United States
Healthcare

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Hemispherx Biopharma, Inc.

Initiating Coverage with BUY and $0.75 Target

Strong product potential for drugs to treat large markets for immuno-oncology and CFS. We believe expected positive milestones and clinical data over the next year to be strong catalysts for stock.

COVERAGE INITIATION

Rating: BUY

Ticker: HEB

Price: $0.21

Target: $0.75

Initiating with BUY: We are initiating coverage of Hemispherx Biopharma with a BUY rating. Hemispherx is a specialty pharmaceutical company engaged in the clinical development of new drug therapies based on natural immune system enhancing technologies for the treatment of viral, immune, and immuno-oncology based diseases.

Immuno-oncology opportunity: Hemispherx has two main therapeutic candidates and products, Ampligen and Alferon N Injection. Alferon N Injection is FDA approved for the treatment of a category of STD infection (genital warts), however, its commercialization is on hold as the company focuses on Ampligen for chronic fatigue syndrome (CFS) and immuno-oncology.

Large market potential: It is estimated that the global market for cancer drugs is well over $100 billion annually and growing at a ~+8% annual rate. Cancer is one of the leading causes of morbidity and mortality globally. According to the World Health Organization (WHO), in 2018, cancer was the second leading cause of mortality accounting for 9.6 million deaths worldwide.

Ramp up in clinical trials: Hemispherx has made significant advancements with its Ampligen oncology program with Ampligen's potential use as an immuno-oncology agent for the treatment of multiple types of cancer. In collaboration with major cancer research centers in the U.S., clinical trials are underway to test that the combination of Ampligen with checkpoint blockade therapies will improve clinical tumor responses, time to progression, and survival rates.

Expanded trials at Roswell Park: The company just recently entered into a clinical trial agreement with Roswell Park to evaluate Ampligen in combination with checkpoint inhibitors (CPIs).

But still early stage: Hemispherx's recent financial performance is reflective of its developmental stage. The company does not provide specific quarterly financial guidance, but we believe Q2's operating expenses of $3 million is a reasonable near term quarterly burn rate. The company's balance sheet had ~$4 million in cash and $3 million debt as of June 2018. We believe the company has enough cash to fund its operations for the near term (through mid-2019).

Clinical data can be catalyst: Hemispherx anticipates receiving clinical data from its various trials over the next year. Initial data has been encouraging and strong positive data will likely be catalysts for the stock.

However, challenges exist: Hemispherx operates in a highly competitive environment and competes against a wide range of other therapeutics technologies and existing standards of care.

Positive high risks versus rewards: Overall, concerns outweighed by growth prospects and valuation. While commercialization of its existing approved drugs remains limited, the focus is on its oncology drugs. Though we acknowledge that Hemispherx's oncology drugs still have long development roads left (~2 years), we believe the ~billion dollars market potentials presents a high reward for the risks.

Current valuation attractive: We calculate a 12-month price target for shares of Hemispherx to be $0.75 based on a NPV analysis, representing significant upside from the current share price. We believe this valuation appropriately balances out the company's high risks with the company's high growth prospects and large upside opportunities.

Company Description

Based in Ocala, FL, Hemispherx Biopharma is a specialty pharmaceutical company engaged in the clinical development of new drug therapies for the treatment of viral, immune, and immuno-oncology based diseases.

Stock Data

Exchange:	NYSE
52-week Range:	$0.15 – 0.65
Shares Outstanding (million):	47
Market cap ($million):	$10
EV ($million):	$9
Debt ($million):	$3
Cash ($million):	$4
Avg. Daily Trading Vol. ($million):	~$0.1
Float (million shares):	46
Short Interest (million shares):	~0
Dividend, annual (yield):	$0 (NA%)

Revenues (US$ million)

	2017A (Cur.)	2018E (Cur.)	2019E (Cur.)
Q1 Mar	0.1A	0.1A	0.1E
Q2 Jun	0.2A	0.0A	0.1E
Q3 Sep	0.1A	0.1E	0.1E
Q4 Dec	0.1A	0.1E	0.2E
Total	**0.4A**	**0.2E**	**0.4E**
EV/Revs	23x	45x	23x

Earnings per Share (pro forma)

	2017A (Cur.)	2018E (Cur.)	2019E (Cur.)
Q1 Mar	(0.11)A	(0.07)A	(0.07)E
Q2 Jun	(0.08)A	(0.05)A	(0.06)E
Q3 Sep	(0.04)A	(0.06)E	(0.06)E
Q4 Dec	(0.06)A	(0.07)E	(0.06)E
Total	**(0.29)A**	**(0.26)E**	**(0.26)E**
P/E	N/A	N/A	N/A

Important Disclosures

Ascendiant Capital Markets LLC seeks to do business with companies covered by its research team. Consequently, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making an investment decision.

For analyst certification and other important disclosures, refer to the Disclosure Section, located at the end of this report, beginning on page 19.

Exhibit 1: Hemispherx Biopharma's Stock Price (5-years)

Source: Nasdaq.com

INVESTMENT THESIS

We are initiating coverage of Hemispherx Biopharma with a BUY rating and a 12-month price target of $0.75.

Based in Ocala, FL, with its manufacturing and operations facilities in New Brunswick, NJ, Hemispherx Biopharma is a specialty pharmaceutical company engaged in the clinical development of new drug therapies based on natural immune system enhancing technologies for the treatment of viral, immune, and immuno-oncology based diseases.

Hemispherx has two main therapeutic candidates and products, Ampligen and Alferon N Injection. Alferon N Injection is FDA approved for the treatment of a category of Sexually Transmitted Disease (STD) infection (genital warts). While Alferon N Injection is FDA approved in the U.S., its commercialization is on hold as the company focuses on Ampligen for chronic fatigue syndrome (CFS) and immuno-oncology.

Ampligen is used for the treatment of severe myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS). Ampligen is approved (in 2016) in Argentina (as one of the first and meaningful therapy approved in the world for ME/CFS) and is also available through an U.S. Food and Drug Administration (FDA) authorized expanded access program (EAP). The FDA has declined (with a Complete Response Letter (CRL) received February 2013) to approve the NDA for Ampligen for the treatment of CFS pending its request for additional clinical trials and data. Ampligen is also available through an EAP in Europe.

Hemispherx has made significant advancements with its Ampligen oncology program with Ampligen's potential use as an immuno-oncology agent for the treatment of multiple types of cancer. In collaboration with major cancer research centers in the U.S. (University of Pittsburgh Medical Center (UPMC), the University of Nebraska Medical Center (UNMC), and Roswell Park

Comprehensive Cancer Center (Roswell Park)), clinical trials are underway to test that the combination of Ampligen with checkpoint blockade therapies will improve clinical tumor responses, time to progression, and survival rates.

Checkpoint inhibitors are powerful immuno-therapy drugs that block proteins that restrain the body's immune system from fighting cancer, and are used in the treatment of a number of advanced solid tumor malignancies. Clinical proof-of-concept findings using an Ampligen cocktail in colorectal carcinoma demonstrated a more favorable ratio of killer T-cells to regulatory T-cells in the tumor microenvironment. Killer T-cells attack cancer cells, and their presence in the tumor microenvironment can be inhibited by regulatory (suppressor) T-cells in the tumor. The suppressor cells thereby reduce a patient's immune response to cancer. Increases in killer T-cells, without a corresponding increase in suppressor T-cells, is an indicator of the body's increased ability to mount a potentially effective immune response, supporting strong pre-clinical evidence of Ampligen's activity in converting "cold" tumors into "hot" tumors and improving treatment results.

