Zacks Equity Research

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CardioGenics Hldgs. (CGNH-OTC)

CGNH: Q4 2010 Update

Current Recommendation	**Outperform**
Prior Recommendation	N/A
Date of Last Change	07/28/2010
Current Price (02/07/11)	$0.99
Six- Month Target Price	**$1.30**

OUTLOOK

We believe CardioGenics can make a successful entry into the POC IVD market by offering its high-sensitive QLCA and Troponin I test at a significant discount to the competition. High margin paramagnetic beads will provide the bulk of revenue and cash flow for the next three years. The low-cost business model, coupled with high-margin products affords the opportunity to generate positive income and cash flow quickly (2012). Other high potential cardiac marker tests are expected to launch over the next several years. We are maintaining our Outperform rating and near-term price target of $1.30.

SUMMARY DATA

52-Week High	**$1.32**
52-Week Low	**$0.17**
One-Year Return (%)	**N/A**
Beta	**0.64**
Average Daily Volume (sh)	**26,039**
Shares Outstanding (mil)	**50**
Market Capitalization ($mil)	**$49**
Short Interest Ratio (days)	**N/A**
Institutional Ownership (%)	**N/A**
Insider Ownership (%)	**N/A**
Annual Cash Dividend	**$0.00**
Dividend Yield (%)	**0.00**
5-Yr. Historical Growth Rates	
Sales (%)	**N/A**
Earnings Per Share (%)	**N/A**
Dividend (%)	**N/A**
P/E using TTM EPS	**N/A**
P/E using 2011 Estimate	**N/A**
P/E using 2012 Estimate	**11.0**
Zacks Rank	**3**

Risk Level	**N/A**
Type of Stock	**N/A**
Industry	**Med Instruments**
Zacks Rank in Industry	**36 of 50**

ZACKS ESTIMATES

Revenue
(in millions)

	Q1 (Jan)	Q2 (Apr)	Q3 (Jul)	Q4 (Oct)	Year (Oct)
2010	$0.0 A	$0.0 A	$0.0 A	$0.0 A	$0.0 A
2011					$0.2 E
2012					$6.8 E
2013					$16.9 E

Earnings per Share

	Q1 (Jan)	Q2 (Apr)	Q3 (Jul)	Q4 (Oct)	Year (Oct)
2010	-$0.01 A	-$0.01 A	-$0.01 A	-$0.01 A	-$0.04 A
2011	-$0.01 E	-$0.01 E	-$0.01 E	-$0.02 E	-$0.05 E
2012					$0.02 E
2013					$0.09 E

Zacks Projected EPS Growth Rate - Next 5 Years % **N/A**

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WHAT'S NEW

10-K Filed

CardioGenics filed their 10-K for the year ending October 31, 2010 on January 31, 2011. Financial results were generally in-line with our expectations. Fourth quarter operating loss of $520k was better than our $619k forecast mostly as a result of lower spend on R&D, partially offset by a $105k charge for write-off of patent application costs. R&D was below our estimate due to delays to trials for the QL Care Analyzer and Troponin I test. EPS for the quarter (10/31/2010) came in at ($0.01), in-line with our estimate. For the full fiscal year operating loss and EPS were $2,493k and ($0.04).

Cash used in operations was $617k and $2,163k for Q4 and the full year, respectively – this is slightly less than we had anticipated but also a result of the trial delays. We continue to expect the rate of cash burn to increase up at least until the magnetic beads launch and for the company to remain cash flow negative throughout 2011. CardioGenics exited the fiscal year with $1,844k in cash and equivalents.

Beads Update

The 10-K contained little in the way of a business update other than noting that CardioGenics signed "Material Transfer Agreements" (MTA) with "two other international beads distributors" related to commercialization of its magnetic beads.

As a reminder, CardioGenics already has a commercialization and distribution deal in place with Merck Chimie S.A.S. for the magnetic beads. Under that agreement, CardioGenics will supply Chimie with the silver-coated beads and Chimie is responsible for the polymer encapsulation process. Chimie will then handle distribution.

Under the first of the recent MTAs, CardioGenics will supply the distributor with their silver-coated beads and the distributor is responsible for the encapsulation process. This distributor will also provide CardioGenics with their own bead prototypes, to which CardioGenics will apply their silver coating. Under the second MTA, CardioGenics will supply the distributor with silver-coated beads and the distributor is responsible for the encapsulation process. Following the encapsulation processes and testing of the encapsulated beads, CardioGenics and the distributors will determine whether to pursue commercialization of the finished beads. The expectation is that it would be approximately six months before we know much more about the status of development under these two new MTA's.

CardioGenics, in a February 1, 2011 press release, notes that they continue to work with Chimie in development of the beads and that Chimie is still working on refining its encapsulation process. It also indicates that these two new MTAs were pursued in an effort to accelerate commercialization (perhaps implying Chimie has not been moving as quickly as CardioGenics would like and they hope these two new deals may light a fire).

CardioGenics has not provided regular progress updates on the bead development but it is clear that commercialization of the beads is now behind where they had initially hoped it would be. Prior to this most recent news, the last we heard was that Chimie had finalized an encapsulation process around the July/August 2010 timeframe that met commercial specifications. Beads from the lot were to be sent (~September) to Chimie who would then pass them on to their customers and solicit their feedback. Assuming the feedback was positive, the expectation was that customers would begin placing orders.

Based on the current news, it is clear that customer orders have not been flowing. While the press release did not provide an update to a potential launch date, it did mention that Chimie will test a batch of CardioGenics' beads that CardioGenics has encapsulated using its own processes. The press release implies that CardioGenics hopes to get these beads, which have been dubbed the "CardioGenics Encapsulated Beads", launched as they wait for the Chimie-encapsulated beads to be commercialized.

We had been expecting the beads to launch by year-end 2010, which we now model during fiscal Q3 2011 (ending July 31, 2011). We note, however, that since management has not provided an update to a potential launch date or more specifics on development, that we have no reliable information to indicate when the beads could begin generating revenue.

QL Analyzer Update

Days after the 10-K filing, CardioGenics issued a press release with an update to the status of development of the QL Care Analyzer and their Troponin I test (the first test expected to gain FDA clearance). As a reminder, the prior expectation had been that Institutional Review Board (IRB) approval of proposed head-to-head clinical trials would have been received and testing started by (calendar) Q4 2010. Assuming trials took approximately 45 days to complete, FDA trials could have started in late-2010 and a 510(k) application might have happened in early 2011. This potentially put launch of the QLCA and Troponin test somewhere around (calendar) mid-2011.

The February 3, 2011 press release states that the head-to-head trials have been delayed and CardioGenics now expects to (receive IRB approval and) begin head-to-head testing in May 2011. Assuming the company can hit these timelines and head-to-head trials take 45 days, they hope to start FDA testing in Q3 2011. FDA testing is expected to take about two months which means a 510(k) could possibly be filed in Q4 2011. Launch might then happen in the first half of 2012 – which is about a nine month delay from where we had it initially modeled.

CardioGenics indicates in the recent press release that the delays in getting the head-to-head trials started were due to the test/device that they planned to test the QLCA against, was not available due to being hung up in the FDA regulatory process. As a result CardioGenics will use a device already on the market (from Siemens) as the comparator instrument.

KEY POINTS

- CardioGenics' new proprietary and patent-protected QL Care Analyzer (QLCA) affords very high sensitivity coupled with ease of use and quick testing results. Test products used with the QLCA target the rapidly expanding and highly lucrative point-of-care (POC) segment of the in-vitro diagnostics (IVD) market. Next-generation technology and a need for quicker test results are prompting a macro shift in diagnostic testing away from high-cost professional clinical labs to the POC setting. Cardiac marker, CardioGenics' area of expertise, continues to be one of the fastest growing POC testing areas.

- The QLCA, designed for the POC segment, has shown in internal studies to have accuracy on par with that of expensive clinical lab machines and superior to currently marketed POC analyzers. Test results with the QLCA are available in 15 minutes compared to an average of 2.8 hours with professional clinical lab analyzers. Quicker test results means faster triage decisions and improved patient care and outcomes.

- Higher sensitivity, greater accuracy and lower cost than current POC analyzers affords QLCA an attractive competitive advantage

- QLCA and test products target the high unmet need for fast and highly accurate tests for the detection and treatment of cardiovascular disease. Cardiovascular disease is the #1 killer in the U.S. and is estimated to afflict almost 100 million Americans and kill over 80k people every year.

- The QLCA and Troponin I test, which will detect the occurrence of a heart attack within 15 minutes (compared to 3 - 4 hours with standard clinical lab analyzers), allows targeted treatment to begin within the critical one-hour period following the onset of the event. Troponin I testing is standard protocol for the eight million Americans that enter emergency rooms each year suffering from chest pain. CardioGenics' Troponin I test appears to be ideally suited for emergency rooms and ambulances.

- QLCA with Troponin I assay expected to enter FDA trials in Q3 2011 (slight delay from prior expectations of Q4 2010 or Q1 2011). Current timeline now puts potential launch in 1H 2012.

- Additional high-potential cardiovascular disease test products in late-stage development and expected to launch over the next several years. Upon launch CardioGenics will begin targeting primary care and specialist physicians' offices. Longer-term opportunity exists to commercialize assays for other widespread diseases.

- Another source of revenue for the company will come from their proprietary paramagnetic beads. Paramagnetic beads are used in 90% of all clinical lab immunoassay analyzers and represent a $1 billion market. CardioGenics' beads offer higher sensitivity and lower cost than current beads. Supply and distribution deal for their beads with a top-three world bead supplier is already in place. Launched delayed from prior expectations although could happen in 2011.

- CardioGenics' "Razor (QLCA)/Razor Blade (assays)" business model affords a consistent and predictable revenue stream and can ramp profitability and cash flow very rapidly.

- Balance sheet is debt and preferred stock-free.

- Company is led by a cardiologist with 20 years experience working on cardiac diagnostic test products. Dr. Gawad has already successfully gained FDA approval for several currently marketed cardiac test products, including a widely used test for Troponin I. From 1999 – 2003 he served as a reviewer for the editorial board of the American Journal of Cardiology and has presented his extensive published work and research and clinical findings at national and international symposia.

