies and products / methods of producing products. The company owns approximately 35 issued patents and approximately 115 pending patent applications in the United States and in several foreign jurisdictions, including enabling technologies and specific methods / products to support its business in the pharmaceutical and bioindustrial markets, such as production processes for pharmaceutical intermediates (atorvastatin, montelukast and azetidinone compounds).

## Competition

Codexis competes in the pharma and biofuels markets with the goal to develop efficient biocatalysts within shorter time frames leveraging its core directed evolution technology.

Pharma market – biocatalysts compete with conventional, non-biocatalytic chemical processes to manufacture pharmaceutical intermediates /APIs developed by pharma customers (e.g. Merck, Pfizer, and Teva), fine chemical manufacturing suppliers (e.g. DSM, BASF, and Lonza) and international low cost producers. Further, large industrial enzyme companies, such as Novozymes and Amano Enzyme Inc., occasionally supply products used in pharmaceutical processes and several small companies in Europe also offer biocatalyst optimization services.

First generation biofuels technology – the current grain ethanol industry accounts for most biofuels sales. Archer Daniels Midland and Poet, two largest companies, together control about 30% of the market (2.2 billion gallon of current capacity) and ten additional companies control the next 30%. Small companies with less than 100 mgy capacity comprise of the rest. The trend of industry consolidation due to rising costs of feedstock inputs favors firms with strong balance sheets.

Second generation biofuels technology – several companies including Verenium Corporation, Royal DSM N.V. (DSM), Danisco/Genencor, Novozymes, E.I. DuPont De Nemours and Company (DuPont), and academic institutions such as California Institute of Technology and the Max Planck Institute have alternative methods or use mutagenesis techniques to generate genetic diversity. Although no company is currently converting cellulosic biomass into fermentable sugars at commercial scale, several, including Verenium and companies described below have invested significantly in this area for many years and have extensive patent portfolios regarding to compositions and processes of developed biocatalysts. Codexis is still in a relatively early stage compared to its competitors and may face significant technical and/or commercial challenges. Continued support from its sole biofuels partner, Shell, remains a critical element of its long-term prospect. The company has an exclusive agreement with Shell till November 2012 in the field of converting cellulosic biomass into fermentable sugars as well as converting these sugars into fuels and related products. However, Shell could develop or pursue alternative technologies that it decides to use for commercialization purposes, such as a thermo-chemical approach to developing biogasoline currently co-developing with Virent Energy Systems. As a result of the exclusive agreement, the company could not license any technology developed under the collaboration for the patent life of such technology should Shell not pursue the commercialization of any cellulosic sugars, biofuels or related products developed under the collaborative agreement, a significant competitive disadvantage in the biofuels market.

Biofuels companies:

- Verenium has formed a joint venture with BP (NYSE: BP, NC), Vercipia Biofuels, to develop a commercial scale cellulosic ethanol facility;
- Martek (NASDAQ: MATK, BUY) has an R&D agreement with BP for the development of algal-based biofuels;
- Novozymes has partnered with a number of companies on a regional basis to develop or produce biofuels, and recently opened a biofuel demonstration plant with Inbicon A/S of Denmark;
- Danisco/Genencor has formed a joint venture with DuPont, DuPont Danisco Cellulosic Ethanol (DDCE) to market a line of cellulases for biomass to sugar conversion;
- DSM received a grant from DOE to be the lead partner in a technical consortium including Abengoa Bioenergy New Technologies, to develop cost-effective enzyme technologies.

**Management**

We think Codexis' management can provide the leadership to guide the company in its next critical phase of profitability. Codexis has attracted seasoned professionals with proven management skills from the leading companies in its industries. Further, we think Codexis' management has substantial depth in all key business components. Below, are management bios from the company's recent 10K filing.

Alan Shaw, Ph.D., President and Chief Executive Officer has been with the company since its inception and served as CEO and a member of the board of directors since 2002. Dr. Shaw was formerly Head of New Business Development for Clariant and Managing Director for Lancaster Synthesis and prior to Clariant's acquisition of BTP plc, Chief Operating Officer of Archimica, the pharmaceutical chemicals division of BTP plc. Dr. Shaw also held executive positions with Chiroscience Group plc, Chirotech Technology Limited, and Imperial Chemical Industries PLC (ICI)/Zeneca. Dr. Shaw serves on the boards of directors of CO2 Solution Inc. and BIO, the biotechnology industry trade association, and is chair of the BIO Industrial and Environmental Section. Dr.Shaw holds a B.S. degree from Teesside University, England and a Ph.D. from the University of Durham, England.

