AtheroNova Inc.
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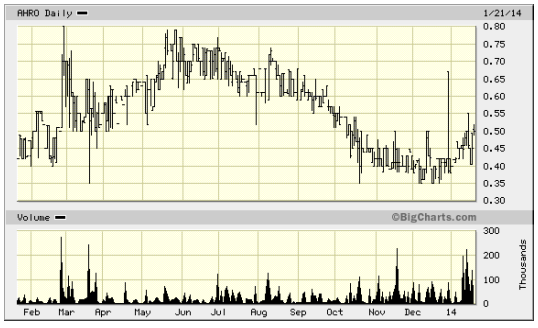
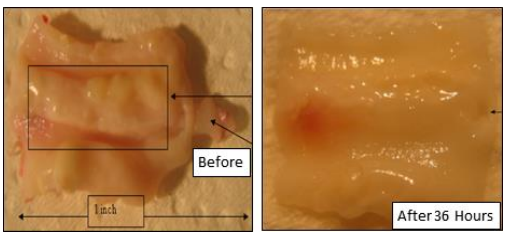
Ticker (Exchange)	AHRO (OTC)
Recent Price (01/21/2014)	$0.43
52-week Range	$0.35 – $0.80
Shares Outstanding*	~41.6 million
Market Capitalization	~$17.9 million
Average 3-month Volume	45,569
Insider Ownership +>5%	~32%
Institutional Ownership	~5%
EPS (Qtr. ended 09/30/2013)	($0.03)
Employees/Consultants	14

**As of November 6, 2013*



Bile salts eliminating atheroma in pig aorta after 36 hours (in vitro)



Company Description

AtheroNova is a clinical-stage biotechnology company focused on the research and development of **bile acid†** therapeutic compounds to safely dissolve or regress **atherosclerotic plaque** and improve patients' lipid profiles. Atherosclerotic plaque, a buildup of fat, cholesterol, and other substances in the walls of arteries, is the main underlying cause of cardiovascular disease, including heart attacks, strokes, and **peripheral artery disease (PAD)**. The Company's most advanced candidate, AHRO-001, works to reduce the incidence and severity of plaque by employing a bile acid to reduce the volume of or stabilize existing plaque deposits and prevent new deposits from forming. The compound also shows significant preclinical lipid panel improvement and has beneficial effects on glucose levels involving multiple mechanisms of action. Bile acids are an FDA-approved natural compound used to dissolve **gallstones**, and have shown to be well tolerated with no history of safety concerns. AtheroNova believes that its therapeutic compound's ability to potentially regress **atherosclerosis**, coupled with a favorable safety and tolerance profile, provides a competitive advantage against currently approved therapies, which only stabilize the disease. In June 2013, the first Phase I clinical trial for AHRO-001 commenced in Moscow, Russia, marking AtheroNova's transition into a clinical-stage company. AtheroNova is also conducting preclinical studies to expand the use of its technology to other conditions that have been linked to atherosclerosis, including obesity, hypertension, diabetes, stroke, PAD, localized transdermal fat dissolution, and the dissolution of **lipomas**.

Key Points

- **Lipid regulators**, specifically **statins**, are today's most effective products for reducing serum cholesterol levels—achieving blockbuster status with revenues of $33.6 billion in 2012 (Source: IMS Health, Inc.). However, at commonly prescribed dosage levels, they are ineffective at reducing plaque, and carry significant drawbacks related to their safety and tolerability.
- In preclinical studies, AHRO-001 led to a 95% reduction in **innominate arterial plaque** formation versus a control group. Also, the compound has not shown morbidity, adverse effects, or mortality and was well tolerated at high doses.
- Following successful preclinical studies, Phase I trials are ongoing. Dosing was completed in the fourth quarter 2013, with top-line data to be available in the first quarter 2014.
- The Company was issued U.S. patent No. 8,304,383, covering the use of a bile acid for atherosclerotic plaque lesions, and has patents pending for atherosclerosis and other applications.
- AtheroNova's leadership has broad pharmaceutical and healthcare experience, including in the areas of atherosclerosis and clinical operations, as well as in the development, regulatory approval, and commercialization of therapeutic compounds and devices.
- As of September 30, 2013, the Company's cash position was approximately $860,000.

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Executive Overview

AtheroNova Inc. ("AtheroNova" or "the Company") is a clinical-stage biotechnology company focused on discovering, researching, developing, and licensing bile acid-based pharmaceuticals to reduce the incidence and severity of atherosclerosis and improve patients' lipid profiles. Atherosclerosis occurs when fat, cholesterol, and other substances build up in the walls of the arteries and form hardened structures called plaque deposits. These plaque deposits are believed to come from weaknesses or imperfections in the arterial walls or may develop at the site of arterial inflammations. Atherosclerosis is the primary cause of many cardiovascular diseases, including heart attack, stroke, and peripheral artery disease (PAD), with more money spent attempting to treat cardiovascular disease than any other disease or ailment. The condition is so prevalent that cardiovascular disease is the leading cause of morbidity, disability, and mortality in industrialized countries, and atherosclerosis is the primary fundamental pathology.

AtheroNova is researching patented and patent-pending applications of bile acids (natural compounds that have been used previously to dissolve gallstones) to reduce the volume of or stabilize soft, vulnerable atherosclerotic plaques (called **atheromas**). The Company's approach entails a complex metabolic signaling process that increases the efficiency of **high-density lipoproteins (HDL)**, which act on lipid-rich plaque deposits in artery walls and remove the lipid component by natural body processes. The Company's most advanced compound, AHRO-001, is being developed as a potential breakthrough regression treatment of atherosclerotic plaque. Using a unique approach, AHRO-001 aims to reduce the volume of or stabilize existing atherosclerotic plaque as well as prevent the formation of new plaque. The Company seeks to market its product against currently approved therapies, which merely stabilize the disease. It is the potential for plaque regression that AtheroNova believes could distinguish AHRO-001 from other atherosclerosis treatments on the market and candidates in development. AtheroNova further seeks to employ its intellectual property in the development of multiple pharmaceutical-grade applications for its compounds—targeting obesity, hypertension, diabetes, PAD, localized transdermal fat dissolution, and the dissolutions of lipomas.

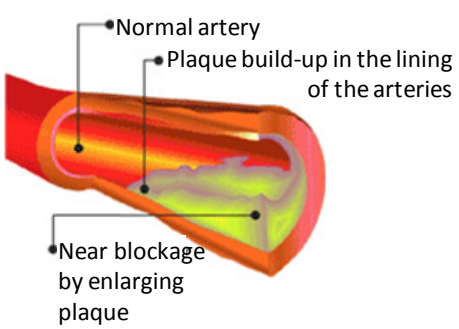
In June 2013, following successful preclinical studies, the Company initiated the first Phase I trial for AHRO-001 in Moscow, Russia, which marked an important milestone in AtheroNova's transition into a clinical-stage company.

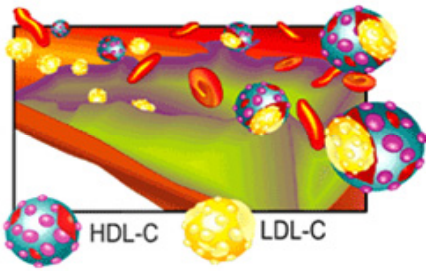
Formation of Atherosclerosis

Cholesterol deposits or "plaque" accumulate in arteries over time and can be related to diet, heredity, and other blood chemistry factors. Plaque accumulations are the sum of the **low-density lipoprotein (LDL) cholesterol** that circulates within a person's blood. It is believed that a higher LDL reading translates into plaque accumulations in the arteries. High-density lipoprotein (HDL) cholesterol is considered the "good" cholesterol and can assist in transporting LDL out of the bloodstream to the digestive system for elimination by the body, as shown in Figure 1.

Figure 1

UNDERSTANDING CHOLESTEROL





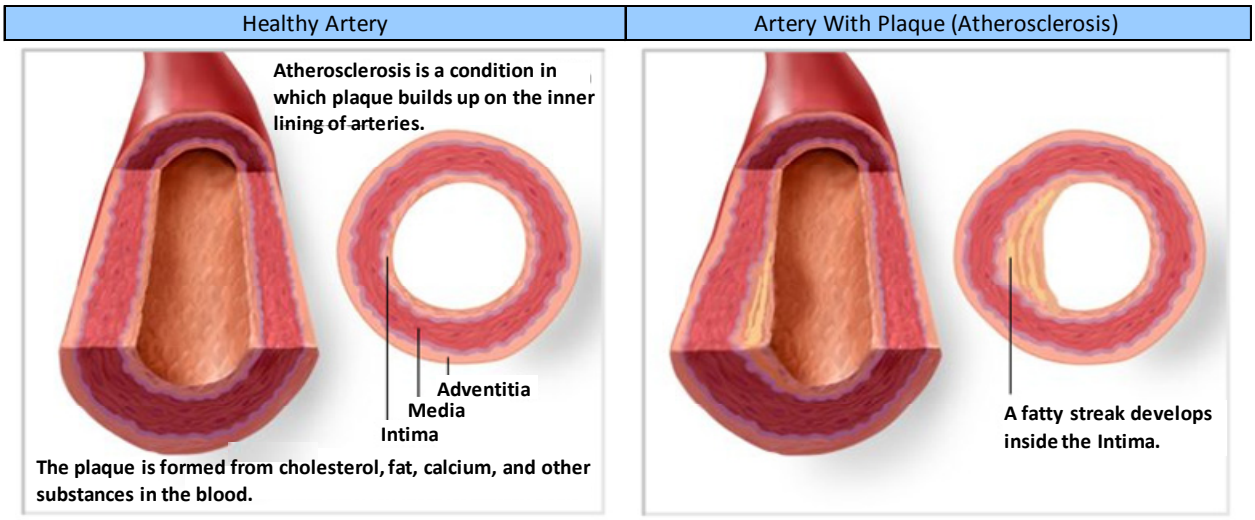
HDL-C (good cholesterol) carries LDL-C (bad cholesterol) away from artery walls. LDL-C sticks to artery walls and can lead to plaque build-up (atherosclerosis).

Source: www.policosanolprime.com.

Atherosclerotic plaques usually form a protective barrier known as a "**fibrous cap**," which may result from inflammation of the arterial wall due to formation of the deposit. The fibrous cap is an attempt by the human body to stabilize the deposit and stop it from abruptly breaking loose. In certain situations, the plaque may rupture regardless and greatly restrict or altogether block blood flow, leading to a heart attack or stroke. If the plaque remains stable, it reduces the available space within the arteries, which restricts blood flow (such as is illustrated in Figure 2). This can result in conditions like hypertension, kidney failure, **macular degeneration,** and PAD. There is also evidence to suggest that cognitive impairment may be a sign of reduced blood supply to the brain.

Figure 2

ATHEROSCLEROSIS: HEALTHY ARTERY VERSUS AN ARTERY WITH PLAQUE



Source: American Heart Association, Inc.

Current Standards of Care

Current atherosclerosis and **coronary artery disease (CAD)** treatments consist of various therapeutic classes, the most widely prescribed being statins, as well as **angiotensin-converting enzyme (ACE) inhibitors**, **beta blockers (BBs)**, **antiplatelets**, **calcium channel blockers (CCBs)**, and **nitrates**. To date, statins represent the most effective method of reducing serum cholesterol levels, though they are ineffective at reducing plaque. It has long been believed that a patient who exhibits the genetic, dietetic, or disease characteristics prone to plaque accumulations should initially be put on a course of lifestyle and diet changes in order to attempt to control blood cholesterol levels. Smoking cessation, diet, and exercise are thought to be the most important ways an individual can control the balance of HDL and LDL in the body, and thus minimize plaque accumulation. If such measures prove unsuccessful, then the standard course for treatment is a statin, whereby a patient is directed to remain on the drug throughout his/her lifetime. The very nature of statins is to reduce the amount of cholesterol circulating in the bloodstream, which is largely believed to slow or prevent the formation of atherosclerotic plaques—of which cholesterol is a major component. If the statin proves to be ineffective, other measures must be taken. Further treatments for atherosclerosis include drug-eluting stents, catheterization, and balloon **angioplasty**—though none of these have proven entirely effective at stabilizing or reducing plaque in the arteries.

Significant drawbacks to statins have largely been related to their tolerability in the prescribed dosage as well as the potential complications that can result from long-term use, which may include muscle weakness and pain (which have shown to be the most common), dizziness, headaches, extreme fatigue and flu-like symptoms, diarrhea/constipation, swelling of the ankles, liver dysfunction with elevation of the liver enzymes, neurological problems such as a condition called **peripheral neuropathy** or **polyneuropathy**, and **total global amnesia**, where a patient forgets where and who they are for a few minutes to several hours. These side effects may recede as patients become accustomed to taking the medications.

ASTEROID and SATURN Studies

AtheroNova has developed its compounds under the premise that atherosclerosis is really a story of largely unsuccessful drug therapies. This is confirmed based on published data from the following studies: ASTEROID and SATURN. The ASTEROID study tested the maximum 40 mg dose of rosuvastatin (AstraZeneca's Crestor®) administered to subjects for two years, demonstrating a 6.7% reduction in plaque. The SATURN study compared the two best-selling statins (Lipitor® and Crestor®) to each other. In a large double-blind, multicenter, randomized trial, it was confirmed that while Crestor® significantly lowered LDL levels when compared to Lipitor®, it was not superior in decreasing atherosclerosis as measured by **intravascular ultrasonography (IVUS)**, which was the primary endpoint. The study did not show a significant difference between the two products in clinical events.

Furthermore, a 2012 study designed to assess the effect of statins on coronary artery plaque found that the use of statins was associated with a higher prevalence of risk factors and obstructive CAD. The study, which was conducted among 6,673 patients with no known CAD, indicated that those who were taking statins displayed an increased prevalence of coronary plaques containing calcium versus patients who were not taking statins. According to researchers, the effect of statins on coronary plaque warrants further investigation, as these results not only question the effectiveness of statin therapy but might also suggest a negative effect of the therapy (Source: *Atherosclerosis*, Vol. 225(1):148-153, November 2012).