BUSINESS

Ontario, Canada-based CardioGenics Inc. is a development-stage company involved in the development and expected near-term commercialization of POC diagnostic testing equipment and related immunoassay tests. The company's QL Care Analyzer is a small, portable analyzer for use in the high-growth POC setting with accuracy to match clinical lab testing. Also under development are several immunoassay tests which will be used to improve the management of certain cardiovascular diseases. The current timeline for a 510(K) filing for the QL Care Analyzer along with the company's first cardiac marker test, Troponin I, is the third quarter of 2011. The company's high-sensitivity proprietary magnetic beads (used as reagents in clinical lab assays) will be manufactured and distributed by Merck-Chimie S.A.S., one of the world's largest suppliers of paramagnetic beads.

CardioGenics was acquired by JAG Media Holdings, Inc. on July 31, 2009. JAG was a small subscription-based supplier of financial information to the investment community. Subsequent to the merger JAG changed their name to CardioGenics Holdings, Inc. The financial information portion of the business was divested in early 2010.

PRODUCTS UNDER DEVELOPMENT

QL Care Analyzer

The QL Care Analyzer (QLCA) is a small, portable point-of-care diagnostic device designed for fast and accurate immunoassay testing. The QLCA will be mostly used in the professional POC setting (i.e. – CLIA Class II device). It was developed to combine the benefits of POC analyzers (ease of use, low-cost, quick turnaround time, portability) with those of clinical lab machines (high sensitivity and accuracy). In addition to these benefits, the QLCA has no mechanical moving parts, thereby reducing the risk of failure (moving parts are often the cause of failure of clinical lab analyzers). Instead it was designed to operate with electrical or electromagnetic signals.

Laboratory machines which use chemiluminescence (i.e. – generation of light when chemicals are mixed together) employ mechanical means to trigger light generation. CardioGenics was able to capture the sensitivity of clinical lab chemiluminescence analyzers in a smaller and easy to operate platform (i.e. – POC) by eliminating any moving parts and using an electronic signal to trigger light generation. Through the use of chemiluminescence, the same technology used in medical lab analyzers, a patented electronic process to trigger the light, the use of ultra-high sensitive beads and the lack of membrane-binding (membranes are a major cause of inaccurate testing), the QLCA is able to achieve fast results and very high levels of sensitivity and accuracy.

In internal bench testing the QLCA has demonstrated sensitivity on-par with that of professional clinical lab analyzers. It is fully automated and does not require specialized training to operate making it ideal for the POC setting. CardioGenics' technology appears to have greater accuracy and sensitivity compared to industry-leading POC analyzers such as those sold by Abbott Labs (I-Stat), Roche Diagnostics (POC Cardiac Reader) and Inverness/Biosite (Triage) – none of which employ the use of chemiluminescence. The QLCA will be the first POC analyzer utilizing chemiluminescence technology. The machine is fully portable and uses AC power or can be operated with its 8 hour rechargeable battery, making it convenient for use in all settings including ERs, ambulances, bedside, physician offices, etc.

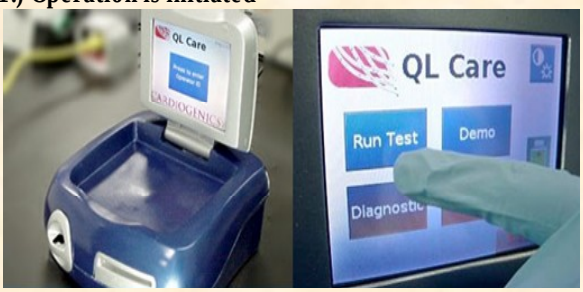
QLCA uses proprietary disposable cartridges containing CardioGenics' high sensitivity magnetic beads. A few drops of (non-metered) whole blood are added to the test cartridge and an automated self-metering function delivers a precise volume to a reaction chamber. Marker binding to the magnetic beads is accelerated in the test sample, the chemiluminescence process is activated and results are available within 15 minutes. The cartridges have a 12-month shelf life, are fully self-contained and other than adding the blood sample, require no preparation by a technician. Test results can be displayed, stored electronically, printed on the machine's integrated thermal printer or sent via computer network.

While superior sensitivity and accuracy clearly represent the main differentiating benefits of the QLCA over competing products, its simplistic hands-off operation and quick testing time will add incremental appeal to customers in our opinion. Minimal training and quick turnaround time results in lower operating costs and increased efficiency – which in-turn results in improved patient care and cost savings. Unlike professional clinical labs where

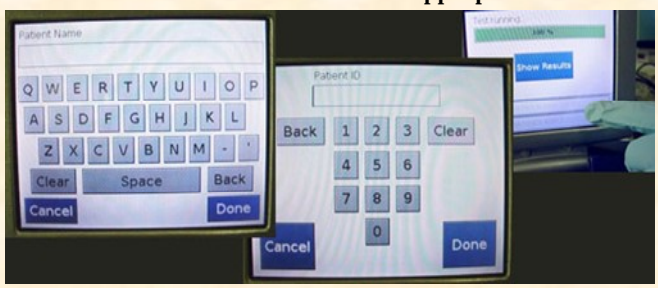
highly trained technicians operate the diagnostic test equipment, the QLCA can be operated by relatively low-level personnel with only minimal guidance.

HIGHLY SIMPLISTIC TESTING PROCEDURE TAKES ABOUT 15 MINUTES FROM START TO FINISH

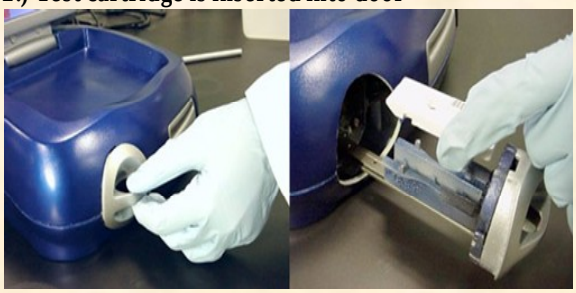
1.) Operation is initiated



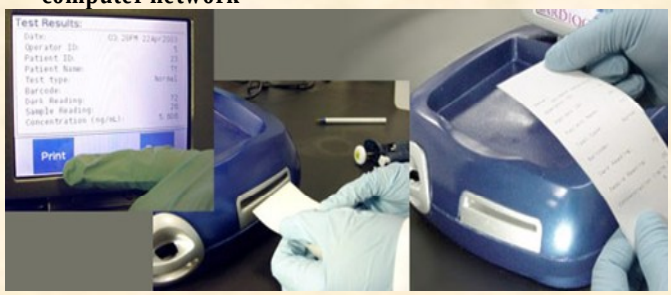
4.) Analyzer identifies test from cartridge barcode, loads calibration software and runs appropriate test



2.) Test cartridge is inserted into door



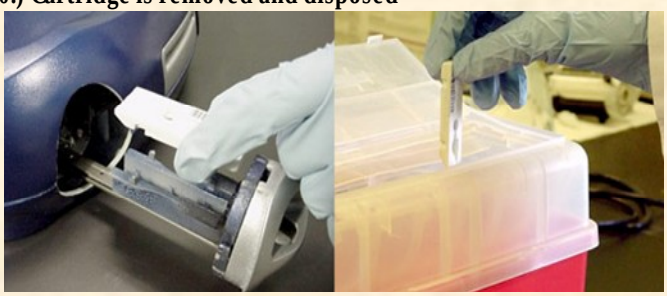
5.) Results are displayed and can be printed, stored or sent via computer network



3.) Whole blood sample is added and door closed



6.) Cartridge is removed and disposed



CardioGenics is readying to test the QLCA in head-to-head trials which will take place at four hospital emergency rooms. The QLCA will use CardioGenics' Troponin I test to test approximately 50 patients admitted at the ER's with chest pain at each site. The same patients will also be tested for Troponin I using the hospitals' own central lab analyzer. The results will then be compared with the goal to confirm that the QLCA and comparator instrument have the same results. CardioGenics had originally expected to receive Institutional Review Board (IRB) approval and commence head-to-head testing by Q4 2010. This has been pushed back, however, as the test/device that CardioGenics had originally planned to use as the comparator (made by Beckman Coulter) was not available due to being hung up in the FDA regulatory process. As a result, CardioGenics now expects to use Siemens' ADVIA Centaur Analyzer as the predicate/comparator device. CardioGenics now hopes to receive IRB approval and commence head-to-head testing in May 2011 – the trials are expected to take about 45 days.

Assuming favorable results from these head-to-head studies, CardioGenics expects to finalize protocols and begin FDA trials in Q3 2011. The current timeline is for FDA trials to take about two months and for a 510(k) filing to be made shortly afterwards. Assuming a 90-day turnaround time and the QLCA and Troponin test could now launch in the first half of Q1 2012 – which is about a 9-month delay from where we had it originally modeled.

...distribution / manufacturing

As CardioGenics is primarily a research and development company, they plan to outsource all other major functions. Manufacturing, distribution and marketing of the QLCA and the various tests will be handled by a third party. CardioGenics has disclosed little relative to this although indications are that they have had discussions with a number of potential partners (at least one of which we believe to be a major player in the diagnostics manufacturing and distribution arena) and are close to getting a deal finalized. We expect CardioGenics to have a distribution agreement in place by the time an FDA filing is made for the QLCA/Troponin test.

Terms of partnering arrangements of this type typically call for the distributor to make milestone payments to the licensor (i.e. – CardioGenics) as the products are submitted for FDA approval – milestones are generally paid out over several years as opposed to in one lump sum. In return the distributor will generally receive sales and marketing rights. It is our expectation that CardioGenics will offer the QLCA machine to customers (through the distributor) for free through a lease agreement where the customer agrees to purchase a predetermined amount of tests. This razor/razor blade business model has been used very effectively by companies in all different industries for gaining a foothold in new markets when rolling out novel products. With the QLCA relatively inexpensive to manufacture and margins on the test products around 90%, CardioGenics can afford to offer very attractive (~ 60% of cartridge sales) distribution terms which we believe will be of significant benefit in reaching a distribution deal. And despite potentially very attractive terms for the distributor, these huge margins should still allow CardioGenics to reach profitability within a relatively short period of time.

Immunoassay Tests

CardioGenics has developed four tests for use in improving the clinical management of patients with cardiovascular diseases which should roll out over the next several years. Cardiac marker testing is an especially attractive area and is currently the fastest growing POC test segment in the hospital setting. Cardiovascular disease accounts for approximately 1/3 of all deaths in the United States and has been the #1 cause of death every year for the last 100 years. Sedentary lifestyles, poor eating habits, smoking and stress will continue to fuel demand for products targeting the testing and treatment of cardiovascular disease.

