AEGIS CAPITAL CORP

Molecular Diagnostics
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Initiating Coverage

June 3, 2014

Biocept, Inc.

Rating: Buy

Capturing Circulating Tumor Cells

Key Metrics

BIOC - NASDAQ	$4.71
Pricing Date	Jun 2 2014
Price Target	$16.00
52-Week Range	$10.02 - $4.16
Shares Outstanding (mm)	4.5
Market Capitalization ($mm)	$21.2
3-Mo Average Daily Volume	19,736
Institutional Ownership	44%
Debt/Total Capital	0.2%
ROE	NM
Book Value/Share	$2.10
Price/Book	2.2x
Dividend Yield	NM
LTM EBITDA Margin	NM

EPS ($) FY: December

	2013A	Prior 2014E	Curr. 2014E	Prior 2015E	Curr. 2015E
1Q-Mar	(10.67)	--	(1.96)A	--	(0.70)E
2Q-Jun	(10.83)	--	(0.89)E	--	(0.59)E
3Q-Sep	(15.72)	--	(0.90)E	--	(0.45)E
4Q-Dec	(13.57)	--	(0.74)E	--	(0.38)E
FY	(50.80)	--	(4.05)E	--	(2.04)E
P/E	NM		NM		NM

Revenue ($M)

	2013A	Prior 2014E	Curr. 2014E	Prior 2015E	Curr. 2015E
1Q-Mar	0.0	--	0.0A	--	1.0E
2Q-Jun	0.0	--	0.1E	--	1.9E
3Q-Sep	0.0	--	0.4E	--	3.2E
4Q-Dec	0.0	--	0.6E	--	4.8E
FY	0.1	--	1.1E	--	10.9E

Source: BigCharts.com

Company Description:
Biocept, Inc. (http://www.biocept.com/) is a San Diego-based emerging molecular diagnostics company.

Investment Highlights:

- **Initiating Coverage.** We are initiating coverage of Biocept, Inc. with a Buy rating and an 18-month target price of $16.00 per share. Biocept is an emerging firm in the molecular diagnostics arena with a particular focus on the capture and analysis of circulating tumor cells (CTCs) and circulating tumor-associated DNA (ctDNA). In our view, the company possesses a highly differentiated technology platform permitting ultra-sensitive detection and enumeration of both CTCs and ctDNA from a molecular perspective. Biocept has already made available a novel diagnostic test panel for breast cancer, OncoCEE™-BR, which enables profiling of both HER2 receptor and estrogen receptor (ER) status. We believe that the firm's forward-integrated nature, with its own CLIA-compliant, CAP-accredited facility, should enable it to launch new tests starting in late 2014 and drive sales to levels that permit sustainable profitability beginning in mid- to late 2016.
- **CTCs Represent Important Prognostic Factors.** Multiple studies have shown the prognostic value of CTC detection and analysis. CTCs play a fundamental role in the regulation of metastasis and disease progression. The higher the CTC number in blood, the worse the prognosis typically becomes for a given patient. Accordingly, therefore, we believe that Biocept should be able to effectively commercialize several novel tests over the course of the next 12-18 months that specifically monitor CTCs and ctDNA, with the additional advantage of enabling pathologists to analyze the CTCs in a given patient for the presence of specific mutations.
- **Compelling Valuation.** Biocept currently trades at a roughly $10mm enterprise value, far below many of its molecular diagnostics peers. Another recently-listed diagnostics firm, Foundation Medicine (FMI/NASDAQ, Not Rated), trades at a market cap of $670mm despite being unprofitable with only one test on the market. We believe that Biocept could generate >$10mm in 2015 revenue and become profitable in 2016, when total revenues could exceed $30mm. The firm raised $19mm in gross proceeds from an IPO earlier this year underwritten by Aegis Capital Corp., and recently obtained $4.9mm from a credit facility with Oxford Finance LLC. We expect these funds to be sufficient to fund operations for at least the next 12 months.

The Disclosure section may be found on pages 30 - 33 of this report.

Investment Thesis

Biocept, Inc. is an emerging molecular diagnostics firm. The company is developing and commercializing proprietary tests and services aimed at the detection and analysis of circulating tumor cells (CTCs) and circulating tumor DNA (ctDNA) in blood samples taken from cancer patients. The firm is therefore a pioneer in the domain of "liquid biopsy" testing. The core approach integral to Biocept's tests is the Cell Enrichment and Extraction™ (CEE) platform, which utilizes microfluidics technology to selectively and ultra-sensitively capture rare cells. Employing this methodology, Biocept has developed a proprietary antibody-based cocktail that targets CTCs and also permits immediate post-capture biomarker analysis. This has enabled the development of a suite of diagnostic tests applicable to a broad range of solid tumor types, including breast, prostate, lung, skin, and colorectal cancers. These indications amount to a total of nearly a million new cases of cancer in the U.S. each year; roughly 8 million individuals are living with these malignant conditions and require constant monitoring. These types of cancer account for nearly 300,000 deaths in the U.S. each year. Biocept is fully-integrated, operating an 10,000-square foot facility in San Diego, CA, accredited under the Clinical Laboratory Improvement Amendments of 1988 (CLIA) to perform high-complexity testing. The firm's first microfluidics-based test, OncoCEE™-BR, is aimed at breast cancer and marketed by Biocept's sales force through a non-exclusive relationship with Clarient, a GE company. The firm is slated to launch an additional proprietary test, OncoCEE™-LU for lung cancer, in the third quarter of 2014. Biocept is also developing OncoCEE™-GA for gastric cancer, OncoCEE™-ME for melanoma, OncoCEE™-PR for prostate cancer, and OncoCEE™-CR for colorectal cancer. Furthermore, the firm is working on a second level of refinement for its lung cancer diagnostic offering that focuses on characterizing RET oncogene mutations in non-small cell lung cancer (NSCLC).

We are initiating coverage of Biocept, Inc. (BIOC) with a Buy rating and an 18-month price target of $16.00 per share, which assumes a total firm value of $150 million and ~11 million shares outstanding (fully-diluted) as of end-2015.

Investment Positives

Circulating Tumor Cell-Targeting Platform. One of the principal appeals of Biocept is its focus on CTCs. In our view, these rare and difficult-to-detect cells represent extremely crucial prognostic factors in various cancer types, since they are closely associated with metastasis and tumor growth at distal sites. Various studies have shown that the levels of CTCs in the blood of patients with different types of malignancies are closely related to likelihood of survival and, depending upon the nature of the mutations carried by these CTCs, the drugs from which the patient is most likely to benefit. The molecular diagnostics market is massive – $8 billion in 2012, with a compound annual growth rate (CAGR) estimated at 15% – 20%. Certain emerging markets (e.g., India and China) exhibit even faster growth rates.

Significant Clinical Validation – Multiple Shots On Goal. Biocept possesses a forward-integrated structure, with in-house sample processing capability through its wholly-owned CLIA laboratory. Unlike many other diagnostics firms of its size, which have the potential to develop only one or two tests, Biocept is targeting a wide array of different cancer types.

Profitability Potential. In our view, the diagnostics arena is more attractive than the drug development arena in terms of the amount of capital required for clinical validation and commercialization and the time required to reach profitability. We believe that Biocept could experience paradigm-shifting revenue growth starting in late 2014 / early 2015 and achieve sustainable cash flow-positive status in late 2015 / early 2016.

Investment Risks

Clinical Development Risk. Although the business of developing diagnostics is considered somewhat less risky than endeavors to develop new drugs, it is nevertheless still uncertain. If Biocept, Inc. cannot demonstrate the predictive value of its tests, we believe that these tests may never become commercially successful. The future ability of the company to launch additional tests based on its proprietary microarray-based platforms rests upon being able to demonstrate the clinical utility of these tests.

FDA Unpredictability. While currently there are hundreds of diagnostic tests that are available in the U.S. through the so-called CLIA pathway, which implies classification as a Laboratory-Developed Test (LDT), we note that regulations on LDTs could change at any time. If the FDA decides to regulate these tests in a stricter manner, Biocept's ability to market its LDTs could be impaired or restricted.

Competitive Landscape. Several other companies are trying to develop oncology-focused diagnostics and therapeutics, including Alnylam Pharmaceuticals, Asuragen Inc., Cancer Genetics, EXACT Sciences, Exiqon A/S, GenMark Diagnostics, Isis Pharmaceuticals, Merck & Co., Inc., Santaris Pharma A/S, Regulus Therapeutics, Response Genetics, TrovaGene and others. Biocept also faces competition from life sciences tools firms, such as Affymetrix, Fluidigm, Illumina, Thermo Fisher and others.

Intellectual Property Risk. The company relies on patents and trade secrets to protect its products from competitors. The healthcare industry is litigious, and lawsuits are considered to be a normal part of doing business. A court might not uphold Biocept's intellectual property rights, or it could find that Biocept infringed upon another party's property rights. In addition, competing diagnostics firms could potentially find loopholes in the firm's intellectual property estate. One particularly central aspect of the company's IP portfolio is the patent estate covering its proprietary microfluidics-based platform. We note that, since Biocept does not hold patents on microfluidics-based technologies *per se*, there is always a possibility that other firms could develop cell-capturing approaches that are designed differently but provide similar diagnostic capabilities.

Reimbursement Risk. In recent years, reimbursement agencies have grown more wary of systematically reimbursing for marginal benefit at excessive cost. If Medicare spending growth continues to outpace GDP growth, and the government's ability to fund healthcare becomes impaired, changes could be made to reimbursement policy that would negatively affect the company's business.

Additional Risks. As of March 31st, 2014, Biocept had about $10.4 million in cash and equivalents. In April 2014, the firm raised an additional $4.9 million through a credit facility established with Oxford Finance LLC. During the next 12 months, we believe that the firm is likely to continue to build its revenue base; however, we expect it to take 24 – 30 months for Biocept to reach sustainable profitability. Although the current burn rate implies that Biocept should not need to raise additional capital for at least the next 12 months, if the burn rate were to increase substantially or the firm's most advanced diagnostic tests fail to gain traction, the company could be forced to raise additional capital. Sources of cash could include: licensing fees, warrant and option exercises, or issuance of more shares. Biocept may not be able to raise cash at all.

Industry Risks. Emerging healthcare stocks are inherently volatile and increasingly subject to development and regulatory risk. Meeting or missing commercialization milestones may result in a significant change in the perception of the company and its stock price. We do not expect volatility to subside near term.

For additional risk considerations, please refer to the company's SEC filings.

Valuation

Comparables Analysis: Since Biocept is currently unprofitable, we use a discounted cash flow-based approach to value the shares. Based on a comparables analysis, we believe that the stock is worth $16.00 per share, given our estimate of a roughly $150 million risk-adjusted net present value (rNPV) for the firm's technology platform and its various commercial applications. This assumes that the shares trade in line with the comp group average enterprise value of roughly $150 million and that the firm has approximately 11 million shares outstanding (fully-diluted) as of the end of 2015.

Table 1: Comparable Company Analysis

(Millions, Except Per-Share Data)

Development	Company	Ticker	Rating	Closing price 6/2/2014	Shares (MM)	Market cap ($MM)	Cash ($MM)	Debt ($MM)	Enterprise value ($MM)
Marketed	Cancer Genetics	CGIX	Buy	$10.70	9	99	41	6	64
Marketed	ERBA Diagnostics	ERB	Not Rated	$1.80	44	79	3	2	78
Marketed	Genetic Technologies Ltd.	GENE	Not Rated	$1.04	19	20	8	5	17
Marketed	Nanosphere	NSPH	Not Rated	$1.32	77	101	33	12	80
Marketed	Navidea Biopharmaceuticals	NAVB	Hold	$1.66	149	248	26	31	253
Marketed	NeoGenomics	NEO	Not Rated	$3.28	50	163	5	12	169
Marketed	OraSure Technologies	OSUR	Not Rated	$6.14	56	343	84	0	259
Marketed	Response Genetics	RGDX	Not Rated	$.97	39	38	5	1	34
Marketed	Sequenom	SQNM	Not Rated	$3.04	116	354	56	145	443
Pre-approval	Venaxis	APPY	Buy	$2.06	31	64	13	2	53
	Average					**166**			**150**
							Discrepancy		
Current valuation	**Biocept, Inc.**	**BIOC**	**Buy**	**$4.71**	**4**	**21**	**10**	**0**	**11**
				Derived 18-month comparable value					**Projected**
Target valuation (12-month)	**Biocept, Inc.**	**BIOC**	**Buy**	**$16.00**	**11**	**175**	**25**	**0**	**150**

Source: First Call and Aegis Capital Corp. estimates

Free Cash Flow: We estimate that Biocept will not be cash flow-positive in 2014 and 2015, due to the time required to build sales and improve the gross margins on the firm's revenue base. We define free cash flow as operating cash flow minus capital expenditures and dividend payments. We utilize a discounted cash flow analysis supporting a risk-adjusted Net Present Value (rNPV) framework to derive our $16.00 price target; this is described further in the next section of this report.

Our detailed analysis has three components: our discounted cash flow model, including the rNPV assessment of the firm's most mature diagnostics; our assessment of the markets for these tests; and the near-term financial outlook for the firm. Our historical income statement and financial projections are presented at the back of this report.

Risk-Adjusted Net Present Value Analysis

We are projecting peak annual U.S. sales for the company's diagnostic tests of approximately $300 million in 2020, with erosion in the years after the final projected patent expirations in the 2024 – 2026 time frame. This estimate includes the following:

- Sales of the firm's OncoCEE™-BR test for breast cancer
- Sales of the firm's OncoCEE™-LU test for lung cancer
- Sales of the firm's OncoCEE™-ME test for melanoma
- Sales of the firm's OncoCEE™-PR test for prostate cancer
- Sales of the firm's OncoCEE™-CR test for colorectal cancer

We estimate that, at a peak market share of around 15% – 20% of all eligible patients, there would be approximately 100,000 tests being administered annually in the U.S. alone. Our risk-adjusted base case NPV calculation yields a $125 million value, or roughly $13 per share for the oncology tests. At this time, we are not assuming that Biocept would derive substantial revenue on a royalty basis from companies with whom it partners in drug development. Thus, there are multiple additional sources of potential upside to our projections; accordingly, we consider our valuation approach conservative.