Market Size

In 2012, global lipid regulator spending generated $33.6 billion in sales for 255 million prescriptions, a decrease from the estimated $39.1 billion in 2011 as a result of the increased generic competition stemming from the patent protection expiration of several leading medicines, such as atorvastatin (Pfizer's Lipitor®) and rosuvastatin (AstraZeneca's Crestor®) (Source: IMS Health MIDAS, December 2012). In addition, due to the recent regulatory failure of some next-generation therapies, very few new branded products are expected to enter the category in the near term. The lipid regulator market decline is expected to continue, with levels as low as $31 billion by 2016. Nevertheless, the total market for lipid regulators is still projected to be the fifth largest therapeutic area behind oncology, diabetes, respiratory illnesses, and autoimmune diseases (Source: IMS Institute for Healthcare Informatics, *The Global Use of Medicines: Outlook Through 2016*, 2012).

AtheroNova's Pipeline Candidate: AHRO-001

AtheroNova's lead drug candidate, AHRO-001, is a proprietary compound administered via a tablet. The compound is formulated to stabilize and reduce the volume of soft vulnerable plaque in the arteries and safely remove it from the body through natural metabolic processes. The compound also shows significant preclinical lipid panel improvement and has significant beneficial effect on glucose levels involving multiple mechanisms of action. Today, none of the currently available medications in the market for the treatment of atherosclerosis focus on the regression or stabilization of soft, vulnerable plaque. AtheroNova believes AHRO-001 can be used in place of, or in collaboration with, other drugs in the category, further widening the market potential for the product. In particular, AtheroNova believes that AHRO-001 could have a synergistic effect on lipid panels and plaque stability/volume when administered in conjunction with a statin.

AtheroNova is developing, and seeks to eventually market, a product that could become a new standard of care for patients prone to plaque accumulations. AtheroNova's most advanced compound in development, AHRO-001, is a bile acid administered via pill or tablet. Through a complex signaling process utilizing LXR receptors, the compound is designed to increase the efficiency of cholesterol efflux using the HDL cells, which act on all cholesterol in the arterial circulation as well as in the lipid core of plaque deposits in the artery walls and, subsequently, safely remove it from the body through natural metabolic processes. The Company is targeting individuals with soft vulnerable plaque, as the volume of plaque that one accumulates over a lifetime can remain until death, with no proven effective way to reduce it.

While AHRO-001 is a "first-in-humans" compound, other members of the bile acid family occur naturally in the human digestive system. The purpose of these naturally occurring bile acids is to break down lipids (fat) for digestion and absorption by the body. Bile acids are almost perfectly sequestered in the gastrointestinal system (enterohepatic circulation), so there is little, if any, systemic value in oral administration of human bile acids. However, AtheroNova's AHRO-001 is a hydrophilic bile acid that significantly escapes the GI system when taken orally. The presence of high levels of circulating bile acids triggers a number of biologically driven mechanisms of action, including the following:

- Emulsification of plaque;
- Upregulated ABCA1/ABCG1 gene expression;
- Decreased cholesterol absorption;
- Potential for plaque reversibility;
- Decreased plasma LDL cholesterol levels;
- Increased efficiency of HDL;
- Stimulated reverse cholesterol transport; and
- Atheroprotective effect.

AtheroNova believes that the most potent of these mechanisms of action is reverse cholesterol transport ("RCT"). RCT is a multistep process resulting in the net movement of cholesterol from peripheral tissues back to the liver via the plasma.

The Company has completed preclinical studies at Cedars-Sinai and UCLA, which were successful at verifying plaque and cholesterol reduction as well as safety. During the studies, use of AHRO-001 led to a 95% reduction in innominate arterial plaque formation versus the control group. In addition, the compound did not show adverse effects, including morbidity or mortality, nor were there any visible toxicological effects at multiples higher than a human dose—something that has been confirmed by other compounds in this family, mainly, **ursodeoxycholic acid** (also known as UDCA or ursodiol). UDCA, a naturally occurring bile acid and a very close compound to AHRO-001, is used in a drug for gallstone dissolution and is the only U.S. Food and Drug Administration (FDA)-approved drug to treat **primary biliary cirrhosis (PBC)**, with millions of patients taking it without significant side effects.

Following successful preclinical studies, the Company commenced Phase I trials to explore the ability of bile acids to safely lower serum cholesterol levels and show potential indicators for reduction of a statistically significant portion of atheromas in test subjects in a safe and effective manner. The clinical study is being conducted in Russia with AtheroNova's licensing partner, CardioNova. The Company completed dosing in fourth quarter 2013, with top-line data expected to be available in the first quarter 2014.

AtheroNova is planning to follow a dual development path for AHRO-001, with each path designed to demonstrate different capabilities of AHRO-001: (1) lipid panel improvement pathway, the traditional FDA-approval path followed by cholesterol therapeutics; and (2) plaque regression capabilities pathway, a parallel pathway for secondary indications additive to the lipid panel improvement. According to the Company, the first path is well-established and validated for FDA approval, normally requiring demonstrating LDL reduction and possible HDL enhancement capabilities.

The Company believes, based on previous FDA approvals of existing therapeutics, that showing a 15% reduction in LDL (well below preclinical results of AHRO-001), might result in a positive trial outcome. AtheroNova is also planning to pursue a parallel development path to demonstrate AHRO-001's plaque regression potential. The secondary development path's initial aim is to aid in corporate partnering or funding efforts, as well as possibly establish AHRO-001 as a product displaying both lipid panel enhancement and plaque regression capabilities. Should the Company prove successful in safely and effectively regressing plaque, it would become the first entity with a proven method to do so and could represent a new treatment for the millions of patients currently seeking to manage their risk for atherosclerosis. As well, AtheroNova could provide new hope to patients who have genetic, dietetic, or disease predisposition to the potentially catastrophic "first event"—such as a fatal heart attack or stroke. In addition, the Company believes that AHRO-001 could also have a synergistic additive effect when used in combination with statins. The use of AHRO-001 together with statins could allow for a comparative therapeutic effect with lower side effects. In the U.S., AtheroNova completed a pre-**Investigational New Drug (IND)** meeting with the FDA in October 2011, through which the FDA provided guidance and outlines for the Phase I and Phase II protocol outlines. AtheroNova is now conducting U.S. toxicology studies, and expects to file an IND with the FDA in the second quarter 2014. If successfully approved, AHRO-001 could ultimately be positioned to address one in three individuals—or more than 83 million adults (over 40 million men and nearly 43 million women)—who have one or more types of cardiovascular disease.

Agreement with Maxwell Biotech Group

AtheroNova joined forces in 2011 with the Maxwell Biotech Group (http://maxwellbio.com), a Russian biotech venture capital firm, to license commercialization rights for AHRO-001. Through Maxwell's subsidiary, CardioNova Ltd., this agreement makes Maxwell an equity investor in AtheroNova, committing the Group to fund Phase I and Phase II human clinical studies in Russia. Initial funding of $900,000 from a total allocation of $3.8 million was provided by Maxwell to CardioNova in order to begin Phase I. The license agreement provides for AtheroNova to issue up to $3.8 million in common stock to CardioNova for these studies, to be issued in tranches based on the progress of the studies. Upon successfully developing AHRO-001, CardioNova will be able to commercialize the compound in the territory encompassing the Russian Federation, Belarus, Ukraine, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Moldova, Azerbaijan, and Armenia. In addition, under a separate securities purchase agreement, CardioNova becomes an equity investor in AtheroNova with several stock purchases, which totaled $267,000. This relationship is important since it secures financial resources to be able to move AHRO-001 to the clinic for Phase I and Phase II studies. As well, it represents AtheroNova's first licensing partnership for AHRO-001 and a significant point for AtheroNova as it initiates clinical studies.

Agreement with Frontage Laboratories, Inc.

In April 2012, the Company announced that it had signed an agreement with Exton, Pennsylvania-based Frontage Laboratories, Inc. (http://www.frontagelab.com) for the formulation, compounding, and tabletization of AHRO-001 for both Phase I and Phase II studies. Frontage is a U.S. pharmaceutical contract research organization (CRO).

Headquarters and Employees

AtheroNova is a Delaware corporation formed in 1997, with headquarters in Irvine, California. On May 13, 2010, pursuant to an Agreement and Plan of Merger dated March 26, 2010, a subsidiary, Z&Z Merger Corporation, merged with and into Z&Z Delaware and the surviving subsidiary corporation changed its name to AtheroNova Operations, Inc. AtheroNova has 14 employees, comprising full-time and contract individuals. In the past 12 months, the Company has strengthened its management and advisory team as it transitions from a development-stage to a clinical-stage company. AtheroNova has appointed respected authorities in the areas of atherosclerosis and clinical operations, notably J.P. Kastelein, M.D., Ph.D. and Stephen Nicholls, M.B.B.S., Ph.D. as members of the Clinical Advisory Board and co-principal investigators in the Company's clinical trials; Dr. Mark K. Wedel as senior vice president of clinical affairs and chief medical officer; Joan E. Shaw and Lisa Bauman in the area of clinical operations; and Dr. Erik Stroes, chair and professor at the Academic Medical Center in Amsterdam, as a member of its Clinical Advisory Board.

Growth Strategy

The regression and prevention of atherosclerosis represents a multibillion-dollar market. AtheroNova's goal is to develop and market pharmaceutical compounds based on proprietary intellectual property involving naturally occurring bile acids that could regress or altogether eliminate atherosclerotic fatty plaques. The Company seeks to use bile acids to address and improve a number of medical conditions related to those suffering from the effects of atherosclerosis caused by diabetes, heredity, poor diet, and other plaque-inducing states.

AtheroNova is currently conducting Phase I human clinical studies for its most advanced product candidate, AHRO-001. The Company is seeking to continue securing strategic and financial resources intended to capitalize on its IP's inherent value as it relates to the use of bile acids in medical applications. One such example is the agreement with the Maxwell Biotech Group (a Russian biotech venture capital firm) via AtheroNova's CardioNova subsidiary. The agreement grants Maxwell an exclusive license to develop and commercialize AHRO-001 in select territories encompassing the Russian Federation, Belarus, Ukraine, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Moldova, Azerbaijan, and Armenia. Additionally, AtheroNova entered into a relationship with Frontage Laboratories, which was responsible for formulating, compounding, and tabletizing (making into a tablet form) AHRO-001 for Phase I studies.

The Company is following a dual clinical development path for its AHRO-001 candidate, with each path designed to achieve different objectives: (1) lipid panel improvement pathway, the traditional path followed by cholesterol therapeutics designed for FDA approval; and (2) plaque regression capabilities pathway, designed to initially aid in corporate partnering or funding efforts, and providing the base for the development of a product displaying both lipid panel enhancement and plaque regression capabilities. It is this potential for plaque regression that AtheroNova believes could distinguish AHRO-001 from other atherosclerosis treatments on the market and candidates in development.

AtheroNova is likely to continue to seek out strategic alliances and selective licensing rights that would provide financial support (potentially in the form of upfront payments, milestone payments, commercialization royalties, and a sharing of research and development expenses). It is possible that AtheroNova could become an attractive takeover candidate. In order to continue to support the development of its intellectual property and operations, the Company is carefully pacing its expenses and strategically conducting research programs so that it may be on track to develop a full line of intellectual property surrounding the use of bile acids, potentially via different delivery methods, including transdermal and intravenous applications.

Milestones

Recent Milestones

AtheroNova has achieved multiple key regulatory and clinical milestones within the past 12 months, including those highlighted below.

- As announced on December 5, 2013, the Company completed enrollment of its Phase I clinical trial with top-line data expected to be available in the first quarter 2014.
- Initiated a Russian-based Phase I clinical trial with its lead compound, AHRO-001, marking the Company's transition into a clinical-stage company
- Submitted an IND application with the Ministry of Healthcare of the Russian Federation (Minzdrav) for AHRO-001—through its Russian licensing partner OOO CardioNova—resulting in a written notification of approval from Minzdrav of the Phase I protocol
- Received a Notice of Issuance for its patent application for Dissolution of Arterial Plaque, the first major step in the development of the Company's intellectual property involving lipid modulation and reduction, which provides protection over the use of hyodeoxycholic acid for atherosclerotic plaque lesions
- Strengthened its management and advisory team in preparation for the transition to being a clinical-stage company with the addition of respected authorities in the areas of atherosclerosis, such as J.P. Kastelein, M.D., Ph.D.; Stephen Nicholls, M.B.B.S., Ph.D; and Erik Stroes, M.D., as members of the Clinical Advisory Board and Drs. Kastelein and Nicholls as co-principal investigators in the Company's clinical trials; Dr. Mark K. Wedel as senior vice president of clinical affairs and chief medical officer; and Joan E. Shaw and Lisa Bauman in the area of clinical operations
- Announced the publication of the Company's preclinical study results (which support the clinical development of AHRO-001) in the June 10, 2013, online issue of *FASEB Journal* (the Federation of American Societies for Experimental Biology [a non-profit organization that is the principal umbrella organization of U.S. societies in the field of biological and medical research]) in advance of the print issue
- Initiated U.S.-based toxicology studies for AHRO-001 in preparation for an IND application with the FDA

Potential Milestones

Continuing the momentum from the past year, AtheroNova has identified several critical development milestones for the Company over the next 12 months and beyond, as listed below.

- Complete Phase I human clinical studies and obtain top-line data from the trial in the first quarter 2014
- Commence a Phase II clinical study—potentially the Company's largest value creation milestone, by the second quarter 2014
- Conduct a pre-Phase II meeting with the FDA and submission of the IND in the U.S. in the second quarter 2014

Intellectual Property

The Company's patent activity has been largely focused on developing comprehensive intellectual property to secure protection for the use of bile acids in regression of atherosclerotic plaque and other uses. AtheroNova has pending patent applications in the U.S. and under the international Patent Cooperation Treaty (PCT) covering uses of its technology, with patents filed in 11 product families since inception for different applications of delivery.

AtheroNova plans to secure the supply chain of bile acids by patenting the synthesis process, delivery and administration methods, and dosage of these natural compounds. Importantly, this approach could reduce or eliminate the risk of competitive institutions using bile acid-derived compounds to treat conditions in the same space as the Company. AtheroNova's patent applications, as listed in Figure 3, can be divided into two categories depending on the condition being treated: (1) atherosclerosis; and (2) obesity and lipomas.

Figure 3
INTELLECTUAL PROPERTY

Patent Number	Name	Issue Date
8304383	Dissolution of Arterial Plaque	November 6, 2012
Patent Application	**Name**	**File Date**
20110086829	Compositions and Methods for Treating Obesity	October 8, 2010
20090035348	Dissolution of Arterial Plaque	September 16, 2008
20080287429	Dissolution of Arterial Cholesterol Plaques by Pharmacologically Induced Elevation of Endogenous Bile Salts	May 15, 2008
20080187569	Dissolution of Arterial Plaque	February 1, 2008
20080171790	Fatty acids-systemic lipid solubilizers conjugates	January 10, 2008
20070129425	Dissolution of arterial cholesterol plaques by pharmacological preparation	January 3, 2007
20070249543	Dissolution of arterial cholesterol plaques by phytochemical emulsifiers	October 4, 2006
20070116755	Dissolution of arterial cholesterol plaques by pharmacological preparation	March 17, 2006
20070116754	Dissolution of arterial cholesterol plaques by pharmacological preparation	March 13, 2006

Source: U.S. Patent & Trademark Office.