The company expects to expand their testing menu following development of these cardiovascular assays. The QLCA's open architecture format requires no alteration to the machine in order to adapt new tests which enables quicker expansion of the testing menu. Other areas that offer tremendous growth potential include infectious disease, cancer, thyroid and diabetes testing. There are currently over 200 immunoassay tests currently on the market and with POC testing being adopted in the professional setting at increasing rates, we feel there is tremendous long-term opportunity for CardioGenics to leverage their technology and expand into other therapeutic areas.

Troponin I

The Troponin I test will be used with the QLCA in the head-to-head trials (now expected to begin in May 2011) as well as the FDA trials (~Q3 2011). The target venue for the Troponin I test will be hospital emergency rooms and ambulances.

Troponin I is a heart muscle protein that is released in the bloodstream immediately following the onset of a heart attack. Troponin I testing is the standard protocol for the eight million Americans that enter emergency rooms each year suffering from chest pain. Typically a clinical lab analyzer is used for detection of Troponin I and while highly accurate, typically results are not available for approximately four hours or longer after a blood sample is taken. This can delay triage decisions and/or result in a significant number of unnecessary admissions into cardiac units. Delayed triage decisions can put patients at greater risk of suffering further adverse consequences and unnecessary admissions are costly and consume potentially scarce resources (i.e. – hospital beds and personnel time). Conversely quantitative results from CardioGenics' Troponin I test will be available within 15 minutes and within what is termed the "golden hour" or the one-hour period following the onset of a heart attack. Heart attack patients receiving proper and informed medical treatment within the golden hour are significantly more likely to suffer fewer adverse consequences than those receiving delayed treatment. This fact is part of the basis for the joint guidelines issued by the American Heart Association and American College of Cardiology which states that

blood tests for the diagnosis of myocardial infarction (heart attack) should be available within one hour and ideally within 30 minutes.

The use of POC testing for the diagnosis of heart attacks is becoming more commonplace with the recent introduction of more reliable tests for Troponin I as well as other cardiac markers such as B-type natriuretic peptide (BNP) and N-terminal prohormone of brain natriuretic peptide (NT-proBNP). The popularity of BNP/NT-pro-BNP testing has grown significantly over the last couple of years but is mostly used as a marker for chronic heart failure, with Troponin I remaining the gold-standard among myocardial infarction markers. POC (CLIA designated moderately complex) cardiac marker testing is currently dominated by products from only a few well-established players, which claim roughly 75% of the total market. Among these are Abbott Labs, Inverness/Biosite, Roche Diagnostics and Siemens/Dade (CardioGenics is using Siemens' ADVIA Centaur Analyzer as the comparator instrument for its head-to-head trials). Our belief is that CardioGenics can effectively compete in this space, largely based on the potentially superior sensitivity of the QLCA and lower cost of CardioGenics' offerings compared to competitors'.

While cardiac marker testing on the POC platform is becoming more commonplace, accuracy and sensitivity remains largely inferior to clinical lab testing, resulting in hesitance to adopt POC testing by many healthcare providers. Therefore, a more accurate and sensitive product will have enormous opportunity to take share from well-entrenched competitors, in our opinion. Higher sensitivity among Troponin I testing is especially beneficial as Troponin levels in the blood are normally very low (i.e. – undetectable) in healthy people. Troponin levels and severity of heart damage are generally directly correlated and after the onset of heart damage Troponin levels increase over time (typically peaking at 10 - 12 hours). Therefore, higher sensitivity assays will be able to detect lower severity of heart damage and detect heart damage earlier than less sensitive tests. Assays unable to detect very low levels of heart damage may result in false-negatives (all-clear prognosis when heart damage does exist) and patients being discharged despite needing medical treatment or further observation (this not only puts the patient at medical risk, it puts the physician and hospital at risk of liability claims). Early detection of Troponin I also allows for sooner quantification of the patient's level of risk and earlier commencement of appropriate intervention. Several outside studies have shown a significant relationship between cardiac Troponin levels and patient outcome after an episode of chest pain. Therefore, higher sensitivity is critical in improving patient outcomes and reducing the risk of adverse consequences of those patients presented in the ER with chest pain.

In addition, it is estimated that approximately 85% of those ~8 million chest-pain patients that come into the ER every year in fact have not experienced a cardiac related event. CardioGenics' test, which can accurately quantify low-levels of Troponin I offers assurance to physicians and patients that a cardiac event either has or has not occurred and significantly reduces the chances for dreaded false-negative test results. All of this means that higher sensitivity adds up to greatly improved patient care.

CardioGenics' technology will not only provide testing accuracy and sensitivity on-par with clinical lab analyzers, it will do so in a fraction of the time and at a significantly lower cost. Lab analyzers not only require more resources and money to operate, they also often require chest-pain patients to be admitted to coronary care units while testing is completed. This can be prohibitively expensive and resource constraining for hospitals. With many hospitals operating on very tight budgets, any opportunity to trim expenses without sacrificing patient care will be very well received. Based on superior accuracy and sensitivity compared to existing technology we feel CardioGenics has an opportunity to not only take market share away from existing competition in the POC space but to persuade healthcare providers to either abandon their reliance on lab testing altogether in favor of the QLCA technology or to at least supplement their lab testing with CardioGenics' POC platform. This could significantly expand the potential market for the product.

We estimate the current annual market directly applicable to CardioGenics' Troponin I test at approximately $22 million and forecast it to grow at about 5% over the next several years. We note that this is a very narrow interpretation of the target market, however, and only includes revenue from POC assays for Troponin (i.e. – does not include revenue for other POC cardiac marker tests such as BNP or CK-MB or Troponin testing in the clinical lab setting). Our 5% annual growth estimate is below the 6% rate that the overall POC cardiac marker test market is forecast to grow over the next several years. This is due to our expectation that POC BNP/NT-proBNP) tests as well as double and triple marker tests (e.g. – Troponin I, BNP, CK-MB on a single test) will grow at above average rates. Nevertheless, our market growth estimates for POC Troponin testing may err on the side of being somewhat conservative depending on the rate of adoption of POC testing by hospitals. Gross margins on CardioGenics' Troponin I test should be around 90%, offering substantial opportunity to grow income and cash flow immediately following launch.

Our current expectations are for the Troponin I test to receive FDA approval and launch with the QLCA in the first half of 2012 (prior to the trial delays we hoped this would happen towards the middle of 2011). We expect CardioGenics to seek CE Marking in order to sell the Analyzer and Troponin test in Europe following the U.S. launch. Our model assumes the test can claim roughly 1% market share within the first 12 - 15 months after launch and approximately 6% share within 2 – 3 years.

PAI-1

CardioGenics' Plasminogen Activator Inhibitor Type-1 (PAI-1) test is expected to be the second test launched on the QLCA platform. Similar to the Troponin I test, the primary testing venues for the PAI-1 test will be hospital emergency rooms and ambulances.

Blood clots are the cause of the majority of strokes and heart attacks. Tissue plasminogen activator (tPA) is a drug used to reduce blood clots during the initial treatment of heart attack and stroke victims. It has been shown to reduce the amount of damage to the heart muscle in heart attack patients and is the only drug approved by the FDA for the acute treatment of ischemic stroke (where a blood clot blocks blood flow to the brain). Importantly, however is that the drug is administered within only a few hours after onset of the event in order to be effective. Treatment with tPA is not without potentially significant risk, however, especially the risk of potentially fatal bleeding. In addition, roughly 40% of patients that would otherwise benefit from tPA do not respond to the drug – these patients are not only exposed to risky side effects but will also have alternative treatment delayed if unnecessarily treated with tPA. Due to the short treatment window, bleeding risk and significant percent of the population that will not respond to the drug (in addition to the ~ $2,000 cost per administration of tPA) it is critical that physicians quickly and accurately ascertain when treatment with tPA is appropriate and when instead alternative care should be pursued.

PAI-1 is a naturally occurring inhibitor of tPA produced by the cells lining blood vessels. By inhibiting tPA, PAI-1 reduces or eliminates the ability of tPA to break down blood clots, thereby rendering it ineffective for clot-busting in MI and ischemic stroke patients. CardioGenics' immunoassay is being developed to quantify active levels of PAI-1 in the blood within 15 minutes of blood sample collection. This is well within the golden hour when appropriate treatment can be most effective. The test will quickly and accurately determine which patients can effectively be treated with tPA and which ones should be treated with alternative methods.

There is no currently available test for measuring PAI-1 levels which puts CardioGenics in the extremely opportunistic position of being first to market. As no test currently exists for PAI-1, the size of the market for the test is difficult to gauge. Our best estimate is it will be roughly similar to the current market for Troponin I test, or about $22 million during the expected year of launch (2013). We estimate the market to grow at 5% per year for the foreseeable future. With significantly less competition in this space, share gains should come quicker than with the Troponin test. Our model assumes CardioGenics is able to attain approximately 2% market share within the year of launch and 5% share through the second. We think market share gains will accelerate in latter years based on greater acceptance of POC testing for PAI-1. With no direct competition for the test, we also expect margins on the test to be slightly higher (~94%) than the Troponin test.

The PAI-1 test has completed bench testing and we were hoping field testing could have commenced during 2010, following trials for the QLCA and Troponin test. As a result of delays with the QLCA trials, we now ballpark the PAI-1 test to enter field testing around Q3 2011 and if all goes well, FDA trials could commence in early 2012. Since there is no PAI-1 predicate test currently on the market, we believe an FDA filing will require a PMA submission. Assuming a PMA filing will be required, FDA turnaround time would likely be at least one year from the conclusion of FDA trials. Using our timeline as a gauge, this puts launch of the product potentially sometime around the second quarter 2013 – although we note that this is likely the best case scenario as PMA approval can sometimes be drawn out for 18 – 24 months.

Heart Failure Risk Stratification

CardioGenics' heart failure risk stratification (HFRS) test is being developed to stratify heart failure patients relative to their risk of death. The prevalence of heart failure is epidemic-like in the U.S. with approximately five million people in the U.S. suffering from the disease and 400,000 new cases materializing every year.

A person is said to suffer from systolic heart failure when their heart is impaired to the point where it can no pump enough blood to support the body's needs. Another form of heart failure is diastolic heart failure, which is when the heart does not fully relax and is therefore unable to properly fill with blood. It is estimated that approximately 50% of all heart failure patients over the age of 70 and 35% of those between 60 and 70 years old suffer from diastolic heart failure. The disease afflicts women at about twice the rate that it does men.