Table 2: Oncology Diagnostic Test Market Metrics

Oncology Tests - U.S. only	Base-case
Total patients[1]	640,000
Peak market share[2]	13%
Treatment revenue/year/patient[3]	$475
Peak sales[4]	$300MM
Launch	2014
Peak sales year	2020
Use patent expires[5]	2027
Discount rate	15%
Risk-adjusted NPV[6]	$110MM
NPV per share	$10
Additional value drivers (OncoCEE™ Selector platform)	$40MM
Total enterprise value	$150MM
Cash and cash equivalent balance as of end-2015	$25MM
Shares Outstanding as of end-2015 (in millions)	11
Cash per share	$2
18-Month Target Price	$16.00

Notes on assumptions:

[1] Solid tumor types (OncoCEE™-BR, OncoCEE™-LU, OncoCEE™-CR, OncoCEE™-ME, OncoCEE™-PR - U.S. only (Source: American Cancer Society, National Cancer Institute)

[2] Peak market share - factoring in competition from other molecular diagnostics

[3] Revenue/year/patient - estimated based on projected pricing in the $600 - $750 per test range

[5] Peak sales - test revenue / year / patient x diagnosed patients x peak market share

[6] Final patents slated to expire in 2024 / 2026 time frame

[7] Cash flow fully taxed at 40%; net operating loss carryforwards not forecast to offset taxes

Source: Company reports; Aegis Capital Corp. estimates

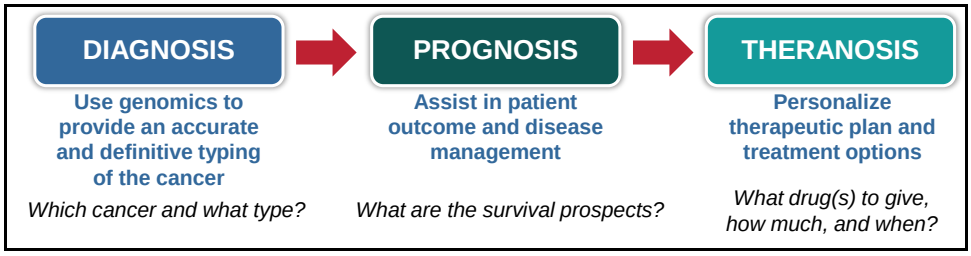
Although Biocept had $111.7 million in federal and $97.7 million in California state net operating loss carry-forwards as of end-2013, we are not factoring the impact of these into our valuation because we do not know what the impact of ownership changes may be. This approach may be conservative if it turns out that some of these NOLs can in fact be used to offset future taxes. We are currently assuming a 40% corporate tax rate.

Company Overview

Biocept, Inc. is a specialized molecular diagnostics company focusing on the development and commercialization of proprietary diagnostic tests in the domain of oncology. The firm's core strength is its industry-leading expertise in the domains of detection and analysis of circulating tumor cells (CTCs), which are known to play a key role in the growth and metastasis of various cancer types. The study of these types of cells found in the blood of cancer patients can have important prognostic and theranostic value. The company was founded in California in 1997, with the aim of becoming a force in the molecular diagnostics sector. Biocept reincorporated in Delaware in July 2013, and is engaged in translating the expertise of its Chief Scientific Officer, Dr. Lyle Arnold, and its Vice President of Translational Research, Dr. Farideh Bischoff, into the development of targeted diagnostic tools aimed at the capture and analysis of CTCs and circulating tumor-associated DNA (ctDNA). Both CTCs and ctDNA provide important clues to the pathogenesis of disease in various malignant conditions, and also enable the determination of patient prognoses, likelihood of metastasis and recurrence, and responsiveness to various courses of therapy.

Cancer is difficult to diagnose due to its varying morphology and genetic complexity. Traditional methods of diagnosis, routinely used as the initial step in cancer detection, involve a pathologist examining a thin slice of potentially cancerous tissue under a microscope. A relatively new tissue sample must be used along with chemical staining techniques to view the biopsy. Through visual inspection, the pathologist determines whether the biopsy contains normal or cancerous cells. Those cells deemed cancerous are graded on the basis of disease progression level and extent of aggressiveness. Molecular diagnostic tests for cancer aim to remove subjectivity from the diagnostic phase, and add prognostic information, thereby enabling personalized treatments based on cancer analysis at its most basic genetic level. These tests both define the cancer subtype and help determine the best course of treatment by detecting genetic mutations, gene fusions and DNA copy number changes, all of which are possible causes of or precursors to malignant growth. As shown below, the diagnostic test that can provide information on not only the type of cancer but also the prognosis and the best possible treatment is a powerful tool indeed, and has clear pharmacoeconomic benefit.

Figure 1: Cancer-Focused Molecular Diagnostics

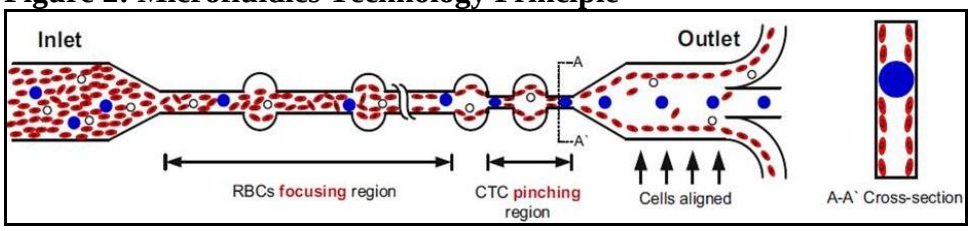


Source: Cancer Genetics, Inc.

Biocept's proprietary Cell Enrichment and Extraction (CEE™) technology is aimed at the enumeration and analysis of CTCs, and the CEE™-Selector technology is for the detection and analysis of ctDNA. The CEE™ technology is an internally-developed, microfluidics-based CTC capture and analysis platform, with enabling features that change how CTC testing can be used by clinicians by providing real-time biomarker monitoring with a standard blood sample. This approach enables mutation detection with enhanced sensitivity and specificity and is applicable to nucleic acid from CTCs or other sample types, such as blood plasma for ctDNA. The CEE™-Selector technology is an important part of certain pipeline CTC-focused tests being developed by Biocept, and the firm believes that it could also be a stand-alone test for molecular analysis of biomarkers.

As shown below, the principle underlying microfluidics-based cell capture involves a patented arrangement of posts that are optimized for ultra-sensitive rare cell capture from blood samples. The sample is first spun down to fractionate it into plasma, Buffy coat and red blood cell layers. The CTCs are generally found in the Buffy coat layer and can be separated from the remaining red blood cells by using a combination of red blood cell focusing regions and CTC pinching regions in the microfluidic chamber as shown below.

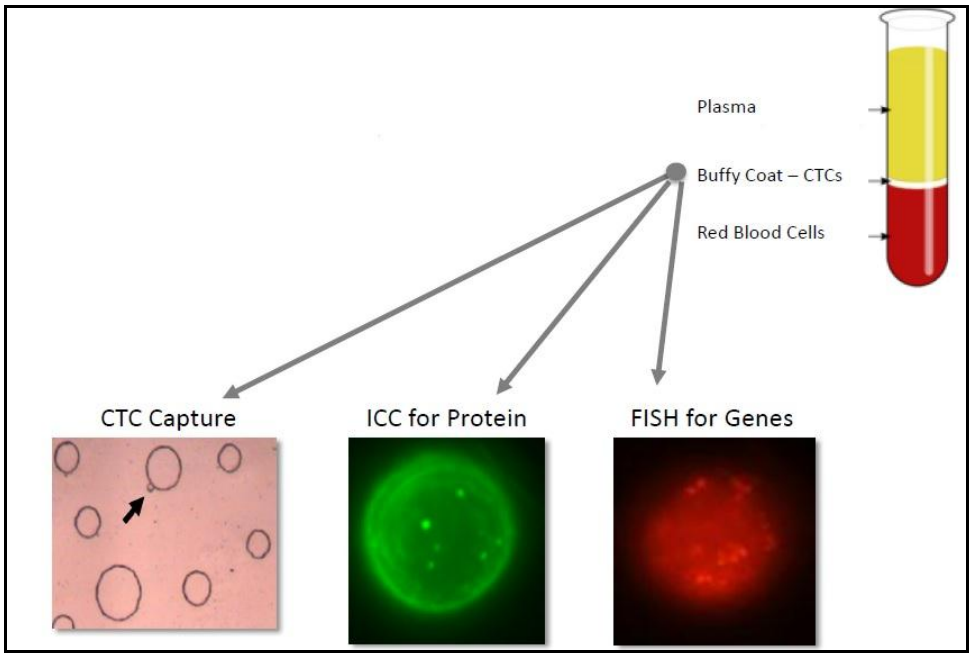
Figure 2: Microfluidics Technology Principle



Source: M.D. Anderson Cancer Center, Houston, TX

Detection, enumeration and cytogenetic or molecular analysis can be performed on CTCs isolated from blood or bone marrow samples, with immunocytochemistry (ICC) being done to detect the presence of specific protein antigens and fluorescent *in situ* hybridization (FISH) analysis being done to identify the presence of specific genetic mutations or translocations that are known to be linked with cancer.

Figure 3: Circulating Tumor Cell Capture and Analysis



Source: Biocept, Inc.

One of the most important aspects of the Biocept platform is the elegant manner in which cells that are captured can be mounted on glass slides and visualized microscopically, with the potential for multiple assays to be performed on the captured cells of interest. Cells can be released for further analysis, including CEE-Selector mutation analysis, as well as next-generation sequencing (either at Biocept or through the firm's partners). Biocept's ability to capture and analyze CTCs, therefore, permits important information about the aggressiveness and tractability of solid tumors to be extracted without having to subject the patient to painful and invasive biopsy procedures. An overall snapshot of the cancer can be observed rapidly and used to provide a more accurate prognosis.

The company is currently advancing diagnostic development programs in cancer and other areas, to potentially enable accurate diagnosis and improve patient care management worldwide. Its core business strategies are as follows:

- Leverage its technical and theoretical knowledge to develop high-precision diagnostic tests for use in the oncology domain. In particular, Biocept aims to become a central player in the context of personalized medicine – guiding cancer care for specific patients belonging to distinct genetic subgroups and optimizing response rates to targeted therapeutics.
- Maximize sales of the firm's first commercial tests through the growth and optimization of its proprietary sales force as well as broadening of its collaborative agreement network.
- Build and maintain a strong intellectual property position. In our view, the firm's patent portfolio is one of its most fundamentally important assets, as Biocept is a leader in the field of developing proprietary diagnostics based on cutting-edge molecular technologies such as next-generation sequencing. We also believe that Biocept possesses key, fundamental technical knowhow in domains such as microfluidics, cell capture, complex cytogenetics and mutational analysis.
- Leverage the firm's intellectual property position and circulating tumor cell-based diagnostic test design expertise to establish new strategic collaborations. The company intends to continue to establish strategic collaborations with leading clinical diagnostic and pharmaceutical companies to further develop and commercialize novel oncology-focused diagnostics.

Product Pipeline

Our current valuation methodology only accounts for Biocept's formally announced oncology-focused diagnostics, and does not ascribe any value to the firm's earlier-stage initiatives targeting indications beyond melanoma, breast, lung, colorectal, and prostate cancer. Such applications could provide substantial future upside to our projections. The company's pipeline is shown below.

Figure 4: Biocept Proprietary Diagnostic Test Pipeline

Product	Tumor Type	OncoCEE™ CTC	CEE-Selector™
OncoCEE-BR™ (launched)	Breast	Enumeration of CTCs , HER2, ER, PR	Currently no clinically actionable mutations identified
OncoCEE-GA™	Gastric	Enumeration of CTCs, HER2	Currently no clinically actionable mutations identified
OncoCEE-LU™	Lung	Enumeration of CTCs, ALK, ROS1	EGFR, K-ras, B-raf mutations
OncoCEE-CR™	Colon	Enumeration of CTCs, EGFR	K-ras, B-raf mutations
OncoCEE-PR™	Prostate	Enumeration of CTCs, AR, and PTEN deletion (blood or bone marrow)	Currently no clinically actionable mutations identified
OncoCEE-ME™	Melanoma	Enumeration of CTCs	B-raf and N-ras mutations

Source: Biocept, Inc.

Strategic Perspectives

Over the course of the past decade, Biocept has built an IP estate in the domain of proprietary oncology-focused molecular diagnostics, centering primarily on the detection and analysis of circulating tumor cells (CTCs) and circulating tumor-associated DNA (ctDNA). We note that the company is one of very few focused on the diagnostics sector that can actually reliably detect CTCs as well as selectively capture and analyze them. We note that the company has spent about $127.5 million since its inception in 1997.

The CLIA laboratory that Biocept currently owns is licensed by the State of California and also conducts testing sanctioned by the California State Department of Health, which enables the firm to provide testing services to residents of most states. The company plans to obtain licenses from other states as required. The Biocept laboratory is also accredited by the College of American Pathologists (CAP). The CAP Laboratory Accreditation Program is an internationally recognized program, and accreditation by CAP can also be used to meet CLIA and state certification requirements.