Robert J. Lawson, Senior Vice President and Chief Financial Officer, joined the company in November 2009. Mr. Lawson was formerly Vice President, Finance-Consumer Group of Intuit and also served in various financial management roles at General Electric. Mr Lawson holds a B.S. in business from Iowa State University.

David L. Anton, Ph.D., Senior Vice President, Research and Development, joined the company in March as Vice President, Research and Development, and was promoted to Senior Vice President, Research and Development in May 2009. Dr Anton formerly held a variety of senior research management positions across bioprocessing and biocatalysis in DuPont. Dr Anton holds a B.S. from the University of California, Berkeley, and a Ph.D. from the University of Minnesota.

Joseph J. Sarret, M.D., J.D., Chief Business Officer and President, Pharmaceutical Services and Enzyme Products, joined the company in 2005 as Corporate Counsel and Director, Business Development and was promoted to Vice President, Corporate Development in 2007, to Senior Vice President, Corporate Development in February 2009, and to Chief Business Officer and President in October 2009. Dr. Sarret was formerly an associate at Latham & Watkins LLP. and served as attending physician and later Acting Medical Director for the HIV Clinic at the University of California, San Francisco Medical Center. Dr. Sarret holds a B.A. from Stanford University, a M.D. from University of California, San Francisco School of Medicine, and a J.D. from Stanford Law School.

Douglas T. Sheehy, Senior Vice President, General Counsel and Secretary, joined the company in April 2007 as Vice President, General Counsel and Secretary and was promoted to Senior Vice President, General Counsel and Secretary in November 2009. Mr. Sheehy was formerly Executive Director, Legal — Corporate Law at CV Therapeutics, Inc. Mr. Sheehy also served as an attorney with the law firms of Gunderson Dettmer LLP and Brobeck Phleger & Harrison LLP. Mr. Sheehy holds a B.A. in history from Dartmouth College and a J.D. from American University.

John H. Grate, Ph.D., Chief Science Officer and Senior Vice President, Science and Innovation, joined the company in September 2002 as Vice President, Research and Development and Chief Technology Officer and was promoted to Senior Vice President, Research and Development, and Chief Technology Officer in July 2005, and to Chief Technology Officer and Senior Vice President, Technology and Innovation in December 2007. Dr. Grate was formerly an independent consultant and a member of Codexis' Industrial Advisory Board. Dr. Grate also held various research and development executive positions at Catalytica, Inc. and its subsidiary, Catalytica Pharmaceuticals, Inc which was acquired by Royal DSM N.V. in early 2001. Dr. Grate holds a B.S. from Miami University (Ohio) and a Ph.D. from the University of California, San Diego.

**Risks**

Development risks: Codexis is a development stage company and that could continue to incur substantial losses and not achieve profitability. Codexis has an accumulated deficit of $159.6 million as of December 31, 2009. The development of technology for converting sugar derived from non-food renewable biomass sources into a commercially viable biofuels is still in its early stages, as a result, production and commercialization of cellulosic biofuels may not be feasible.

Commercial risks: Codexis is dependent on the acceptance of its enzyme products in the marketplace and could experience delays if these new biotechnology-derived products experience customer resistance and/or regulatory hurdle.

Collaboration risks: Codexis is dependent upon its relationships with collaborative partners and their interest and ability to commercialize biocatalyst-based manufacturing processes and/or cellulosic ethanol products based upon Codexis technology for its future revenue.

Competitive risks: Codexis products could face significant competition in the future which could diminish its revenue potential. Additionally, Codexis is dependent upon its patent estate to create product value for its customers. The company could also face competitive opposition and be required to defend its intellectual property that could involve litigation and expenses. Further, under the licensing agreement with Maxygen, there are limitations on Codexis' ability to enforce Maxygen's patents to which it hold a license, which could have a material adverse effect on Codexis' business.

Financing risks: Codexis may need substantial capital requirements to continue its development. Should Codexis be unable to enter into or maintain collaborations with partners that are able or willing to fund its development efforts and/or raise additional funds, the company may be forced to delay or terminate research or development programs or the commercialization of products, curtail or cease operations or obtain funds through collaborative and licensing arrangements that may require the company to relinquish commercial rights, or grant licenses on terms that are not favorable.