The symptoms (shortness of breath, fatigue, edema) of systolic heart failure are generally the same as those of diastolic heart failure and making a conclusive differentiating clinical diagnosis between the two can be difficult. One of the ways to help differentiate a diagnosis between systolic and diastolic heart failure is by testing the heart's ability to pump blood (i.e. – its ejection fraction or EF) with an echocardiogram. While EF is generally a conclusive test for determining systolic heart failure, by itself it can not conclusively rule in or out diastolic heart failure (although it is one of many measures used to help do so). An echocardiogram also does not have the robustness to effectively risk stratify patients suffering from any form of heart failure.

The most commonly used markers in the diagnosis and risk stratification of heart failure patients are brain natriuretic peptides (BNP). BNP is an amino acid polypeptide released by the heart ventricles (heart pumping chambers) when the heart becomes weak and begins to fail (i.e. – excessive stretching of the heart muscles). While BNP levels and the degree of heart failure are typically correlated in patients with systolic heart failure, making BNP screening a useful gauge for risk stratification in these patients, similar to EF it does a very poor job as a sole diagnostic tool for identifying diastolic dysfunction and in risk stratifying patients with diastolic heart failure. This has created a need for a risk stratification measure that uses more than just BNP as a marker for heart failure and which can be used for the diagnosis of systolic as well as diastolic heart failure.

There have been several studies done using BNP as a determinant of diastolic heart failure. In summary, most of these studies have shown that BNP can be useful to help identify diastolic heart failure but should be used along with other diagnostic tools such as an echocardiogram or catheterization in order to help substantiate the diagnosis. And even then, having established solid evidence of heart failure and normal EF and ruling out other causes must also be part of the procedure in order to have much confidence in the diagnosis. Risk stratification is even more sensitive to the robustness of the testing methods (as opposed to just diagnosis of heart failure) used which makes BNP as a sole risk stratification measure for diastolic heart failure patients of potentially even of less utility.

In order for physicians to consistently provide the highest standard of care it is vitally important that they can make an accurate and timely diagnosis between different forms of heart failure and are able to stratify these patients relative to their risk of death (from and between "Stage 1" where the patient has a low ~ 5% chance of death over the next 12 months to "Stage 4" where the patient has a 50% chance of dying). Proper treatment for diastolic heart failure is different than for systolic heart failure and misdiagnosis can have severe consequences as heart damage typically progresses without proper treatment. Similarly dire consequences can result from misdiagnosing a "Stage 4" patient with only "Stage 1" risk if that patient receives insufficient intervention and/or inappropriate treatment.

CardioGenics has identified a family of proteins that are released into the bloodstream during heart failure which will be used as markers for their HFRS test. CardioGenics has not disclosed which markers the test will use although we believe it will be a dual or triple marker test – likely using BNP as one of the markers (appropriate for systolic heart failure) and one or more markers for the diagnosis and risk stratification of diastolic heart failure. CardioGenics believes these proteins will provide more clinical utility than currently used biomarkers to differentiate between different forms of heart failure and accurately stratify patients relative to their near-term risk of death. The test, when commercialized, is expected to allow physicians to make more informed and quicker treatment decisions and give heart failure patients an overall better standard of care.

While the company has released little in the way of details about the test or progress on development, we believe there could be significant demand for the assay if it performs as CardioGenics hopes. Due to the high prevalence and continued growth of heart disease, the market for heart failure marker tests is large and growing by leaps and bounds. The tests are mainly used in the emergency setting although there has recently been growth in demand from the general practitioner and health clinic segments. Demand for heart failure tests is driven by sensitivity, accuracy and speed – but especially by the discovery of new cardiac markers that advance the diagnosis, treatment and management of patients. Biosite has been a benefactor in this after they launched their BNP POC test in 2000 – one of the first POC tests using BNP as a marker. The test now generates approximately $300 million in annual sales. If CardioGenics' HFRS test, which we expect to incorporate at least one novel marker, can advance the diagnosis and treatment of heart failure, it has the potential to be a multi-hundred million dollar product in our opinion.

We expect FDA approval for the HFRS test will be based on a 510(k) filing and not require the more lengthy and expensive PMA process. Development is still in the early stages so venturing an accurate guess on if and when eventual FDA approval and launch may come is difficult at this point. Based on little more than some anecdotal information we model the test to be commercialized by early 2014 - but again, based on our lack of insight we have little in the way of confidence relative to our launch forecast. We hope to hear more from the company relative to development of this test following the launch of the QLCA and Troponin I test.

We also note that the HFRS test is expected to be the first test that would expand the potential customer base for the QLCA beyond just the emergency setting. This test would be appropriate for use in the emergency setting as well as clinics and general physicians' and specialists' offices. Therefore the eventual launch of the test will be especially important for increasing unit placements and providing a larger base for CardioGenics to exploit when rolling out future assays especially in other therapeutic areas such as infectious diseases, cancer or diabetes. As revenue, income and cash flow can grow exponentially from the introduction of new tests, tapping this more diverse customer base will be key for CardioGenics.

Heart Failure Genomics Risk

The company's fourth test is being developed to predict heart failure patients' response to regularly administered drugs, such as beta blockers and ACE inhibitors. As a group, heart failure drugs are one of the most prescribed of all medicines and log multi-billion dollars in sales every year.

Beta blockers such as Coreg and Toprol XL are used to manage heart failure, abnormal heart beats and hypertension. They are often prescribed to patients who have suffered a heart attack. In people with heart failure the heart beats faster in attempt to compensate for its weakened pumping ability, thereby stressing the heart even more. Beta blockers relieve this stress on the heart by blocking epinephrine (adrenaline) which is responsible for increasing the heart rate. ACE inhibitors such as Capoten and Vasotec have become the first line of treatment for hypertension and heart failure. ACE inhibitors reduce the stress on the heart by lowering blood pressure as a result of the drug's ability to prevent the body from creating angiotensin, which causes blood vessels to tighten and blood pressure to increase.

While these drugs have proven highly effective in the treatment of heart failure, as is typical of many drugs, finding the most effective drug and/or optimal dose for a particular patient is often done through a trial and error approach. Different genetic make-ups and disease severity among patients means physicians are rarely ever certain how each patient will respond to a particular drug or dose. Heart failure management drugs can have especially harsh side effects which compel many physicians to start patients on low doses – while this reduces the risk and severity of these side effects, it can result in under-treatment, putting the patient at potential risk of further heart damage or even death.

Personalized medicine, where treatment is tailored to each patient's specific situation and background, as opposed to a "one-size-fits all" approach, is a relatively new idea and a huge growth area in health care. Large pharmaceutical companies are struggling to grow revenues due to patent expirations and a dearth of copy-cat drugs. Out of necessity they have embraced personalized medicine and are dedicating significant resources towards building out this part of their businesses. In part, this means developing new drugs or modifying existing drugs to better target and more effectively treat more specific patient populations. To do this pharmaceutical companies must identify patient sets which would benefit most from personalized medicine and/or which drugs to develop/modify.

CardioGenics' Heart Failure Genomics Risk (HFGR) test is being developed for use in both the medical treatment setting as well as a research tool for pharmaceutical companies. The assay will be a nucleic acid based test powered to detect how patients will respond to heart failure drugs such as beta blockers and ACE inhibitors. Physicians are expected to use the test in order to identify which drugs and doses are optimal for the most effective treatment of individual patients, thereby reducing or eliminating their reliance on trial and error. It is also expected to be a highly useful aid for pharmaceutical companies in their quest to develop personalized drugs. By identifying how patients with similar genetic make-ups react to certain drugs, pharmaceutical companies can gain highly valuable insight on which drugs to focus on and how to tailor their drug development.

Similar to the HFRS test, we have also heard little recently from the company on this HFGR test. We believe development is in its infancy and bench testing is likely at least 18 months away. CardioGenics' initial plans were that they expected to partner development of the test with one or more drug companies but there has yet to be news related to any partnering arrangements. We also know nothing relative to the how the test will work or what the target markers are expected to be. CardioGenics has noted in their recent public filings that the test would likely require a PMA filing – suggesting that there is no predicate test currently on the market. Also, this being a nucleic-acid test would likely mean some modifications to the QLCA and software would likely need to be made in order for the test to be run on the machine. Although we expect there to be little risk relative to making the appropriate modifications, we note that this, along with FDA approval of the modified machine, will likely be required which could extend the time to market for the test.

Despite being in the dark about development progress or future plans, we have included the test in our financial model. Our assumptions are based on little more than a best guess at this point. We model the test to enter field

testing in late 2013 and FDA trials by Q2 2014. Assuming the test requires a PMA filing, we think the test could potentially launch around Q3 2015. Based on the size of the potential markets for the test and potentially little in the way of direct competition for it, product margins could be in the neighborhood of $80 per test based on our calculations. This would make it potentially hugely profitable for CardioGenics. As we believe this could be one of CardioGenics' most profitable near-to-mid term products, we eagerly await more information related to it and development updates.

Magnetic Beads

Most clinical lab immunoassay analyzers use paramagnetic microspheres, or beads, as the solid surface to which the desired target (e.g. – proteins) is added and binds to. The targeted cell components (bound to the beads) are then isolated through the use of a magnetic field. Biological samples added to the assay react with these isolated cells. During the diagnostic testing process, light generated on the surface of the beads is measured – the more light generated, the more sensitive the test. Most paramagnetic beads are made of iron oxide and are brown and black in color. The dark colors decrease light collection, thereby limiting sensitivity of the beads. CardioGenics has found that sensitivity of the beads can be significantly enhanced by coating the beads with layers of silver plating, thereby making them more sensitive to light.

CardioGenics has developed a proprietary process which coats black magnetic beads with a layer of silver. The silver-plating process is carefully controlled, allowing for optimal silver coating without compromising the magnetic



Iron oxide beads colored white through proprietary silver plating process

properties of the beads. Beads of sizes from 1 to 50 microns can be coated with this process. After the beads are silver-plated they are encapsulated with a multilayer polymer using a proprietary process. A minimum of three polymer layers are used in order to control thinness/brightness and ion leakage. The polymer shell used allows for non-specific binding which increases the versatility of the beads including the range of assays it is appropriate for and also allowing for specific tailoring to different functional groups. The coated layers are stable in buffers for at least 12 months.