Molecular Diagnostics Acquisition Transactions

Given the fact that there has recently been a substantial amount of M&A activity in the molecular diagnostics arena, we feel it would be appropriate to recapitulate several of the more notable acquisitions that have occurred in this domain. Three transactions in particular stand out, in our view:

- The acquisition of Clarient, a developer of cancer diagnostic tools, by GE Healthcare (a division of General Electric) in October 2010 for $587 million – this represented a revenue multiple of roughly 5x on projected 2010 revenues of $115 million
- The acquisition of Genoptix, a hematology- and oncology-focused diagnostics firm, by Novartis in January 2011 for $470 million – this represented a revenue multiple of approximately 2.5x on projected 2010 revenues of roughly $190 million
- The acquisition of Third Wave Technologies, a firm focused on women's health diagnostics, by Hologic in 2008 for $580 million

Key Points

We believe that investors should take note of the following:

- Biocept has established its business plan by laying out an intent to commercialize several CTC and ctDNA-based oncology diagnostics tests in various contexts:
  - → Launched test for metastatic breast cancer (OncoCEE™-BR)
  - → Pre-launch test for lung cancer (OncoCEE™-LU) detecting EGFR, K-ras and B-raf mutations
  - → Development-stage test for lung cancer focusing on RET mutations
  - → Development-stage test for colorectal cancer (OncoCEE™-CR) detecting CTCs and EGFR mutations (K-ras, B-raf)
  - → Development-stage test for prostate cancer (OncoCEE™-PR) detecting CTCs, androgen receptor mutational status, and PTEN deletion (blood / bone marrow)
  - → Development-stage test for melanoma (OncoCEE™-ME)
- The firm is forward-integrated because it owns its own CLIA-certified laboratory for sample processing and can leverage this in order to expand its footprint
- Biocept could eventually become a target for either established diagnostics firms looking to broaden their presence in CTC-based testing or biopharmaceutical firms seeking to develop either theranostic solutions or companion diagnostics

Molecular Diagnostics Market Overview

The firm's aim is to leverage its various high-content oncology-based diagnostic platforms to facilitate improvements in detection, management and eradication of cancer. Thus far, Biocept has stated its intent to launch five distinct branded diagnostic products in the target markets listed below. The firm focused on these areas because they represent substantial patient populations, constitute growing market opportunities, and have historically high death rates. We would note that Biocept expects to have products available that could impact over 1,000,000 new lives annually in the U.S. alone.

Figure 5: Biocept Initial Target Markets

Cancer Type	New Cases/ Year	Living with Cancer	Deaths/ Year
Breast	232,340	2,829,041	39,620
Prostate	238,590	2,617,682	29,720
Lung	228,190	399,431	159,480
Colorectal	142,820	1,154,481	50,830
Melanoma	76,690	921,780	9,480
Total	918,630	7,922,415	289,130

Source: Biocept, Inc., American Cancer Society, National Cancer Institute

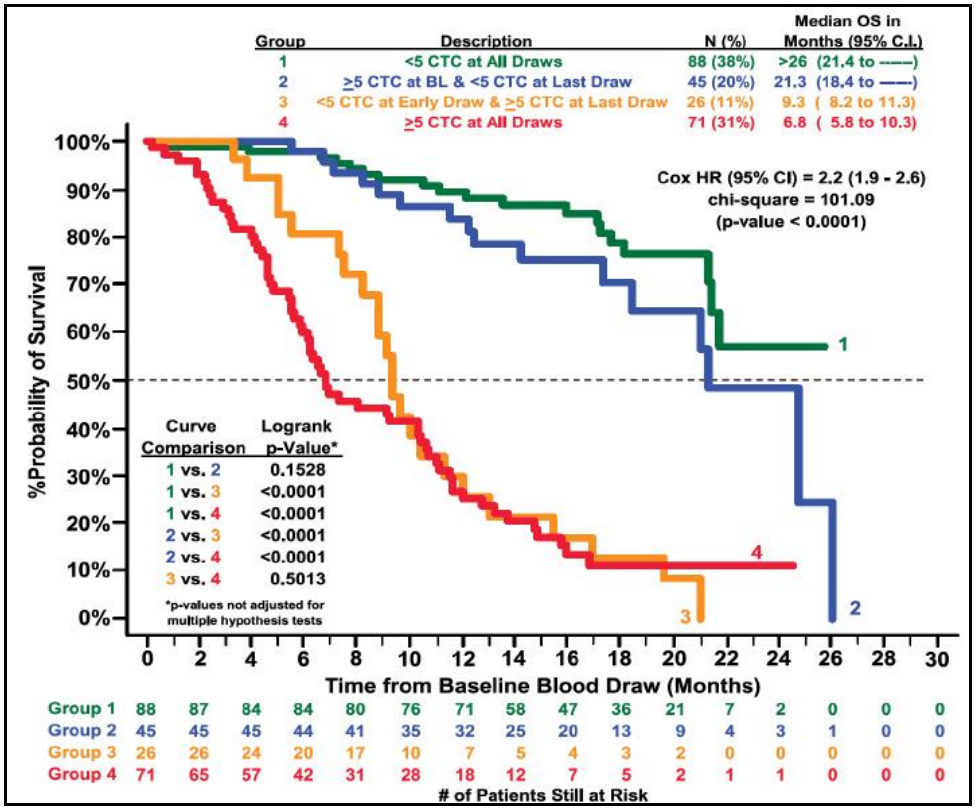
Payor Landscape and Reimbursement Considerations

OncoCEE™-BR is a new test, and because of Biocept's previous relationship with Clarient, under which Clarient had responsibility for billing and reimbursement until mid-2013, the company does not currently have established coverage and reimbursement policies set with all third-party payors. The firm's Medicare Administrative Contractor has issued a negative coverage determination for the capture/enumeration component of all CTC tests (Janssen Diagnostics, LLC's CellSearch® test has historically been covered for CTC capture/enumeration). Nevertheless, Biocept has received reimbursement for the capture/enumeration component of its tests from some payors, including major private third-party payors, based on submission of standard CPT codes. FISH, ICC and molecular testing CPT codes are the subject of positive coverage national or local Medicare determinations. We believe these codes can be used to bill for the analysis components of the firm's current and anticipated CTC tests. These components should, in our view, have a much greater reimbursement value than the capture/enumeration components of Biocept's current and anticipated CTC tests, based on a comparison of CellSearch® capture/enumeration reimbursement rates vs. existing reimbursement rates for components such as FISH and ICC analysis and molecular testing.

Prognostic Value of Circulating Tumor Cells

We believe that it is important at this juncture to illustrate the prognostic value inherent in accurate analysis of CTCs. Landmark research performed in the field of several solid tumor types has conclusively demonstrated the importance of a reduction in CTC counts as an important prognostic factor in determining the length of patient survival. As shown below, Kaplan-Meier survival plots for patients with varying CTC counts demonstrate that CTC counts of ≤5 per 7.5ml of blood were associated with at least a 15-month increase in survival. Accordingly, therefore, we believe that Biocept's chosen field of focus should denote the potential for premium pricing and broad market adoption.

Figure 6: CTC Counts Survival Predictability in Prostate Cancer



Source: de Bono et al., Clinical Cancer Research 14 : 6302-6309 (2008)

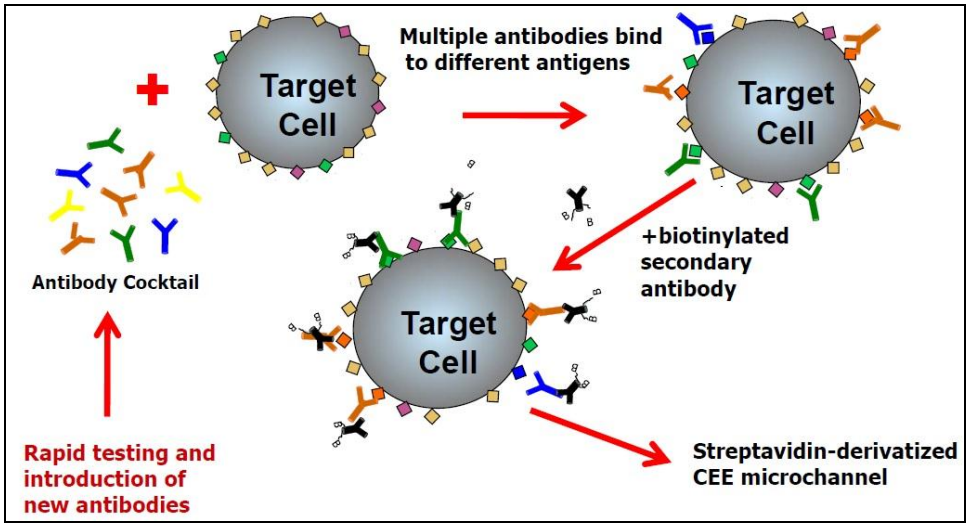
A recent meta-analysis was also conducted assessing the prognostic value of CTCs in breast cancer[1]. Forty-nine eligible studies enrolling 6,825 patients were identified. The presence of CTC was significantly associated with shorter survival in the total population. The prognostic value of CTC was significant in both early (DFS: HR, 2.86; 95% CI, 2.19-3.75; OS: HR, 2.78; 95% CI, 2.22-3.48) and metastatic breast cancer (PFS: HR, 1.78; 95% CI, 1.52-2.09; OS: HR, 2.33; 95% CI, 2.09-2.60). Further subgroup analyses showed that these results were stable irrespective of the CTC detection method and time point of blood withdrawal. The study authors concluded that the meta-analysis demonstrated the value of the detection of CTCs as a stable prognosticator in patients with early-stage and metastatic breast cancer. Further studies are being conducted in order to explore the clinical utility of CTC in breast cancer. Data has also shown a correlation between very high CTC counts and triple-negative disease[2].

[1] Zhang *et al.*, Clinical Cancer Research 18: 5701-5710 (2012)
[2] Peeters *et al.*, British Journal of Cancer 110: 375-383 (2014)

Competitive Landscape

Since the prognostic value and mechanistic importance of circulating tumor cells was first revealed in various academic studies, many companies have been working to develop and commercialize diagnostic modalities that are aimed at accurately capturing and quantifying CTCs. In this section of the report, we assess some of these emerging technologies and how they measure up to the Biocept approach. Physical isolation techniques such as size filtration, microscopic morphology and density gradient centrifugation have been utilized to isolate CTCs. Biological approaches such as immunomagnetic isolation, immunofluorescent microscopy, and flow cytometry have been used. A number of CTC isolation platforms utilize multiple methodologies from amongst the aforementioned techniques in order to capture or otherwise isolate CTCs. Once cells are captured, a number of techniques are used for analysis, but they tend to be identical or very similar to standard diagnostic techniques – i.e., FISH, PCR, or next-generation sequencing (NGS). From our perspective, there are two general camps in this sector – those firms that rely upon traditional CTC capture and enumeration – as introduced initially by Janssen Diagnostics, which use antibodies as their main manner of detection – and those using combination approaches, which use specialized instruments. Biocept's streptavidin-biotin approach may be superior to the antibody methods used in "traditional" approaches such as the CellSearch® system from Janssen Diagnostics. The figure below illustrates how antibody-mediated cell capturing works.

Figure 7: Antibody-Mediated Cell Capture Technology



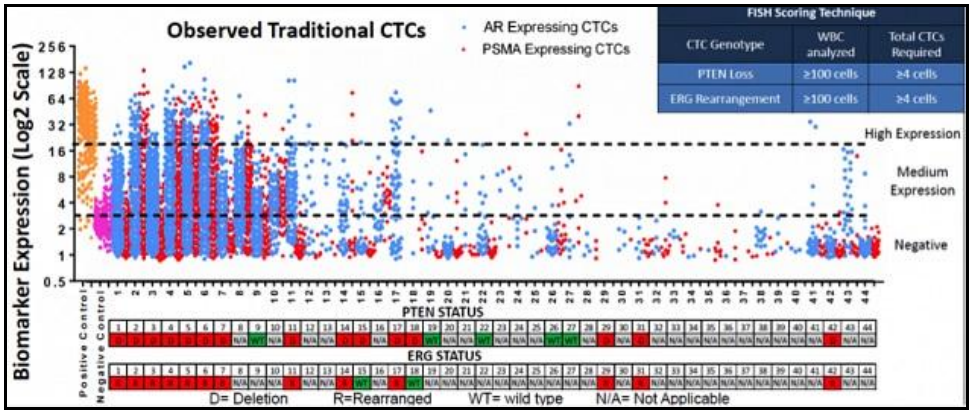
Source: Biocept, Inc.

Traditional Circulating Tumor Cell Detection Systems

Janssen Diagnostics, LLC markets the CellSearch® Circulating Tumor Cell Kit and competes on CTC enumeration of cancers of epithelial origin using CD45-, EpCAM+ and cytokeratins (CK 8, 18+, and/or 19+) in whole blood and is targeted at metastatic breast, colorectal and prostate cancers. The CellSearch® CTC test was originally accorded FDA 510(k) certification in early 2004 (for monitoring metastatic breast cancer) and is offered by a dozen laboratories around the U.S. and Canada in North America. A number of payors reimburse for enumeration of CTCs via CellSearch®, usually under CPT codes 86152 and 86153, making it the only CTC test with relatively broad reimbursement. However, Palmetto indicated recently that it would be moving away from these codes, thereby somewhat leveling the playing field between Janssen and newer participants, such as Biocept.

EPIC Sciences utilizes nucleated cells dispensed as a single layer on their proprietary Aqua glass slides. The slides can each hold ~3 million nucleated cells, which is equivalent to 0.5mL of blood. The slides are frozen, thawed, then stained with EPIC's CTC Odyssey assay, which contains a cocktail of CK, CD45, DAPI, and a characterization antibody – for example, a protein drug target. The slides are then scanned by the company's Pyxis fluorescent scanner and the images are analyzed (on over 90 features) by its proprietary Atlas software, which flags potential CTCs using an algorithm. Once the CTCs are flagged, a trained lab employee confirms. If further genetic analysis is required, the coverslip is removed and FISH is preformed and read by a trained reader. The output is characterized as shown below.