It is estimated that the global market for cancer drugs is well over $100 billion annually and growing at a ~+8% annual rate. Cancer is one of the leading causes of morbidity and mortality globally. According to the World Health Organization (WHO), in 2018, cancer was the second leading cause of mortality accounting for 9.6 million deaths worldwide. The National Institutes of Health (NIH) estimated that national expenditures for cancer care in the U.S. in 2017 were $147 billion. Because of its large impact, the amount of investments in this area (for treatment, diagnostics, and prevention) are among the largest within the pharmacology industry.

Exhibit 2: Hemispherx's Investment Highlights

New Management Team: Accelerated Accomplishment of Milestones

- ✓ First shipment of Ampligen delivered for sale in Europe utilizing the Early Access Program (EAP)
- ✓ EAP in Europe extended to pancreatic cancer patients beginning in the Netherlands
- ✓ FDA approval to increase price for US-based Ampligen cost recovery program
- ✓ Initiated a commercial scale production plan with our primary contract manufacture to meet anticipated future demands in both international programs as well as domestic programs
- ✓ Collaboration with Millions Missing Canada to bring medication to Canadians for ME/CFS
- ✓ Commenced full data analysis of an intranasal human safety study of Ampligen plus FluMist®
- ✓ Top line results show intranasal Ampligen was generally well-tolerated
- ✓ Continuing discussions with FDA to identify path toward approval for ME/CFS
- ✓ Cut Burn rate by over 50% and still reached milestones

Source: Company reports.

Hemispherx's recent financial performance is reflective of its developmental stage. The company does not provide specific quarterly financial guidance, but we believe Q2's operating expenses of $3 million is a reasonable near term quarterly burn rate. The company expects continued progress on its drug development milestones in 2018 and 2019. The company's balance sheet had ~$4 million in cash and $3 million debt as of June 2018. We believe the company has enough cash to fund its operations for the near term (through mid-2019).

The company's near term strategy is to pursue its Ampligen oncology programs with major cancer research centers to demonstrate Ampligen's potential use for the treatment of multiple types of cancer. In addition, the company will continue to pursue Ampligen for the treatment of chronic fatigue syndrome (CFS).

Exhibit 3: Ampligen Development Pipeline

Ampligen Development Pipeline

Products	Disease / Indication	Pre-clinical	Phase I	Phase II	Phase III	NDA	FDA	Other Countries
Ampligen	Myalgic Encephalomyelitis/ Chronic Fatigue Syndrome*	●	●	●	●	●		●
Ampligen	Vaccine Adjuvant (Influenza including highly pathogenic)	●	●	●				
Ampligen	Ebola Viral Disease	●						
Ampligen	HIV Disease	●	●	●				
Ampligen	Ovarian, Colorectal, Renal Cell Carcinoma*, and Melanoma* Cancers	●	●	●				
Ampligen	Bladder Cancer	●						
Ampligen	Pancreatic Cancer	●						●

* Orphan Drug Indication

Source: Company reports.

Our investment thesis factors in an uncertain drug development process and very competitive industry which is offset by the very large potential upside opportunities created from a successful drug. We believe that the current valuation for Hemispherx has already factored in many of its risks (principally drug approval and successful commercialization) but is under valuing its overall growth prospects and product portfolio, resulting in a positive risk versus reward scenario for an investment in Hemispherx.

We believe the current valuation is attractive.

Our $0.75 price target is based on a NPV analysis. Based on our expectations and assumptions, we calculate a 12-month price target for shares of Hemispherx to be $0.75, representing significant upside from current share price. We believe this valuation appropriately balances out the company's high risks with the company's high growth prospects and large upside opportunities. We acknowledge that Hemispherx is still at an early stage in its drug development and product commercialization, but we believe key milestones in the next year should be positive catalysts for the stock.

Exhibit 4: Ampligen Market Opportunity

Ampligen Is A Broadly Applicable Immune Therapy

Overview

- According to Markets And Markets, the global cancer immunotherapy market is expected to reach $119 billion by 2021 from $62 billion in 2016 - a compound annual growth rate of 14.0%
- Ampligen has a generally well-tolerated safety profile with nearly 100,000 IV doses in humans
- Ampligen enjoys orphan drug status for CFS, AIDS, Metastatic Melanoma, Renal Cell Carcinoma, and Ebola Virus Disease, as well as patent protection through 2029 (new form & substance)
- Ampligen has a robust data package to support rapid development in immuno-oncology

Initial Indication

- ME/CFS is a complex disorder that affects ~1M people in the US; diagnosis is by exclusion of other conditions associated with debilitating fatigue
- Approved in Argentina, 2016
- US FDA approval requires confirmatory Phase 3 –protocol under development

Single Agent Immuno-Oncology

- Ampligen has demonstrated clinically significant improvements in patient physical performance in two double-blind US based randomized, placebo-controlled, pivotal trials which was the basis for the Argentine approval
- There are no approved treatments for ME/CFS in the US and Ampligen is the only drug in late-stage clinical development
- Multiple successful Phase 1 and Phase 2 studies in variety of solid and liquid tumors, including ovarian, colorectal, renal cell carcinoma, melanoma, and bladder cancer
- Treating pancreatic cancer patients in European Early Access Program

Combination Agent Immuno-Oncology

- Mechanism appears ideally suited to boost the efficacy of PD-1 and PD-L1 checkpoint inhibitors. Roswell Park Cancer Institute research collaboration underway.

Source: Company reports.

INVESTMENT RISKS

Long and Uncertain Drug Development Cycles

Hemispherx is highly dependent upon securing drug approvals for its products in order to sell them (produce revenue). The drug development cycle can be long (average of 12 years), expensive (average of $350 million), complicated, and uncertain. On average only about 10% of drugs entering clinical trials ever make it to final approval. Because Hemispherx's main drug Ampligen is in various Phase 1/2 trials, there are still significant risks and a long time horizon to receive FDA approval. We estimate that it may be at least two years before the drug can receive FDA approval. Even after obtaining drug approvals, there is still a chance that commercial success will not be achieved (due to competition, changes in the market, lack of reasonable reimbursements, or lack of market acceptance). With a high likelihood of binary outcomes (either success or failure), the risks are high but the potential rewards can also be very high as well.

Product Commercialization Risks

Hemispherx's Alferon N Injection is FDA approved for a category of Sexually Transmitted Disease (STD) infection (genital warts). However, commercial sales of Alferon in the U.S. is on hold and will not resume until new batches of commercial product are produced and released by the FDA. While the company's facility is approved by the FDA for Alferon, this status will need to be reaffirmed by a FDA pre-approval inspection (which will require the company to invest ~$10 million). Hemispherx's Ampligen has approval in Argentina for the treatment of CFS, but the market potential remains limited until approval can be expanded to other markets. Even if Hemispherx receives approval for its drugs, there are still significant risks to launch and commercialize its products.

High Level of Competition

Hemispherx operates in a highly competitive environment and competes against a wide range of other biopharmaceutical companies that are attempting to replicate or already have similar treatments as the company's drugs. Some of these competitors are much larger or have greater resources, and proprietary technology; which could result in lower projected sales for its drugs and higher costs, reduced margins, and lowered profitability for the company. Even if Hemispherx were to be successful with its NDA for Ampligen, its products will have to compete with existing or new standards of care.