CardioGenics has gathered a substantial amount of data and information on the beads during a two-year development process which was supported by grants from the National Research Council of Canada (NRC). In head-to-head testing, CardioGenics' beads were found to have at least four times (and up to 7 times) the sensitivity of magnetic beads from the top four suppliers of magnetic beads.

There are several companies that currently sell paramagnetic beads manufactured by a polymer encapsulation process with pigment inserted in a latex particle that target the same applications as CardioGenics' beads. These other beads have significant disadvantages in our opinion, however. Among the biggest is that they are priced between $900 - $1,500 per gram of solids – this is mostly a result of the high manufacturing costs due to the labor intensive nature of the process and the sophisticated equipment involved. By contrast CardioGenics beads cost approximately $100 per gram to make as a result of a much more simplified manufacturing process. This will allow CardioGenics/Merck Chimie S.A.S. to price the beads at a significant discount to competitors' beads while still affording the companies a huge margin. The other major advantage of CardioGenics' beads, as discussed above, is their higher sensitivity than all beads marketed by the major suppliers – which accounts for approximately 85% of all magnetic bead sales.

End uses for magnetic beads include clinical diagnostics, drug targeting, cell and nucleic acid separation, DNA testing and protein purification. Magnetic beads are considered the gold-standard for solid phase material and are used by 8 out of the top 10 IVD companies in their clinical lab analyzers. Based on an independent study, the

annual market for paramagnetic beads applicable to CardioGenics' offering (finished beads) is estimated to be about $1 billion. The market is expected to exhibit strong 6% annual growth for the foreseeable future, bolstered by the increased demand and need for better and broader diagnostic testing. The market for these beads is largely dominated by only a handful of companies, together which claim roughly 85% of the market. The largest supplier, Dynal Inc., holds approximately 50% market share.

CardioGenics will use different beads for their own assays and will sell their silver-plated beads to the clinical lab market. CardioGenics entered an agreement with Merck Chimie S.A.S. whereby Merck Chimie is responsible for development, commercialization, distribution and marketing of the beads. CardioGenics will handle the silver-plating process in-house and will also absorb the material cost of the raw beads. Merck Chimie S.A.S. is responsible for the polymer encapsulation procedure. The worldwide exclusive agreement, signed in January 2009, is for a term of 10 years and renewable upon maturity. Merck Chimie S.A.S. will receive 70% of profits from sale of the beads, with CardioGenics receiving 30% of sales proceeds. Merck Chimie S.A.S. operates in the chemicals division of the Merck Group, a German-based pharmaceutical and chemicals company which generated almost euro 8 billion in revenue in 2009. Merck Chimie S.A.S. is in one of the top three largest suppliers of paramagnetic beads to the diagnostics testing market and produces microspheres under the Bio-Estapor brand name. Merck Chimie S.A.S., which holds roughly 15% - 25% share of the market for finished microspheres (beads that have been encapsulated such as CardioGenics'), has a well established distribution network and vast customer base for magnetic beads which we believe makes them an ideal partner. While the revenue split is clearly highly favorable to Merck Chimie S.A.S., this arrangement allows CardioGenics to gain a solid foothold into the magnetic bead market and we view it as a reasonable price to pay in order to do so. Depending on the success of the product it's possible a more evenly split revenue sharing arrangement could be penned between the two parties upon the 10-year expiration. Nonetheless, we believe the existing deal can be still be highly profitable for CardioGenics

Beads Development

Development of the beads is ongoing. Shortly after the consummation of the agreement with Merck Chimie S.A.S., CardioGenics supplied the company with its silver coated beads for polymer encapsulation. Merck Chimie S.A.S. encapsulated a test batch of the beads, which CardioGenics bench tested in December 2009. Following the testing, CardioGenics and Merck Chimie S.A.S. made some adjustments to the encapsulation process. A second test batch was then encapsulated, which began bench testing in late May 2010. This second test batch was encapsulated by a variety of processes and included ten different sets of the beads. In late-July/early-August Merck Chimie S.A.S. were successful in finalizing an encapsulation process which provided the companies with a commercial-grade product. Bead samples from the lot were to be sent (~September) to Chimie who would then pass them on to their customers and solicit their feedback. Assuming the feedback was positive, the expectation was that customers would begin placing orders. We had hoped this would have resulted in commercial bead sales beginning in late 2010 but it is clear (as of the date of this report) that this has not happened.

In their 2010 10-K (filed January 31, 2010) CardioGenics revealed that they had signed "Material Transfer Agreements" (MTA) with "two other international beads distributors" related to commercialization of their magnetic beads. Under the first of the MTA's, CardioGenics will supply the distributor with their silver-coated beads and the distributor is responsible for the encapsulation process. This distributor will also provide CardioGenics with their own bead prototypes, to which CardioGenics will apply their silver coating. Under the second MTA, CardioGenics will supply the distributor with silver-coated beads and the distributor is responsible for the encapsulation process. Following the encapsulation processes and testing of the encapsulated beads, CardioGenics and the distributors will determine whether to pursue commercialization of the finished beads. The expectation is that it would be approximately six months before we know much more about the status of development and terms under these two new MTA's.

CardioGenics, in a February 1, 2011 press release, notes that they continue to work with Chimie in development of the beads and that Chimie is still working on refining its encapsulation process. It also indicates that these two new MTAs were pursued in an effort to accelerate commercialization (perhaps implying Chimie has not been moving as quickly as CardioGenics would like and they hope these two new deals may light a fire under their behind).

Based on the current news, it is clear that customer orders have not been flowing. While the press release did not provide an update to a potential launch date, it did mention that Chimie will test a batch of CardioGenics' beads that CardioGenics has encapsulated using its own processes. The press release implies that CardioGenics hopes to get these beads, which have been dubbed the "CardioGenics Encapsulated Beads", launched as they wait for the Chimie-encapsulated beads to be commercialized.

Following the initial launch, Merck Chimie S.A.S. and CardioGenics will continue to work on refining the encapsulation process in an effort to commercialize several generations of the product and expand the target market for their beads.

We had been expecting the beads to launch by year-end 2010, which we now model during fiscal Q3 2011 (ending July 31, 2011). We note, however, that since management has not provided an update to a potential launch date or more specifics on development that we have no reliable information to indicate when the beads could begin generating revenue.

Beads Opportunity
Based on the findings gained from the extensive market research by independent firms of the paramagnetic bead market and the limited available data from internal bench studies of CardioGenics' beads, we expect CardioGenics' beads to be well received upon launch. The magnetic bead market is highly dynamic and bead consumers appear to quickly embrace next-generation technology. Clearly there is significant demand for higher sensitivity diagnostic analyzers - both in the POC and clinical lab setting – which translates into significant demand for higher sensitivity assays and beads. CardioGenics' beads offer a new and superior alternative to the current technology, which has been a catalyst to the rapid adoption and growth of legacy technologies. We believe this bodes very well for CardioGenics' beads which could represent the next new advancement in bead technology and offers tremendous opportunity to quickly penetrate and capture meaningful share of the highly lucrative and rapidly growing microsphere market.

Share gains should be driven not only by the beads' superior functionality but also by CardioGenics' ability to under-price direct competitors. With a significantly lower cost of manufacturing, we expect CardioGenics/Merck Chimie S.A.S. to price their beads at a 50% - 75% discount to competitors' offerings. This is a tremendous advantage for CardioGenics in our opinion. Even with this significant discount, gross margins on the beads should be around 90% to CardioGenics – and this includes Merck Chimie S.A.S.'s 70% share of the bead revenue, which highlights how enormously profitable these beads have the potential to be.

CardioGenics did not reveal the terms of the two MTA agreements (with "two other international beads distributors" announced in the company's 2010 10-K), although for simplicity, we will assume (until we know more) that the financial arrangements are similar to the deal with Chimie.

We expect bead revenue to be the catalyst to CardioGenics' growth for at least the first two years after launch. We think CardioGenics could attain approximately 1% share of the $1 billion market within the first twelve months after launch and about 5% within the first three years. As a result of the huge margins offered in this segment, this can push CardioGenics to profitability possibly within 18 – 24 months after the beads enter the market and also provide a significant source of cash to fund further product development. Conversely, delays in getting the beads to market or even worse, an eventual outright failure in commercializing the beads altogether, could have severe consequences for CardioGenics and at the minimum, would require the company to tap additional financing until cash flow from test sales can sustain the company – which we do not expect to happen until at least 2014.

...another Merck Chimie S.A.S. deal
CardioGenics announced that it penned a second deal with Merck Chimie S.A.S. on July 14, 2010. In this deal Merck Chimie S.A.S. has agreed to adopt CardioGenics' biological-linking technology for Merck Chimie S.A.S.'s magnetic beads in order to increase yields in antibody manufacturing. The process is expected to reduce costs for manufacturing antibody-based drugs – an annual market that in CardioGenics' press release is estimated at $350 million and expected to double within the next five years (i.e. - ~15% 5-year CAGR). The beads manufactured for this purpose (manufacturing drugs) will not compete with the silver-plated beads, which are used in diagnostic testing. This is a new product line for Merck.

Financial details were not disclosed in the press release, only mentioning that CardioGenics will be paid per-gram of beads shipped to Merck. On August 12, 2010 CardioGenics announced that the first shipment of beads under this agreement was made to Merck.

MARKET DYNAMICS *- POC IVD Testing*

There are two major areas of interest which will be of significant influence relative to the level of success that the company is ultimately able to achieve with their POC diagnostic testing products (assuming they gain FDA approval

and launch). Success will be measured by CardioGenics' ability to gain entry into the market which is dominated by only a few large well-entrenched companies as well as the evolvement of the POC segment and how CardioGenics is able to position themselves within it.

We categorize the markets which CardioGenics will initially compete as POC in-vitro diagnostic testing, specifically cardiac marker testing (and most specifically acute myocardial infarction markers). The company's future plans are to expand into other cardiac marker tests and into other disease areas but commercialization of these tests are at least two to three years away so we believe it is appropriate to confine our discussion to the more near-term market opportunities.