Atherosclerosis

Since inception, AtheroNova has filed with U.S. and international patent offices a total of 22 patent applications relating to the use of bile acids in the regression of atherosclerotic plaque via pharmaceutical preparation. The Company's patent activities cover uses of bile acids in the regression of atherosclerosis as well as administration methods, including transdermal and intravenous delivery. Such administrations bypass the normal physical sequestration of bile acids within the digestive tract, as bile acids that break down fat during digestion are typically re-absorbed by the liver for reprocessing or excretion. In November 2012, AtheroNova achieved its first major step toward this goal with the receipt of a Notice of Issuance for its patent application entitled "Dissolution of Arterial Plaque" (now U.S. Patent No. 8,304,383). This patent protects the Company's lead candidate, AHRO-001, and aims to cover the use of hyodeoxycholic acid for atherosclerotic plaque lesions.

Obesity, Lipomas, and Adiposites

Included in the patent applications described above are filings relating to the use of biocompatible **emulsifiers** in systemic circulation to treat obesity and lipomas. The usefulness of these compounds to treat obesity and lipomas are expected to undergo testing by third-party organizations for validation.

Company Leadership

Management

AtheroNova's management combines extensive experience in the healthcare and pharmaceutical space, both in established companies as well as successful start-up biotechnology ventures, where these individuals have helped in the development, regulatory approval, worldwide registration, and commercialization of several therapeutic compounds and devices.

In the past 12 months, the Company has strengthened its management and advisory team in preparation for the transition from developmental to clinical-stage company. Recent additions have included J.P. Kastelein, M.D., Ph.D., Stephen Nicholls, M.B.B.S., Ph.D., and Erik Stroes, M.D. as members of AtheroNova's Clinical Advisory Board. Drs. Kastelein and Nicholls are also serving as co-principal investigators in the Company's clinical trials. Additionally, Dr. Mark K. Wedel has been appointed senior vice president of clinical affairs and chief medical officer, and Joan E. Shaw and Lisa Bauman have been added in the area of clinical operations. Figure 4 summarizes the Company's executive management team, followed by brief biographies.

Figure 4
MANAGEMENT

Thomas W. Gardner	Chairman and Chief Executive Officer
Mark Selawski	Chief Financial Officer
Mark K. Wedel, M.D., J.D.	Senior Vice President of Clinical Affairs and Chief Medical Officer
Balbir (Bal) S. Brar, DVM, Ph.D.	Director, Cosmeceutical Development
Joan E. Shaw, MT (ASCP), SCC	Senior Director of Clinical Operations

Source: AtheroNova Inc.

Thomas W. Gardner, Chairman and Chief Executive Officer

Mr. Gardner has been the chief executive officer (CEO), president, and a director of AtheroNova since its formation in December 2009. He held the same positions with Z&Z Medical Holdings, Inc., the predecessor in interest to AtheroNova Operations ("Z&Z Nevada") from December 2006 until its merger into AtheroNova in March 2010. Since September 2008, he has also been the president of PhyGen LLC, which designs, manufactures, and sells instruments and implants for spine surgery. Mr. Gardner is a senior medical industry executive with 26 years of experience in healthcare. He has extensive hands-on experience with successful start-up ventures, having helped found six healthcare companies—three of which were publicly traded. He has served as president/CEO of UroGen, Corp., a San Diego-based biotechnology company, president of Endocare, Inc., an Orange County-based urologic products company, president/CEO of AutoCath Vascular Access, Inc., an Orange County-based vascular access company, and executive vice president of Medstone International Inc., an Orange County-based medical products company.

Mark Selawski, Chief Financial Officer

Mr. Selawski joined AtheroNova in January 2010 as CFO. He became the secretary of AtheroNova in March 2010. From 2004 to 2009, he served as CFO of a $250 million, closely held, petrochemical distribution company. From 1988 to 2004, he held several positions at Medstone International, which included vice president-finance, CFO, and corporate secretary over the past nine years. Medstone was a NASDAQ-listed capital medical device manufacturer of lithotripters, urology tables, and x-ray equipment as well as fee-for-service equipment programs. Prior to joining Medstone, Mr. Selawski held various financial positions with a number of manufacturing and high-tech companies in southern California.

Mark K. Wedel, M.D., J.D., Senior Vice President of Clinical Affairs and Chief Medical Officer

Dr. Wedel joined AtheroNova in December 2012. Between 2009 and 2010, Dr. Wedel served as chief medical officer (CMO) and vice president of clinical development for Santaris A/S, responsible for planning the strategic clinical development of several locked nucleic acid oligonucleotides, including lipid-lowering agents directed at apolipoprotein B and PCSK9. He was also responsible for obtaining FDA approval for the first micro RNA oligonucleotide used in Hepatitis C-infected man and assembling Santaris' medical advisory board and clinical research staff. Between 2002 and 2008, Dr. Wedel held the position of CMO and senior vice president of clinical development with ISIS Pharmaceuticals, Inc. (ISIS-NASDAQ), where he oversaw the clinical research activities of 13 drugs in all phases of clinical development. Between 1996 and 2002, Dr. Wedel served as executive director of Alliance Pharmaceuticals, a company developing liquid ventilation in acute lung injury. Dr. Wedel's career also includes consulting positions with the U.S. Department of Justice, serving as medical director for the intensive care unit of Scripps Clinic & Research Foundation, and serving as head of pulmonary medicine at Park-Nicollet Medical Center. He is the author of one book and more than 50 professional publications and articles.

Lisa A. Bauman, M.S., Executive Director of Clinical Operations

Ms. Bauman joined AtheroNova in September 2013. Between 2012 and 2013, she served as executive director and head of clinical operations for Spectrum Pharmaceuticals, Inc. (SPPI-NASDAQ) responsible for the operational leadership and oversight of nine oncology programs in all phases of clinical development. Between 2002 and 2010, she held the position of senior director and head of clinical operations at Anadys Pharmaceuticals, Inc. (ANDS-NASDAQ) where she had a key role in establishing clinical operations and leading the development and execution of successful trials with small molecules used in the treatment of Hepatitis C infections. Between 1995 and 2002, Ms. Bauman held various clinical positions at Agouron Pharmaceuticals, which led to her role as head of clinical study management, and to her appointment on the harmonization team charged with the development of best practices following the acquisition by Pfizer (PFE-NYSE) in 2000. Ms. Bauman's clinical operations career began in 1991 at Bristol-Myers Squibb Co. (BMY-NYSE) where she managed trials focused on central nervous system disorders.

Balbir (Bal) S. Brar, DVM, Ph.D., Director, Cosmeceutical Development

Dr. Brar has over 25 years of experience in drug and device development and worldwide registration of eight drugs, including Botox®. His experience includes working with pharmaceutical companies, including Lederle/Wyeth (now a part of Pfizer), where he developed Azmacort® for asthma and topical Aristocort®, both multimillion-dollar products; and SmithKline Beckman (now GlaxoSmithKline plc [GSK-NYSE]) as a senior director of drug safety, where he participated in the development of Tazarotene (marketed as Tazorac®, Avage®, and Zorac®) for psoriasis and acne. At Allergan Inc. (AGN-NYSE), Dr. Brar served as vice president, drug safety (R&D) and was responsible for the regulatory submission of 50 INDs/510(k)s and worldwide approval of six new drug applications (NDAs), including Botox® (medical and cosmetic), Alphagan®, Lumigan®, Restasis®, Ofloxacin, Azelex®, Avage® (Retinoid), Latisse®, and viscoelastic intraocular. Dr. Brar has thrived in leadership roles with start-up biotechnology companies, where he has held positions as executive vice president of R&D, chief technology officer, and Board member of companies specializing in diabetes-related complications, oncology, ophthalmology, dermatology, and cardiovascular devices. His responsibilities have included fundraising, selection of CROs, stability testing, non-clinical studies, clinical studies, and Phase I, II, and III clinical plans, as well as IND filings and implementation of development plans. He has extensive experience working with CROs and regulatory agencies, including the FDA, worldwide. Dr. Brar has a Ph.D. in toxicology/pathology from Rutgers University and a DVM from India, with finance training from Harvard Business School. He is a recipient of numerous achievement awards for excellence and is the author/co-author of over 50 scientific publications.

Joan E. Shaw, MT (ASCP), SCC, Senior Director of Clinical Operations

Ms. Shaw joined AtheroNova in December 2012 and brings more than 20 years of drug development experience with organizations such as AstraZeneca plc (AZN-NYSE) and DuPont Pharmaceuticals. Between 2002 and 2012, she served in multiple areas of AstraZeneca, ultimately serving as executive director of clinical operations in its Delaware headquarters. Ms. Shaw was also the executive director of continuous improvement, leading a team of **Master Black Belts** to define efficiencies in the drug development process by identifying, planning, and implementing critical continuous improvement projects integrating Lean Six Sigma and Kaizen methodologies within AstraZeneca's global R&D division. As executive director of U.S. study delivery, she provided direct oversight and life cycle management, guiding over 1,500 researchers who conducted and supported 100-150 Phase I to Phase IV studies. As clinical project director for the $3 billion product Seroquel, she led the development and submission of four new indications and a Sustained Release (SR) formulation, while managing a $190 million clinical budget and 250 deployed staff in four global locations. From 1982 to 2002, she led the discovery and development project management department at DuPont Pharmaceuticals which conducted research, development, and delivery of pharmaceuticals and radiopharmaceuticals used in the treatment of HIV, cardiovascular disease, central nervous system disorders, cancer, and inflammatory diseases. Ms. Shaw holds an M.S. in clinical chemistry, B.S. in medical technology, a Lean Six Sigma Black Belt, and is a licensed Medical Technologist. She is a co-patent holder for the new indications for Seroquel.

Board of Directors

AtheroNova's Board of Directors oversees the conduct of and supervises the Company's management. The Board is a combination of medical professionals with business experience and knowledge of drug development and regulation, equity research, and financials, holding leadership positions at pharmaceutical and medical device companies as well as consulting firms. Figure 5 provides a summary of Board members, followed by biographies.

Figure 5
BOARD OF DIRECTORS

Thomas W. Gardner	Chairman and Chief Executive Officer
Gary Freeman	Board Member
Boris Ratiner, M.D.	Board Member
Chaim Davis	Board Member
Alexander Polinsky, Ph.D.	Board Member
Paul M. DiPerna	Board Member
Johan M. (Thijs) Spoor	Board Member
Fred Knoll	Board Member

Source: AtheroNova Inc.

Thomas W. Gardner, Chairman and Chief Executive Officer

Biography on page 11.

Gary Freeman

Mr. Freeman has served as one of the Company's directors since July 2007. He is currently a partner in Beach, Freeman, Lim & Cleland's Audit and Accounting Services Division. In conjunction with various consulting engagements, Mr. Freeman has assumed interim senior-level management roles at numerous public and private companies during his career, including co-president and CFO of Trestle Holdings, Inc., CFO of Silvergraph International, Inc., and CFO of Galorath Inc. He served as a member of the Board of Directors of Blue Holdings, Inc., Trestle Holdings, Inc., and GVI Security Solutions, Inc. Mr. Freeman's previous experience includes 10 years with BDO Seidman, LLP, including two years as an audit partner.

Boris Ratiner, M.D.

Dr. Ratiner has been a director of AtheroNova Operations since December 2009. He held the same position with Z&Z Medical Holdings from December 2006 until its merger into AtheroNova Operations in March 2010. Dr. Ratiner received an advanced Bachelor's degree in chemistry at Occidental College in Los Angeles. He then attended medical school at Louisiana State University (LSU) in New Orleans, followed by an internal medicine residency and rheumatology fellowship at the University of California, San Francisco (UCSF). He is Board-certified in internal medicine and rheumatology and is in private practice in Tarzana, California. As the medical director and founder of Rheumatology Therapeutics, Dr. Ratiner leads a team of 23 staff members who care for patients with arthritis and autoimmune diseases. He also serves on the Board of the San Fernando Valley Branch of the Arthritis Foundation and is the program director for the Southern CA Rheumatism Society. He is a founder and active Board member of 4medica, a successful medical informatics company that he co-founded in 1999. He is also a clinical instructor of medicine at the David Geffen School of Medicine at UCLA, a teaching attendant with Cedars-Sinai's Division of Rheumatology and an instructor at the Northridge Family Medicine Teaching Program. Dr. Ratiner is an active clinical investigator and is involved in trials of new medications for gout, lupus, rheumatoid arthritis, osteoarthritis, psoriatic arthritis, ankylosing spondylitis, and fibromyalgia.

Chaim Davis

Mr. Davis has served as one of the Company's directors since May 2010 and is currently the managing partner of Revach Fund L.P., an investment fund focused on life science industries. Mr. Davis is also currently serving as a healthcare industry consultant to KOM (since November 2009) and to Gem Asset Management (since February 2007). He served as an account executive at Perry Davis & Associates from June 2004 through February 2007, and as a healthcare analyst at the Garnet Group from April 2001 through June 2004. He received a Bachelor's degree from Columbia University.

Alexander Polinsky, Ph.D.

Dr. Polinsky was appointed to the Board of Directors of AtheroNova in October 2010. Dr. Polinsky co-founded the Alanex Corporation and built the company around novel computational and combinatorial chemistry technologies. He served as Alanex's chief scientific officer until it was acquired by Agouron Pharmaceuticals, Inc. in 1997. After an acquisition by Pfizer in 2000, Dr. Polinsky became vice president, head of discovery technologies at Pfizer's La Jolla Labs. In 2001, he established Pfizer's global chemistry outsourcing network and between 2001 and 2006, managed a $750 million investment in the creation of a modern drug screening collection. In 2006, he joined Pfizer Global Research Technology, where he led the development of the Pfizer External Research Network and Pharma Incubator concepts. In 2007, Dr. Polinsky established The Pfizer Incubator (TPI) and became its CEO, starting three biotechnology companies. He left Pfizer in 2008 to pursue various entrepreneurial interests and in 2009 joined Maxwell Biotech Venture Fund as its managing partner. Additionally, Dr. Polinsky has invested in and served on the Boards of several start-ups. Dr. Polinsky received a Ph.D. in physical chemistry from Moscow University, Russia, followed by post-doctoral training at the Institute for Biochemistry at the Russian Academy of Science. He was a faculty member at Moscow University for five years studying the mechanisms of action of synthetic vaccines. He then came to the U.S. as a visiting scientist at UCSD to capitalize on developing new methods for computer-aided drug design.