Market risks: Codexis' biofuels business is dependent on prices of petroleum-based fuels, price and availability of cellulosic biomass and fuel regulations/policies. The company may not be able to produce commercially viable alternative to petroleum-based fuels and biofuels royalty revenues under the agreements with Shell are indexed to the price of oil. Additionally, the availability of arable land to supply feedstock, weather conditions, farming decisions, government policies and subsidies with respect to agriculture and international trade, and global demand and supply may impact the price and availability of biomass. Further, foreign, federal, state and local government regulations and policies concerning the petroleum industry may have material impact on the biofuels industry and Codexis' business.

Personnel risks: Codexis' businesses are dependent upon retaining knowledgeable and highly skilled individuals. The company's ability to implement its plans is also dependent on its ability to continue its innovation and ability to achieve cost reduction of certain of its processes.

**Codexis, Inc.**
(,000)

**Income Statement**
Year End December 31st

| | FY 2008A | FY 2009A | 1Q 2010A | 2Q 2010E | 3Q 2010E | 4Q 2010E | FY 2010E | 1Q 2011E | 2Q 2011E | 3Q 2011E | 4Q 2011E | 2011E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Revenues:*** | | | | | | | | | | | | |
| Product | $16,860 | $18,554 | $6,275 | $6,401 | $6,529 | $6,659 | $25,863 | $6,946 | $7,245 | $7,557 | $7,883 | $29,631 |
| Related party collaborative research and development | 30,239 | 62,656 | 16,042 | 14,892 | 14,892 | 18,092 | 63,918 | 14,915 | 14,915 | 14,915 | 18,915 | 63,659 |
| Collaborative research and development | 3,062 | 1,652 | 661 | 700 | 700 | 700 | 2,761 | 1,200 | 1,200 | 1,200 | 1,200 | 4,800 |
| Government grants | 317 | 46 | 2,722 | 500 | 0 | 0 | 3,222 | 500 | 500 | 500 | 500 | 2,000 |
| Biofuels royalties | | | | | | | | | | | | |
| **Total revenues** | 50,478 | 82,908 | 25,700 | 22,493 | 22,121 | 25,451 | 95,764 | 23,561 | 23,860 | 24,172 | 28,497 | 100,090 |
| ***Cost of revenues:*** | | | | | | | | | | | | |
| Cost of product sales | 13,188 | 16,678 | 5,218 | 5,322 | 5,429 | 5,537 | 21,507 | 5,776 | 6,025 | 6,284 | 6,555 | 24,639 |
| *Gross margin%* | 21.8% | 10.1% | 16.8% | 16.8% | 16.8% | 16.8% | 16.8% | 16.8% | 16.8% | 16.8% | 16.8% | 16.8% |
| ***Operating expenses:*** | | | | | | | | | | | | |
| Research and development | 45,554 | 54,725 | 12,982 | 13,242 | 13,506 | 13,777 | 53,507 | 13,914 | 14,054 | 14,194 | 14,336 | 56,498 |
| Selling, general and administrative | 35,709 | 29,871 | 8,600 | 8,772 | 8,947 | 9,126 | 35,446 | 9,218 | 9,310 | 9,403 | 9,497 | 37,427 |
| **Total operating expenses** | 81,263 | 84,596 | 21,582 | 22,014 | 22,454 | 22,903 | 88,953 | 23,132 | 23,363 | 23,597 | 23,833 | 93,925 |
| **Income from operations** | (43,973) | (18,366) | (1,100) | (4,844) | (5,762) | (2,989) | (14,695) | (5,347) | (5,528) | (5,709) | (1,890) | (18,475) |
| Interest and other income | 1,538 | 180 | 28 | 58 | 82 | 79 | 246 | 188 | 177 | 165 | 155 | 686 |
| Interest expense and other, net | (2,365) | (2,037) | (358) | (248) | (215) | (182) | (1,002) | (153) | (128) | (108) | (100) | (489) |
| Income before income tax provision (benefit) | (44,800) | (20,223) | (1,430) | (5,034) | (5,895) | (3,092) | (15,451) | (5,312) | (5,479) | (5,652) | (1,835) | (18,278) |
| Income tax provision (benefit) | 327 | 66 | (61) | (61) | (61) | (61) | (244) | 10 | 10 | 10 | 10 | 40 |
| **Net Income** | **(45,127)** | **(20,289)** | **(1,369)** | **(4,973)** | **(5,834)** | **(3,031)** | **(15,207)** | **(5,322)** | **(5,489)** | **(5,662)** | **(1,845)** | **(18,318)** |
| **EPS basic** | **(18.96)** | **(7.74)** | **(0.50)** | **(0.15)** | **(0.17)** | **(0.09)** | **(0.58)** | **(0.15)** | **(0.16)** | **(0.16)** | **(0.05)** | **(0.53)** |
| **EPS diluted** | **(18.96)** | **(7.74)** | **(0.50)** | **(0.15)** | **(0.17)** | **(0.09)** | **(0.58)** | **(0.15)** | **(0.16)** | **(0.16)** | **(0.05)** | **(0.53)** |
| Weighted average common shares outstanding, basic | 2,380 | 2,622 | 2,714 | 33,977 | 34,028 | 34,079 | 26,200 | 34,590 | 34,642 | 34,694 | 34,746 | 34,668 |
| Weighted average common shares outstanding, diluted | 2,380 | 2,622 | 2,714 | 33,977 | 34,028 | 34,079 | 26,200 | 34,590 | 34,642 | 34,694 | 34,746 | 34,668 |