Competition

While the POC IVD market as a whole is very diversified, the market specific to IVD POC cardiac marker testing is largely controlled by only a few large players, with the top four companies estimated to hold approximately 75% market share. Taking share against well established products is difficult due to a variety of factors. The most simple of which is that these proven technologies and products have the benefit of a performance and reliability history (i.e. – customers know what to expect from them). Many of the competing analyzers are also well-known brands sold by large corporations with deep pockets sold through vast distribution networks. A majority of these machines also run immunoassays for a variety of applications including cardiac marker, coagulation and critical care (metabolites, blood gases, electrolytes) - which potentially affords a hospital all the benefits of "one-stop-shopping" (e.g. - cartridge volume purchase discounts, training confined to one machine, fewer vendors, etc.) along with the ability to run a variety of tests in sequence. Larger testing menus have been cited as a major reason for the expansion of POC testing as a whole over the past decade and clearly it has also been a catalyst in growing market share and minimizing customer churn by the various market participants. The ease and degree of connectivity, or the ability to transfer data to an information system, can also be a major differentiating factor among these POC devices. Most, if not all, of the industry-leading analyzers have connectivity through RALS, the premier data management system used by over 1,600 hospitals. This type of connectivity has become almost a prerequisite before most hospitals will consider using a particular device. While some of the lesser-known analyzers lack any connectivity at all, CardioGenics' QLCA device does incorporate this level of connectivity.

The degree of relative sensitivity of the various analyzers can be a major differentiating characteristic, although to our knowledge no large head-to-head trials of POC analyzers have ever been conducted so a claim of higher sensitivity may be somewhat ambiguous. Based on clinical trial data, Roche claims their POC Cardiac Reader produces quantitative test results which are "comparable to current lab analyzers". The manufacturers of the other major POC analyzers do not make similar claims. In internal studies CardioGenics has demonstrated higher sensitivity than all of these industry-leading POC analyzers, which we believe bodes well for its success in the upcoming field and FDA trials versus lab analyzers. Despite the potential for CardioGenics to be able to use a claim that the QLCA has sensitivity equal to that of lab machines, it is debatable how influential this marketing message may be, especially at the outset. Physicians still remain somewhat hesitant to adopt new POC technology until it is proven in the field. We believe the true benefits of the QLCA to physicians will be realized over time as the machine gains a historical record of providing more utility (sensitivity and speed) than competing analyzers.

The business model employed by all participants in the space adds to the difficulty in gaining a foothold into the market. Most analyzers require at least some minimal amount of training and test cartridges are usually not homogeneous – the latter a key to the razor/razor blade business model. Both of these are integral in maintaining customer "loyalty" and reduces switching due to hesitance to have to re-train technicians on new equipment and minimum cartridge purchase agreements.

The major competitors to CardioGenics' analyzer and tests are Roche Diagnostics (POC Cardiac Reader), Siemens/Dade (Stratus), Inverness/Biosite (Triage) and Abbott Labs (I-Stat). Combined we estimate they claim about 75% of the approximate $800 million market for POC AMI enzyme testing, which includes Troponin, BNP/ NT-pro-BNP, CK-MB and myoglobin.

Professional POC Testing Segment

Based on an independent study, the worldwide market for IVD testing (excluding glucose testing) in the POC setting was $4.8 billion in 2008 and expected to grow at about 5% annually through 2013. The U.S. market was estimated to be about $2.6 billion (55% of w/w market) in 2008. The U.S. market for professional POC testing is expected to benefit as healthcare providers shift their testing needs from the clinical lab over to POC. The recent healthcare overhaul and cost reduction measures sought by managed care along with the breakdown of reimbursement barriers are the major economic forces increasing the prevalence of POC. Technological advancements and more

robust and reliable POC testing products coupled with a greater demand for faster testing results is driving POC testing demand from the therapeutic side.

Only a few years ago professional POC testing was expected to grow up to 25% per year for the next decade or longer. This has not been the case due mostly to hindrances to reimbursement from payer groups and significant advantages of clinical lab testing, such as higher sensitivity and lower direct material costs. Kalorama Information, in a study of the POC market, noted that, "In the professional setting, outside the hospital, most POC tests do not meet the quality standards offered by lab-based tests. Further, the thought is that new tests and technologies are just too expensive. Faster, more sensitive, more user-friendly and less expensive tests may produce better market penetration."

New medical technologies, devices or procedures are commonly introduced to the medical marketplace before updated reimbursement guidelines have been put in place – these guidelines are finally catching up, which we expect to be a catalyst to the further acceptance of POC testing. And as we have discussed throughout this report, the superior sensitivity of clinical lab machines has been a major impediment to the uptake of POC. While this remains a hurdle, new technologies are leveling the playing field in this area – and this offers a huge opportunity for companies such as CardioGenics with potentially state-of-the-art technology to make a big impact in the POC testing space. There has been a significant demand for faster testing results, but this has always been thought of at the sacrifice of accuracy, making hospitals reticent to rely on POC over lab analyzers. We believe there is a tremendous opportunity for those companies that can eliminate this speed-sensitivity trade-off through the introduction of next-generation technology.

Higher direct variable costs versus labs have been another obstacle in driving acceptance of POC testing by public and private insurers. Analyses demonstrating that POC can lower overall costs (when considering lower equipment and training costs, length of patient stay, unnecessary treatment and admissions, liability costs, etc.) has helped mute this concern, however it remains a hurdle. Cost-containment will likely be at the forefront of hospitals' and payers' concerns, especially as the Presidents' healthcare reform law is phased in over the next several years. We believe this is another opportunity for those companies that can directly address this concern by not only further demonstrating that superior technology can lower ancillary costs (i.e. – overall costs), but can reduce variable costs as well. CardioGenics has the potential to do just that – by offering tests at a significant discount to competitors and no-cost machine leases (while competitor's POC analyzers are priced at up to $6,000). This coupled with potentially superior testing sensitivity and accuracy could offer a very compelling argument to why their POC offerings can lower costs versus lab testing. Unfortunately the burden of "proving" that a new technology can lower overall healthcare costs remains on the manufacturers – so while this may be an opportunity for CardioGenics, it may take years before this can be actually confirmed.

Broadening testing menus has also been cited as an influence on the growth of POC testing. Tests that were once only confined to the lab can now be run on small POC analyzers which has increased their appeal. As we noted above, this is a major advantage of many of the industry-leading POC analyzers and, in our opinion, will present a challenge for CardioGenics in penetrating the market, at least in the first few years after launch.

From a testing venue standpoint, hospitals account for approximately 45% of all professional POC testing, with the majority of the rest from physician offices and clinics. Critical care markers remain the most widely used test in hospitals, accounting for approximately 25% of all hospital POC testing. Cardiac marker is expected to be one of the fastest growing POC testing areas in hospitals, especially as new cardiac markers are discovered. While cardiac marker testing was expected to become part of routine physical exams, acceptance has been slow going, mostly due to the extended wait patients must tolerate for test results. Faster testing turnaround times may help to alleviate this issue and by some estimates, cardiac marker testing in the physician office/clinic setting is expected to grow at 15% per year over the next several years.

FINANCIAL CONDITION

As of October 31, 2010 CardioGenics had $1,845k in cash and equivalents (includes the recent $1.9MM private placement) and no debt or preferred stock outstanding. Cash burn averaged about $180k per month over the twelve months ending October 31, 2010. Cash burn will remain elevated up until the magnetic beads launch, which we now model to happen by the end of fiscal Q3 2011 (July 31, 2011). We expect cash flow to remain negative for

the full-year 2011 and most of fiscal 2012 as contribution from bead sales will not be sufficient to offset the elevated R&D expenses related to trials and regulatory activities.

We now model the QLCA and Troponin test to launch in the first calendar half of 2012 but for their contribution to revenue and cash flow to be minimal through the end of that fiscal year (October 31, 2012). Our expectations are that the magnetic beads will provide the bulk of revenue and cash flow through at least the end of fiscal 2014.

In the meantime, due to the delay in getting the beads launched, we believe CardioGenics will need to raise additional financing before they become cash flow positive. The company had roughly 10 months worth of operating cash as of October 31, 2010 - and assuming cash burn increases, CardioGenics would need to tap more financing by around mid-2011 (calendar). Based on our launch timelines and expected cash burn, we think the company may need to raise another $2 - $3 million before becoming cash flow positive.

Capex should remain very low for the foreseeable future.

OUTLOOK

Based on what we believe are material competitive advantages and the dynamics of the respective markets where CardioGenics will compete, we feel the company's products will be well received. This assumption, however, necessitates that a number of things happen as planned.

Significant unknowns remain, many of which can severely impact the success of the business. We have communicated extensively with management and have used our best judgment gained through extensive due diligence in determining the likely outcome of the major lingering questions. While we feel comfortable with our conclusions, until there is more certainty to some of these unknowns there is a risk that some of our assumptions will be proven inaccurate which could be detrimental to the success of the company. Despite this, from an investment (i.e. – risk/return) standpoint, we feel these questions are more than mitigated by the tremendous potential of the company's products to rapidly ramp revenue and earnings and achieve positive cash flow.

Competitive Advantages

As we have detailed, the POC IVD market is dominated by only a few very large players which can make entry into the market difficult, despite the QLCA incorporating what we believe may be a superior technology. The benefits of superior sensitivity of the machine may not be realized or evident until after many years and customers may be hesitant to switch from what they believe is an acceptable product so marketing for this claim early on (assuming clinical trials confirm this hypothesis) may not prove to be overly persuasive. We expect CardioGenics to address this competitive headwind by offering their products at a significant discount relative to competitors' offerings. With what we expect to be relatively low production costs we expect CardioGenics to be able to compete very aggressively on price. By offering the QLCA machine for free (through a lease agreement where the customer agrees to purchase a predetermined amount of tests) and under pricing competitors' tests the idea is that the company will be able to gain a toe-hold in the market. This toe-hold can hopefully then be expanded to a foot-hold as the installed base grows. And despite under pricing the competition, we still expect gross margins on the tests to CardioGenics (after distributor royalties are paid) to be around 90%.

Clearly the company also has potentially tremendous advantages with its beads product; a 4 – 7 fold increase in sensitivity at a fraction of the cost of competitors' beads and marketed by a top-three distributor. Price should again provide a way into the market but we think the qualitative advantage of the beads will also provide a CardioGenics with meaningful differentiation over the competition which we think can benefit sales immediately upon launch. Based on these advantages we think CardioGenics can compete very well in the magnetic bead market and claim as much as 5% market share within a few years after launch. Based on our model we believe CardioGenics can achieve profitability by late 2012 on just the contribution from bead sales (and test development milestone payments).

CardioGenics being almost exclusively a research company provides an advantage from a risk and capital perspective. This allows the company to keep capex and operating assets to a minimum and significantly reduces their financial exposure to declining sales and cash flow in any given year. And while outsourcing most other major functions other than R&D typically means sacrificing gross margins, most companies would be envious of their expected 90%+ in this category.