Concentrated Product Pipeline

While the company is currently developing two novel drug therapeutics (Ampligen and Alferon N Injection), it is currently focusing mainly on just Ampligen (for CFS and immuno-oncology). If Hemispherx were to experience difficulties with development of Ampligen, then it would have a material negative impact on its business and financials as there are no meaningful products which can offset.

Economic Uncertainty

While healthcare costs tends to be less correlated with economic activity and income levels due to their nondiscretionary nature, major deterioration in economic conditions tends to result in an overall decline in consumer spending. This was demonstrated during the 2008 and 2009 Great Recession and global economic slowdown. While consumer spending levels and economic conditions have improved significantly since, the global macroeconomic environment can change any time. Further economic weakness may result in depressed consumer spending levels; this may have a negative impact on Hemispherx, its business partners, and consumers.

Capital Markets Risks

Hemispherx has only enough cash to fund its operations for the next several quarters. We believe that it will be at least several years before the company can be cash flow self-sufficient from operations. Many biopharmaceutical companies fund their operations from the sale of equity or debt capital until their products reach commercial success or until they sell off the commercial rights to other companies. Biopharmaceuticals ("biotechs") valuations tend to fluctuate widely, and though they are reasonably strong now (due to a strong M&A market for biotechs), there is always the chance that market interests and valuations for companies in this industry decline significantly. The large share price decline YTD (~40% decline) in Hemispherx's share price may make capital raising much more difficult and expensive.

VALUATION

We are initiating coverage of Hemispherx with a BUY rating and a 12-month price target of $0.75, which is based on a NPV analysis. As the company is a clinical stage drug development company, it currently generates minimal revenues and significant losses so traditional valuation metrics are not useful. We believe a more accurate valuation should take into consideration the potential value of its product pipeline. We do acknowledge that this valuation is complex and requires a large number of forward assumptions that we have to estimate that may be imprecise and may vary significantly from actual results. This is particularly so for a company like Hemispherx which is still in early clinical trials and product commercialization with its main products.

However, we believe our assumptions are fair and provide a reasonable basis for our valuation analysis. Our analysis considers future estimated revenue from each of its major product pipelines (based on estimated future sales, a probability rate of success, and discounted this back to a current value). We apply a high discount rate and about average probability of success to capture the uncertainties associated generally with drugs in development. We then added up the values, made an assumption about future investments required and allocated the value based on current share count. Based on our NPV analysis, we arrived at our 12-month price target of $0.75, which we believe appropriately balances out the company's risks with its high growth prospects.

Although Hemispherx's share price YTD has been weak (~-40%), we believe that there are near term catalysts that can drive the stock. As the company is likely to make significant progress (and milestones) in its drug development and product commercialization over the next several years, we believe this will result in much improved visibility into future cash flows. We expect valuations for Hemispherx to improve as visibility into cash flow generation becomes clearer, resulting in significant upside to the current share price.

Exhibit 5: Company Valuation (DCF)

Drugs	Estimated NPV	% of Success	Calculated NPV	Discount Rate	Estimated Annual Sales	% of Market Share	Market Potential per year
Ampligen	$ 47	35%	$ 135	65%	$ 88	25%	$ 350
Alferon N Injection	$ 13	65%	$ 19	65%	$ 13	5%	$ 250
Total	**$ 60**						

Estimated additional investments required	$ 25
Current Value for existing shareholders	$ 35
Shares Outstanding (mils)	47
Estimated Value per share	**$ 0.75**

Source: Ascendiant Capital Markets estimates

COMPANY

Based in Ocala, FL, with its manufacturing and operations facilities in New Brunswick, NJ, Hemispherx Biopharma is a specialty pharmaceutical company engaged in the clinical development of new drug therapies based on natural immune system enhancing technologies for the treatment of viral, immune, and immuno-oncology based diseases. Its main products include Ampligen and Alferon N Injection. Ampligen is an experimental therapeutic Ribonucleic Acid (RNA) being developed for CFS, immuno-oncology, viral diseases, disorders of the immune system, and other severely debilitating and life-threatening diseases. Alferon N Injection is FDA approved for a category of Sexually Transmitted Disease (STD) infection (genital warts).

Hemispherx was founded in the early 1970s doing contract research for the National Institutes of Health. Since that time, the company has established a strong foundation of laboratory, pre-clinical and clinical data with respect to the development of natural interferon and nucleic acids to enhance the natural antiviral defense system of the human body and to aid the development of therapeutic products for the treatment of certain chronic diseases.

The company's corporate headquarter is in Ocala, FL but has major operations in New Brunswick, New Jersey (a 30,000 sq. ft. facility with the objective of producing Alferon and Ampligen upon FDA approval). As of March 2018, the company had 27 employees.

Exhibit 6: Hemispherx's Manufacturing & Research Facility

Hemispherx operates a 30,000 sq. ft. facility in compliance with cGMP requirements in New Brunswick, NJ for the production of Alferon® and Ampligen®.

New Brunswick, New Jersey Facility

- FDA Licensed cGMP Manufacturing Facility
- Over $8 million in recently acquired new equipment
- Over $30 million invested

State of the Art Bioreactor

Source: Company reports.

MANAGEMENT TEAM

Thomas Equels, age 66, Chief Executive Officer and President. Mr. Equels, M.S., J.D., serves as Executive Vice Chairman on the Board, and as follows: CEO (since 2016), President (since 2015), Secretary (from 2008 to 2016), General Counsel (from 2010 to 2016), and CFO (from 2013 to 2016). Mr. Equels is the owner and former President and Managing Director of the Equels Law Firm headquartered in Miami, FL that focuses on litigation (including national and state governments as well as companies in the banking, insurance, aviation, pharmaceutical and construction industries). Mr. Equels received his Juris Doctor degree Magna Cum Laude from Florida State University. He is a Summa Cum Laude graduate of Troy University. He also obtained a management related Masters' Degree from Troy University. He is a member of the Florida Bar Association and the American Bar Association.

Adam Pascale, age 70, Chief Financial Officer. Mr. Pascale, CPA, was promoted to CFO in February 2016. Mr. Pascale has been employed with the company for 22 years, and has more than two decades of public accounting experience and prior public company experience. He earned a Bachelor of Arts degree in Accounting and Finance from Rutgers University. Mr. Pascale served for several years as a CPA prior to joining the company, and is a member of both the American and the Pennsylvania Institutes of Certified Public Accountants.

DRUG PIPELINE

Hemispherx has two main therapeutic candidates and products, Ampligen and Alferon N Injection. Alferon N Injection is FDA approved for a category of Sexually Transmitted Disease (STD) infection (genital warts). While Alferon N Injection is FDA approved in the U.S., its commercialization is on hold as the company focuses on Ampligen for chronic fatigue syndrome (CFS) and immuno-oncology.