*Source: Company reports and Cantor Fitzgerald estimates*

**Codexis, Inc.**
(,000)

**Balance Sheet**
Year End December 31st

| | FY 2008A | FY 2009A | 1Q 2010A | 2Q 2010E | 3Q 2010E | 4Q 2010E | FY 2010E | 1Q 2011E | 2Q 2011E | 3Q 2011E | 4Q 2011E | 2011E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Assets*** | | | | | | | | | | | | |
| Cash , cash equivalentsand investments | $37,130 | $55,563 | $39,264 | $104,942 | $100,194 | $96,662 | $96,662 | $91,614 | $85,427 | $79,415 | $76,083 | $76,083 |
| Accounts receivable, net | 6,193 | 7,246 | 6,561 | 5,742 | 5,647 | 6,497 | 6,497 | 6,015 | 6,091 | 6,171 | 7,275 | 7,275 |
| Inventories, net | 2,976 | 2,915 | 2,912 | 2,549 | 2,506 | 2,884 | 2,884 | 2,670 | 2,703 | 2,739 | 3,229 | 3,229 |
| Prepaid expenses and other current assets | 1,669 | 1,658 | 1,919 | 1,679 | 1,652 | 1,900 | 1,900 | 1,759 | 1,782 | 1,805 | 2,128 | 2,128 |
| Property, plant and equipment, net | 16,006 | 21,581 | 21,251 | 19,885 | 18,508 | 17,118 | 17,118 | 17,943 | 18,820 | 19,751 | 20,741 | 20,741 |
| Restricted cash | 924 | 731 | 731 | 731 | 731 | 731 | 731 | 731 | 731 | 731 | 731 | 731 |
| Other non-current assets | 1,054 | 5,173 | 7,213 | 7,213 | 7,213 | 7,213 | 7,213 | 7,213 | 7,213 | 7,213 | 7,213 | 7,213 |
| Goodwill, intangibles and other long-term assets, net | 4,930 | 4,169 | 3,985 | 3,985 | 3,985 | 3,985 | 3,985 | 3,985 | 3,985 | 3,985 | 3,985 | 3,985 |
| ***Total assets*** | **70,882** | **99,036** | **83,836** | **146,727** | **140,436** | **136,991** | **136,991** | **131,930** | **126,753** | **121,810** | **121,385** | **121,385** |
| | | | | | | | | | | | | |
| ***Liabilities and stockholders' equity*** | | | | | | | | | | | | |
| Total current liabilities | 42,401 | 50,985 | 37,433 | 35,597 | 34,099 | 32,609 | 32,609 | 31,609 | 30,625 | 29,948 | 29,816 | 29,816 |
| Other non-current liability | 24,859 | 13,224 | 10,889 | 8,133 | 7,453 | 6,773 | 6,773 | 6,242 | 5,711 | 5,244 | 4,894 | 4,894 |
| Total stockholders' equity | 3,622 | 34,827 | 35,514 | 102,996 | 98,884 | 97,609 | 97,609 | 94,079 | 90,417 | 86,618 | 86,674 | 86,674 |
| | | | | | | | | | | | | |
| ***Total liabilities and stockholders equity*** | **$70,882** | **$99,036** | **$83,836** | **$146,727** | **$140,436** | **$136,991** | **$136,991** | **$131,930** | **$126,753** | **$121,810** | **$121,385** | **$121,385** |