Paul M. DiPerna

Mr. DiPerna was appointed to the Board of Directors of AtheroNova in October 2010. Mr. DiPerna is the founder, chief technical officer, and board member of Tandem Diabetes Care, a venture-backed company that has raised $68 million. Tandem is developing technology to be used in the care of diabetes. In this venture, Mr. DiPerna has over 18 patents issued and in process. Prior to forming Tandem, Mr. DiPerna worked at Baxter Healthcare (BAX-NYSE) for 14 years, where he held progressive management positions as a technologist for cell separation systems; program manager of the largest and most complex system Baxter had undertaken; director of business development in the corporate technology group, creating new technologies and integrating acquisitions into Baxter; and as the general manager of Digital Dental Sciences, a Connecticut-based start-up within the organization. He had 10 patents issued while at Baxter. He was also senior vice president of technology and operations at Hepahope, Inc., a start-up developing liver dialysis systems for end-stage liver failure patients. Mr. DiPerna received a Master's degree in engineering management from Northeastern University and a B.S. in mechanical engineering from the University of Massachusetts-Lowell. He is a member of the American Diabetes Association and the American Society of Clinical Oncology.

Johan M. (Thijs) Spoor

Mr. Spoor was appointed to the Board of Directors of AtheroNova in January 2012. Mr. Spoor currently serves as the CEO, president, and a director of FluoroPharma Medical, Inc. (FPMI-OTC). He previously held the title of CFO for Sunstone BioSciences Inc. Prior to joining Sunstone BioSciences, he worked as a consultant at the Oliver Wyman Group, focused on helping pharmaceutical and medical device companies evaluate their global revenue potential given the complex interplay of regulatory approvals, the reimbursement environment, and the impact of physician preference within constantly evolving standards of care. He further specialized in the implications of healthcare reform on new product approval and health insurance reform. Mr. Spoor has also been an equity research analyst at J.P. Morgan and Credit Suisse, covering the biotechnology and medical device industries. He worked in the pharmaceutical industry for 10 years with Amersham/GE Healthcare, where he worked in seven countries in a variety of roles that included establishing GMP facilities meeting ISO 9001 standards, accountability for the entire nuclear cardiology portfolio, and most recently, as the director of new product opportunities leading the PET strategic plan. Mr. Spoor holds a nuclear pharmacy degree from the University of Toronto as well as an MBA from Columbia University with concentrations in finance and accounting. He has been a guest lecturer at Columbia Business School, Kings College in London, and the University of Newcastle in Australia and has presented at medical grand rounds and psychiatric grand rounds at various hospitals on the role of brain imaging.

Fred Knoll

Mr. Knoll is a member of the Company's Board of Directors since November 2012. Since 1987, Mr. Knoll has been the principal and portfolio manager at Knoll Capital Management, an investment company managing funds over the last two decades in areas such as emerging growth companies, restructurings, and China. Prior to that, he was chairman of the board of directors of Telos Corporation, a computer systems integration company; served as investment manager for General American Investors; was the U.S. representative on investments in leveraged buyouts and venture capital for Murray Johnstone, Ltd. of Glasgow, UK; and headed the New York investment group of Robert Fleming, Inc., a UK merchant bank subsequently acquired by JP Morgan, managing a venture capital fund and the U.S. research team. Mr. Knoll holds a BS in electrical engineering and computer science from Massachusetts Institute of Technology (M.I.T.), a BS in Management from the Sloan School at M.I.T., and a M.B.A. from Columbia University in Finance, and was a member of the Columbia University International Fellows Program.

Clinical Advisory Board

AtheroNova's Clinical Advisory Board is largely composed of experts and/or leaders who are internationally recognized within the field of atherosclerosis research. Within the past six months, the Company has appointed three key members to its Clinical Advisory Board, two of whom—Drs. Nicholls and Kastelein—are also co-principal investigators in the Company's clinical trials for AHRO-001.

Stephen Nicholls, M.B.B.S., Ph.D.
Professor of Cardiology/SAHMRI Heart Foundation Heart Disease Theme Leader, South Australian Health & Medical Research Institute; Advisor to the Cleveland Clinic

> Dr. Nicholls is a noted atherosclerosis researcher at the Cleveland Clinic with experience in clinical trials for investigating anti-atherosclerotic compounds. Dr. Nicholls has had a lead role in several atherosclerosis-related clinical trials, including the SATURN, AQUARIUS, ASSERT, and ASSURE, ACCELERATE, and VISTA-16 studies; and serves on the steering committees of the DalOutcomes and ALECARDIO studies. He has also authored more than 400 original manuscripts, meeting abstracts, and book chapters.

John J.P. Kastelein, M.D., Ph.D.
Professor of Medicine at the Department of Vascular Medicine at the Academic Medical Center
Strategic Chair of Genetics in Cardiovascular Disease at the University of Amsterdam

> Dr. Kastelein is a noted researcher in the area of lipids, atherosclerosis, and cardiovascular disease. Dr. Kastelein has also had a lead role in many atherogenesis studies, including IDEAL, TNT, CAPTIVATE, ENHANCE, ILLUMINATE, JUPITER, and RADIANCE, and has published over 700 research papers in peer-reviewed journals.

Erik S.G. Stroes, M.D.
Chair and Professor of Medicine at the Department of Vascular Medicine at the Academic Medical Center

> Dr. Stroes is chair and professor at the Academic Medical Center in Amsterdam, the Netherlands. Dr. Stroes has participated in numerous lipid-lowering trials using surrogate markers, such as intima media thickness (ENHANCE Study) and flow-mediated dialation, as well as observations that 3T-MRI has been added as a surrogate marker for vascular disease progression.

Ephraim Sehayek, M.D.
Assistant Staff - Genomic Medicine Institute, Lerner Research Institute, Cleveland Clinic

Burt Liebross, M.D.
Nephrologist - Internal Medicine and Nephrology

Ben McFarland, Ph.D.
Associate Professor - Department of Chemistry and Biochemistry, Seattle Pacific University

John Nachazel, M.D.
Anatomic and Clinical Pathologist, California Hospital Medical Center

Jian-Hua Qiao, M.D.
Anatomic and Clinical Pathologist, California Hospital Medical Center

Core Story

AtheroNova Inc. ("AtheroNova" or "the Company") is a biotechnology company focused on the research, development, and licensing of bile acid therapeutic compounds to safely dissolve or regress atherosclerotic plaque and improve patients' lipid profiles. The Company's approach has been shown in preclinical studies to have significant beneficial effect on glucose levels involving multiple mechanisms of action. Atherosclerotic plaque is a buildup of fat, cholesterol, and other substances in the wall of arteries. These plaque deposits, which progressively narrow and block the arteries, are the main underlying cause of cardiovascular disease, including heart attack, stroke, and peripheral artery disease (PAD).

The Company's most advanced candidate, AHRO-001, is a bile-acid derived compound intended to dissolve existing plaque deposits as well as prevent new deposits from forming. Bile acids are an FDA-approved natural compound used to dissolve gallstones, and have shown to be well tolerated with no history of safety concerns. AtheroNova believes that its therapeutic compounds' ability to potentially regress atherosclerosis, coupled with a favorable safety and tolerance profile, provides a competitive advantage against currently approved therapies, which merely stabilize the disease.

AtheroNova plans capitalize on its intellectual property to develop multiple applications for its bile-acid based patented and patent-pending therapies for other forms of cardiovascular disease and conditions that have been linked to atherosclerosis, such as obesity, hypertension, diabetes, stroke, PAD, localized transdermal fat dissolution, and the dissolution of lipomas. In June 2013, following successful preclinical studies, the Company announced the initiation of the first Phase I clinical trial for AHRO-001, marking AtheroNova's transition into a clinical-stage company.

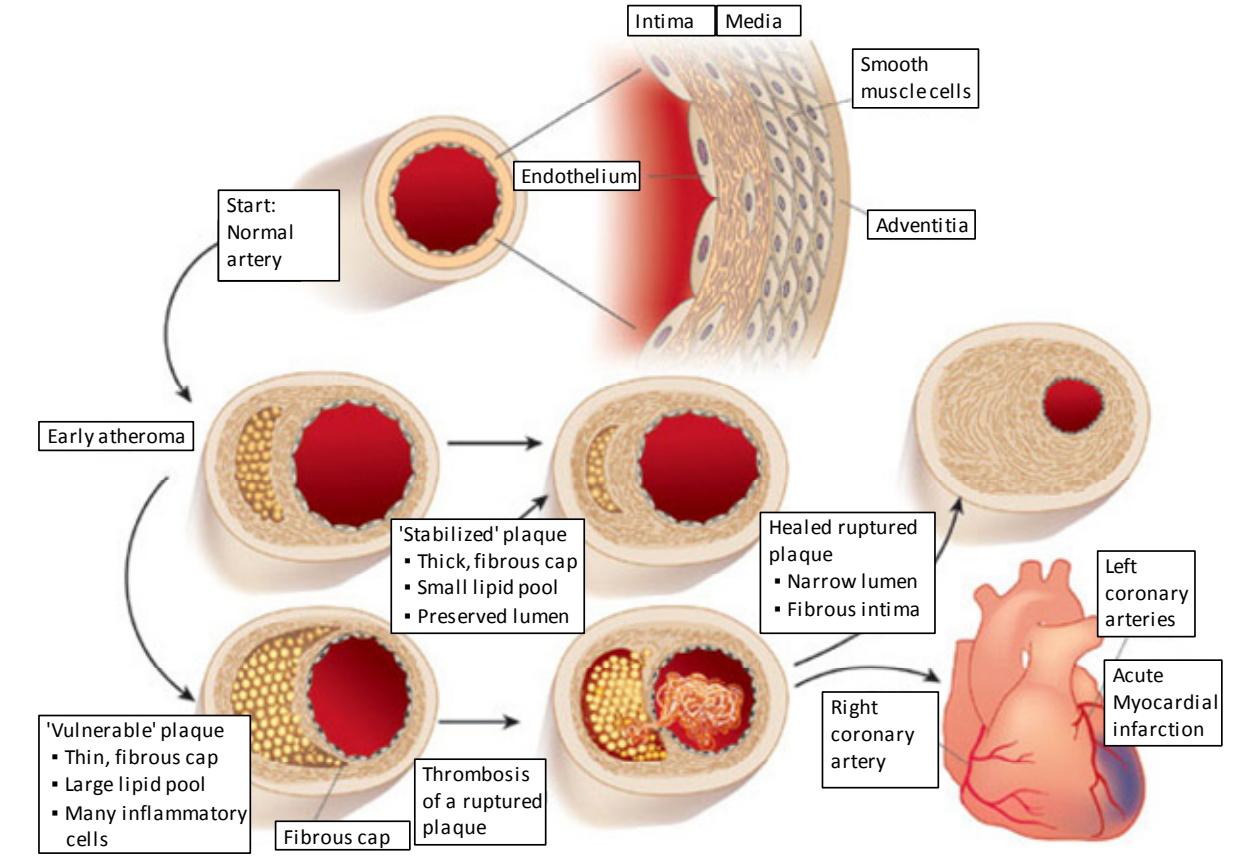
Atherosclerosis

The name atherosclerosis comes from the Greek words "athero" (gruel or paste) and "sclerosis" (hardness). A hardening of the arteries, atherosclerosis is a common disorder that occurs when fat, cholesterol, and other substances build up in the walls of the arteries and form hard structures called plaques. Primarily associated with the overall aging process, hardening of the arteries can also result from high blood cholesterol levels at any age and can be a product of an unhealthy lifestyle, such as a diet that is high in fat, heavy alcohol use, lack of exercise, smoking, or being overweight. Over time, plaque can accumulate and narrow the arteries, making them stiffer and creating a more challenging path for blood to flow, eventually leading to significant problems throughout the body.

There are two types of plaque that can form in the artery walls: (1) **stable plaque**, which is usually calcified and has a endothelial thick fibrous cap made of **smooth muscle cells**, and as plaque grows, blood flow to the brain, heart, or other parts of the body are reduced; and (2) **unstable plaque** (vulnerable plaque), which also restricts blood flow as the buildup gets larger over time but is considered to be more dangerous since it has a thin cap that can rupture and release plaque into the bloodstream. Blockages starve tissues of blood and oxygen, which can result in damage or tissue death (**necrosis**) and ultimately cause a heart attack or stroke. Furthermore, if a clot moves into an artery in the lungs, a **pulmonary embolism** can occur. The plaque can also be part of a process that causes a weakening of an arterial wall, which can lead to an **aneurysm**. Figure 6 (page 18) illustrates the life cycle of an atherosclerotic plaque (atheroma).

Atherosclerosis can be very difficult to treat since it forms inside the wall of the blood vessel. The fibrous cap that covers the plaque accumulation makes it challenging to reach whether via drug therapy or mechanical therapy device. Addressing plaque is a critical unmet need since the current standard of care, the statin, reduces cholesterol but does not reduce existing plaque. Other available treatments, such as drug eluting stents, catheterization, and balloon angioplasty, have not proven completely effective at either stabilizing or reducing plaque in the arteries.

Figure 6
LIFE HISTORY OF ATHEROMA



Source: Nature 420: 868-874.

AtheroNova's technology has demonstrated the potential to reduce, stabilize, or eliminate atherosclerotic plaque deposits. The Company is targeting the multibillion-dollar prescription drug market for cardiovascular disease and stroke prevention via a process called reverse cholesterol transport—whereby lipids are physically or chemically reduced or eliminated from plaque deposits in the arteries. The initial target market is individuals with soft vulnerable plaque, as the volume of plaque that one accumulates over a lifetime can remain until death, with no truly effective way to reduce it (aside from surgically removing it). AtheroNova believes that its compound could become the new benchmark in treating and preventing cardiovascular disease.

Risk Factors for Cardiovascular Disease

When making the determination as to whether statins should be prescribed to a patient with high cholesterol, physicians look for additional cardiovascular disease risk factors and evaluate whether an individual is able to make lifestyle changes to improve overall health; whether they are willing and able to take a pill every day, potentially for the rest of their life; and/or whether there could be interactions with other drugs being taken.