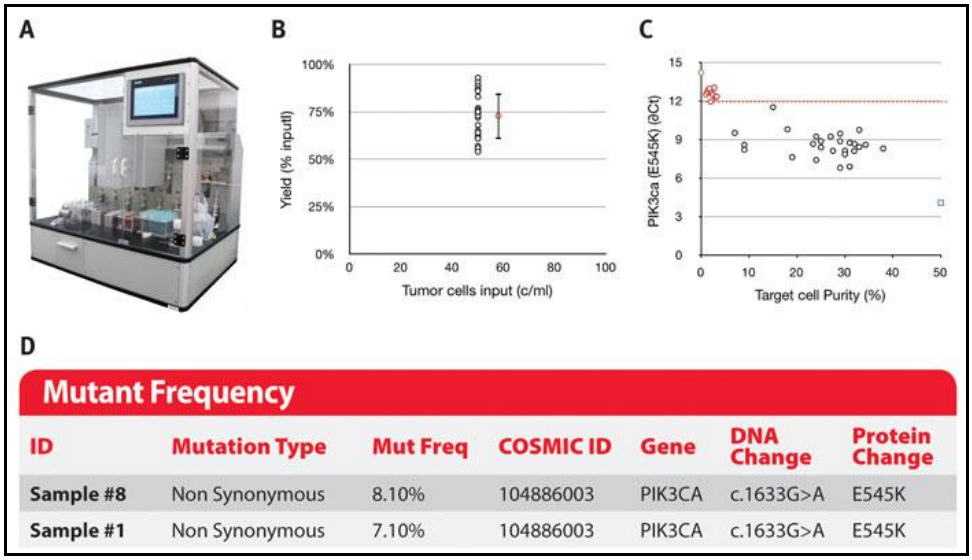
Figure 8: EPIC Sciences CTC-Based Molecular Marker Assessment



Source: EPIC Sciences

Cynvenio Biosystems operates a CLIA lab outfitted with LiquidBiopsy™, the firm's automated immune-magnetic system along with a patented microfluidic chip design to recover CTCs from whole blood. LiquidBiopsy™ employs a three-layer laminar flow chip which ultimately deposits CTC EpCAM+, CK+, CD45- and DAPI+ cells into a single tube for further analysis. The laboratory's offerings range from CTC recovery with CK, DAPI, and CD45 staining along with a scanning and enumeration report to PCR to NGS. Patient samples are shipped in a stabilized, non-refrigerated kit.

Figure 9: LiquidBiopsy™ Circulating Tumor Cell Detection



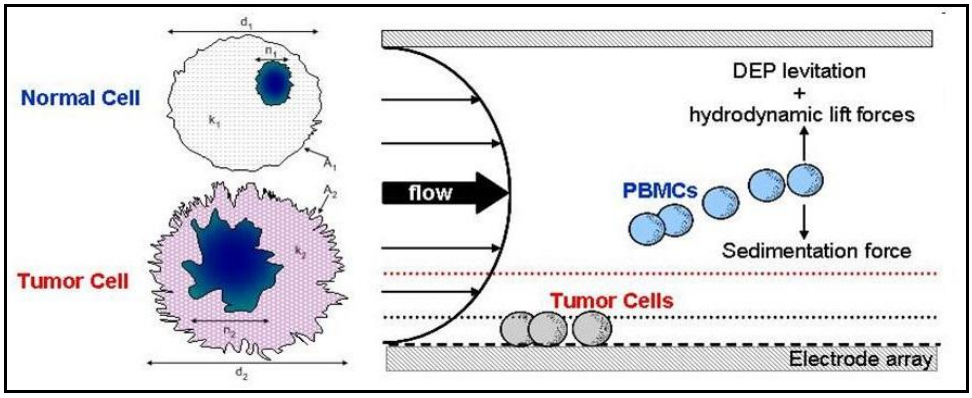
Source: Cynvenio Biosystems

Non-Traditional Circulating Tumor Cell Detection Systems

Apocell has developed the ApoStream enrichment process, aimed at capturing and identifying CTCs from non-epithelially-derived cancers as well as increasing numbers of recovered CTCs from epithelially-derived cancers. Additionally, they perform phenotyping of CTCs via quantitative image analysis, using their proprietary Laser Scanning Cytometry.

The company states that ApoStream has been proven superior to immunomagnetic CTC enrichment approaches. This technology allows for enumeration as well as downstream analysis and is based on exploiting the differences in dielectric properties (polarizability) of cells, which in turn is dependent on cell diameter, membrane morphology and conductivity. Apocell also offers clinical trial services, although it is unclear whether it does so at this point using the ApoStream prototype platform.

Figure 10: ApoStream Enrichment Process



Source: Apocell Biosciences

Clearbridge Biomedics has developed the ClearCell FX inertial focusing system and ClearCell CX cell traps. The ClearCell FX relies on the company's CTChip FR technology to isolate CTCs based on size and inertia relative to other blood components. Once enriched, the captured CTCs can then be analyzed by a number of techniques, including FISH, Q-PCR, and NGS. The company claims enrichment of CTCs "up to 10,000-fold." Their system is a non-antibody approach and the company expects to make the system broadly available during 2014. Clearbridge is based in Singapore.

Figure 11: ClearCell FX Apparatus

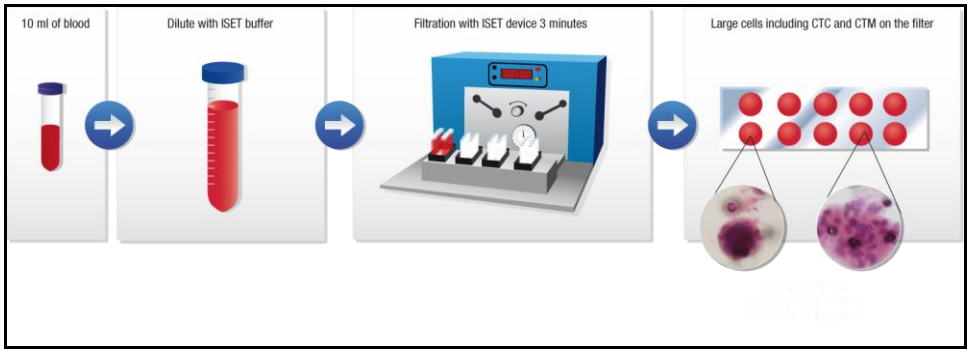
Source: Clearbridge Biomedics

Fluxion Biosciences markets the IsoFlux System, a microfluidic platform, for the isolation of rare cells, including CTCs, stem cells, and immune cells. The system uses immunomagnetic separation and up until recently, they offered only magnetic beads functionalized with antibodies, although they have since announced the availability of streptavidin-coated magnetic beads for use with biotinylated antibodies; this approach, as

previously discussed, provides benefits over an antibody-only approach in capturing cells. Fluxion claims independent data has shown superior target cell recovery compared to currently available cell enrichment devices, although on average their data in terms of percentage of patients with over five CTCs captured looks similar to the Biocept platform data shown previously. The IsoFlux system has been CE marked, but is not cleared by the FDA for in vitro diagnostics (IVD) use, although CLIA certified labs may use it for laboratory-developed tests (LDTs).

RareCells offers the Rarecells System (formerly known as the "ISET Device"), which isolates by size of epithelial tumor (ISET) cells in Europe. The Rarecells system separates the CTCs through a form of ultra-precise filtration and the company claims it able to detect a CTC to a sensitivity level of one in 40,000,000 (40 million) cells.

Figure 12: RareCells Process Workflow



Source: Apocell Biosciences

ScreenCell offers the ScreenCell isolation devices in kit format, claiming CTC separation from blood in three minutes. The microfiltration kit contains DNAse- and RNAse-free filtration devices with a collection tube and a specific buffer and is disposable. A 2011 study showed the device detected 91% of CTC cells when five spiked cells were included in a healthy patient's blood, and 74% when two spiked cells were used.

Silicon Biosystems, acquired by Menarini Group in September 2013 for an undisclosed amount, offers the DEPArray system for the capture and characterization of CTCs. The technology works by applying a non-uniform electric field to polarizable cells suspended in a liquid, using an electrokinetic principle, dielectrophoresis (DEP), it traps cells in DEP "cages", which consist of electrodes in an array manipulated by an electric field. Moving the charge pattern moves the trapped cell, once captured. The system can then select the cells using an image-based approach, allowing it to recover individual cells.

There also continue to be diagnostic modalities aimed at oncology that do not focus on CTCs at all. These generally utilize microarrays or high-throughput sequencing in order to screen biological samples for genetic mutations associated with cancer, although certain molecular diagnostics companies are focused on a very small subset of molecular markers. Companies focused on commercializing such methods include Agendia, Biodesix, Cancer Genetics, Caris, Clarient, Epigenomics, EXACT Sciences, Genomic Health, Genoptix, Neogenomics, Response Genetics, Sequenom, and Trovagene.

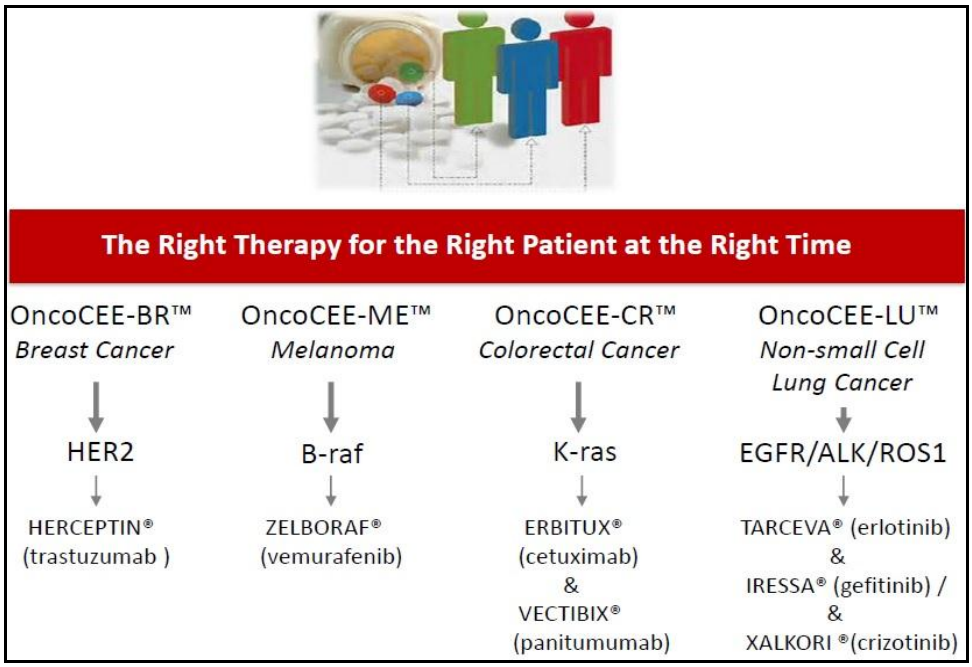
Companion Diagnostics – A Rapidly Evolving Field

We note that a burgeoning trend in the molecular diagnostics field involves the pairing of diagnostic tools with targeted therapeutics. Roche's CEO, Severin Schwan, has gone on record as stating that "Roche will not file any new investigational oncology drugs in the future without simultaneously filing for the registration of a companion diagnostic for each such application." This has made Roche's intent with respect to pursuing personalized medicine and theranostics abundantly clear. Other firms seeking to do the same include AstraZeneca, Celgene, Clovis Oncology, Gilead Sciences, Novartis and Pfizer. We would predict that in the future virtually all targeted therapeutics will be administered with the aid of companion diagnostics.

Examples of targeted therapies that are currently being administered only when accompanied by a diagnostic test are Xalkori (crizotinib), the ALK kinase inhibitor from Pfizer to treat certain cases of non-small cell lung cancer (NSCLC); Zelboraf (vemurafenib) from Roche to treat metastatic melanoma carrying the V600E B-raf mutation; and Tafinlar (dabrafenib) and Mekinist (trametinib) from GlaxoSmithKline, also to treat mutated metastatic melanoma carrying the V600E B-raf mutation. While Tafinlar is a B-raf kinase inhibitor, Mekinist is an antagonist of the mitogen-activated protein kinase kinases MEK1 and MEK2.

Other targeted therapies that were originally commercialized without a standard companion diagnostic are also increasingly being used with companion tests. Examples of these older-generation drugs are agents such as Erbitux (cetuximab) from Eli Lilly & Co. (formerly ImClone Systems) and Merck KgaA, which targets the epidermal growth factor (EGF) receptor; Vectibix (panitumumab) from Amgen, which also targets the EGF receptor; Herceptin (trastuzumab) from Roche / Genentech, which targets the HER2 receptor; and Tarceva (erlotinib) and Iressa (gefitinib), both small molecule inhibitors of the EGF receptor. As shown in the flow chart below, most of Biocept's pipeline of diagnostic tests focusing on CTCs can be utilized in order to guide the deployment of these targeted therapies within the context of different solid tumor types.