**Cash Flow Statement**
Year End December 31st

| | FY 2008A | FY 2009A | 1Q 2010A | 2Q 2010E | 3Q 2010E | 4Q 2010E | FY 2010E | 1Q 2011E | 2Q 2011E | 3Q 2011E | 4Q 2011E | 2011E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Net Income (Loss) | (45,127) | (20,289) | (1,369) | (4,973) | (5,834) | (3,031) | (15,207) | (5,322) | (5,489) | (5,662) | (1,845) | (18,318) |
| Non-cash items | 7,777 | 12,576 | 3,530 | 3,395 | 3,443 | 3,493 | 13,861 | 3,542 | 3,688 | 3,840 | 4,001 | 15,072 |
| Changes in operating assets and liabilities, net | 1,034 | (973) | (14,186) | 574 | (674) | (2,307) | (16,593) | 307 | (648) | (637) | (2,399) | (3,377) |
| | | | | | | | | | | | | |
| **Net cash used in operating activities** | **(36,316)** | **(8,686)** | **(12,025)** | **(1,003)** | **(3,065)** | **(1,846)** | **(17,939)** | **(1,472)** | **(2,449)** | **(2,459)** | **(243)** | **(6,624)** |
| | | | | | | | | | | | | |
| Decrease in restricted cash | 1,271 | 193 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Expenditures for property, plant and equipment | (8,537) | (10,797) | (1,320) | (341) | (344) | (347) | (2,352) | (2,576) | (2,737) | (2,908) | (3,090) | (11,311) |
| Sale (purchase) of investments, net | 14,322 | (9,138) | 13,610 | 0 | 0 | 0 | 13,610 | 0 | 0 | 0 | 0 | 0 |
| Purchases of CO2 Solution common shares | | (1,316) | | | | | 0 | | | | | 0 |
| Acquistion, net of cash acquired | | | | | | | 0 | | | | | 0 |
| | | | | | | | | | | | | |
| **Net cash used in investing activities** | **7,056** | **(21,058)** | **12,290** | **(341)** | **(344)** | **(347)** | **11,258** | **(2,576)** | **(2,737)** | **(2,908)** | **(3,090)** | **(11,311)** |
| | | | | | | | | | | | | |
| Principle payments on financing obligations | (4,264) | (6,087) | (1,339) | (1,339) | (1,339) | (1,339) | (5,356) | (1,000) | (1,000) | (645) | 0 | (2,645) |
| Payments in preparation of IPO | | (959) | (1,636) | | | | (1,636) | | | | | 0 |
| Proceeds from equity transactions, net | 378 | 47,043 | 140 | 68,361 | 0 | 0 | 68,501 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | | | | | |
| **Net cash provided by (used in) financing acitivities** | **(3,886)** | **39,997** | **(2,835)** | **67,022** | **(1,339)** | **(1,339)** | **61,509** | **(1,000)** | **(1,000)** | **(645)** | **0** | **(2,645)** |
| | | | | | | | | | | | | |
| Effect of exchange rate changes on cash and cash equiva | (26) | (371) | (18) | | | | (18) | | | | | |
| Net increase in cash and cash equivalents | (33,172) | 9,882 | (2,588) | 65,678 | (4,748) | (3,532) | 54,810 | (5,048) | (6,186) | (6,012) | (3,333) | (20,579) |
| Cash and cash equivalents at beginning of year (period) | 55,075 | 21,903 | 31,785 | 29,197 | 94,875 | 90,127 | 31,785 | 86,595 | 81,547 | 75,360 | 69,348 | 86,595 |
| | | | | | | | | | | | | |
| **Cash and cash equivalents at end of year (period)** | **21,903** | **31,785** | **29,197** | **94,875** | **90,127** | **86,595** | **86,595** | **81,547** | **75,360** | **69,348** | **66,016** | **66,016** |