According to the Mayo Clinic, a statin may be recommended for a patient with high cholesterol—a total cholesterol level of 240 milligrams per deciliter (mg/dL) or higher, or a low-density lipoprotein cholesterol ([LDL] "bad" cholesterol) level of 130 mg/dL or higher. However, other risk factors to be considered prior to treatment include a family history of high cholesterol or heart disease, lifestyle, blood pressure, diabetes, obesity, smoking, or PAD, as listed in Figure 7 (page 19).

Market Opportunities

AtheroNova's product candidate, AHRO-001, is seeking to address a market that includes cardiovascular disease, stroke, PAD, dementia and Alzheimer's, and erectile dysfunction—all of which can be linked to atherosclerosis. Figure 8 illustrates the millions of individuals affected by these diseases. Cardiovascular disease is the number one cause of death among diabetics, individuals with dementia and Alzheimer's, individuals on dialysis, and people with PAD, as each of these conditions makes the body highly susceptible to developing cardiovascular disease.

Figure 7

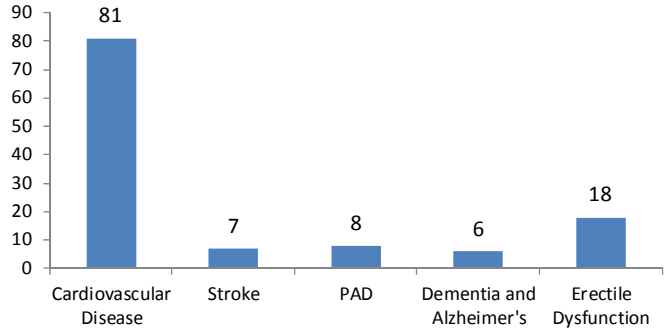
RISK FACTORS FOR HEART DISEASE

- High cholesterol or high blood pressure
- Diabetes
- Being overweight or obese
- Family history of heart disease
- Not exercising
- Heavy alcohol use or smoking
- Poor stress and anger management
- Older age
- Narrowing of the arteries in the neck, arms, or legs (peripheral artery disease [PAD])

Source: Mayo Foundation for Medical Education and Research.

Figure 8

U.S. DISEASES AND PREVALENCES (mms)



Source: American Heart Association, Inc.

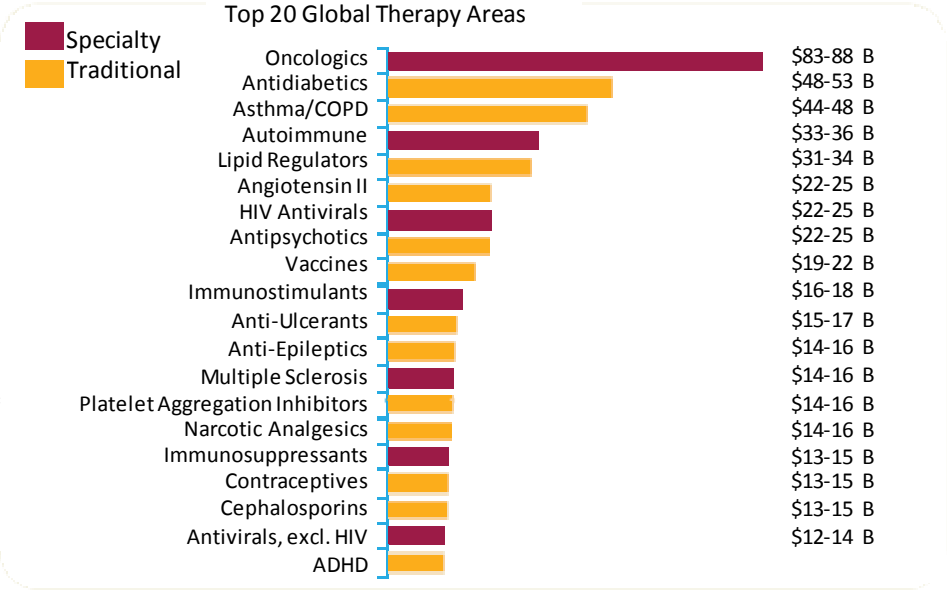
In the U.S., approximately 83.6 million adults (40.7 million men; 42.9 million women)—greater than one in three adults—has one or more types of cardiovascular disease. Of that total, 42.2 million were estimated to be age 60 and older. Average annual rates for first major cardiovascular events rise from 3 per 1,000 men at ages 35-44 to 74 per 1,000 men at ages 85-94. For women, comparable rates occur 10 years later in life. Cardiovascular disease is responsible for more deaths than cancer, chronic lower respiratory diseases, and accidents combined, with direct and indirect costs estimated at $503.2 billion in 2010, more than any other diagnostic group. By 2030, direct costs of cardiovascular disease are projected to reach $1.48 trillion. Eliminating cardiovascular diseases would increase life expectancy by seven years, compared to a three-year increase for eliminating cancer (Source: American Heart Association's *Heart Disease and Stroke Statistics – 2013 Update,* December 2012).

Atherosclerosis, and in particular atherosclerosis of the coronary arteries, is the leading cause of death for both men and women in the U.S., despite the fact that more financial resources are put toward seeking a treatment for atherosclerosis than any other disease or ailment. Coronary heart disease (CHD)—which is a heart attack, angina pectoris, or both—affected 15.4 million U.S. adults (age 20 and older). Annually, 1.3 million people are diagnosed with CHD, leading to one of every six deaths. Approximately every 34 seconds, someone in the U.S. suffers a heart attack, representing roughly 635,000 new attacks and 280,000 recurrent attacks each year. As well, an estimated 150,000 "silent" first heart attacks occur. In 2010, the direct and indirect costs of CHD were estimated at $177.1 billion (Source: American Heart Association's *Heart Disease and Stroke Statistics – 2013 Update,* December 2012).

The current standard of care for individuals with atherosclerosis or the risk factors for the condition entails lipid-regulating drugs (the most common of which are statins). These products generated over $33.6 billion in sales in 2012 for 255 million prescriptions, a decrease from the estimated $39.1 billion in 2011 as a result of increased generic competition due to the patent protection expiration of several leading medicines, such as atorvastatin (Pfizer's Lipitor®) and rosuvastatin (AstraZeneca's Crestor®) (Source: IMS Health MIDAS, December 2012). The lipid regulator market decline is expected to continue, with levels as low as $31 billion by 2016. Nevertheless, the total market for lipid regulators is still projected to be the fifth largest therapeutic area behind oncology, diabetes, respiratory illnesses, and autoimmune diseases, as shown in Figure 9 (page 20) (Source: IMS Institute for Healthcare Informatics, *The Global Use of Medicines: Outlook Through 2016*, 2012).

Figure 9

PROJECTED LEADING THERAPY CLASSES IN 2016



Source: IMS Institute for Healthcare Informatics; Therapy Forecaster, May 2012.

AtheroNova believes that based on the tremendous resources allocated toward treating atherosclerosis, one would expect a return on that investment via longer life expectancies and fewer strokes and heart attacks. To date, this has not yet been demonstrated. In addition, due to the recent regulatory failure of some next-generation therapies, very few new branded products are expected to enter the category in the near term.

Current Methods of Treatment

A range of treatments and methods are available for patients with coronary artery disease, specifically atherosclerosis. Marketed medications are classified into the following categories: angiotensin receptor blockers, angiotensin-converting enzyme inhibitors (ACE), anticoagulants, beta blockers (BB), antiplatelets, calcium channel blockers (CCB), digitalis, cholesterol medications, nitrates, and diuretics. As well, patients who have greater blockages may warrant bypass surgery, where blood flow is redirected by a healthy blood vessel in order to bypass the narrowed or blocked blood vessel and increase blood flow. Furthermore, more severe cases may require open heart surgery, where veins and arteries of other parts of the body are grafted for blood flow in and out of the heart, thus bypassing the damaged arteries. Another option may be coronary angioplasty to keep narrowed or blocked arteries open to increase blood flow or stent placement via a small wire mesh tube (stent) or balloon catheter to support arteries. In addition, a patient may require carotid artery surgery or plaque removal.

With all available options to treat atherosclerosis, the most widely employed standard of care for patients presenting with or possessing risk factors for atherosclerosis today are statins—complex medications that were brought to market in the late 1980s to help maintain healthy cholesterol levels and potentially stabilize plaque in patients with acute coronary syndromes. Statins work by blocking a substance the body needs to make cholesterol and may also help the body reabsorb cholesterol that has built up on the artery walls, preventing further blockage in the blood vessels and thus ideally preventing heart attacks and strokes. Commonly prescribed statins include Zocor® (simvastatin), Lipitor® (atorvastatin), Mevacor® (lovastatin), Pravachol® (pravastatin), and Crestor® (rosuvastatin), among others (noting that there are also lower-cost generics available for many of these compounds). A limitation to statins' effectiveness is that while these products can maintain healthy cholesterol levels and potentially help stabilize plaque, they have not shown to be effective at reducing plaque.

Potential Side Effects of Statins

Along with the benefits of taking statins are the potentially serious side effects. These may include muscle weakness and pain (reported most commonly), dizziness, headaches, extreme fatigue and flu-like symptoms, diarrhea/constipation, swelling of the ankles, liver dysfunction with elevation of the liver enzymes, neurological problems, such as a condition called peripheral neuropathy or polyneuropathy, and total global amnesia, where a patient is unable to remember where and who they are for a few minutes to several hours. These side effects may recede as the patient becomes accustomed to the medications.

Specifically, and with regard to the most common of the reported side effects, muscle pain and tenderness, a higher dose of statin has been linked to great muscle pain and, in severe cases, a breakdown and release of a protein called **myoglobin** into the bloodstream, which can damage the kidneys. As well, in certain patients, blood glucose levels may become elevated, which can increase the risk of developing **Type 2 diabetes**—a risk that is small but nonetheless sufficient to warrant the FDA requiring a warning label (see accompanying section below, which references this new language for high blood sugar as well as memory problems). Furthermore, it is now recommended that patients have their liver enzymes tested before beginning statin therapy and continually monitored as clinically indicated. In rare cases, a patient may need to discontinue treatment. Importantly, for patients who are at a high risk for heart attacks, specifically those who have already had a heart attack and/or are trying to prevent another, statins do have proven benefits. As well, for those patients who are attempting to prevent a first heart attack, a statin is likely to be advantageous.

The FDA's New Language for Statins

The FDA has recently added new language to statins advising of the potential for memory problems and an increased risk of high blood sugar (**hyperglycemia**) for drugs including Lipitor®, Zocor®, and Crestor® (Source: http://online.wsj.com/article/SB10001424052970203833004577251392001194250.html). There is debate as to whether statins are definitively linked to memory loss or **amyotrophic lateral sclerosis (ALS)**, also known as Lou Gehrig's disease, since there is little evidence that statins cause ALS, though the FDA still reports that certain individuals who take statins have developed memory loss and confusion while taking the drugs. These side effects relating to memory loss can reverse when a patient stops taking the medication.

Wall Street Journal's January 2012 Article: Should Healthy People Take Cholesterol Drugs to Prevent Heart Disease?

Along these lines, the *Wall Street Journal* published an article in January 2012 describing the ongoing debate as to whether physicians should be putting healthy patients on statins. This stems from an outspoken minority of physicians who oppose prescribing statins to patients who are otherwise healthy. This group of physicians believes that studies do not demonstrate that taking statins can lead to longer lives, and that much of the data that has been presented is, in fact, profoundly flawed. This article from January 23, 2012, can be viewed at: http://online.wsj.com/article/SB10001424052970203471004577145053566185694.html.

There is growing evidence that some side effects linked to statin use are underreported. Moreover, some physicians believe that diet and exercise are truly the more effective ways to prevent heart attack and stroke. Also, since heart disease is a process that forms over decades, with risk factors frequently going unrecognized and undertreated until it is too late, it is possible that in many cases the window for statins to be truly effective has closed. This is because, in a number of people, the first manifestation of cardiovascular disease is a sudden cardiac death, heart attack, or stroke, where an individual ends up either disabled or dead.

The other part of the argument is whether treatment should be deferred until after a patient experiences a cardiac life-threatening event. All available biologic, observational, and clinical trial evidence supports the selective use of statins in adults who demonstrate a high risk for heart disease. Studies have demonstrated that statins do prolong life and reduce risk for heart attack, stroke, and death for those patients where heart disease has been diagnosed. As well, statins have shown to prolong life in those patients with no heart disease but who are high risk.

ASTEROID and SATURN Trials

AtheroNova is attempting to achieve regression via AHRO-001 without any side effects, which could demonstrate to be a significant competitive advantage over current statins for the removal of atherosclerotic plaque. There have been two studies conducted involving long-term, high-dose statins in order to evaluate statins' ability to stop and regress the formation of atherosclerotic plaque: (1) ASTEROID (A Study to Evaluate the Effect of Rosuvastatin on Intravascular Ultrasound-Derived Coronary Atheroma Burden); and (2) SATURN (Study of Coronary Atheroma by IntraVascular Ultrasound: Effect of Rosuvastatin Versus Atorvastatin).

The ASTEROID trial was designed to show the effects of the statin rosuvastatin (AstraZeneca's Crestor®) on atherosclerosis. In this study, over 500 patients with coronary artery disease were treated with high-dose rosuvastatin (40 mg per day) for two years. Results showed a decrease in average levels of LDL cholesterol from 130 mg/dL to 61 mg/dL and an increase in average levels of HDL cholesterol from 43 mg/dL to 49 mg/dL. Employing intravascular ultrasound (IVUS), this trial also showed regression of the atherosclerotic plaques, with the volume of coronary artery plaques reduced by a median of 6.8%.

The SATURN trial compared the effect of the two most potent statins, rosuvastatin and atorvastatin (Pfizer's Lipitor®), on atherosclerosis progression. In the trial, 1,039 patients with coronary disease were administered high doses of rosuvastatin or atorvastatin for two years. After the conclusion of the trial, lipid parameters were more favorable in the rosuvastatin than in the atorvastatin group, with LDL levels of 62.6 mg/dl versus 70.2 mg/dl, and HDL levels of 50.4 mg/dl versus 48.6 mg/dl in the rosuvastatin group versus the atorvastatin group, respectively. Importantly, there was no significant difference in atherosclerotic plaque regression, as measured by percent atheroma volume (PAV), the primary efficacy endpoint, which decreased by 1.22% with rosuvastatin and 0.99% with atorvastatin.