Products' Status
The analyzer and Troponin I test are now expected to enter head-to-head field trials in May 2011. FDA trials are expected to begin in Q3 2011. Obviously CardioGenics felt the bench study data was compelling enough to move forward with field trials and Dr. Gawad has extensive experience working on cardiac diagnostic test products and bringing several of those through FDA approval and to market, including a currently marketed test for Troponin I. For these reasons we feel comfortable in the chances of these products performing has hoped in FDA trials. We note however, that FDA turnaround time on 501(k) applications can be highly variable, so further delays to our updated projected launch date (1H 2012) is certainly possible.

Development of CardioGenics' paramagnetic beads has been drawn out longer than initially anticipated. While we now model a launch during fiscal Q3 2011 (ending July 31, 2011), since management has not provided more specifics on development, we have no reliable information to indicate when the beads could begin generating revenue.

Viability of a commercial product and launch timelines of the beads are potentially the most influential unkowns and depending on the outcome, could have a significant impact on our near-to-mid term financial forecast for the company. This is evidenced by bead sales accounting for 100% of our forecasted revenue and cash flow for the company in 2011, 89% in 2012 and 78% in 2013.

Visibility on the timelines or chances for eventual commercialization of the companies other tests (PAI-1, HFRS, HFGR) is even more clouded as development for these products is still in relatively early stages. Eventual commercialization of these tests will help fuel long-term growth for CardioGenics but failure to hit our launch timelines by as much as one year should have only minimal financial impact over the next several years as we model beads and Troponin I tests to account for 72% of revenue and cash flow in 2014. Longer-term, these products could offer huge upside to the company as there is no currently marketed test for two of the three tests (PAI-1 and HFGR) and we believe the HFRS test incorporates at least one novel marker. Unfortunately though, this also adds to the uncertainty relative to development timelines and cost as well as the probability of getting them to market. Our current "best-guess" (which is incorporated in our model) is that the PAI-1 test launches in 2H 2013, the HFRS in 1H 2014 and the HFGR in late 2015.

Loose Ends
CardioGenics has a number of other unknowns, aside from those related to development and commercialization of the pipeline. Among the most significant is that a distribution partner has yet to be established for the QLCA and tests. This is somewhat mitigated by the recent disclosure that CardioGenics has retained an outside firm to aid in establishing partnerships. Anecdotally we believe the company is looking for a well established player in the market and a deal is expected to be in place by the time the machine and Troponin I test receive FDA approval. The specific partner and the terms of the distribution agreement can have an impact on revenue, margins, cash flow and units placed so until a deal gets done and the terms are disclosed, our model will reflect what we believe to be reasonable assumptions relative to a distribution partner based on industry standards. One of our assumptions is that CardioGenics will receive $1 million in milestone payments upon submission of each test to the FDA from its distribution partner. The milestones are typically paid out over several years which we have also incorporated into our financial forecast.

Another remaining loose end is additional financing – if, when, how much, from whom and what kind all remain unanswered. The only thing we are confident of is that the company will need more money before the QLCA and Troponin I test launch. CardioGenics has demonstrated (most recently with the $1.9MM raised in October 2010) that they have the ability to raise capital when needed and we have no reason to believe they will fail to do so in the future.

Financial Forecast
R&D expenses and cash burn will be dramatically higher in 2011 relative to 2010 as the QLCA trials finally get underway. We look for the beads to launch in Q3 2011 and model net loss and EPS of $2.71 million and (-$0.05 EPS) in fiscal 2011 (October 31, 2011).

We currently expect the QLCA and Troponin test to launch in Q2 2012 and also assume the company begins collecting milestone payments for the Troponin I and PAI-1 tests from its distribution partner during 2012. We model 2012 revenue of $6.78 million. Operating expenses will remain elevated during the year as a result of ongoing R&D and regulatory activities but we think the company can post positive income for the full year. We look for net income and EPS of $1.66 million and $0.02 in 2012.

For 2013 and 2014 we model revenue to begin to show dramatic growth, which is mostly predicated on beads and Troponin I test revenue significantly ramping beginning in late 2013. Based on our assumptions, the company should begin to gain significant operating leverage during this period as revenue growth substantially outstrips that of operating expenses, resulting in the company becoming cash flow positive for the full fiscal year 2013. 2013 and 2014 also include revenue contribution from the PAI-1 test (and HFRS test for 2014) but, as noted above, we believe a failure to get either product to market will not prevent the company from generating positive cash flow as early as 2013. We model net income and EPS of $6.54 million and $0.09 and $18.06 million and $0.26 in 2013 and 2014, respectively.

Longer Term

Longer term CardioGenics has indicated that they expect to expand their testing menu beyond the cardiovascular setting and into other disease areas such as infectious disease, cancer, thyroid and diabetes. Professional POC testing of many of these are expected to grow in the mid-to-high single digit rate over the next five years which could bode well for CardioGenics. An expanded and more diverse testing menu would also provide the company with more competitive firepower. However, we do not expect CardioGenics to dedicate much time or resources to expanding their testing menu until after their cardiovascular diseases tests have been commercialized, which means the fruits of a larger menu may not be realized until near the end of this decade.

RECOMMENDATION / VALUATION

We believe the QL Care Analyzer, which incorporates the sensitivity of lab analyzers with the speed and ease of use of POC machines, will be well received in the professional POC IVD testing market. Led by an acclaimed cardiologist with two decades of experience in developing and gaining FDA approval of several cardiac marker tests, CardioGenics' initial tests will target their area of expertise – cardiac markers. Cardiac markers are also the fastest growing segment in POC IVD testing due to the need for quicker tests in order for emergency physicians and cardiologists to make informed decisions within one-hour of the onset of a cardiac event. We believe the QLCA will close the sensitivity gap between POC and lab analyzers and offer healthcare providers faster results (15 minutes versus 3 - 4 hours) without sacrificing sensitivity, the latter which has been a significant impediment in the further adoption of POC testing.

Unlike many development-stage companies with a better mousetrap which have unrealistic strategies to realize outsized growth and market share expectations, CardioGenics' initial plan is to just gain entry into the market as a niche player. We believe CardioGenics is uniquely positioned to gain a foothold in the rapidly growing professional POC IVD testing arena. The company's initial game plan is not to hit a walk-off home run against the handful of large companies that currently dominate the space, but instead to just get on base. Entry into the market will be gained by claiming a niche position within cardiac marker testing through offering next-generation technology at a significant discount to competitors' products, most of which use legacy technology.

We expect CardioGenics to fully exploit the razor/razor-blade business model by offering the QLCA for free through a minimum test purchase agreement. Despite under-pricing the competition, sales of the test cartridges and relatively low production costs should afford CardioGenics gross margins around 90%+ (including the cost of the analyzer). By outsourcing the majority of functions other than research and development, the company carries little overhead and has minimum capex requirements – this low cost business model, along with huge margins, can result in positive net income and free cash flow in relatively short order.

We feel the current market value of CardioGenics under-represents the significant and numerous competitive advantages of the company's products and business model which we estimate will push the company to profitability by late 2012. While various lingering questions remain, based on extensive due diligence and numerous conversations with management, we expect satisfactory answers to the bulk of these questions to come within the next 12 months. And from an investment (i.e. – risk/return) standpoint, we feel these questions are more than mitigated by the tremendous potential of the company's products to rapidly ramp revenue and earnings and achieve positive cash flow in relatively short order.

Median valuation of peers in the professional POC IVD testing space is 14x 2013 earnings. We look for CardioGenics to post EPS of $0.09 in 2013. Using the peer averages our near-term target price for CardioGenics is $1.30 per share.

KEY MANAGEMENT AND DIRECTOR PROFILES

Yahia Gawad, MB, Ch.B., MD, MSc, (Director & Chief Executive Officer). Dr. Gawad is a Physician/Scientist with primary training in Cardiology, Biochemistry and Immunology. He received his medical education and post-graduate training at the University of Alexandria and the University of Toronto. Dr. Gawad's academic and commercial experience and expertise include many years of designing and managing cardiovascular disease research and product development.

Dr. Gawad was a co-founder of a division of Nanogen (NGEN) (formerly Syn X and Skye Pharmatech) where he held the position of Vice-President, Medical Affairs. Prior to that, he was Director of Clinical Research and Development at Spectral Diagnostics Inc. (now Nanogen).

For the past 20 years, he has been working extensively on cardiac diagnostic test products. He has prepared, submitted and obtained FDA regulatory approvals for several cardiac test products currently being marketed (including Cardiac Status Troponin I®, Myoglobin® and Myoglobin/CK-MB®, registered trademarks of Spectral Diagnostics Inc.). Through his expertise and contributions to an international committee, a new cardiac test, Troponin I, is now in routine clinical use.

In addition, Dr. Gawad has researched, developed and published several other tests. Dr. Gawad has received several awards and scholarships and was a member of both the Clinical Committee of the American Heart Association and the POC division of the American Association for Clinical Chemistry. He has served as a reviewer for the editorial board of the American Journal of Cardiology (1999-2003). Dr. Gawad published extensively and presented his research and clinical findings at national and international symposia.

Neil Tabatznik (Director). Mr. Tabatznik is the Chairman, CEO of Arrow Pharmaceuticals Inc. Arrow Pharmaceuticals is part of a global generic drug company established in 2000, and has seen rapid growth from $0 to $700 million in 8 years. The Arrow Group has sales operations in 5 continents and employs more than 1000 people worldwide. Prior to Arrow Pharmaceuticals, Mr. Tabatznik was the Chairman, CEO of Genpharm Inc. (1993-2000), which was acquired by MerckKGaA in 1994 and is now a part of Mylan Inc. the world's third largest generic and specialty pharmaceutical company. He was a Barrister-at-Law in London and was called to the Bar of England and Wales in 1978. He has extensive expertise in pharmaceutical manufacturing and negotiations of agreements with multinational companies.

Alexander D.G. Reid (Director). Mr. Reid has been in the financial community with experience in public and private companies for over 30 years. He has held numerous positions and board memberships in various financial and non-financial corporations. For many years, Mr. Reid was the author of the market business column in the Financial Post. Through his writing, various business models have been analysed and critiqued. He has been involved with the Company as a shareholder since 1999;

Linda J. Sterling,* F.Inst.L.C.O. *(Director & Secretary). Ms. Sterling has been in the legal community in the capacity as a Law Clerk with both Stikeman Elliott LLP and Davies Ward Phillips & Vineberg LLP since 1999. She developed expertise with both public and private company legal compliance and has been responsible for CardioGenics' compliance and maintenance of corporate governance since 2001. She is currently licensed as a Legal Executive (F.Inst.L.C.O.), with the Institute of Law Clerks of Ontario, of which she is a member. She has held the position of CEO and director of Sterling Studios since 1989.