Exhibit 7: Hemispherx's Commercial Drugs

Commercial Products

Country: USA

PRODUCT NAME	CATEGORY	COMMERICAL STATUS
Alferon N Injection®	Genital HPV (condylomata acuminata)	Sales anticipated to resume upon successful pre-approval inspection and supplemental approval by FDA

Country: Argentina

PRODUCT NAME	CATEGORY	COMMERICAL STATUS
Alferon N Injection®	Genital HPV (condylomata acuminata)	Approved. Launch pending manufacturing approval
Alferon N Injection®	Refractory to Recombinant IFN	Approved. Launch pending manufacturing approval
Rintatolimod (U.S. Tradename: Ampligen®)	Severe Cases of Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS)	Approved. Launch pending

Source: Company reports.

Exhibit 8: Hemispherx's Drugs Development Pipeline

Pipeline

USA

Product Candidate	Indication	Development Stage
Ampligen®	ME/CFS	NDA Active. Company in discussions with FDA to formulate path forward for potential approval
Ampligen®	Vaccine Adjuvant	Phase I/II – Research Collaboration with the University of Alabama
Ampligen®	Ovarian, Colorectal, and Peritoneal Cancers	Phase I/II - Sponsored by University of Pittsburgh
Ampligen®	Colorectal, Melanoma Cancer	Pre-clinical research collaboration with Georgia Regents University
Ampligen®	Renal Cell Carcinoma, Melanoma Cancers	Phase I/II Research Collaboration with Hahnemann University

Source: Company reports.

Ampligen is used for the treatment of severe myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS). Ampligen is approved (in 2016) in Argentina (as one of the first and meaningful therapy approved in the world for ME/CFS) and is also available through an U.S. Food and Drug Administration (FDA) authorized expanded access program (EAP). In the EAP, the FDA has approved the reimbursement rate of $200 per vial for the direct costs along with expanding participation at clinics in Nevada and North Carolina. The FDA has declined (with a Complete Response Letter (CRL) received February 2013) to approve the NDA for Ampligen for the treatment of CFS pending its request for additional clinical trials and data. Ampligen is also available through an EAP in Europe.

Exhibit 9: Ampligen

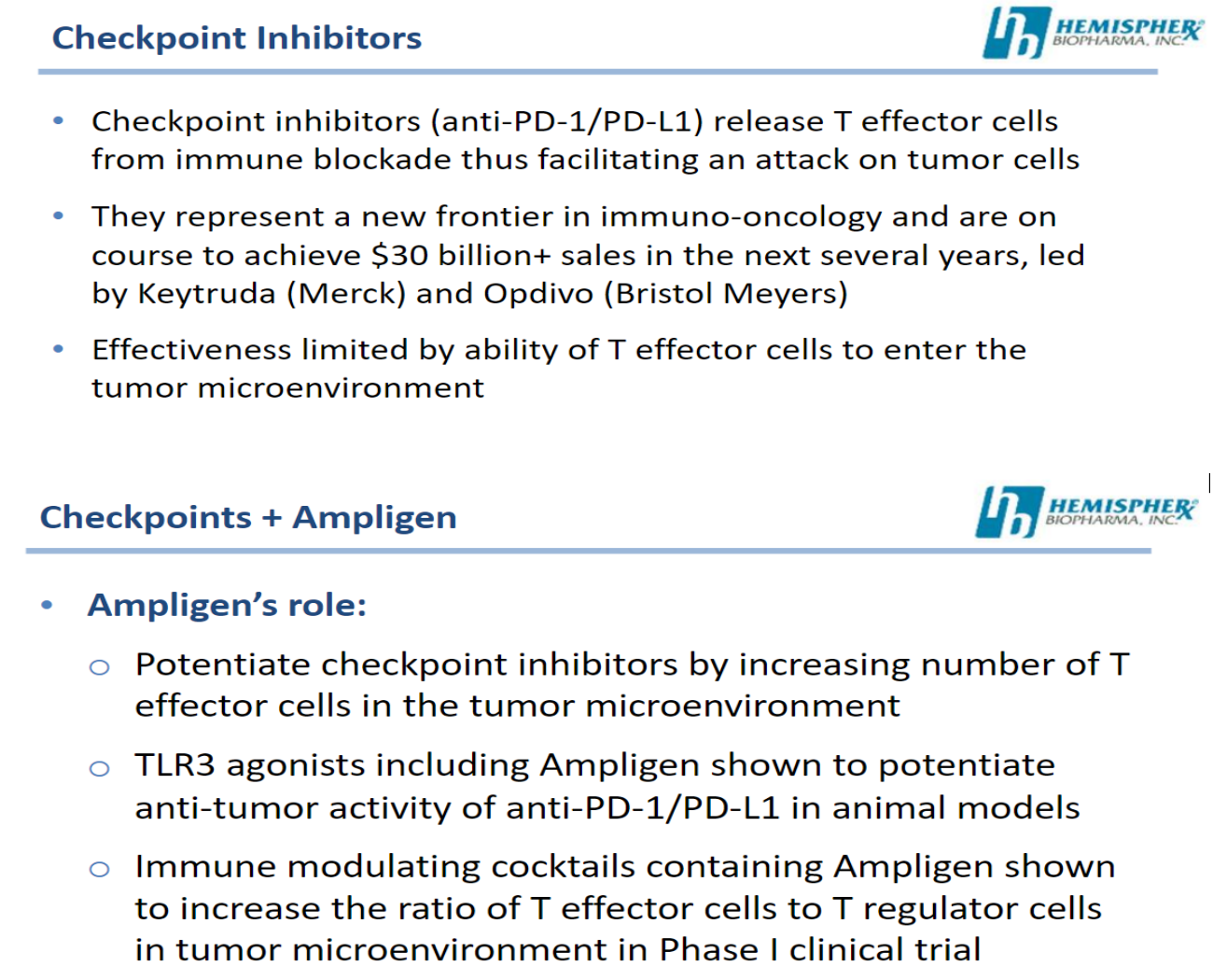
- **Ampligen®**
  - Broadly applicable immune therapy with generally well-tolerated safety profile - ~100,000 IV doses in humans
  - Initial US FDA approval expected in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS), confirmatory Phase 3 required – approved in Argentina
  - Multiple Phase 1/2 single agent studies completed in a variety of immuno-oncology indications
  - Major emerging opportunity seen as combination agent to turbo charge checkpoint inhibitors
  - Authorized for pancreatic cancer Early Access Program (EAP) in The Netherlands
  - Orphan Drug designations for CFS, renal cell carcinoma, melanoma, Ebola and HIV

Source: Company reports.

Hemispherx has made significant advancements with its Ampligen oncology program with Ampligen's potential use as an immuno-oncology agent for the treatment of multiple types of cancer. In collaboration with major cancer research centers in the U.S. (University of Pittsburgh Medical Center (UPMC), the University of Nebraska Medical Center (UNMC), and Roswell Park Comprehensive Cancer Center (Roswell Park)), clinical trials are underway to test that the combination of Ampligen with checkpoint blockade therapies will improve clinical tumor responses, time to progression, and survival rates.

Checkpoint inhibitors are powerful immuno-therapy drugs that block proteins that restrain the body's immune system from fighting cancer, and are used in the treatment of a number of advanced solid tumor malignancies. Checkpoint inhibitors have provided dramatic responses for a number of advanced end stage cancers by enabling the patient's immune system to attack the cancer. Although a minority of patients respond dramatically to the checkpoint inhibitors, the company believe that use of combinational immune therapy to enhance immune killing of tumor cells provides a rational mechanism for expanding the clinical response rate for checkpoint inhibitor therapy.