Figure 13: Targeted Therapy Using Companion Diagnostics

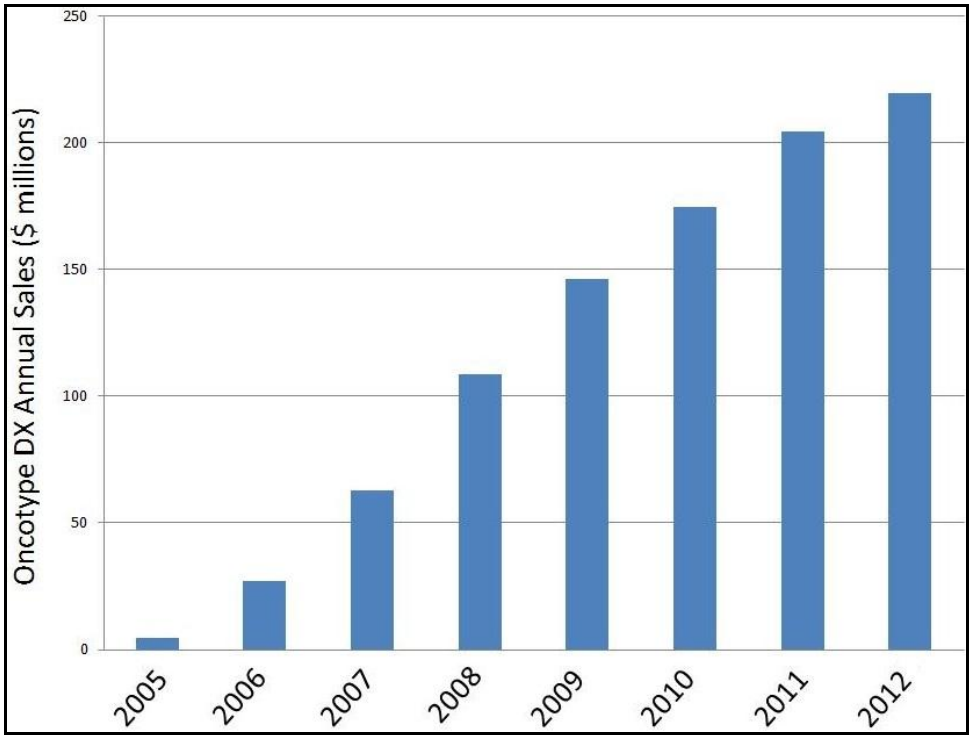


Source: Biocept, Inc.

Oncology Diagnostics Market Model

We have modeled sales for Biocept's diagnostic test products solely in the U.S. for the diagnosis of cancer. In our view, the firm must continue to seek commercialization partners outside the U.S. in order to sell its products in those territories; while such partnerships could materialize in the future, we conservatively do not project revenue contributions from ex-U.S. territories at all at this juncture. We note that even companies that have marketed a single diagnostic test via the CLIA route (i.e. no formal test-specific FDA approval) have managed to generate substantial revenue, as shown by the example of the sales ramp for the Onco*type* DX test from Genomic Health:

Figure 14: Onco*type* DX Sales Ramp (2006 – 2012)



Source: Company Reports; Aegis Capital Corp. estimates

We have modeled sales of five distinct diagnostic testing categories – namely, the OncoCEE™-BR microfluidics-based diagnostic for breast cancer, the OncoCEE™-LU tests for detection of various lung cancer-associated mutations, the OncoCEE-PR™ test for use in prostate cancer, the OncoCEE™-ME test for melanoma, and the OncoCEE™-CR test for colorectal cancer. These are the company's premium testing categories.

For the purposes of modeling, we have assumed pricing in the $600 range at steady-state for the company's non-proprietary tests. Our model accounts for inflation with year-on-year price increases of 3%. Furthermore, in our view, considering the presence of current tests such as the Onco*type* DX diagnostic in the $3,000 – $4,000 range, the pricing assumptions used in our model appear conservative and defensible. We project peak sales of roughly $150 million from the premium-priced tests in 2020 / 2021, after which we expect sales to decline in the face of increasing competition from next-generation sequencing (NGS)-based technologies and other potential emerging methodologies aimed at quantifying CTCs and ctDNA under complex parameters. However, in our view the company's proprietary expertise in the domain of capture and analysis of CTCs should enable it to remain in the vanguard of cancer diagnostics companies.

Table 3: Diagnostic Test Sales Estimates – Oncology Market Size Model

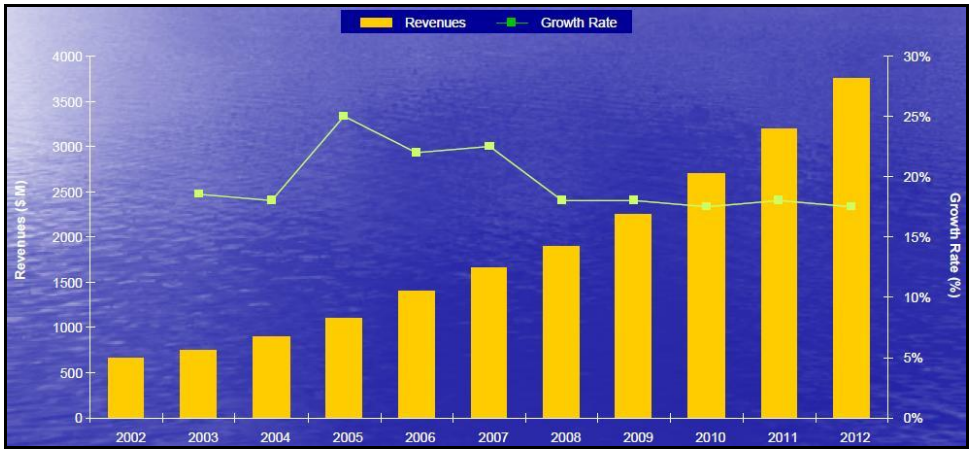
U.S. market	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total solid tumor patients	918,630	930,113	941,739	953,511	965,430	977,498	989,717	1,002,088	1,014,614	1,027,297	1,040,138	1,053,140	1,066,304	1,079,633	1,093,128	1,106,792	1,120,627
Breast cancer	*232,340*	*252,089*	*273,516*	*296,765*	*321,990*	*349,360*	*379,055*	*411,275*	*446,233*	*484,163*	*525,317*	*567,342*	*612,730*	*661,748*	*714,688*	*768,289*	*825,911*
Lung cancer	*228,190*	*231,042*	*233,930*	*236,855*	*239,815*	*242,813*	*245,848*	*248,921*	*252,033*	*255,183*	*258,373*	*261,603*	*264,873*	*268,183*	*271,536*	*274,930*	*278,367*
Colorectal cancer	*142,820*	*144,605*	*146,413*	*148,243*	*150,096*	*151,972*	*153,872*	*155,795*	*157,743*	*159,714*	*161,711*	*163,732*	*165,779*	*167,851*	*169,949*	*172,074*	*174,225*
Prostate cancer	*238,590*	*241,572*	*244,592*	*247,649*	*250,745*	*253,879*	*257,053*	*260,266*	*263,519*	*266,813*	*270,148*	*273,525*	*276,944*	*280,406*	*283,911*	*287,460*	*291,053*
Melanoma	*76,690*	*77,649*	*78,619*	*79,602*	*80,597*	*81,604*	*82,625*	*83,657*	*84,703*	*85,762*	*86,834*	*87,919*	*89,018*	*90,131*	*91,258*	*92,398*	*93,553*
OncoCEE™-BR Test																	
Penetration % in breast cancer	0.5%	2%	6%	11%	15%	16%	17%	18%	14%	12%	9%	7%	5.5%	3.5%	2%	1.5%	1%
Total eligible patients tested	1,162	5,042	16,411	32,644	48,299	55,898	64,439	74,029	62,473	58,100	47,279	39,714	33,700	23,161	14,294	11,524	8,259
Price per test	$600	$618	$637	$656	$675	$696	$716	$738	$760	$783	$806	$831	$855	$881	$908	$935	$963
Sales from OncoCEE™-BR test ($MM)	0.7	3	10	21	33	39	46	55	47	45	38	33	29	20	13	11	8
OncoCEE™-LU Tests																	
Penetration % in non-small cell lung cancer	0.1%	1%	4%	5%	7%	9%	11%	15%	12%	10%	9%	8%	7%	4%	2%	1%	1%
Total eligible patients tested	228	2,310	9,357	11,843	16,787	21,853	27,043	37,338	30,244	25,518	23,254	20,928	18,541	10,727	5,431	2,749	1,392
Price per test	$750	$773	$796	$820	$844	$869	$896	$922	$950	$979	$1,008	$1,038	$1,069	$1,101	$1,134	$1,168	$1,204
Sales from OncoCEE™-LU test suite ($MM)	0.2	2	7	10	14	19	24	34	29	25	23	22	20	12	6	3	2
OncoCEE™-CR Test																	
Penetration % in colorectal cancer	0%	2%	5%	7%	9%	11%	13%	15%	13%	10%	9%	8%	6%	3%	2%	1%	1%
Total eligible patients tested	0	2,169	7,321	10,377	13,509	16,717	20,003	23,369	20,507	15,971	14,554	13,099	9,947	5,036	3,399	1,721	871
Price per test	$0	$650	$670	$690	$710	$732	$754	$776	$799	$823	$848	$874	$900	$927	$955	$983	$1,013
Sales from colorectal cancer test ($MM)	0	1	5	7	10	12	15	18	16	13	12	11	9	5	3	2	1
OncoCEE™-PR Test																	
Penetration % in prostate cancer	0%	2%	3%	5%	8%	12%	14%	16%	15%	13%	11%	10%	9%	5%	4%	2%	1%
Total eligible patients tested	0	3,865	7,338	12,382	20,060	30,466	35,987	42,814	39,528	34,686	29,716	27,353	24,925	14,020	11,356	5,749	2,911
Price per test	$0	$700	$721	$743	$765	$788	$811	$836	$861	$887	$913	$941	$969	$998	$1,028	$1,059	$1,091
Sales from prostate cancer test ($MM)	0	3	5	9	15	24	29	36	34	31	27	26	24	14	12	6	3
OncoCEE™-ME Test																	
Penetration % in melanoma	0%	2%	4%	6%	8%	12%	14%	13%	12%	11%	10%	9%	8%	5%	3%	2%	1%
Total eligible patients tested	0	1,786	3,145	4,776	6,448	9,793	11,567	10,875	10,164	9,434	8,683	7,913	7,121	4,507	2,738	1,848	936
Price per test	$0	$750	$773	$796	$820	$844	$869	$896	$922	$950	$979	$1,008	$1,038	$1,069	$1,101	$1,134	$1,168
Sales from OncoCEE™-ME cancer test ($MM)	0	1	2	4	5	8	10	10	9	9	8	8	7	5	3	2	1
Total annual sales ($MM)	1	10	31	51	77	102	125	153	136	123	110	100	89	56	37	24	15

Source: Company Reports and Aegis Capital Corp. estimates

Market Landscape

As shown below, the molecular diagnostics market has seen substantial growth over the course of the past decade, and we expect this trend to continue. In an era of personalized medicine and theranostics, this market seems poised for even further expansion.

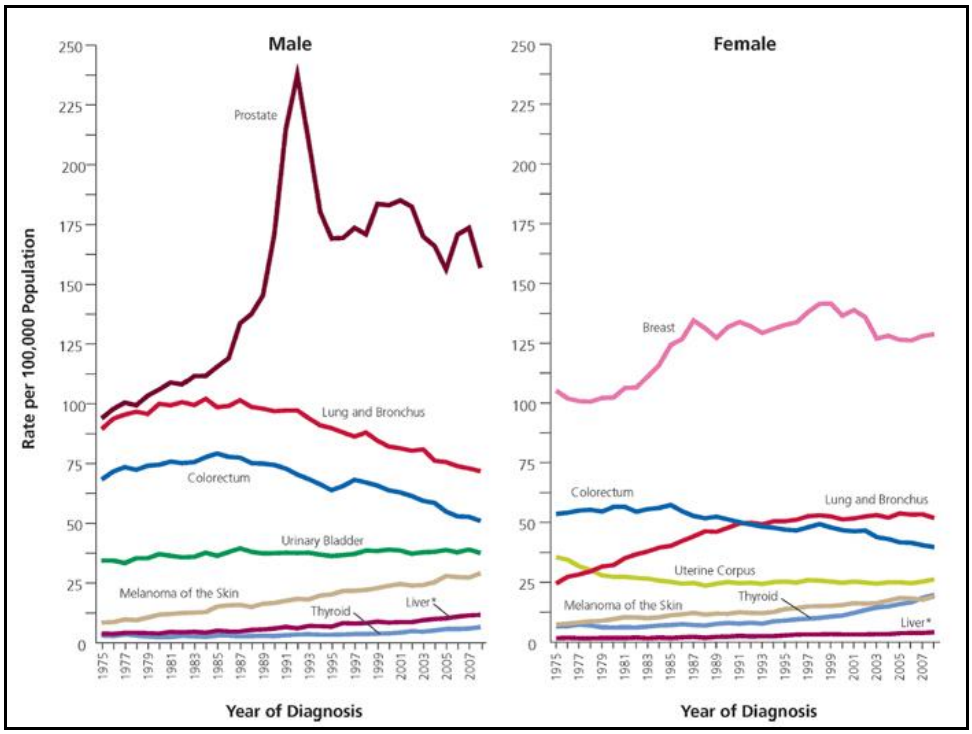
Figure 15: Molecular Diagnostics Market Sales



Source: Frost & Sullivan

We note that, in many cases, the market landscape for Biocept's tests appears to be relatively attractive. As shown in the figure below, despite improved cancer care, the incidence and prevalence of various types of solid tumors continues to rise.

Figure 16: Solid Tumor Incidence and Prevalence



Source: National Cancer Institute, National Center for Health Statistics

Valuation Benchmarking

One of the most significant recent developments in the sector within which Biocept currently operates was the initial public offering (IPO) of Foundation Medicine, Inc. (FMI/NASDAQ, Not Rated), which made its trading debut on the NASDAQ Capital Market on September 25, 2013 following the sale of 5.9 million shares at $18.00 per share. Foundation Medicine's first clinical product, FoundationOne®, is a comprehensive genomic tumor profiling system that uses next-generation sequencing (NGS) to analyze routine clinical specimens (i.e., small amounts of paraffin-embedded tumor tissue). Using this sequence data and proprietary computational algorithms, FoundationOne® attempts to detect clinically significant alterations in hundreds of cancer-related genes. Foundation Medicine then combines this genomic data with the latest scientific and medical genomic information, including relevant targeted therapeutic agents and open clinical trials, into an ergonomically-presented, interpretive report to enable physicians to determine potential treatment recommendations that may not have been previously considered yet. The company estimates that roughly a million cases of difficult-to-diagnose and intractable cancer types are diagnosed in the U.S. each year that could benefit from the deployment of this system.