Furthermore, there seem to be some discrepancies with IVUS-based studies regarding atherosclerosis reversal with statin use. A previous trial, Reversal of Atherosclerosis with Aggressive Lipid Lowering (REVERSAL), failed to show plaque regression with high-dose atorvastatin, whereas SATURN did show such an effect, although not statistically significant. The REVERSAL study showed that atorvastatin 80 mg halted the progression of atherosclerosis but did not result in disease regression, despite more than 60% of patients in SATURN having some degree of regression with the same drug dose (Source: WebMD). In addition, although these studies showed statins effectiveness at lowering cholesterol, both trials demonstrated a significant dropout rate, as high doses of statin for two years is very difficult to tolerate due to these therapeutics' side effects.

New Research on Statins

A 2012 study designed to assess the effect of statins on coronary artery plaque found that the use of statins was associated with a higher prevalence of risk factors and obstructive CAD. The study, which was conducted among 6,673 patients with no known CAD, indicated that those who were taking statins displayed an increased prevalence of coronary plaques containing calcium versus patients who were not taking statins. According to researchers, the effect of statins on coronary plaque warrants further investigation, as these results not only question the effectiveness of statin therapy but might also suggest a negative effect of the therapy (Source: *Atherosclerosis*, Vol. 225(1):148-153, November 2012).

AtheroNova's AHRO-001

AtheroNova is creating what it believes to be a unique-in-class candidate, AHRO-001, to treat atherosclerosis. AHRO-001 is a bile acid administered via pill or tablet. Through a process called reverse cholesterol transport, the compound is designed to dissolve plaque within the walls of the arteries and, subsequently, safely remove it from the body through natural metabolic processes. The Company is initially targeting individuals with soft vulnerable plaque, as the volume of plaque that one accumulates over a lifetime can remain until death, with no truly effective way to reduce it. AHRO-001 works in a manner that some have likened to "nature's detergent."

The technology surrounding AHRO-001 was discovered by two of the Company's founders, Dr. Filiberto Zadini and Dr. Giorgio Zadini, who were fascinated by a condition called primary biliary cirrhosis (PBC)—a disease of the liver where there is irritation and swelling (inflammation) of the liver's bile ducts, which blocks the flow of bile, and where the obstruction damages liver cells and leads to scarring, called cirrhosis. A side effect of PBC involves bile acids escaping into the body's general circulation. Patients with this condition exhibited extremely high levels of cholesterol serum, were not physically active, and commonly in poor health. Nonetheless, PBC patients had clean arteries in autopsy.

Based on this observation, the Zadinis investigated the disease and found that these patients also have a high level of circulating bile acids, which are normally sequestered in the gut, where the purpose of the bile acids is to dissolve and break down lipids after eating. In PBC patients, since the liver is breaking down, these bile acids get into the body's circulation in a continuous flow at significant levels. It is likely due to these findings that individuals with PBC did not develop atherosclerosis, or if they did, the atherosclerosis was beaten down and cleared away by the bile acids. These findings encouraged the Zadinis to conduct tests hypothesizing that exposure to bile acids would lead to plaque dissolution.

Following successful preclinical studies, the Company commenced Phase I trials to explore the ability of bile acids to safely dissolve (regress) a statistically significant portion of atheromas in test subjects.

Atherosclerosis Treatment Paradigm

AtheroNova believes that the potential safety profile and mechanism of actions of its compounds could help it overcome the normal paradigm of atherosclerosis treatment options—either strong active ingredient with high side effect profile or low side effect profile with a weaker active ingredient.

AHRO-001 has not shown morbidity or mortality in preclinical studies, nor have there been any visible toxicological effects in preclinical studies at multiples higher than a human dose. Furthermore, the compound has been well tolerated at high doses—something that has been confirmed by other compounds in this family.

Ursodeoxycholic acid (also known as UDCA or ursodiol) is a naturally occurring bile acid and a very close compound to AHRO-001. UDCA is used in a drug for gallstone dissolution and is the only FDA-approved drug to treat PBC, with millions of patients taking it without significant side effects. Naturally produced by the body, UDCA is stored in the gallbladder and works by decreasing the production of cholesterol and by dissolving the cholesterol in bile so that it cannot form stones. UDCA is also used to prevent the formation of gallstones in overweight individuals who are losing weight very quickly. If a patient stops taking UDCA, the gallstones tend to recur if the condition that gave rise to their formation does not change.

As an ultimate goal of ridding the entire body of plaque, the Company conservatively believes that if it is able to achieve regression with minimal side effects, its product could become a significant disruptive technology. Should the Company prove successful in safely and effectively regressing soft, vulnerable plaque via reverse cholesterol transport, it would become the first entity with a proven method to do so and could represent a new treatment for the millions of patients currently seeking to manage their risk for atherosclerosis. The Company believes that AHRO-001 could be used as a stand-alone treatment or used in combination with statins to take advantage of the possible synergistic additive effect. The use of AHRO-001 together with a statin could allow for a comparative therapeutic effect with a lower side effect profile.

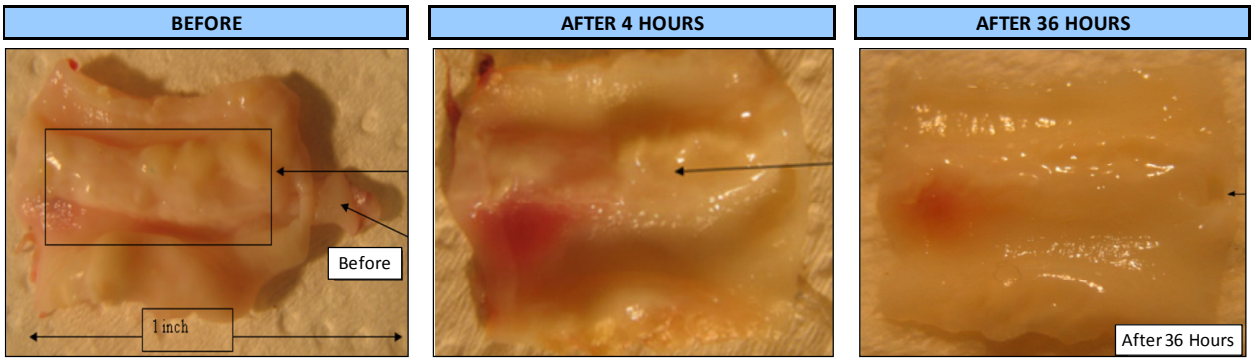
As such, AtheroNova believes that AHRO-001 could become a new standard of care for patients prone to plaque accumulations. AtheroNova could provide new hope to patients who cannot tolerate statins or for those who have genetic, dietetic, or disease predisposition to the potentially catastrophic "first event"—where a patient's first atherosclerotic event is a fatal heart attack or stroke.

Preclinical Studies of AHRO-001

The first *in vitro* experiment was performed using bacon, where the bacon was immersed in a bile acid solution for several hours. When removed, fat had been dissolved but the muscle tissue areas were still intact and undamaged. The fact that the muscle tissue was not affected was important since there are compounds available, such as sulfuric acid, which could also be put in with bacon that would dissolve the fat; however, it would also break down and dissolve the muscle tissue. With these results, the determination was made by the Zadinis to continue their research.

In the second *in vitro* experiment, a special pig aorta that included an atheroma (or fatty plaque deposit) was immersed in a bile acid solution and then inspected at different time intervals. The pig aorta was obtained from the University of Georgia, which induced the formation of plaque in the artery by placing the pigs on a high-fat diet. A graphic of this second experiment is provided in Figure 10, with images from before the experiment, at four hours, and at 36 hours. The atheroma is greatly reduced after four hours and is completely gone after 36 hours. Noteworthy is that the vessel wall is still intact with no damage—something that is crucial when seeking a compound to prevent strokes and other conditions. A video of this procedure can be viewed on YouTube at the following link: http://www.youtube.com/watch?v=IW_8VJHBRrA.

Figure 10
AORTIC PLAQUE REGRESSION *IN VITRO*



Source: AtheroNova Inc.

Based on the *in vitro* research, AtheroNova approached the head and chairman of the cardiovascular program at the Cleveland Clinic, Dr. Steven Nissen (who at the time was also head of the American College of Cardiology), to determine whether this was a viable compound idea. Dr. Nissen believed that the bile acid solution was potentially a viable idea and introduced the Company to Dr. P.K. Shah of Cedars-Sinai, who has a teaching affiliation with Dr. Aldons "Jake" Lusis of the McDonald Research Lab at the David Geffen School of Medicine at UCLA. Thus, the first validation study was conducted in the Lusis Lab at the David Geffen School of Medicine at UCLA. Figure 11 (page 25) depicts the institutions where the hypothesis was validated.

Figure 11

HYPOTHESIS VALIDATION

Cleveland Clinic | CEDARS-SINAI | UCLA

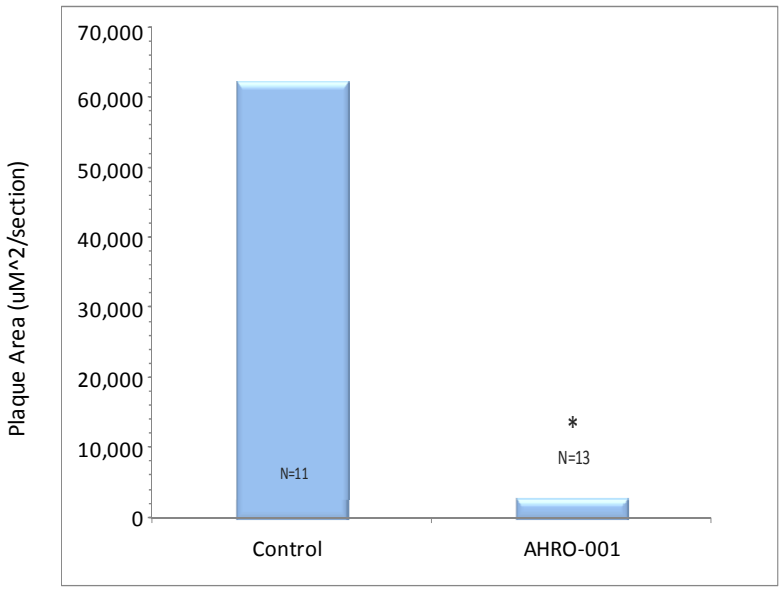
Source: AtheroNova Inc.

First Preclinical Study at UCLA

A control group with several active study arms used a high-fat diet in genetically modified mice, known as LDL receptor knockout mice, where the LDL receptor gene is knocked out as a control mechanism (letting the LDL grow plaque very fast). In November 2011, AtheroNova announced initial results from this control group showing that the mice developed very high levels of plaque, but following exposure to AHRO-001, had a 95% reduction in the amount of innominate arterial plaque versus the control group, as shown in Figure 12.

Figure 12

AHRO-001: INITIAL STUDY RESULTS



*P<0.01: Comparison to 15 week chow-fed mice following an 8 week high-fat diet

Source: AtheroNova Inc.

The study results also revealed a significant reduction in plasma cholesterol and dietary cholesterol absorption in the test subjects that received AHRO-001. AHRO-001 supplementation further improved HDL function as measured by **cholesterol efflux** assay. As seen in Figure 13, the administration of AHRO-001 resulted in improved levels of total cholesterol, LDL cholesterol, and unesterified cholesterol in test subjects.

Figure 13

UCLA STUDY LIPID PROFILE

Diet	Triglycerides	Total Cholesterol	HDL Cholesterol	LDL Cholesterol	Unesterified Cholesterol	Free Fatty Acids	Glucose
Control	176	680	70	610	169	59	165
AHRO-001	157	389*	90	300*	95*	59	121

** statistically significant P<0.05*

Source: AtheroNova Inc.

These factors indicate multiple methods of action for an anti-atherogenic effect. Findings support the acceptance of bile acids as valuable therapeutic agents not only for their ability to act as lipid solubility agents, but also for their role as regulators, metabolic integrators, and signaling factors affecting the body's handling of cholesterol (Source: *Nature Reviews* Vol. 7(8), 2008, p. 678). The multiple mechanisms of action further suggest potential for AtheroNova's therapy, as depicted in the arterial stain results from test subjects as seen in Figure 14, where the bright red areas indicate areas of dense plaque. The group given AHRO-001 shows greatly reduced red areas compared to the control group.

Figure 14

ARTERIAL STAIN RESULTS

Note: Plaque stained ***RED.***

Source: AtheroNova Inc.

Additional Preclinical Studies: UCLA and Cedars-Sinai

Another study at the Lusis Lab at the David Geffen School of Medicine at UCLA was completed evaluating the mechanisms of action of AHRO-001, including HDL functions (cholesterol efflux, anti-oxidative property), HDL protein composition, plasma lipid and lipoprotein analysis, liver gene expression analysis, and VLDL-TG secretion analysis using LDL receptor knockout mice. Key results from this experiment validated the effectiveness of bile acids to enhance the body's ability to process cholesterol through the following mechanisms:

- decreases intestinal cholesterol absorption;
- improves HDL's ability to mediate cholesterol efflux;
- increases cholesterol efflux from **RAW 264.7** to HDL; and
- up-regulates genes involved in cholesterol efflux.

Results from AtheroNova's preclinical studies were published in the June 10, 2013, online issue of the *FASEB Journal* in advance of the print issue (Source: *FASEB Journal's* "Hyodeoxycholic acid improves HDL function and inhibits atherosclerotic lesion formation in LDLR-knockout mice," June 10, 2013).

A third preclinical study completed by Dr. P.K. Shah at Cedars-Sinai Heart Institute's Division of Cardiology and Oppenheimer Atherosclerosis Research Center studied the effect of AHRO-001 on atherosclerosis in Hypercholesterolemic apoE (-/-) mice. In this study, the anti-atherosclerotic actions of AHRO-001 in an alternate mouse model demonstrated similar characteristics in action and efficacy.

Positive Safety and Tolerability Data

On the safety side, all blood tests for the group given AHRO-001 demonstrated no toxicity, including no morbidity or mortality. As well, the compound was well tolerated at high doses, as has been seen in other compounds in this family (e.g., UDCA). AtheroNova believes that these safety results are highly favorable as all the mice lived through the study, with the treatment arm performing significantly better than the control group in terms of health.

For example, Figure 15 summarizes key results of preclinical research on AHRO-001 conducted at UCLA, which are stated by AtheroNova to indicate normal liver and kidney functions and a well-pronounced hypolipidemic response due to AHRO-001 treatment.