Exhibit 10: Checkpoint Inhibitors and Ampligen



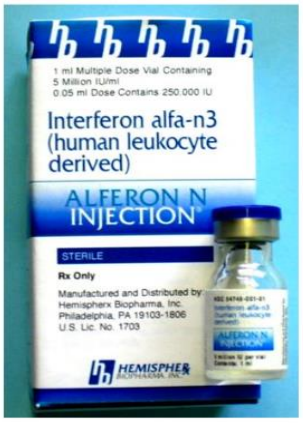
Source: Company reports.

Clinical proof-of-concept findings using an Ampligen cocktail in colorectal carcinoma demonstrated a more favorable ratio of killer T-cells to regulatory T-cells in the tumor microenvironment. Killer T-cells attack cancer cells, and their presence in the tumor microenvironment can be inhibited by regulatory (suppressor) T-cells in the tumor. The suppressor cells thereby reduce a patient's immune response to cancer. Increases in killer T-cells, without a corresponding increase in suppressor T-cells, is an indicator of the body's increased ability to mount a potentially effective immune response, supporting strong pre-clinical evidence of Ampligen's activity in converting "cold" tumors into "hot" tumors and improving treatment results.

The company just recently entered into a clinical trial agreement with Roswell Park to evaluate Ampligen in combination with checkpoint inhibitors (CPIs). The Phase IIa clinical trial will evaluate Ampligen in combination with CPIs in patients (with advanced urothelial carcinoma, renal cell carcinoma, and melanoma cancers) with resistance to primary CPI therapy.

Exhibit 11: Alferon N Injection

- **Alferon N Injection®**
  - US FDA and Argentina approvals for refractory or recurrent external genital warts in patients 18 years and older
  - US marketing alliance with Asembia; reimbursement approved by major insurers
  - $94 million yearly: current plant capacity, single shift
  - Global market is open-only natural interferon with no global competitor
  - $10 million requirement to initiate production



600 Liter Volume Bioreactor Can Produce 1,200 vials… ***100x increase***

Previous 6 Liter Volume Flask Produces 12 vials

Source: Company reports.

Alferon N Injection is an injectable formulation of natural alpha interferon, which was approved by the FDA in 1989 for the treatment of certain categories of genital warts. Alferon is the only natural-source, multi-species alpha interferon currently approved for sale in the U.S. for the intralesional (within lesions) treatment of refractory (resistant to other treatment) or recurring external genital warts in patients 18 years of age or older. Certain types of human papilloma viruses (HPV) cause genital warts, a sexually transmitted disease (STD). The U.S. Centers for Disease Control and Prevention (CDC) estimates that "approximately twenty million Americans are currently infected with HPV with another six million becoming newly infected each year. HPV is so common that at least 50% of sexually active men and women get it at some point in their lives." Although usually not fatal, genital warts commonly recur, causing significant morbidity and substantial health care costs.

In January 2017, Hemispherx contracted with Jubilant Hollister-Stier LLC to manufacture batches of Ampligen. The first lot was manufactured in April 2018, and released in June 2018 for sale and clinical use, with the second lot finished in June 2018 and released in September 2018 (for a total of 16,000 vials for the two lots).

Commercial sales of Alferon in the U.S. is currently on hold, and will not resume until new batches of commercial product are produced and released by the FDA. While the company's facility is approved by the FDA under the Biological License Application (BLA) for Alferon, this status will need to be reaffirmed by a FDA pre-approval inspection. Currently, the manufacturing process is on hold and there is no definitive timetable to have the facility back online. Hemispherx estimate that it will need ~$10 million to commence the manufacturing process.

The company's near term strategy is to pursue its Ampligen oncology programs with major cancer research centers to demonstrate Ampligen's potential use for the treatment of multiple types of cancer. In addition, the company will continue to pursue Ampligen

for the treatment of chronic fatigue syndrome (CFS). Hemispherx's plans to seek approval and commercialization of Ampligen and Alferon N Injection in the U.S. and abroad as well as seeking to broaden commercial therapeutic indications for both, particularly Ampligen for immuno-oncology. Hemispherx also continues to pursue co-development partners with the capital and expertise needed to develop and commercialize its products

Exhibit 12: Ampligen Revenue Drivers

Source: Company reports.

FINANCIALS

Hemispherx's fiscal year ends on December 31. We expect its next earnings report (for Q3 2018) to be in mid-November. Because the company is a clinical stage drug development company, it currently generates minimal revenues and significant losses as it funds its drug development.

Exhibit 13: Hemispherx's Historical Financials

FYE Dec 31 (in millions except EPS)	2013A	2014A	2015A	2016A	2017A	2018E	2019E
Total Revenue	**0.2**	**0.2**	**0.1**	**0.1**	**0.4**	**0.2**	**0.4**
Growth % (y/y)		31%	-32%	-31%	375%	-45%	67%
Operating income (loss)	**(17.2)**	**(19.1)**	**(16.7)**	**(13.8)**	**(11.4)**	**(11.8)**	**(12.3)**
Net income	**(16.2)**	**(17.5)**	**(15.2)**	**(7.5)**	**(8.3)**	**(11.4)**	**(12.9)**
EPS	**$ (1.20)**	**$ (1.08)**	**$ (0.72)**	**$ (0.34)**	**$ (0.29)**	**$ (0.26)**	**$ (0.26)**
Cashflow from operating activities	**(16.9)**	**(14.0)**	**(16.1)**	**(7.4)**	**(7.9)**	**(8.3)**	**(11.2)**

Source: Company reports and Ascendiant Capital Markets estimates.

Recent Results (fiscal Q2 ending June 2018)

Hemispherx's recent financial performance is reflective of its developmental stage. In its Q2 2018 report (on August 15, 2018), the company reported minimal revenue and net loss was $2.4 million. Operating expenses were $3.1 million, mainly due to drug development costs and general and administrative expenses. Q2 EPS was $(0.05).

The company does not provide specific quarterly financial guidance, but we believe Q2's operating expenses of $3.1 million is a reasonable near term quarterly burn rate. The company expects continued progress on its drug development milestones in 2018 and 2019. We do not expect the company to experience material revenue until its Ampligen drug makes significant progress towards FDA approval (either from product sales or from the sales of drug marketing rights to new partners). We have modeled relatively steady operating costs over the next year. For 2018, we expect revenues of $0.2 million and EPS of $(0.26).

The company's near term strategy is to continue to pursue Ampligen's potential use as an immuno-oncology agent for the treatment of multiple types of cancer, and for the treatment of chronic fatigue syndrome (CFS).

We believe that the biggest potential variable in our financial model is the ability of the company to get FDA (or equivalent) approvals for each of its drugs under development. It is these approvals that are ultimately how Hemispherx will be able to finally be able to generate revenue. If the company can make significant progress towards these goals, then revenue and earnings will likely be able to grow significantly (though likely still several years away). However, if the company has difficulties in making progress towards getting drug approval, then revenue and earnings will likely grow at a more moderate rate or even not at all. For its approved drugs (Ampligen in Argentina and Alferon N Injection in the U.S.), the biggest challenge is to successfully commercialize its products.

The company's balance sheet had ~$4 million in cash and $3 million in debt as of June 2018. So far in 2018, the company has raised ~$3 million by selling stock (~$0.38/share). The company in September issued a Convertible Note for $3.2 million (10% maturing on September 28, 2019, convertible at $0.30/share). We believe the company has enough cash to fund its operations for the near term (through mid-2019).