In results from 2,221 samples received by Foundation Medicine for clinical evaluation, 76% had at least one actionable alteration. Over 62% of all samples had at least one actionable alteration that would not have been detected by currently-available molecular tests. In other studies across multiple solid tumor types, FoundationOne® revealed other known and novel gene fusions/rearrangements, which would be missed by PCR-based methods and that may aid in therapeutic decision-making. In our view, Foundation Medicine's ongoing initiatives in both solid and liquid tumor detection could bring the firm into direct competition with Biocept, depending upon the types of cancer Foundation Medicine intends to target. In our view, the case of Foundation Medicine provides an important valuation benchmark for Biocept. Both firms are oriented towards the diagnosis of cancer using highly information-intensive, high-content systems that harness the power of next-generation sequencing technologies. In each case, there is forward integration – both firms own CLIA- and CAP-certified laboratories.

A substantial valuation discrepancy is apparent between Foundation Medicine and Biocept. Foundation Medicine, in our view, benefited from a high-profile IPO that was underwritten by an influential syndicate including two bulge bracket banks, J.P. Morgan Chase and Goldman, Sachs & Co. The firm's valuation currently stands at ~$670 million – a substantial increase from the ~$500 million market capitalization placed upon the firm at the original IPO price of $18 per share. Biocept, however, was the subject of a much smaller IPO, raising only $19 million, and currently has a market cap of only about $20 million. We believe, however, that Biocept could over time reach a valuation level that narrows the gap between its current market cap and that of Foundation Medicine. At this stage, both companies are still not cash flow-positive, although Foundation Medicine has a substantially larger revenue base. While we believe that the substantial valuation discrepancy between Biocept and Foundation Medicine is unlikely ever to fully resolve, we believe that Biocept should be able to achieve a greater level of recognition for the degree of technological and commercial maturity that it has achieved thus far, particularly when considering the fact that both Biocept and Foundation Medicine are projected to be high-growth companies. Foundation Medicine's total 2013 revenues were $29.0 million, with the firm's net loss amounting to $42.9 million. We note that another firm in the molecular diagnostics arena, Cancer Genetics, reported $6.6 million in 2013 revenues, translating into a net loss of $12.4 million. In our view, both Biocept and Cancer Genetics are more efficient diagnostics operations than Foundation Medicine, and accordingly over time the substantial discrepancy in valuation between these firms and Foundation Medicine should narrow substantially.

Intellectual Property Portfolio

The Biocept intellectual property (IP) portfolio comprises three issued U.S. patents, six pending U.S. patent applications and their corresponding foreign patents and patent applications, relevant to Biocept's cancer diagnostics business, as well as two pending U.S. patent applications and their corresponding foreign patent applications that Biocept jointly owns with Aegea Biotechnologies, Inc., on which Biocept has exclusive rights for specified fields of use). The firm's IP strategy involves the patenting of proprietary gene panels that utilize the novel nature of the company's in-depth knowledge base in the domain of detection and analysis of circulating tumor cells (CTCs) and circulating tumor-associated DNA (ctDNA).

Table 4: Biocept Intellectual Property

Patent Number	Title	Issue Date	Expiry Date	Country	Description
8,158,410	Recovery of Rare Cells Using a Microchannel Apparatus with Patterned Posts	4/17/2012	1/18/2025	United States	
1,838,442	Cell Separation Using Microchannel Having Patterned Posts	9/11/2013	1/5/2026	Europe, France, Germany, UK	PCT Date 1/5/06 PCT US06/00000383
200680002401.4	Cell Separation Using Microchannel Having Patterned Posts	7/17/2013	1/5/2026	China	PCT Date 1/5/06 PCT US06/00000383
7,439,062	Beads for Capturing Target Cells from Bodily Fluid	10/21/2008	12/23/2024	United States	
7,695,956	Device for Cell Separation and Analysis and Method of Using Data For Diagnostics	4/13/2010	1/12/2026	United States	

Source: Company reports

We note that, from time to time the U.S. Supreme Court, other federal courts, the U.S. Congress or the U.S. Patent and Trademark Office (USPTO) may change the standards of patentability and any such changes could have a negative impact on Biocept's business. For instance, in 2008, the Court of Appeals for the Federal Circuit issued a decision that methods or processes cannot be patented unless they are tied to a machine or involve a physical transformation. The U.S. Supreme Court later reversed that decision in Bilski v. Kappos, finding that the "machine-or-transformation" test is not the only test for determining patent eligibility. The Court, however, declined to specify how and when processes are patentable. In 2012, in Mayo Collaborative Services v. Prometheus Laboratories, Inc., the U.S. Supreme Court reversed the Federal Circuit's application of Bilski and invalidated a diagnostic patent because the patent claim embodied a law of nature. It is unclear how the USPTO will interpret the validity of certain claims going forward, in light of these recent events. Some aspects of Biocept's technology involve processes that may be subject to this evolving standard and accordingly it cannot be guaranteed that any of the company's pending process claims will be patentable.

In 2013, in Association for Molecular Pathology v. Myriad Genetics, the Supreme Court unanimously ruled that, "A naturally occurring DNA segment is a product of nature and not patent eligible merely because it has been isolated," invalidating Myriad Genetics' patents on the BRCA1 and BRCA2 genes. However, the Supreme Court also held that manipulation of a gene to create something not found in nature could still be eligible for patent protection. Method patents, which concern technical procedures for carrying out a certain process, are not affected by the ruling. In 2010, the Secretary's Advisory Committee on Genetics, Health and Society voted to approve a report entitled "Gene Patents and Licensing Practices and Their Impact on Patient Access to Genetic Tests." That report defines "patent claims on genes" broadly to include claims to isolated nucleic acid molecules as well as methods of detecting particular sequences or mutations. The report also contains six recommendations, including the creation of an exemption from liability for infringement of patent claims on genes for anyone making, using, ordering, offering for sale or selling a test developed under the patent for patient care purposes, or for anyone using the patent-protected genes in the pursuit of research.

Capital Structure and Financing History

Biocept's accumulated deficit since founding in 1997 stands at approximately $127.5 million. On February 10, 2014, Biocept closed its initial public offering (IPO) of 1,900,000 shares of common stock at a price to the public of $10.00 per share. We note that the originally granted over-allotment of 285,000 shares made available for purchase at $9.30 per share was not exercised. Net proceeds were $17.4 million. In the IPO, 69.4 million shares of outstanding Series A Preferred Stock were converted into 1.65 million shares of common stock. The underwriters were issued warrants to buy in aggregate up to 95,000 shares of common stock at a price of $12.50 per share with a term of five years. Also in the IPO, the $1.4 million principal amount and $233,982 of accrued interest related to a 2008 convertible note were converted at $10.00 per share into a total of 163,399 shares of common stock; and the $5.165 million principal amount and $313,017 of accrued interest related to the 2013 convertible bridge notes were converted at $10.00 per share into a total of 547,794 shares of common stock. The company closed the first quarter of 2014 with 4.45 million shares outstanding, along with approximately 670,000 options and 558,000 warrants. We thus derive a fully-diluted share count of roughly 5.9 million shares at this juncture, as shown below.

Table 5: Biocept Capital Structure (03/31/2014)

	Number of Shares	Exercise Price	Expiration Date	Total Cash
Cash, cash equivalents and marketable securities				$10,417,277
Common Stock	4,449,594			
Restricted Stock Units	207,122			$0
Options	668,904	$6.95	10 year contractual term (from date of grant), current weighted-average contractual life remaining for options O/S is 9.6 years	$4,647,200
Warrants	557,808	$10.43	2-5 years past IPO; current weighted-average contractual life remaining for warrants O/S is 4.0 years	$5,815,580
Fully Diluted Shares	**5,883,428**			**$20,880,057**

Source: Company reports

On April 30th, 2014, the firm received net cash proceeds of approximately $4.9 million, pursuant to the execution of a term loan agreement with Oxford Finance LLC. A second term loan of up to a principal amount of $5.0 million will be funded at the firm's request prior to December 31, 2015, subject to achieving revenues of at least $9.0 million for the trailing six-month period by November 30, 2015. The credit facility is secured by substantially all of Biocept's assets other than its intellectual property. Each term loan under the credit facility bears interest at an annual rate equal to the greater of (i) 7.95% or (ii) the sum of (a) the three-month U.S. LIBOR rate reported in *The Wall Street Journal* three business days prior to the funding date of the applicable term loan, plus (b) 7.71%. The firm is required to make interest-only payments on the first term loan through February 1, 2016 if the funding date of the second term loan occurs before June 30, 2015, or through August 1, 2015 otherwise. Interest-only payments are required to be made on the second term loan through February 1, 2016 if the funding date of the second term loan occurs before June 30, 2015, or through the seventh month following the funding date otherwise. The first term loan under the credit facility matures on July 1, 2018, and the second term loan matures on the first day of the 29th month following the end of the applicable interest-only period. Upon repayment of each loan, Biocept is also required to make a final payment equal to 5.50% of the original principal amount funded. Additionally, a warrant to purchase up to 52,966 shares of Biocept's common stock at an exercise price of $4.72 per share with a term of 10 years was issued to Oxford on April 30, 2014, with additional warrants issuable upon execution of the second term loan.

Financial Review and Outlook

Revenue: We forecast approximately $1.1 million in revenue in 2014 and $10.9 million in 2015. Management does not provide guidance.

- **OncoCEE™-Based Tests:** We forecast that OncoCEE™ test-based revenue growth should continue to accelerate throughout the remainder of 2014, reflecting the impact of Biocept's ramping sales and marketing efforts. We believe that the firm would need to establish and broaden distribution agreements so as to extract value from international territories, since it is unlikely to build a sales force outside the U.S. In addition, Biocept may need to obtain further licenses from other diagnostic firms in order to maintain and enhance its cell-capturing technology.

- **Potential Additional Revenue from Clinical Testing:** Significant further upside beyond the revenue ramp for the OncoCEE™-based diagnostic tests could come from additional agreements with biopharmaceutical firms to provide clinical data testing services in association with the development of targeted oncology-focused drugs. Detection and capture of CTCs provides significant prognostic value, and that various next-generation oncology-focused therapeutics may be deployed in a more optimized manner if they can be commercialized in combination with a powerful diagnostic technique that can accurately quantify CTC counts in patients.

- **Other Value Drivers:** The firm could potentially license certain rights to its extensive IP portfolio. In addition, Biocept could potentially go on the hunt for possible strategic acquisitions once its financial footing strengthens, in order to accelerate its revenue growth trajectory and develop a more comprehensive presence in the oncology-specific molecular diagnostics market.

Gross Margins: We project that the gross margins on the company's overall revenue base could exceed 60%. Historical product sales margins in the high-value molecular diagnostics space have been in the 60% – 80% range.

Operating Expenses: For 2014 and 2015, we estimate operating expense levels that are $13.3 million and $21.9 million respectively. We estimate R&D of $4.6 million in 2014, rising to $6.0 million in 2015, as the firm works to bring additional tests to market.

Taxes: At end-2013, Biocept had net operating loss carry-forwards (NOLs) of roughly $111.7 million (federal) and $97.7 million (state), in addition to California R&D credits of $3.1 million. We project that revenues will be taxed at a 40% effective rate.

Share Count: The outstanding share count stands at approximately 4.45 million shares, excluding roughly 670,000 million options and 558,000 warrants.

EPS: We forecast diluted losses per share of $4.05 and $2.04 for 2014 and 2015, respectively, and project cash flow breakeven to be attainable in mid- to late 2016.

Balance Sheet: The firm ended the first quarter of 2014 with $10.4 million in cash and equivalents, and recently obtained $4.9 million through a term loan with Oxford Finance.

Cash Flow: We believe that Biocept has sufficient cash to fund operations for at least 12 months, given the current operational burn rate of roughly $3 million per quarter. No immediate-term equity or debt financing need is anticipated.

Guidance: Biocept does not provide revenue or earnings guidance.

Management Team

The Biocept management team includes several individuals with expertise in molecular diagnostics and healthcare overall. The Chief Executive Officer has substantial expertise in diagnostics. In addition, Biocept benefits from the significant experience of other management team members in cancer diagnostics and laboratory-based testing services.

Michael W. Nall
President and Chief Executive Officer
Mr. Nall is a healthcare executive with over 25 years of experience. He has been Biocept's President and CEO since 2013. Prior to joining Biocept, Mr. Nall served as General Manager for Clarient, a GE Healthcare Company, responsible for all commercial operations including Sales, Marketing, Client Services and Reimbursement. Mr. Nall joined Clarient in 2002, when it was a small, publicly-traded company and served in several leadership roles including Director, VP of Sales, VP of Sales and Reimbursement and finally GM. During the time Michael was with Clarient, the company grew to over $110 million in revenue and was acquired by GE Healthcare in 2010 for $587 million. Prior to joining Clarient, Michael was with Impath, an innovative cancer diagnostic company. Mr. Nall moved to the diagnostics field after an 11-year career in the medical device and equipment industry, representing products from manufacturers like Luxtec, Pall Biomedical, Horizon Medical, Davis and Geck and others. He holds a Bachelor of Science degree in Business Administration from the University of Central Missouri.

Bill Kachioff, C.P.A.
Chief Financial Officer
Mr. Kachioff is experienced in corporate finance, investor relations, corporate governance and manufacturing accounting and systems. He has over twenty years of life science industry experience, having most recently served as CFO at Althea Technologies, a contract manufacturing organization. He was also a CFO Partner with Tatum LLC, a national Executive Services firm focused on the Office of the CFO where he served a variety of life science industry clients in senior financial management roles. Prior to joining Tatum, Mr. Kachioff held the role of CFO at MicroIslet, a publicly traded biotech company developing cell transplant therapies for insulin dependent diabetes. He was Director of Finance at Cutera, where he helped prepare the company for the commercial launch of its first product and its initial public offering. Mr. Kachioff has also served in a variety of financial management roles at Coulter Pharmaceutical, Vivus and Abbott Laboratories. He began his professional career as an auditor with Deloitte & Touche LLP. Mr. Kachioff has a B.S. in Management from the State University of New York at Buffalo and is a member of the American Institute of Certified Public Accountants and the Association of Bioscience Financial Officers.