James A. Essex, CA, MBA (Chief Financial Officer) Mr. Essex has been with CardioGenics since 1999. He founded J. Hunter & Associates Inc. in 1990, a private financial consulting firm. Previously, he was a co-owner, President and COO of Calais Investigations, Inc., a private company (from 1993 to 1998), a Vice President of Confederation Trust (1989) and a Vice President of Chemical Bank of Canada (now JP Morgan Chase Bank of Canada) from 1977 through 1987.

SCIENTIFIC ADVISORY BOARD (INITIAL MEMBERS, ANNOUNCED JUNE 29, 2010)

Dr. Robert Roberts, MD, FRCPC, MACC

President, Chief Executive Officer and Chief Scientific Officer

University of Ottawa Heart Institute

Dr. Roberts received his M.D. from Dalhousie University and completed his residency in Internal Medicine and Fellowship in Cardiology at the University of Toronto. Funded by a Canadian Heart Foundation Scholarship he pursued research in enzymology and cardiac metabolism at the University of California, San Diego, following which he was Director of the Cardiac Care Unit at Barnes Hospital and Associate Professor of Medicine, Washington University. In 1982, he assumed the position as Chief of Cardiology at Baylor University Medical Center. Dr. Roberts was appointed as President, Chief Executive Officer and Chief Scientific Officer of the University of Ottawa Heart Institute on April 1st, 2004.

Dr. William J Kostuk, MD, FRCPC, FACC

Emeritus Professor of Medicine

University of Western Ontario

Dr. William J. Kostuk graduated from the University of Western Ontario in 1965. He did his post-graduate training in Internal Medicine and Cardiology at Western, the University of Toronto and the University of California, San Diego. He joined the faculty of Medicine at the University of Western Ontario in 1972. He served as Chief of Cardiology at University Hospital in London from 1979 to 1996 and was the Chair of the Division of Cardiology from 1986 to 1996 and now is Emeritus Professor of Medicine in the Department of Medicine. His clinical and research interests have been in ischemic heart disease, coronary intervention, cardiac transplantation and heart failure.

FINANCIAL STATEMENTS

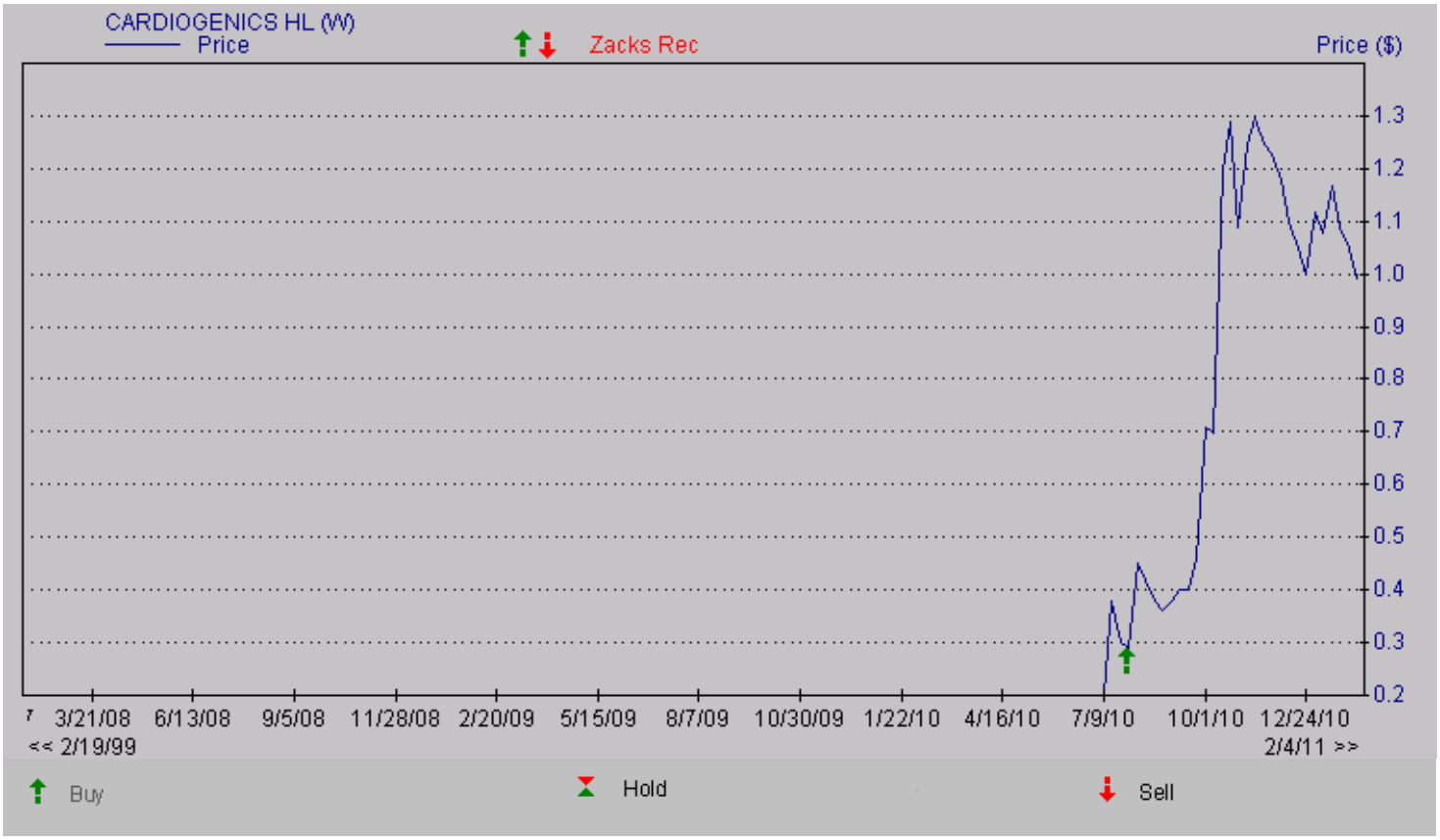
INCOME STATEMENT

CardioGenics Holdings, Inc.

	2010 A	Q1E	Q2E	Q3E	Q4E	2011 E	2012 E	2013 E	2014 E
System sales	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
YOY Growth	-	-	-	-	-	-	-	-	-
Assay revenue	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$278.3	$3,179.5	$16,462.7
YOY Growth	-					-	*#DIV/0!*	*1042.6%*	*417.8%*
Bead revenue	$0.0	$0.0	$0.0	$120.0	$120.0	$240.0	$6,000.0	$13,200.0	$21,600.0
YOY Growth	-					-	*2400.0%*	*120.0%*	*63.6%*
Test dvlpmnt milestones	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$500.0	$500.0	$1,050.0
Revenues	$0.0	$0.0	$0.0	$120.0	$120.0	$240.0	$6,778.3	$16,879.5	$39,112.7
YOY Growth	-					-	*2724.3%*	*149.0%*	*131.7%*
Cost of sales	$0.0	$0.0	$0.0	$9.5	$9.5	$19.1	$632.3	$2,240.1	$5,364.9
Gross Income	$0.0	$0.0	$0.0	$110.5	$110.5	$220.9	$6,146.0	$14,639.4	$33,747.9
Gross Margin	-					*92.0%*	*90.7%*	*86.7%*	*86.3%*
Amort of Prop & Equip	$20.9	$8.0	$10.0	$10.0	$12.0	$40.0	$80.0	$130.0	$200.0
Amort of Patent Applic. Costs	$3.0	$3.0	$3.0	$3.0	$3.0	$12.0	$18.0	$30.0	$75.0
G&A	$1,160.5	$249.8	$270.8	$343.9	$483.9	$1,348.5	$1,620.7	$2,207.2	$2,529.4
% G&A	-	*#DIV/0!*	*#DIV/0!*	*286.6%*	*403.3%*	*561.9%*	*23.9%*	*13.1%*	*6.5%*
R&D	$692.0	$254.2	$300.9	$284.2	$707.6	$1,546.9	$2,221.9	$2,144.0	$3,003.5
% R&D	-	*#DIV/0!*	*#DIV/0!*	*236.9%*	*589.7%*	*644.5%*	*32.8%*	*12.7%*	*7.7%*
Operating Income	($1,981.7)	($515.0)	($584.7)	($530.7)	($1,096.1)	($2,726.4)	$2,205.4	$10,128.2	$27,940.0
Operating Margin	-	*#DIV/0!*	*#DIV/0!*	*-442.3%*	*-913.4%*	*-1136.0%*	*32.5%*	*60.0%*	*71.4%*
Interest income, net	($30.2)	$0.0	$0.0	$0.0	$0.0	$0.0	$2.0	$6.0	$50.0
Other income/(loss)	($26.5)	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Pre-Tax Income	($2,038.5)	($515.0)	($584.7)	($530.7)	($1,096.1)	($2,726.4)	$2,207.4	$10,134.2	$27,990.0
Taxes (benefit)	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$532.0	$3,547.0	$9,796.5
Tax Rate	-	-	-	-	-	-	*24.1%*	*35.0%*	*35.0%*
Income before non-control interest	($2,038.5)	($515.0)	($584.7)	($530.7)	($1,096.1)	($2,726.4)	$1,675.4	$6,587.2	$18,193.5
Income to non-controlling interest	($14.2)	($3.6)	($4.1)	($3.7)	($7.7)	($19.1)	$11.7	$46.1	$127.4
Net Income	($2,024.2)	($511.4)	($580.6)	($527.0)	($1,088.4)	($2,707.4)	$1,663.7	$6,541.1	$18,066.2
Net Margin	-					*-1128.1%*	*24.5%*	*38.8%*	*46.2%*
EPS	($0.04)	($0.01)	($0.01)	($0.01)	($0.02)	($0.05)	$0.02	$0.09	$0.26
YOY Growth	-					-	-	*279.6%*	*172.6%*
Diluted Shares O/S *	49,625	53,241	57,250	60,100	62,400	58,248	66,720	69,100	70,000

Source: Zacks Investment Research *Brian Marckx, CFA*

HISTORICAL ZACKS RECOMMENDATIONS



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