Exhibit 14: Hemispherx's Key Financial Metrics

Recent Share Price (10/26/18)	$ 0.21
52-Weeks Share Price (Low - High)	$0.15 - 0.65
Shares Outstanding	47 million
Market Capitalization	$10 million
Enterprise Value	$9 million
Net Cash (6/30/18)	$4 million
Debt (6/30/18)	$3 million
2017A Net loss	$8 million
2017A EPS	$ (0.29)
2018E Net loss	$11 million
2018E EPS	$ (0.26)

Source: Company reports and Ascendiant Capital Markets estimates.

FINANCIAL MODEL

Hemispherx Biopharma, Inc.

Income Statement ($ mils) Fiscal Year End: December 31	2016 FY-A	Mar-17 Q1A	Jun-17 Q2A	Sep-17 Q3A	Dec-17 Q4A	2017 FY-A	Mar-18 Q1A	Jun-18 Q2A	Sep-18 Q3E	Dec-18 Q4E	2018 FY-E	Mar-19 Q1E	Jun-19 Q2E	Sep-19 Q3E	Dec-19 Q4E	2019 FY-E
Total Revenue	**0.092**	**0.084**	**0.213**	**0.090**	**0.050**	**0.437**	**0.056**	**0.033**	**0.050**	**0.100**	**0.239**	**0.073**	**0.058**	**0.088**	**0.180**	**0.398**
Cost of Revenues	1.108	0.270	0.218	0.399	0.296	1.183	0.208	0.186	0.200	0.400	0.994	0.291	0.231	0.263	0.360	1.145
Gross Profit	(1.016)	(0.186)	(0.005)	(0.309)	(0.246)	(0.746)	(0.152)	(0.153)	(0.150)	(0.300)	(0.755)	(0.218)	(0.173)	(0.175)	(0.180)	(0.747)
Research and development	5.107	1.391	1.106	0.787	0.814	4.098	0.855	1.341	1.200	1.200	4.596	1.250	1.250	1.250	1.250	5.000
General and administrative	7.681	1.664	1.619	1.556	1.733	6.572	1.563	1.733	1.600	1.600	6.496	1.650	1.650	1.650	1.650	6.600
Restructuring and other						0.000					0.000					0.000
Total operating expenses	12.788	3.055	2.725	2.343	2.547	10.670	2.418	3.074	2.800	2.800	11.092	2.900	2.900	2.900	2.900	11.600
Operating income (loss)	**(13.804)**	**(3.241)**	**(2.730)**	**(2.652)**	**(2.793)**	**(11.416)**	**(2.570)**	**(3.227)**	**(2.950)**	**(3.100)**	**(11.847)**	**(3.118)**	**(3.073)**	**(3.075)**	**(3.080)**	**(12.347)**
Interest income (expense)	0.129	0.026	0.002	(0.038)	(0.041)	(0.051)	(0.135)	(0.004)	(0.052)	(0.130)	(0.320)	(0.130)	(0.130)	(0.131)	(0.131)	(0.522)
Other income (expense)	6.173	0.394	0.535	1.438	0.841	3.208	(0.008)	0.816			0.808					0.000
Income before income taxes	(7.502)	(2.821)	(2.193)	(1.252)	(1.993)	(8.259)	(2.713)	(2.415)	(3.002)	(3.230)	(11.359)	(3.248)	(3.204)	(3.206)	(3.211)	(12.869)
Income taxes						0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Net income (loss)	(7.502)	(2.821)	(2.193)	(1.252)	(1.993)	(8.259)	(2.713)	(2.415)	(3.002)	(3.230)	(11.359)	(3.248)	(3.204)	(3.206)	(3.211)	(12.869)
Nonrecurring/noncash adjustments						0.000					0.000					0.000
Net income (pro forma)	**(7.502)**	**(2.821)**	**(2.193)**	**(1.252)**	**(1.993)**	**(8.259)**	**(2.713)**	**(2.415)**	**(3.002)**	**(3.230)**	**(11.359)**	**(3.248)**	**(3.204)**	**(3.206)**	**(3.211)**	**(12.869)**
EBITDA																
Shares, Basic	21.818	25.341	27.306	30.097	32.500	28.676	36.269	44.674	48.000	48.500	44.361	49.000	49.500	50.000	50.500	49.750
Shares, Diluted	21.818	25.341	27.306	30.097	32.500	28.676	36.269	44.674	48.000	48.500	44.361	49.000	49.500	50.000	50.500	49.750
EPS Basic (Pro forma)	**($0.34)**	**($0.11)**	**($0.08)**	**($0.04)**	**($0.06)**	**($0.29)**	**($0.07)**	**($0.05)**	**($0.06)**	**($0.07)**	**($0.26)**	**($0.07)**	**($0.06)**	**($0.06)**	**($0.06)**	**($0.26)**
EPS Diluted (Pro forma)	($0.34)	($0.11)	($0.08)	($0.04)	($0.06)	($0.29)	($0.07)	($0.05)	($0.06)	($0.07)	($0.26)	($0.07)	($0.06)	($0.06)	($0.06)	($0.26)
Margins																
Gross margin	-1104%	-221%	-2%	-343%	-492%	-171%	-271%	-464%	-300%	-300%	-316%	-300%	-300%	-200%	-100%	-188%
Research and development	5551%	1656%	519%	874%	1628%	938%	1527%	4064%	2400%	1200%	1923%	1717%	2165%	1429%	694%	1256%
General and administrative	8349%	1981%	760%	1729%	3466%	1504%	2791%	5252%	3200%	1600%	2718%	2266%	2857%	1886%	917%	1658%
Operating margin	-15004%	-3858%	-1282%	-2947%	-5586%	-2612%	-4589%	-9779%	-5900%	-3100%	-4957%	-4284%	-5322%	-3514%	-1711%	-3102%
Tax rate, GAAP	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Net margin	-8154%	-3358%	-1030%	-1391%	-3986%	-1890%	-4845%	-7318%	-6003%	-3230%	-4753%	-4462%	-5547%	-3664%	-1784%	-3233%
Y/Y % change																
Total Revenue						375%	-33%	-85%	-44%	100%	-45%	30%	75%	75%	80%	67%
Gross margin						-27%	-18%	2960%	-51%	22%	1%	44%	13%	17%	-40%	-1%
Research and development						-20%	-39%	21%	52%	47%	12%	46%	-7%	4%	4%	9%
General and administrative						-14%	-6%	7%	3%	-8%	-1%	6%	-5%	3%	3%	2%
Operating income (loss)						-17%	-21%	18%	11%	11%	4%	21%	-5%	4%	-1%	4%
Net income (loss)						10%	-4%	10%	140%	62%	38%	20%	33%	7%	-1%	13%
EPS Diluted (Pro forma)						-16%	-33%	-33%	50%	9%	-11%	-11%	20%	3%	-5%	1%

Source: Company reports and Ascendiant Capital Markets estimates.

Hemispherx Biopharma, Inc.