Lyle Arnold, Ph.D.
Senior Vice President of Research & Development, Chief Scientific Officer
Dr. Arnold is a biotechnology executive, entrepreneur, and developer of innovative technologies covering therapeutics, molecular diagnostics, and genomics. Dr. Arnold recently founded Aegea Biotechnologies to acquire, develop, and commercialize, next generation nucleic acid technologies. He also serves on the board of directors of Asuragen, a rapidly emerging biotechnology company in Austin, TX, as well as on the board of Aegea. Previously, he was Vice President of Research at Gen-Probe from September 2003 to October 2009. He has also held senior scientific and management positions at Molecular Biosystems (co-founder), Genta, Synteni, Incyte Genomics, and Oasis Biosciences (co-founder), where he was President and Chief Scientific Officer from October 2001 to September 2003. In addition, Dr. Arnold was a faculty member in the University of California, San Diego (UCSD) School of Medicine and a member of the UCSD Cancer Center. He is an inventor or co-inventor on 36 issued U.S. patents and

more than 140 issued and pending patents worldwide. He is the principal inventor of the chemi-luminescent Hybridization Protection Assay (HPA) and associated technologies; core to Gen-Probe assays that have generated more than $5 billion in cumulative product revenue. In addition, he has authored more than 50 scientific publications. He received a B.S. in Chemistry from the University of California at Los Angeles (UCLA) and a Ph.D. in Chemistry/Biochemistry from UCSD.

Farideh Z. Bischoff, Ph.D.
Vice President, Translational Research and Clinical Development
Prior to joining Biocept, Dr. Bischoff had been a full-time faculty member in the Department of Obstetrics/Gynecology at Baylor College of Medicine from 1994 to 2007. An expert in clinical cytogenetics and molecular human genetics, she has conducted research and focused on clinical assays relevant to non-invasive (prenatal) genetic testing and more recently cancer screening and surveillance. Dr. Bischoff has been a key investigator in the multi-center NIH/NICHD funded study focused on establishment of protocols and investigations into the clinical utility of circulating rare fetal cells as well as cell-free DNA/RNA for noninvasive prenatal genetic diagnosis. She was also charged with establishment and supervision of the molecular cytogenetic pre-implantation genetic diagnostic (PGD) program at Baylor College of Medicine in Houston, TX. She holds a Ph.D. in Cancer Biology from the University of Texas Graduate School for Biomedical Sciences in Houston, TX, with postdoctoral training at M.D. Anderson Cancer Center and Baylor College of Medicine. Her graduate thesis project directly contributed to the discovery of germ-line p53 mutations in Li-Fraumeni cancer patients. Dr. Bischoff has published numerous peer-reviewed papers and book chapters.

Raaj Trivedi
Vice President, Commercial Operations
Mr. Trivedi has more than 15 years of leadership experience in the biotechnology and diagnostic industry. He joined Biocept from Life Technologies. Before Life Technologies, Mr. Trivedi worked at Clarient, a GE Healthcare Company, where he led marketing and business development. Prior to Clarient, Mr. Trivedi led commercial efforts and strategy for leukemia and lymphoma diagnostic services at US Labs, now part of LabCorp. He began his career at Ernst & Young LLP. Mr. Trivedi received a master's degree in biotechnology from the University of Maryland and earned his bachelor's degree from the University of California, Irvine.

Philip D. Cotter, Ph.D., FACMG
Director of Clinical Laboratories
Prior to joining Biocept, Dr. Cotter was Director of Advanced Molecular Diagnostics at U.S. Labs in Irvine, California from 2002 to 2004. Previously, he was Director of Cytogenetics and Molecular Genetics at the Children's Hospital and Research Center in Oakland, California from 1996 to 2002 and Director of Molecular Cytogenetics at the Mount Sinai School of Medicine in New York from 1994 to 1996. He has published extensively in cytogenetics, molecular genetics and prenatal diagnosis. Dr. Cotter holds a Ph.D. in Biomedical Sciences from the Department of Human Genetics at the Mount Sinai School of Medicine in New York. He is board-certified by the American Board of Medical Genetics in both clinical cytogenetics and clinical molecular genetics. He is also a Fellow of the American College of Medical Genetics and a Clinical Associate Professor of Pediatrics at the University of California at San Francisco (UCSF).

Board of Directors

In our view, the Biocept Board of Directors is a highly qualified group. We would draw investors' attention in particular to the fact that one of the firm's directors, Dr. Ivor Royston, is an internationally-recognized leader in the domain of life sciences venture

capital. Dr. Royston is a founding Managing Partner at Forward Ventures, one of the world's best-known life sciences venture capital firms. In addition, one of the firm's other directors, Marsha Chandler, Ph.D., has been the Chief Operating Officer of the Salk Institute for Biological Studies – one of the world's most renowned life sciences research centers – since 2007. From our perspective, the presence of these individuals on the firm's board sets Biocept apart from many of its molecular diagnostics peers.

David F. Hale
Chairman of the Board
Mr. Hale was appointed Executive Chairman of Biocept in March 2011. He is the Chairman and CEO of Hale BioPharma Ventures LLC, a private company focused on the formation and development of biotechnology, specialty pharmaceuticals, diagnostics and medical device companies. He was previously President and CEO of CancerVax Corporation from October 2000 through its merger in May 2006 with Micromet, Inc., a biotechnology company focused on the development of novel biological products for the treatment of cancer, when he became Chairman of the combined companies. Micromet was subsequently acquired by Amgen Inc. in early 2012 for $1.2 billion. Mr. Hale is a co-founder of Somaxon Pharmaceuticals – now part of Pernix Therapeutics Holdings – and was a director of Santarus, Inc., now part of Salix Pharmaceuticals – and Chairman of SkinMedica, Inc., which was acquired in late 2012 by Allergan for $350 million. He has served as a director of Conatus Pharmaceuticals, Inc. and other private companies. Mr. Hale is a serial entrepreneur who has been involved in the founding and/or development of a number of life sciences technology companies. In 1982, after joining Hybritech, Inc., the first monoclonal antibody company, he served as Chief Operating Officer, President and then Chief Executive Officer, when Hybritech was acquired by Eli Lilly and Co. in 1986. From 1987 to 1997 he was Chairman, President and CEO of Gensia, Inc., which merged with SICOR to become Gensia Sicor, Inc., which was acquired by Teva Pharmaceuticals. He was a co-founder and Chairman of Viagene, Inc. from 1987 to 1995, when Viagene was acquired by Chiron, Inc. He was President and CEO of Women First HealthCare, Inc. from late 1997 to June 2000, prior to joining CancerVax in October 2000. Prior to joining Hybritech, Hale was Vice President and General Manager of BBL Microbiology Systems, a division of Becton, Dickinson & Co. and from 1971 to 1980, held various marketing and sales management positions with Ortho Pharmaceutical Corp., a division of Johnson & Johnson, Inc.

Michael W. Nall
Director, President & Chief Executive Officer
See management biographies above.

M. Faye Wilson, CPA, M.B.A.
Director
Ms. Wilson has been a principal of Wilson Boyles & Co., a business management and strategic planning consulting firm, since 2003. She served on the board of directors of Farmers Insurance Group of Companies from 1993 through 2001 and the board of directors of The Home Depot, Inc. from 1992 through 2001. Ms. Wilson was also a senior officer of Home Depot from 1998 through 2002. From 1992 until 1998, Ms. Wilson served in several senior management roles at Bank of America Corp., including as Chairman of Security Pacific Financial Services and Executive Vice President and as Chief Credit Officer for Bank of America's National Consumer Banking Group. She earned her Master's degrees in International Relations and Business Administration from the University of Southern California and an undergraduate degree from Duke University. She became a certified public accountant in 1961.

Marsha A. Chandler, Ph.D.
Director
Dr. Chandler has been the Executive Vice President / Chief Operating Officer of the Salk Institute for Biological Studies since 2007. She oversees the fiscal and administrative functions of the Institute, providing support to approximately 870 research staff and 230 administrative personnel, and oversees all fund-raising activities. Dr. Chandler previously served as Senior Vice Chancellor for Academic Affairs at UCSD, where she was the chief academic officer responsible for the policies and decisions relating to all academic programs and faculty appointments and performance. She served as Acting Chancellor from 2003 to 2004 and holds an appointment as Professor of Political Science in the Graduate School of International Relations and Pacific Studies at UCSD. Dr. Chandler is a Fellow of the Royal Society of Canada, and received her Ph.D. from The University of North Carolina at Chapel Hill.

Ivor Royston, M.D.
Director
Since 1990, Dr. Royston has been a founding Managing Partner of Forward Ventures in San Diego. From 1990-2000, he served as founding President and CEO of The Sidney Kimmel Cancer Center affiliated with the Johns Hopkins School of Medicine, and from 1978 to 1990, he was on the oncology faculty of UCSD. In addition to Hybritech, he was a co-founder of IDEC Corporation in 1986, which merged with Biogen to form Biogen Idec in 2003. Dr. Royston has been instrumental in the formation, financing and development of numerous biotechnology companies, including: Applied Molecular Evolution (acquired by Eli Lilly); Corixa (acquired by GlaxoSmithKline); Dynavax; Morphotek (acquired by Eisai), Sequana Therapeutics (acquired by Celera); TargeGen (acquired by Sanofi –Aventis), and Triangle Pharmaceuticals (acquired by Gilead). Dr. Royston's recent portfolio investments include HemaQuest, LigoCyte (Chairman), and Syndax. He received his B.A. (1967) and M.D. (1970) degrees from Johns Hopkins University and completed post-doctoral training in internal medicine and medical oncology at Stanford University. In 1997, President Clinton appointed Dr. Royston to a six-year term on the National Cancer Advisory Board.

Bruce Gerhardt, CPA
Director
Mr. Gerhardt has been a practicing CPA since 1986. He is a tax and business advisor. He earned his Bachelor of Arts degree from the University of Southern California in 1973 and is a member of the American Institute of Certified Public Accountants.

Bruce Huebner
Director
Mr. Huebner brings to Biocept extensive executive experience at multiple clinical diagnostic firms, including Osmetech Molecular Diagnostics, Nanogen and Gen-Probe. Mr. Huebner was previously president and chief operating officer of Nanogen, a publicly held nanotechnology and microarray company. Prior to Nanogen, he was executive vice president and chief operating officer of Gen-Probe, a global leader in the development of nucleic acid tests. In less than 10 years, he grew Gen-Probe's annual revenues from $42 million to a run-rate of more than $150 million. He is a managing director at LynxCom Partners, a healthcare consulting firm with a focus on personalized medicine.

Ed Neff
Director
Mr. Neff is a healthcare investor and the CEO of SMAC, a company founded in 1990, which is a world leader and manufacturer in moving coil technology. Mr. Neff earned his Bachelor of Arts and Bachelors of Science degrees from the University of Michigan.

Public Companies Mentioned in this Report:

AstraZeneca (AZN/NYSE – $73.37)

Cancer Genetics (CGIX/NASDAQ – $10.70 – Buy)

Celgene Corp. (CELG/NASDAQ – $154.87)

Clovis Oncology (CLVS/NASDAQ – $47.75)

Eli Lilly & Co. (LLY/NYSE – $59.49)

Foundation Medicine (FMI/NASDAQ – $23.58)

GlaxoSmithKline (GSK/NYSE – $53.66)

Genetic Technologies Ltd. (GENE/NASDAQ – $1.04)

Genomic Health (GHDX/NASDAQ – $25.65)

Gilead Sciences (GILD/NASDAQ – $61.73)

Nanosphere (NSPH/NASDAQ – $1.32)

Navidea Biopharmaceuticals (NAVB/NASDAQ – $1.66 – Hold)

NeoGenomics (NEO/NASDAQ – $3.28)

Novartis (NVS/NYSE – $88.88)

OraSure Technologies (OSUR/NASDAQ – $6.14)

Pfizer (PFE/NYSE – $29.71)

Response Genetics (RGDX/NASDAQ – $0.97)

Sequenom (SQNM/NASDAQ – $3.04)

Trovagene (TROV/NASDAQ – $4.11 – Buy)

Venaxis (APPY/NASDAQ – $2.06)

Table 6: Biocept, Inc. (BIOC) – Historical Income Statements, Financial Projections