Figure 15

UCLA STUDY RESULTS

Blood Chemistry Test Panel											
Diet	AST	ALT	Dir. Bili	T. Bili	BUN	CK	LDH	GGT	ALP	CREAT	TPROT
Control	150	48	1	1	19	155	249	30	102	0.3	6
AHRO-001	67*	27	0.3*	0.4*	24	72	150*	6*	114	0.2	6

**P<0.05*

Indicating normal liver and kidney functions

Average Lipid Levels								
Diet	n	Triglycerides	Total Cholesterol	HDL Cholesterol	LDL Cholesterol	Unesterified Cholesterol	Free Fatty Acids	Glucose
Control	11	176	680	70	610	169	59	165
AHRO-001	13	157	389*	90	300*	95*	59	121

**P<0.05*

Data indicates a well-pronounced hypolipidemic response due to AHRO-001 treatment.

Source: AtheroNova Inc.

Clinical Development of AHRO-001

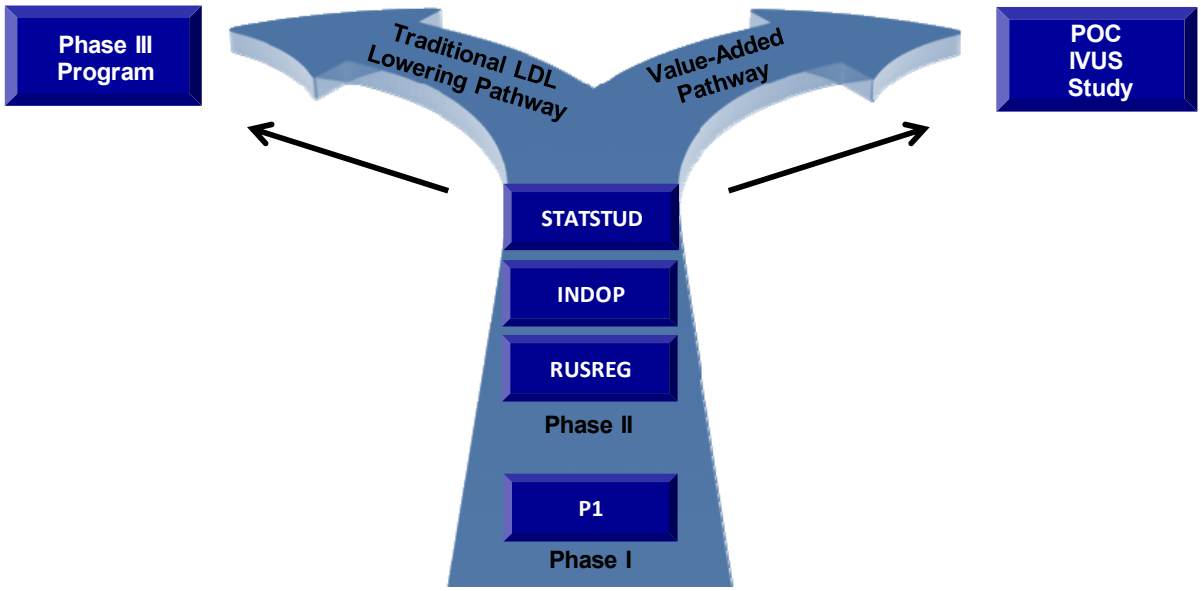
Following the Company's pre-IND meeting with the FDA in late 2011, which provided guidance on the nonclinical, clinical, and chemical, manufacturing, and control (CMC) requirements that must be met in order to submit an acceptable IND, AtheroNova commenced Phase I human trials in June 2013.

Clinical Development Roadmap

The Company is following a dual development path for AHRO-001, as illustrated in Figure 16 (page 28), with each path designed to demonstrate different capabilities of AHRO-001: (1) Lipoid panel improvement, the traditional pathway followed by cholesterol therapeutics; and (2) plaque regression capabilities, a parallel pathway not necessary for FDA approval but which is a value-added pathway.

Figure 16

AHRO-001 CLINICAL DEVELOPMENT PLAN



Source: AtheroNova Inc.

According to the Company, the first path is well-established and validated for FDA approval, normally requiring demonstrating an LDL reduction and possible HDL enhancement capabilities. The Company believes that based on previous FDA approvals of existing therapeutics, showing a 15% reduction in LDL (well below preclinical results of AHRO-001) may result in a positive trial outcome.

AtheroNova is also planning to pursue a parallel development path to demonstrate AHRO-001's plaque regression potential. Although not required for FDA approval, this development path's initial aim is to aid in corporate partnering or funding efforts. However, a positive outcome could be the base for further studies and development of a product displaying both lipid panel enhancement and plaque regression capabilities. It is this potential for plaque regression that AtheroNova believes could distinguish AHRO-001 from other atherosclerosis treatments on the market and candidates in development.

The first steps for both development paths is AtheroNova's Phase I trial ("P1"), designed to assess the safety, tolerability, and pharmacokinetics of AHRO-001. Following completion of its Phase I study, the Company plans to conduct Phase II studies—"RUSREG" in Russia and "INDOP" and "STATSTUD" internationally—which collectively are aimed at measuring the criteria listed below.

- Safety
- Tolerability
- Optimum dose
- Frequency of administration
- Statin interaction (additivity versus synergy)
- Degree of LDL lowering
- Pharmacokinetics

As it transitions from a developmental to clinical-stage company, AtheroNova continues to strengthen its management and advisory team with the addition of well-respected authorities in the areas of atherosclerosis and clinical operations. The additions are detailed on page 11.

Phase I Trials

In June 2013, AtheroNova announced the achievement of a significant milestone following the initiation of a Phase I clinical trial with its lead compound, AHRO-001. The clinical study is being conducted in Russia with AtheroNova's licensing partner, CardioNova. The Phase I study is a placebo-controlled, double-blind study of single and multiple ascending doses of orally administered AHRO-001. The trial's primary objective is to evaluate the safety, tolerability, and pharmacokinetics of AHRO-001 in patients with mild to moderate hypercholesterolemia (excess cholesterol in the bloodstream). The secondary goal is to evaluate the safety, tolerability, and pharmacokinetics of any potential drug interactions between AHRO-001 and atorvastatin (the active ingredient in the blockbuster cholesterol drug Lipitor®). In addition, the Company expects to observe pharmacokinetic/pharmacodynamic relationships between AHRO-001 and atorvastatin.

The Phase I study—taking place in Moscow and St. Petersburg—is composed of four dose escalation cohorts of up to three grams per day with an enrollment of approximately 52 patients. The protocol involves single dose administration, followed by twice daily dosing for up to seven days and finally three times daily dosing for up to seven days.

The Company has completed dosing during the fourth quarter 2013, with top-line data potentially available in the first quarter 2014. Pending positive results, AtheroNova may continue with a multicenter Phase II study to further evaluate the safety and efficacy of AHRO-001 in hypercholesterolemic patients. This trial is expected to include a longer treatment period of three months. AtheroNova aims to commence the actual active phase of the trial by mid-2014, complete treatment, and obtain results 12 months later.

Plaque Regression Study (IVUS)

Successful Phase II studies could allow the Company to progress into its dual developmental strategy, by targeting the established lipid panel approval pathway and assessing AHRO-001 for its plaque regression ability. For a multicenter, multi-country IVUS study, the Company is working to secure centers in Amsterdam (under guidance of Dr. Kastelein) and Australia (under guidance of Dr. Nicholls) in addition to the current center in Moscow.

U.S. FDA Approval

In the U.S., AtheroNova completed a pre-IND meeting with the FDA in October 2011, where the FDA provided guidance on a clear development plan, including Phase I and Phase II protocol outlines. The Company is incorporating guidance from the FDA and is conducting U.S. toxicology studies. AtheroNova expects to file an IND with the FDA in the second quarter 2014.

Potential for a "Fast Track" Designation

It takes an average of 10 years from the time a company approaches the FDA with a new drug proposal to its final approval for manufacturing. However, it is possible that AtheroNova's product candidate could be **fast tracked** through the FDA given the very critical patient population its compound is targeted toward, and the high rates of morbidity and mortality associated with cardiovascular diseases. Fast Track status could mean that the FDA would expedite the application review process. Steps for the FDA approval process are listed below.

- Submit an IND application for the compound to the FDA for permission to conduct clinical studies in humans
- Complete Phase I, II, and III clinical trials to establish safety and effectiveness of the compound for a particular purpose and population
- Submit a New Drug Application (NDA) to the FDA for permission to market the product, which could mean a six-month review on the NDA if AtheroNova's compound receives Fast Track designation

- Undergo the FDA review of AtheroNova's NDA for evidence of safety and effectiveness, which may also include requirements for additional information, the sponsor's response, and further FDA review

- Receive approval/non-approval of the application by the FDA

Importantly, the family of compounds employed in AtheroNova's technology has a history of approval for use in humans by regulatory agencies in developed countries throughout the world (e.g., Germany, England, France, and Italy). As well, there is human safety data for this class of compounds used in the Company's initial research that is well established.

Additional Pipeline Candidates

Beyond treating atherosclerosis, fat reduction has significant applications in other medical fields. AtheroNova plans to employ its intellectual property to develop additional applications for its compounds, potentially in the areas of obesity, hypertension, diabetes, peripheral artery disease (PAD), localized transdermal fat dissolution, and the dissolutions of lipomas. To aid in the Company's efforts of expanding the applications of its proprietary technology, AtheroNova announced in October 2012 that it was supporting an additional preclinical study at UCLA's David Geffen School of Medicine to assess the expansion of indications that could be treated by its compounds.

Corporate Agreements

Licensing Agreement: Maxwell Biotech Group

In 2011, AtheroNova signed a binding term sheet with the Maxwell Biotech Group (http://maxwellbio.com), a Russian biotech venture capital firm, to license commercialization rights for AHRO-001 to Maxwell. Through Maxwell's subsidiary, CardioNova Ltd., this agreement makes Maxwell an equity investor in AtheroNova, committing the Group to fund Phase I and Phase II human clinical studies in Russia.

Initial funding of $900,000 from a total allocation of $3.8 million was provided by Maxwell to CardioNova in order to begin Phase I studies in Russia. The license agreement provides for AtheroNova to issue up to $3.8 million in common stock to CardioNova for these studies, to be issued in tranches based on the progress of the studies. Upon successfully developing AHRO-001, CardioNova is expected to commercialize the compound in the territory encompassing the Russian Federation, Belarus, Ukraine, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Moldova, Azerbaijan, and Armenia. In addition, under a separate securities purchase agreement, CardioNova becomes an equity investor in AtheroNova with an initial stock purchase of up to $267,000, which occurred in two tranches completed in May 2013. Additionally, Maxwell has enlisted OCT (http://www.oct-clinicaltrials.com), a full-service clinical studies contract research organization (CRO) based in St. Petersburg, Russia, as a contract partner.

Formulation and Manufacturing Agreement: Frontage Laboratories, Inc.

In April 2012, the Company announced that it had signed an agreement with Exton, Pennsylvania-based Frontage Laboratories, Inc. (http://www.frontagelab.com) for the formulation, compounding, and tabletization of AHRO-001 for both Phase I and Phase II studies. Frontage is a U.S. pharmaceutical contract research organization (CRO).

Competition

AtheroNova is engaged in the competitive field of pharmaceutical research and development, as described under Market Opportunities on page 19 and Current Methods of Treatment, pages 20-22. The Company could face competition from existing therapies for atherosclerosis as well as new products entering the market or currently undergoing clinical trials by pharmaceutical/biotechnology companies and research institutions.

Commonly prescribed atherosclerosis treatments include administration of the following types of therapeutic agents: (1) lipid-lowering compounds—including statins and niacin—that reduce blood levels of fats, such as cholesterol and triglycerides; (2) **antithrombotic drugs**—including warfarin and low-dose aspirin—that thin the blood and prevent further plaque accumulation while reducing injuries from blood clots and treating heart disease; and (3) blood pressure medication—such as beta blockers and calcium channel blockers—that lower blood pressure, reducing demands on the heart and the risk of heart attacks (Sources: Duke University Health System and the Mayo Clinic).

Although existing classes of cholesterol reduction drugs, including statins, have demonstrated market success and the ability to control progression of the disease, the Company believes that its compound's potential to reverse or possibly eliminate the accumulation of fatty plaque on the circulatory system could provide a competitive advantage. Only one currently available statin—rosuvastatin (Crestor®) by AztraZeneca—has been able to demonstrate regression of atherosclerotic plaque within the coronary arteries. However, according to the Company, these results were achieved on patients taking the maximum approved dosage for two years.

Figure 17 and the entities presented thereafter summarize the type of competition that the Company may face as it seeks to enter this market. This is not an exhaustive collection of AtheroNova's potential competition but rather a sampling of the companies currently involved in this space. It is noteworthy that there have been several acquisitions made within the atherosclerosis market at significant valuations, providing large pharmaceutical companies with a path into this market, as highlighted in the lower portion of Figure 17.

Figure 17
COMPETITION AND ACQUISITION ACTIVITY

Company Name	Symbol (Exchange)	Last Trade (01/21/14)	52-week Range	Avg. Vol. (3 months)	Market Capitalization
Bayer AG	BAYN (XETRA)	€ 103.25	€64.65- €103.65	1,679,490	€85.46 billion
GlaxoSmithKline plc	GSK (NYSE)	$54.88	$43.68 - $55.07	2,392,130	$132.08 billion
Isis Pharmaceuticals, Inc.	ISIS (NASDAQ)	$47.54	$12.95 - $50.15	1,151,780	$5.53 billion
Eli Lilly & Company	LLY (NYSE)	$55.16	$47.53 - $58.40	5,975,120	$59.79 billion
Merck & Co., Inc.	MRK (NYSE)	$52.20	$40.83 - $53.44	12,522,200	$152.5 billion
Novartis AG	NVS (NYSE)	$81.29	$64.65 - $81.88	1,216,640	$197.8 billion
Regeneron Pharmaceuticals, Inc.	REGN (NASDAQ)	$292.59	$154.16 - $319.83	789,676	$28.7 billion
Sanofi SA	SNY (NYSE)	$51.26	$44.50 - $55.94	1,309,590	$135.93 billion

*Foreign stocks are listed in local currencies, not U.S. dollars ($).

Company	Company Acquired	Price	Year
Pfizer Inc. (PFE-NYSE)	Esperion Therapeutics, Inc.	$1.3 billion	2004
EV3, Inc. (COV-NYSE)	FoxHollow Technologies, Inc.	$780 million	2007

Sources: Yahoo! Finance and Crystal Research Associates, LLC.