Balance Sheet ($ mils) Fiscal Year End: December 31	Dec-16 Q4A	Mar-17 Q1A	Jun-17 Q2A	Sep-17 Q3A	Dec-17 Q4A	Mar-18 Q1A	Jun-18 Q2A	Sep-18 Q3E	Dec-18 Q4E	Mar-19 Q1E	Jun-19 Q2E	Sep-19 Q3E	Dec-19 Q4E
Assets													
Cash and cash equivalents	2.408	0.776	1.222	0.503	1.412	3.957	3.568	6.053	4.235	0.984	(2.685)	(5.251)	(7.324)
Short term investments	3.460	2.973	1.989	1.800	0.695	0.682	0.674	0.674	0.674	0.674	0.674	0.674	0.674
Accounts receivable, net		0.041	0.098	0.042	0.024	0.029	0.035	0.039	0.078	0.057	0.045	0.068	0.140
Inventory								0.000	0.000	0.000	0.000	0.000	0.000
Deferred income taxes								0.000	0.000	0.000	0.000	0.000	0.000
Prepaid expenses and other	1.073	1.400	1.371	1.390	1.374	0.995	1.008	0.250	0.500	0.364	0.289	0.438	0.900
Total current assets	6.941	5.190	4.680	3.735	3.505	5.663	5.285	7.016	5.487	2.078	(1.678)	(4.071)	(5.610)
Long term securities/investments								0.000	0.000	0.000	0.000	0.000	0.000
Property and equipment, net	9.514	9.257	9.022	8.795	8.586	8.370	8.142	8.142	8.142	8.142	8.142	8.142	8.142
Intangibles, net	0.872	0.870	0.860	0.860	0.858	0.858	0.886	0.886	0.886	0.886	0.886	0.886	0.886
Deferred income tax								0.000	0.000	0.000	0.000	0.000	0.000
Other	1.546	1.546	1.546	1.335	1.258	1.369	1.372	1.372	1.372	1.372	1.372	1.372	0.000
Total assets	**18.873**	**16.863**	**16.108**	**14.725**	**14.207**	**16.260**	**15.685**	**17.416**	**15.887**	**12.478**	**8.722**	**6.329**	**3.418**
Liabilities and stockholders' equity													
Accounts payable	0.887	0.927	0.972	0.460	0.741	0.850	0.689	1.000	2.000	1.456	1.155	1.750	1.800
Accrued expenses	1.548	1.709	1.771	1.740	1.966	1.578	1.193	1.500	2.000	2.184	1.733	1.750	1.800
Accrued interest								0.000	0.000	0.000	0.000	0.000	0.000
Deferred revenue								0.000	0.000	0.000	0.000	0.000	0.000
Deferred income tax								0.000	0.000	0.000	0.000	0.000	0.000
Other								0.000	0.000	0.000	0.000	0.000	0.000
Short term debt						0.222	0.195	0.910	0.910	0.910	0.910	0.910	0.910
Total current liabilities	**2.435**	**2.636**	**2.743**	**2.200**	**2.707**	**2.650**	**2.077**	**3.410**	**4.910**	**4.550**	**3.798**	**4.410**	**4.510**
Deferred income taxes								0.000	0.000	0.000	0.000	0.000	0.000
Warrant liabilities	0.940	1.279	2.516	1.018	0.962	0.971	2.095	2.095	2.095	2.095	2.095	2.095	2.095
Other long term liabilities								0.000	0.000	0.000	0.000	0.000	0.000
Long term debt			0.517	1.466	1.835	2.439	2.417	5.617	5.617	5.617	5.617	5.617	5.617
Total other liabilities	**0.940**	**1.279**	**3.033**	**2.484**	**2.797**	**3.410**	**4.512**	**7.712**	**7.712**	**7.712**	**7.712**	**7.712**	**7.712**
Preferred stock								0.000	0.000	0.000	0.000	0.000	0.000
Common stock	0.024	0.026	0.029	0.031	0.033	0.039	0.047	0.247	0.447	0.647	0.847	1.047	1.247
Additional paid-in capital	315.980	316.238	316.307	316.748	317.419	321.635	322.946	322.946	322.946	322.946	322.946	322.946	322.946
Retained earnings	(300.501)	(303.322)	(306.022)	(306.767)	(308.760)	(311.473)	(313.888)	(316.890)	(320.119)	(323.368)	(326.571)	(329.777)	(332.988)
Treasury stock								0.000	0.000	0.000	0.000	0.000	0.000
Accumulated other comprehensive in	(0.005)	0.006	0.018	0.029	0.011	(0.001)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Other													
Total stockholders' equity	**15.498**	**12.948**	**10.332**	**10.041**	**8.703**	**10.200**	**9.096**	**6.294**	**3.265**	**0.216**	**(2.787)**	**(5.793)**	**(8.804)**
Total stockholders' equity and liabili	**18.873**	**16.863**	**16.108**	**14.725**	**14.207**	**16.260**	**15.685**	**17.416**	**15.887**	**12.478**	**8.722**	**6.329**	**3.418**

Balance Sheet Drivers

	Dec-16 Q4A	Mar-17 Q1A	Jun-17 Q2A	Sep-17 Q3A	Dec-17 Q4A	Mar-18 Q1A	Jun-18 Q2A	Sep-18 Q3E	Dec-18 Q4E	Mar-19 Q1E	Jun-19 Q2E	Sep-19 Q3E	Dec-19 Q4E
Prepaid as % of total rev	1166%	657%	1523%	2780%	314%	1777%	3055%	500%	500%	500%	500%	500%	500%
Accounts payable as % of total rev	964%	435%	1080%	920%	170%	1518%	2088%	2000%	2000%	2000%	2000%	2000%	1000%
Inventories as % of cost of rev	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Accrued expenses as % of total rev	1683%	802%	1968%	3480%	450%	2818%	3615%	3000%	2000%	3000%	3000%	2000%	1000%
Activity Ratios													
A/R Days Sales Outstanding	0	17	98	76	5	47	95	70	70	70	70	70	70
Inventory Turnover	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
A/P Days Payable	868	392	972	828	153	368	333	450	450	450	450	600	450
Book & Cash Value (per share)													
Book Value per Share (diluted)	$0.71	$0.47	$0.34	$0.31	$0.30	$0.28	$0.20	$0.13	$0.07	$0.00	-$0.06	-$0.12	-$0.17
Cash per Share (diluted)	$0.27	$0.14	$0.11	$0.07	$0.07	$0.13	$0.09	$0.14	$0.10	$0.03	-$0.04	-$0.09	-$0.13
Net cash per Share (diluted)	$0.27	$0.14	$0.09	$0.03	$0.01	$0.05	$0.04	$0.00	-$0.03	-$0.10	-$0.17	-$0.22	-$0.26

Source: Company reports and Ascendiant Capital Markets estimates

Hemispherx Biopharma, Inc.