FY end December 31
$ in thousands, except per share data

		2014E					2015E					
	2013A	1QA	2QE	3QE	4QE	2014E	1QE	2QE	3QE	4QE	2015E	2016E
Revenue												
Product revenue	-	-	50	300	500	850	900	1,800	3,100	4,700	10,500	30,800
Service revenue	15	-	-	-	-	-	-	-	-	-	-	-
Research and other	119	28	50	75	100	253	100	100	100	100	400	400
Total revenue	134	28	100	375	600	1,103	1,000	1,900	3,200	4,800	10,900	31,200
Expenses												
Cost of product and service revenue	2,329	658	400	450	500	2,008	495	900	1,333	1,786	4,514	8,357
Research & development	3,087	1,009	1,100	1,200	1,300	4,609	1,500	1,500	1,500	1,500	6,000	7,700
Selling and marketing	149	11	50	150	200	411	400	900	1,200	1,500	4,000	8,800
General and administrative	2,513	1,877	1,300	1,500	1,600	6,277	1,700	1,800	1,900	2,000	7,400	10,000
Total expenses	8,078	3,555	2,850	3,300	3,600	13,305	4,095	5,100	5,933	6,786	21,914	34,857
Gain (loss) from operations	(7,944)	(3,527)	(2,750)	(2,925)	(3,000)	(12,202)	(3,095)	(3,200)	(2,733)	(1,986)	(11,014)	(3,657)
Other income/expense												
Interest income/expense	(1,288)	(1,394)	(1,200)	(1,100)	(1,000)	(4,694)	(1,300)	(1,400)	(1,500)	(1,600)	(5,800)	(2,800)
Realized loss on marketable securities		(206)	-	-	-	(206)	-	-	-	-	-	-
Other income/expense	-	-	-	-	-	-	-	-	-	-	-	-
Total investment income and other	(1,288)	(1,601)	(1,200)	(1,100)	(1,000)	(4,901)	(1,300)	(1,400)	(1,500)	(1,600)	(5,800)	(2,800)
Loss before provision for income taxes	(9,232)	(5,128)	(3,950)	(4,025)	(4,000)	(17,103)	(4,395)	(4,600)	(4,233)	(3,586)	(16,814)	(6,457)
Deferred income tax benefit	(1)	-	-	-	-	-	-	-	-	-	-	-
Net loss/income	(9,233)	(5,128)	(3,950)	(4,025)	(4,000)	(17,103)	(4,395)	(4,600)	(4,233)	(3,586)	(16,814)	(6,457)
Net loss per share (basic)	(50.80)	(1.96)	(0.89)	(0.90)	(0.74)	(4.05)	(0.70)	(0.59)	(0.45)	(0.38)	(2.04)	(0.67)
Net loss per share (diluted)	(50.80)	(1.96)	(0.89)	(0.90)	(0.74)	(4.05)	(0.70)	(0.59)	(0.45)	(0.38)	(2.04)	(0.67)
Weighted average number of shares outstanding (basic)	180	2,617	4,450	4,455	5,370	4,223	6,305	7,855	9,405	9,455	8,255	9,580
Weighted average number of shares outstanding (diluted)	180	2,617	4,450	4,455	5,370	4,223	6,305	7,855	9,405	9,455	8,255	9,580

Source: Company Reports and Aegis Capital Corp. estimates

Required Disclosures

Price Target

Our 18-month price target is $16.00 per share.

Valuation Methodology

We utilize a risk-adjusted Net Present Value (rNPV) approach to determine our price target objective. Using a discounted cash flow analysis, we derive an rNPV-based total firm value of roughly $175 million, which translates into a price per share of $16.00, assuming roughly 11 million fully-diluted shares outstanding and roughly $25 million in cash as of the end of 2015.

Risk Factors

Issues that could prevent the achievement of our price objective include, but are not limited to, clinical, regulatory, competitive, reimbursement and financial risks. Diagnostic tools in clinical development may not advance due to inadequate safety. Regulatory agencies may decline to approve submissions in a timely manner, or may not approve a candidate at all. The firm may require substantial funding to advance the clinical progress of its diagnostic products, which could be dilutive to current shareholders. Sales of the firm's products could depend upon reimbursement from private, as well as public, reimbursement agencies.

For important disclosures go to www.aegiscap.com.

Research analyst compensation is dependent, in part, upon investment banking revenues received by Aegis Capital Corp.

Aegis Capital Corp. intends to seek or expects to receive compensation for investment banking services from the subject company within the next three months.

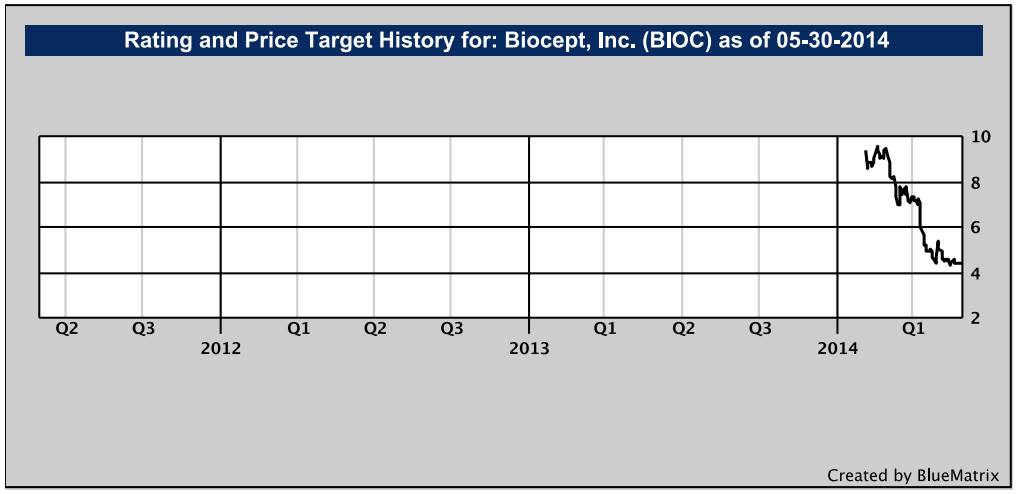
Aegis Capital Corp. has performed investment banking services for and received fees from Venaxis, Inc. within the past 18 months.

Aegis Capital Corp. has performed investment banking services for and received fees from Cancer Genetics, Inc. within the past 18 months.

Aegis Capital Corp. has performed investment banking services for and received fees from Biocept, Inc. within the past 12 months.

Aegis Capital Corp. makes a market in Biocept, Inc..

Raghuram Selvaraju has bought shares in Biocept, Inc..


Rating and Price Target History for: Biocept, Inc. (BIOC) as of 05-30-2014
10
8
6
4
2
Q2
Q3
Q1
Q2
Q3
Q1
Q2
Q3
Q1
2012
2013
2014
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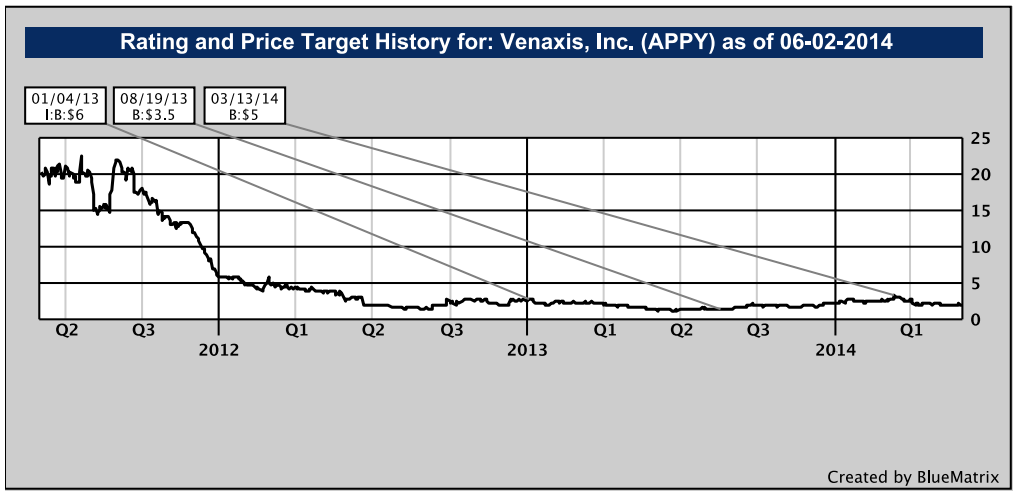
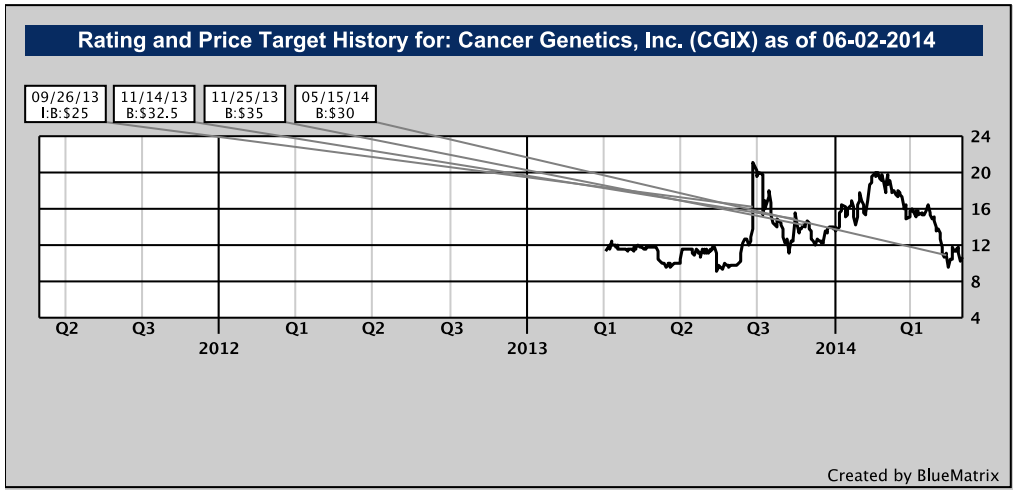
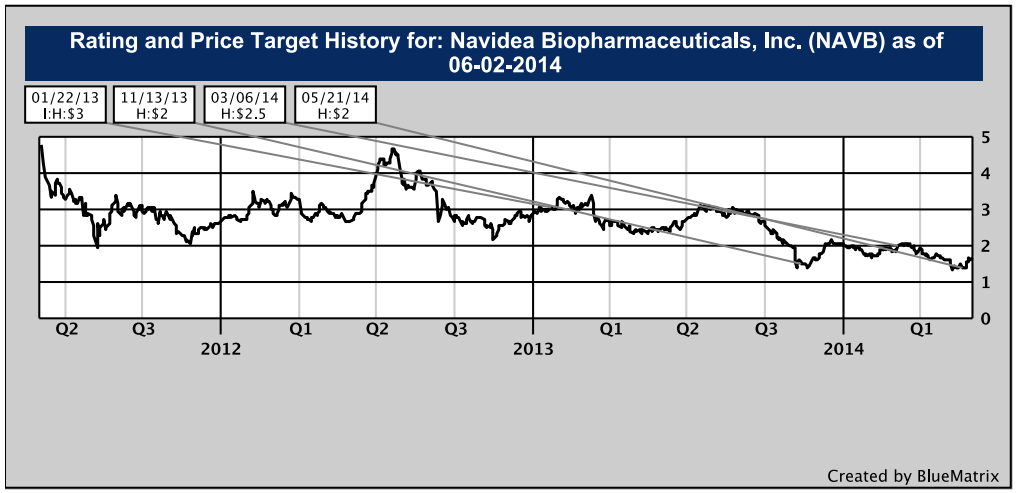
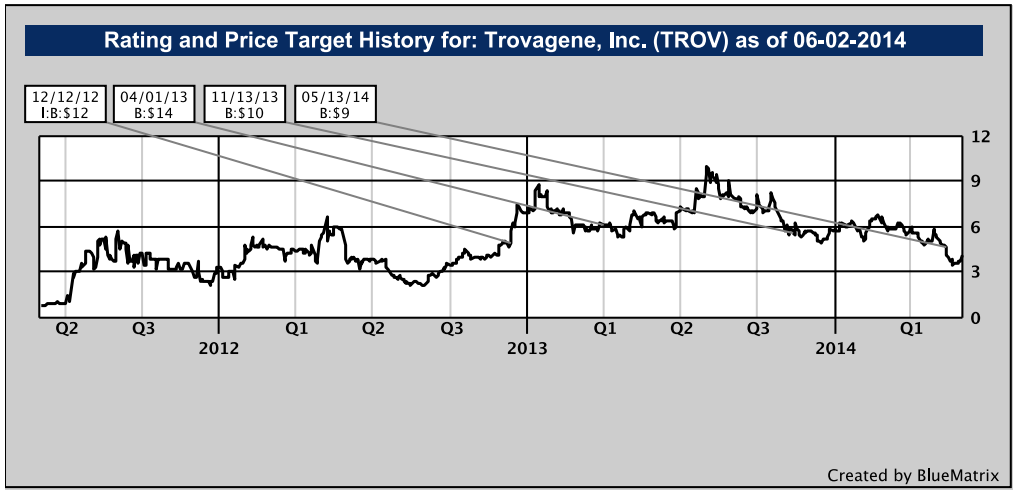

Rating and Price Target History for: Venaxis, Inc. (APPY) as of 06-02-2014
01/04/13
I:B:$6
08/19/13
B:$3.5
03/13/14
B:$5
25
20
15
10
5
0
Q2
Q3
Q1
Q2
Q3
Q1
Q2
Q3
Q1
2012
2013
2014
Created by BlueMatrix


Rating and Price Target History for: Cancer Genetics, Inc. (CGIX) as of 06-02-2014
09/26/13 I:B:$25
11/14/13 B:$32.5
11/25/13 B:$35
05/15/14 B:$30
24
20
16
12
8
4
Q2 Q3 Q1 Q2 Q3 Q1 Q2 Q3 Q1
2012
2013
2014
Created by BlueMatrix


Rating and Price Target History for: Navidea Biopharmaceuticals, Inc. (NAVB) as of 06-02-2014
01/22/13 I:H:$3
11/13/13 H:$2
03/06/14 H:$2.5
05/21/14 H:$2
5
4
3
2
1
0
Q2 Q3 Q1 Q2 Q3 Q1 Q2 Q3 Q1
2012
2013
2014
Created by BlueMatrix



Rating	Percent	Investment Banking Services/Past 12 Mos. Percent
BUY [BUY]	78.26	41.67
HOLD [HOLD]	21.74	20.00
SELL [SELL]	0.00	0.00

Meaning of Ratings

A) A Buy rating is assigned when we do not believe the stock price adequately reflects a company's prospects over 12-18 months.
B) A Hold rating is assigned when we believe the stock price adequately reflects a company's prospects over 12-18 months.
C) A Sell rating is assigned when we believe the stock price more than adequately reflects a company's prospects over 12-18 months.

Other Disclosures

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