*Source: Company reports and Cantor Fitzgerald estimates*

**Codexis, Inc.**
(,000)

**Revenue Model**
Year End December 31st

| ***Biocatalysts*** | | **2011E** | **2012E** | **2013E** | **2014E** | **2015E** | **2016E** | **2017E** | **2018E** | **2019E** | **2020E** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Generics Market** | | | | | | | | | | | |
| US generics $MM | | 73,855 | 78,286 | 82,983 | 87,962 | 93,240 | 98,835 | 104,765 | 111,050 | 117,713 | 124,776 |
| Growth % | | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% | 6.0% |
| COGS $MM | **50%** | 36,927 | 39,143 | 41,492 | 43,981 | 46,620 | 49,417 | 52,382 | 55,525 | 58,857 | 62,388 |
| Potential market for biocatalysts | **20%** | 7,385 | 7,829 | 8,298 | 8,796 | 9,324 | 9,883 | 10,476 | 11,105 | 11,771 | 12,478 |
| Potential cost savings | **50%** | 3,693 | 3,914 | 4,149 | 4,398 | 4,662 | 4,942 | 5,238 | 5,553 | 5,886 | 6,239 |
| Potential profit sharing | **60%** | 2,216 | 2,349 | 2,490 | 2,639 | 2,797 | 2,965 | 3,143 | 3,332 | 3,531 | 3,743 |
| | | | | | | | | | | | |
| **Codexis** | | | | | | | | | | | |
| % of potential profit sharing | | 1.3% | 1.6% | 3.1% | 5.1% | 7.6% | 8.8% | 9.8% | 10.8% | 11.0% | 11.0% |
| Product revenue | | 29,631 | 38,454 | 78,104 | 135,568 | 213,632 | 262,030 | 309,181 | 361,047 | 389,773 | 413,159 |
| Product revenue growth % | | 15% | 30% | 103% | 74% | 58% | 23% | 18% | 17% | 8% | 6% |
| % of potential market | | 0.40% | 0.49% | 0.94% | 1.54% | 2.29% | 2.65% | 2.95% | 3.25% | 3.31% | 3.31% |
| | | | | | | | | | | | |
| COGS % | | 80% | 78% | 76% | 74% | 72% | 70% | 68% | 66% | 64% | 62% |
| R&D % | | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% |
| SGA % | | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% | 10% |
| Tax % | | 0% | 0% | 0% | 15% | 25% | 35% | 35% | 35% | 35% | 35% |
| Net profit | | (0) | 769 | 3,124 | 6,914 | 12,818 | 17,032 | 24,116 | 32,855 | 40,536 | 48,340 |

| ***Biofuels*** | | **2014E** | **2015E** | **2016E** | **2017E** | **2018E** | **2019E** | **2020E** | **2021E** | **2022E** | **2023E** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EISA RFS cellulosic biofuel MM gal | | 1,750 | 3,000 | 4,250 | 5,500 | 7,000 | 8,500 | 10,500 | 13,500 | 16,000 | 16,000 |
| | | | | | | | | | | | |
| Cellulosic biofuel MM gal capacity | | 500 | 500 | 500 | 500 | 500 | 1,500 | 1,500 | 1,500 | 1,500 | 1,500 |
| Capacity utilization | | 50% | 75% | 85% | 85% | 85% | 75% | 85% | 85% | 85% | 85% |
| Revenue $MM | **$2.00** | 500 | 750 | 850 | 850 | 850 | 2,250 | 2,550 | 2,550 | 2,550 | 2,550 |
| Royalties net of MAXY 2% | **5%** | 25,000 | 37,500 | 42,500 | 42,500 | 42,500 | 112,500 | 127,500 | 127,500 | 127,500 | 127,500 |
| Royalties net of tax | | 21,250 | 28,125 | 27,625 | 27,625 | 27,625 | 73,125 | 82,875 | 82,875 | 82,875 | 82,875 |

| **Valuation** | **Biocatalysts** | | **Biofuels** | |
|---|---|---|---|---|
| 10-year NPV | 63,603 | | 221,343 | |
| Terminal value | 93,752 | 2% growth | 160,732 | 2% growth |
| Total Value | 157,356 | | 382,075 | |
| Total discounted value | 157,356 | 0y-discount | 251,221 | 3y-discount |
| | | | | |
| **$ / share** | **$5** | | **$7** | |

*Source: Cantor Fitzgerald*

# Disclosures Appendix

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Prior to September 12, 2006, Cantor Fitzgerald had the below ratings