Cash Flow Statement ($ mils)	2016	Mar-17	Jun-17	Sep-17	Dec-17	2017	Mar-18	Jun-18	Sep-18	Dec-18	2018	Mar-19	Jun-19	Sep-19	Dec-19	2019
Fiscal Year End: December 31	FY-A	Q1A	Q2A	Q3A	Q4A	FY-A	Q1A	Q2A	Q3E	Q4E	FY-E	Q1E	Q2E	Q3E	Q4E	FY-E
Cash flow from operating activities																
Net income	(7.502)	(2.821)	(2.193)	(1.252)	(1.993)	(8.259)	(2.713)	(2.415)	(3.002)	(3.230)	(11.359)	(3.248)	(3.204)	(3.206)	(3.211)	(12.869)
Depreciation	1.119	0.261	0.243	0.235	0.209	0.948	0.216	0.228	0.100	0.100	0.644	0.100	0.100	0.100	0.100	0.400
Amortization	0.184	0.013	0.004	0.031	0.015	0.063	0.015	0.015			0.030					0.000
Debt related amortization expense				0.013	0.024	0.037	0.140	0.028			0.168					0.000
Stock comp	0.410	0.052	0.049	0.185	0.285	0.571	0.286	0.326	0.200	0.200	1.012	0.200	0.200	0.200	0.200	0.800
Deferred income taxes						0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Provision for bad debts						0.000					0.000					0.000
Reserves						0.000					0.000					0.000
Change in fair value of warrant l	(1.677)	(0.393)	(0.530)	(1.438)	(0.056)	(2.417)	0.231	(0.362)			(0.131)					0.000
Writedowns and impairments						0.000					0.000					0.000
Other gains/losses	0.057		(0.006)		(0.011)	(0.017)	(0.223)				(0.223)					0.000
Other						0.000					0.000					0.000
Changes in operating assets and liabilities:																
Accounts receivable		(0.041)	(0.057)	0.056	0.018	(0.024)	(0.006)	(0.005)	(0.004)	(0.039)	(0.054)	0.021	0.012	(0.023)	(0.072)	(0.062)
Inventory						0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Prepaid expenses & other curre	0.026	(0.328)	0.030	(0.019)	0.304	(0.013)	(0.385)	(0.013)	0.758	(0.250)	0.110	0.136	0.075	(0.149)	(0.463)	(0.400)
Income tax						0.000					0.000					0.000
Other assets				0.211	(0.211)	0.000			0.000	0.000	0.000	0.000	0.000	0.000	1.372	1.372
Accounts payable	(0.326)	0.103	(0.018)	0.089	0.392	0.566	0.245	(0.119)	0.311	1.000	1.437	(0.544)	(0.301)	0.595	0.050	(0.200)
Accrued expenses	0.329	0.161	0.170	0.009	0.264	0.604	(0.348)	(0.386)	0.307	0.500	0.073	0.184	(0.452)	0.018	0.050	(0.200)
Accrued interest						0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Deferred revenue						0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Other liabilities						0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Net cash (used in) provided by	**(7.380)**	**(2.993)**	**(2.308)**	**(1.880)**	**(0.760)**	**(7.941)**	**(2.542)**	**(2.703)**	**(1.330)**	**(1.719)**	**(8.293)**	**(3.151)**	**(3.569)**	**(2.465)**	**(1.974)**	**(11.159)**
Cash flow from investing activities																
Purchases of property and equi	(0.160)	(0.003)		(0.017)		(0.020)			(0.100)	(0.100)	(0.200)	(0.100)	(0.100)	(0.100)	(0.100)	(0.400)
Purchases of short-term investn	3.370	0.500	1.000	0.199	1.100	2.799					0.000					0.000
Acquisitions	(0.294)	(0.011)	(0.003)	(0.022)	(0.013)	(0.049)	(0.014)	(0.043)			(0.057)					0.000
Other						0.000	1.050				1.050					0.000
Net cash used in investing acti	**2.916**	**0.486**	**0.997**	**0.160**	**1.087**	**2.730**	**1.036**	**(0.043)**	**(0.100)**	**(0.100)**	**0.793**	**(0.100)**	**(0.100)**	**(0.100)**	**(0.100)**	**(0.400)**
Cash flow from financing activities																
Issuance of debt			0.606	0.937	0.357	1.900	4.080		3.915	0.000	7.995	0.000	0.000	0.000	0.000	0.000
Repayment of debt	0.013		(0.089)	(0.001)	(0.012)	(0.102)	(2.355)	(0.081)			(2.436)					0.000
Issuance of stock	4.744	0.875	1.240	0.065	0.237	2.417	2.326	2.438	0.000	0.000	4.764	0.000	0.000	0.000	0.000	0.000
Repurchase of common stock						0.000					0.000					0.000
Proceeds from stock option exercises						0.000					0.000					0.000
Other						0.000					0.000					0.000
Dividends and distributions						0.000					0.000					0.000
Cash provided by (used in) fina	**4.757**	**0.875**	**1.757**	**1.001**	**0.582**	**4.215**	**4.051**	**2.357**	**3.915**	**0.000**	**10.323**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Effect of exchange rate on cash						0.000					0.000					0.000
Net increase (decrease) in cash	**0.293**	**(1.632)**	**0.446**	**(0.719)**	**0.909**	**(0.996)**	**2.545**	**(0.389)**	**2.485**	**(1.819)**	**2.823**	**(3.251)**	**(3.669)**	**(2.565)**	**(2.074)**	**(11.559)**
Beginning cash and equivalents	**2.115**	**2.408**	**0.776**	**1.222**	**0.503**	**2.408**	**1.412**	**3.957**	**3.568**	**6.053**	**1.412**	**4.235**	**0.984**	**(2.685)**	**(5.251)**	**4.235**
Ending cash and equivalents	**2.408**	**0.776**	**1.222**	**0.503**	**1.412**	**1.412**	**3.957**	**3.568**	**6.053**	**4.235**	**4.235**	**0.984**	**(2.685)**	**(5.251)**	**(7.324)**	**(7.324)**

Source: Company reports and Ascendiant Capital Markets estimates

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Hemispherx Biopharma, Inc.

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Ascendiant Capital Markets, LLC Rating System

BUY: We expect the stock to provide a total return of 15% or more within a 12-month period.

HOLD: We expect the stock to provide a total return of negative 15% to positive 15% within a 12-month period.

SELL: We expect the stock to have a negative total return of more than 15% within a 12-month period.

Total return is defined as price appreciation plus dividend yield.

Ascendiant Capital Markets, LLC Rating System

Prior to January 31, 2014, ASCM used the following rating system:

Strong Buy: We expect the stock to provide a total return of 30% or more within a 12-month period.

Buy: We expect the stock to provide a total return of between 10% and 30% within a 12-month period.

Neutral: We expect the stock to provide a total return of between minus 10% and plus 10% within a 12-month period.

Sell: We expect the stock to provide a total return of minus 10% or worse within a 12-month period.

Speculative Buy: This rating is reserved for companies we believe have tremendous potential, but whose stocks are illiquid or whose equity market capitalizations are very small, often in the definition of a nano cap (below $50 million in market cap). In general, for stocks ranked in this category, we expect the stock to provide a total return of 50% or more within a 12-month period. However, because of the illiquid nature of the stock's trading and/or the nano cap nature of the investment, we caution that these investments may not be suitable for all parties.

Total return is defined as price appreciation plus dividend yield.

Ascendiant Capital Markets, LLC Distribution of Investment Ratings (as of October 12, 2018)

			Investment Banking Services Past 12 months	
Rating	**Count**	**Percent**	**Count**	**Percent**
Buy	40	95%	3	8%
Hold	2	5%	1	50%
Sell	0	0%	0	0%
Total	42	100%	4	10%

Other Important Disclosures

Our analysts use various valuation methodologies including discounted cash flow, price/earnings (P/E), enterprise value/EBITDAS, and P/E to growth rate, among others. Risks to our price targets include failure to achieve financial results, product risk, regulatory risk, general market conditions, and the risk of a change in economic conditions.

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