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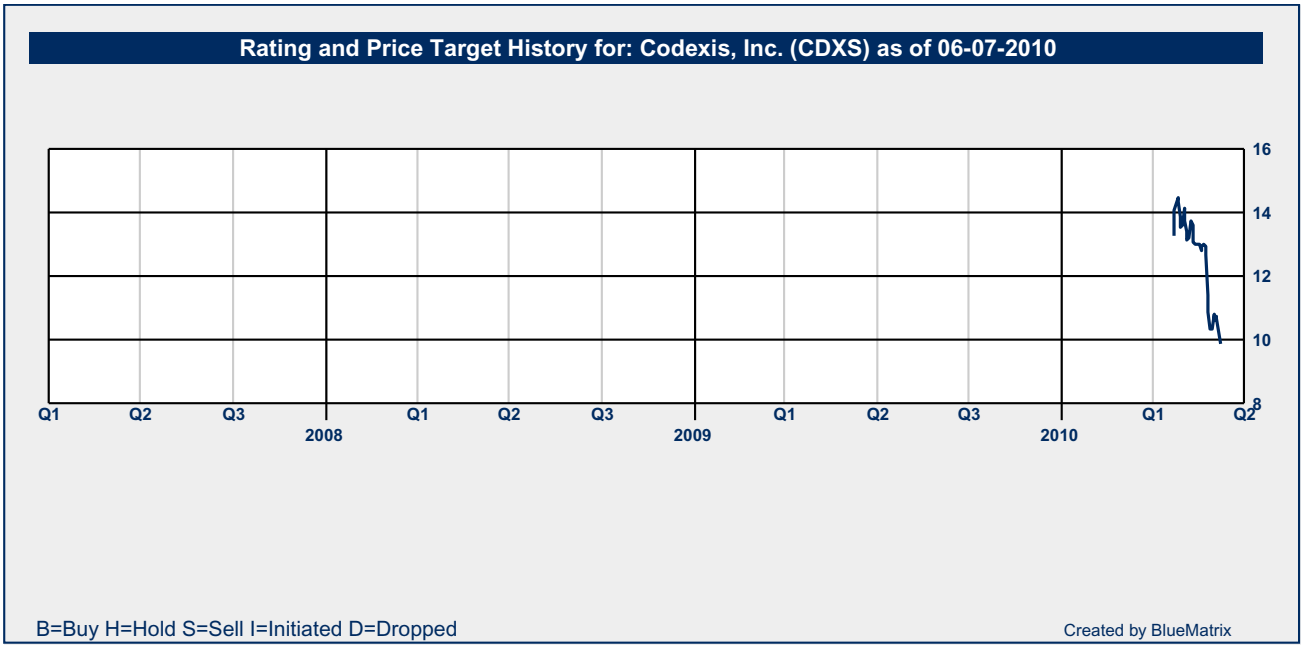

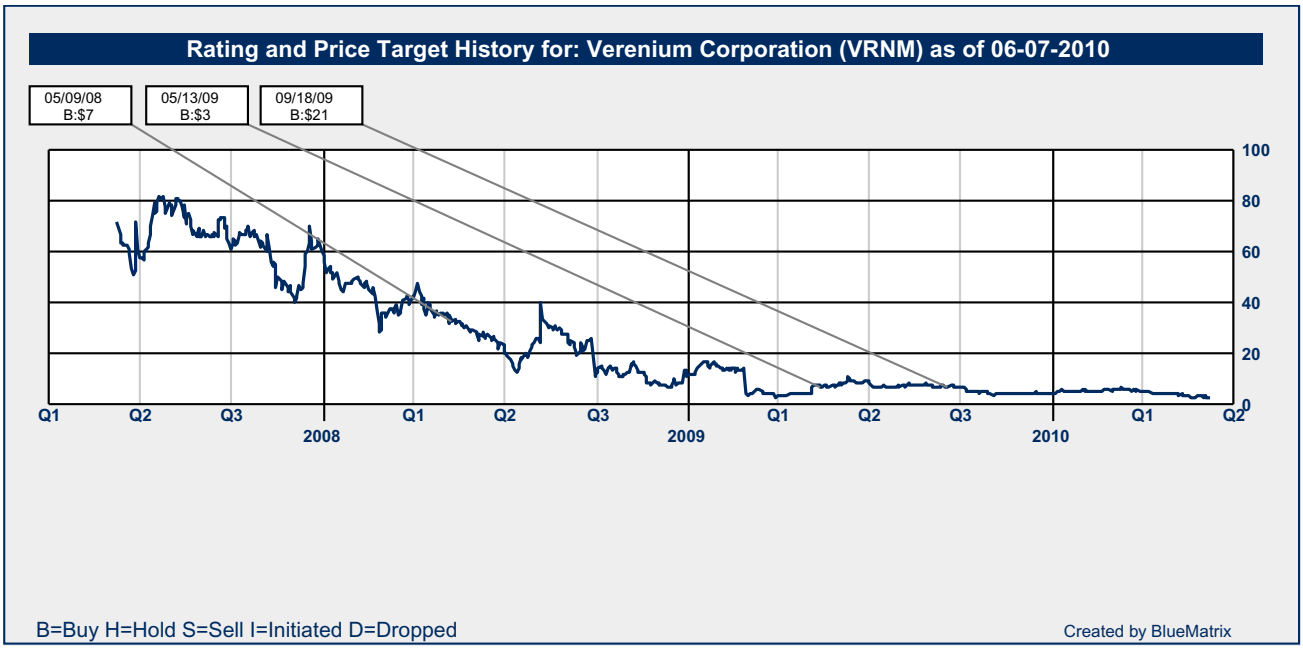


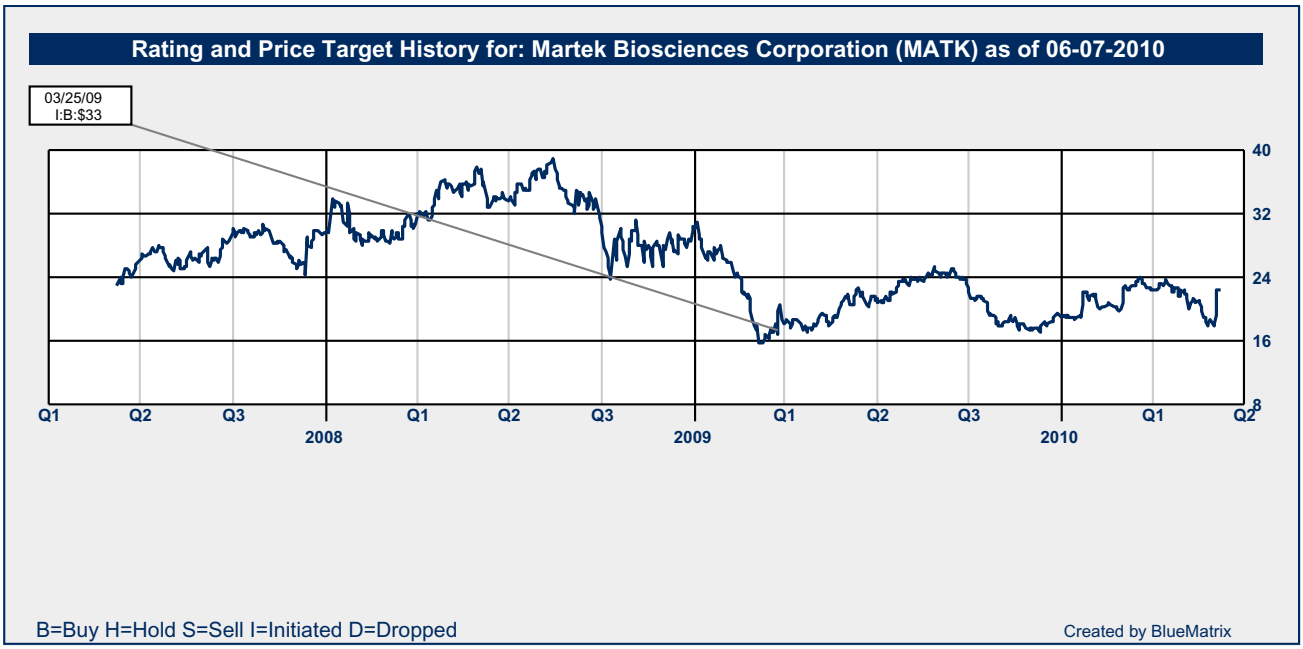


**Distribution of Ratings/Investment Banking Services (IB) as of 06/09/10**

**Cantor**

| Rating | Count | Percent | IB Serv./Past 12 Mos. Count | IB Serv./Past 12 Mos. Percent |
|---|---|---|---|---|
| BUY [B] | 38 | 59.40 | 8 | 21.05 |
| HOLD [H] | 23 | 35.90 | 3 | 13.04 |
| SELL [S] | 3 | 4.70 | 0 | 0.00 |

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