Esperion Therapeutics, Inc. was originally founded in 1998 and was developing ETC-216, a synthetic form of HDL that showed a statistically significant reduction in plaque volume in patients with acute coronary syndrome. The complex protein was being developed as an acute, hospital-based treatment to regress arterial plaque. Esperion was acquired by Pfizer in 2004 for $1.3 million, to complement its portfolio of cholesterol drugs, led by Lipitor®. However, Pfizer ceased research and development efforts for the compound in 2007, partially due to ETC-216's costly manufacturing process and limited applications due to its intravenous administration. In 2008, Roger S. Newton, who many credit with the eventual developmental success of Lipitor® and the original founder of Esperion, repurchased the company and much of the patent rights, divesting Esperion into an independent company again.

In 2007, endovascular medical device maker EV3, Inc. (now part of Covidien plc [COV-NYSE]) acquired FoxHollow Technologies, Inc. for approximately $780 million. With the addition of FoxHollow's portfolio of devices to treat arterial blockage, the combined company accumulated one of the largest U.S. distribution footprints in endovascular devices with collective technologies for the treatment of peripheral and neurovascular disease, in addition to the continuation of FoxHollow's pre-existing collaboration with Merck to accelerate the development of pharmacogenomic diagnostics and drugs for cardiovascular disease.

Bayer AG (BAYN-XETRA)

Bayer develops, produces, and markets pharmaceuticals and healthcare products, agricultural products, and specialty materials worldwide. The company's pharmaceutical segment provides prescription pharmaceuticals for the treatment of hypertension, cardiovascular and infectious diseases, cancer, multiple sclerosis, and contraception. Bayer's products include Xarelto™ (rivaroxaban), a prescription medicine used to reduce the risk of stroke and blood clots in individuals with atrial fibrillation. Rivaroxaban inhibits Factor Xa in the coagulation system, thereby controlling the generation of thrombin, an enzyme that facilitates clotting. The compound is FDA approved and is marketed in the U.S by Janssen Pharmaceutical. Bayer was founded in 1863 and is headquartered in Leverkusen, Germany.

GlaxoSmithKline plc (GSK-NYSE)

GlaxoSmithKline, together with its subsidiaries, offers pharmaceutical products, over-the-counter (OTC) medicines, and healthcare-related consumer products in various therapeutic areas, including respiratory, HIV, central nervous system, cardiovascular, metabolic, antibacterial, oncology, vaccines, and dermatologicals. The company has been developing darapladib, an orally active Lp-PLA2 inhibitor, for the treatment of atherosclerosis; however, the drug failed to meet its primary endpoints of reducing the risk of heart attack or stroke in a Phase III study (reported in November 2013) after previously failing to show that it can get rid of plaque in an earlier study. Daraplabid is in development as a potential anti-atherosclerosis agent and is in late-stage studies for acute coronary syndrome. GlaxoSmithKline is headquartered in Brentford, United Kingdom.

Isis Pharmaceuticals, Inc. (ISIS-NASDAQ) and Genzyme Corporation

Isis Pharmaceuticals and Genzyme (a Sanofi SA [SNY-NYSE] company) partnered to develop Mipomersen (Kynamro™), a therapeutic agent designed to reduce LDL cholesterol by inhibiting the production of apo-B, a protein that provides the structural core for all atherogenic lipids. Kynamro™ is being developed to treat high-risk cardiovascular patients with very high cholesterol. The compound was approved by the FDA in January 2013. Isis Pharmaceuticals was founded in 1989 and is based in Carlsbad, California. Genzyme was founded in 1981 in Boston, Massachusetts, and was acquired by Sanofi in 2011.

Eli Lilly & Company (LLY-NYSE)

Eli Lilly offers pharmaceutical products in the areas of neuroscience, endocrinology, oncology, and the cardiovascular system. The latter includes products to treat high cholesterol, pulmonary arterial hypertension, thrombosis, and benign prostatic hyperplasia. Eli Lilly's clinical program includes the compound LY2484595 (evacetrapib), being studied for the prevention of cardiovascular events and currently in Phase III studies. Evacetrapib is an inhibitor of cholesteryl ester transfer protein (CETP), a plasma protein that plays a role in the cholesterol transport pathway. In clinical tests, the administration of evacetrapib increased HDL (good) cholesterol, while significantly lowering LDL (bad) cholesterol, beyond levels achievable by other available medications. The company was founded in 1876 and is headquartered in Indianapolis, Indiana.

Merck & Co., Inc. (MRK-NYSE)

Merck is a global healthcare company that provides health solutions through its prescription medicines, vaccines, biologic therapies, animal health, and consumer care products. The company's therapeutic and preventive agents treat human disorders in the areas of cardiovascular, diabetes and obesity, respiratory, immunology, infectious diseases, neurosciences and ophthalmology, oncology, and women's health. Merck's pipeline includes Anacetrapib (MK-0859), an oral inhibitor of CETP, in Phase III trials. Merck was founded in 1891 and is headquartered in Whitehouse Station, New Jersey.

Novartis AG (NVS-NYSE)

Novartis, through its subsidiaries, engages in the research, development, and marketing of healthcare products worldwide. Its pharmaceuticals division offers prescription medicines in various therapeutic areas, including cardiovascular and metabolism, oncology, neuroscience and ophthalmics, and respiratory. The company's product portfolio includes more than 60 marketed products, with an additional 130 projects in its product development pipeline. Its cardiovascular products include Aliskiren (trade names Tekturna and Rasilez), a high blood pressure medication that works by decreasing certain natural chemicals that tighten the blood vessels. Novartis was founded in 1895 and is headquartered in Basel, Switzerland.

Regeneron Pharmaceuticals, Inc. (REGN-NASDAQ)

Regeneron is a biopharmaceutical company developing and marketing therapeutic compounds to treat medical conditions in the areas of oncology and angiogenesis, ophthalmology, metabolic and related diseases, muscle diseases and disorders, inflammation and immune diseases, bone and cartilage, pain, cardiovascular diseases, and infectious diseases. The company's commercial products include EYLEA (aflibercept) Injection for the treatment of neovascular age-related macular degeneration; and ARCALYST (rilonacept) injection for subcutaneous use for the treatment of cryopyrin-associated periodic syndromes. Its clinical research pipeline includes REGN727 (alirocumab), a human monoclonal antibody being co-developed by Regeneron and Sanofi for LDL cholesterol reduction that works by blocking the action of a protein that helps limit the amount of LDL that liver cells can remove from the bloodstream. In clinical trials, REGN727 proved more effective than statins in reducing cholesterol levels, and had few undesirable side effects. REGN727 is undergoing Phase III trials. Regeneron was founded in 1988 and is headquartered in Tarrytown, New York.

Sanofi (SNY-NYSE)

Sanofi, together with its subsidiaries, researches, develops, manufactures, and markets healthcare products worldwide. Its cardiovascular-related pharmaceutical products include Plavix®, an anti-platelet agent indicated for atherothrombotic conditions; Lovenox® for the prevention and treatment of deep vein thrombosis and for unstable angina and myocardial infarction; Multaq®, an anti-arrhythmic agent; and Aprovel®/CoAprovel for hypertension treatments. Sanofi's clinical programs include Otamixaban, an anti-Xa intravenous anticoagulant treatment for acute coronary syndrome. The company was formerly known as Sanofi-Aventis and changed its name to Sanofi in May 2011. Sanofi was founded in 1970 and is headquartered in Paris, France.

Key Points

- AtheroNova is focused on the development of a class of bile acid-based compounds with the potential to reduce the incidence and severity of atherosclerosis—a disease in which the buildup of cholesterol, fats, or other fatty substances in and along the walls of arteries causes thickening, hardening, and blockage. Atherosclerosis is the main cause of cardiovascular disease.
- In the U.S., there are over 83 million individuals presenting with some form of cardiovascular disease, supporting a $33.6 billion market for lipid regulators as of 2012. Cardiovascular disease is the leading cause of death in the U.S.
- The Company's most advanced product candidate, AHRO-001, employs bile acids to reduce the incidence and severity of plaque by dissolving existing atherosclerotic plaque deposits and removing them by natural body processes as well as preventing the formation of new plaque deposits.
- The U.S. Food and Drug Administration (FDA) has approved bile acids as a pharmaceutical therapy to dissolve gallstones in certain patients. Such treatments have been well tolerated and have a history of safety and efficacy. Accordingly, AtheroNova believes that the established safe administration of these natural compounds provides its bile acid-based therapeutic with a precedent for a positive safety and efficacy profile.
- The Company believes that regression and stabilization of atherosclerotic plaque, in conjunction with lipid modulation, could become a new standard for treating patients with cardiovascular disease. Current standards of care, such as statins, are ineffective at reducing plaque at commonly prescribed dosage levels and carry significant drawbacks related to their safety and tolerability.
- Preclinical study data conducted at UCLA's David Geffen School of Medicine showed that administration of AtheroNova's AHRO-001 resulted in a 95% reduction in the amount of innominate arterial plaque in mice with very high levels of plaque. On the safety side, AHRO-001 demonstrated no toxicity. These findings were presented at the 2011 American Heart Association (AHA) Scientific Sessions in Orlando, Florida, and published in the June 10, 2013, online issue of the *FASEB Journal* (the Federation of American Societies for Experimental Biology) in advance of the print issue.
- AtheroNova began Phase I trials for AHRO-001 in Russia with its partner, OOO CardioNova. Top-line results are expected in the first quarter 2014. The Company has arranged funding for Phase I and Phase II trials.
- The Company is following a dual clinical development path for its AHRO-001 candidate, with each path designed to achieve different objectives: (1) lipoid panel improvement pathway, the traditional path followed by cholesterol therapeutics designed for FDA approval; and (2) plaque regression capabilities pathway, initially designed to aid in corporate partnering or funding efforts, and provide the base for the development of a product commercialized with both lipid panel enhancement and plaque regression capabilities.
- In late 2012, the Company received a Notice of Issuance for its primary patent application (U.S. patent No. 8,304,383), which was the first step in its objective to develop a comprehensive intellectual property position securing protection for the use of bile acids in regression of atherosclerotic plaque and other applications. AtheroNova has additional patents pending for other applications for its compound and could receive a freedom-to-operate opinion from McDermott Will & Emery LLP, a global patent firm.
- AtheroNova has recently expanded its leadership team as it transitions to a clinical-stage company. AtheroNova's management possesses extensive experience in the healthcare and pharmaceutical spaces, both at established companies as well as successful start-up ventures. The Company's leadership has helped in the development, regulatory approval, and commercialization of several therapeutic compounds and devices.
- Beyond AHRO-001, AtheroNova plans to employ its intellectual property to develop multiple pharmaceutical-grade applications for its compounds, potentially in the areas of obesity, hypertension, diabetes, peripheral artery disease (PAD), localized transdermal fat dissolution, and the dissolutions of lipomas.
- As of September 30, 2013, the Company's cash position was approximately $860,000.

Historical Financial Results

Figures 18, 19, and 20 (pages 35-37) summarize AtheroNova's historical financial statements: its condensed, consolidated, unaudited Statements of Operations, Balance Sheets, and Statements of Cash Flows, as presented in the Company's Form 10-Q filed with the U.S. Securities and Exchange Commission (SEC) on November 12, 2013.

In August 2013, the Company conducted a private placement with three accredited investors for a total of 415,386 units at $0.65 per unit resulting in gross proceeds of $270,000. Each unit represents a share of the Company's common stock and a warrant to purchase 0.30 shares of common stock at an exercise price of $0.75 per share.

Figure 18
AtheroNova Inc. (A Development-Stage Company)
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS (UNAUDITED)
For the three- and nine-month periods ended September 30, 2013 and 2012,
and for the period from December 13, 2006 (Inception) through September 30, 2013

	Three months ended September 30,		Nine months ended September 30,		Cumulative From
	2013	2012	2013	2012	Inception
Revenue, net	$ —	$ —	$ —	$ —	$ —
Operating expenses:					
Research and development	255,028	184,868	876,033	560,439	2,735,369
Research and development-related party	—	—	1,198,297	—	1,198,297
General and administrative expenses	788,864	474,131	2,778,599	1,750,155	9,511,686
Impairment charge-intellectual property	—	—	—	—	572,868
Total operating expenses	1,043,892	658,999	4,852,929	2,310,594	14,018,220
Loss from operations	(1,043,892)	(658,999)	(4,852,929)	(2,310,594)	(14,018,220)
Other income (expenses):					
Other income (expense)	230	134	2,323	509	8,705
Merger-related expenses	—	—	—	—	(323,294)
Cancellation of related-party debt	—	—	—	—	100,000
Interest expense	(110,073)	(200,380)	(491,591)	(395,154)	(2,371,105)
Private placement costs	—	—	—	—	(2,148,307)
Cost to induce conversion of 12% notes	—	—	—	—	(866,083)
Gain on conversion of debt	—	—	—	97,975	909,368
Gain (loss) on change in fair value of derivative liabilities	—	—	—	2,640,497	(839,569)
Net income (loss) before income taxes	(1,153,735)	(859,245)	(5,342,197)	33,233	(19,548,505)
Provision for income taxes	—	—	1,365	1,365	10,129
Net income (loss)	$ (1,153,735)	$ (859,245)	$ (5,343,562)	$ 31,868	(19,558,634)
Basic income (loss) per share	$ (0.03)	$ (0.03)	$ (0.13)	$ 0	
Diluted income (loss) per share	$ (0.03)	$ (0.03)	$ (0.13)	$ 0	
Basic weighted average shares outstanding	41,317,353	28,935,233	39,778,101	28,663,035	
Diluted weighted average shares outstanding	41,317,353	28,935,233	39,778,101	31,331,702	

Source: AtheroNova Inc.

Figure 19
AtheroNova Inc. (A Development-Stage Company)
CONDENSED CONSOLIDATED BALANCE SHEETS

	September 30, 2013 (unaudited)	December 31, 2012
Assets		
Current Assets		
Cash	$ 860,160	$ 2,744,046
Other Current Assets	23,885	17,622
Total Current Assets	884,045	2,761,668
Equipment, net	7,240	8,514
Deposits and other assets	16,540	23,777
Total Assets	$ 907,825	$ 2,793,959
Liabilities and Stockholders' Equity (Deficiency)		
Current Liabilities:		
Accounts payable and accrued expenses	$ 372,761	$ 603,629
Current portion of 2.5% Senior convertible notes, net of discount of $64,095	363,405	—
Interest payable	66,254	37,016
Total Current Liabilities	802,420	640,645
2.5% Senior secured convertible notes, net of current portion	1,170,333	1,762,833
Discount on convertible notes	(880,347)	(1,402,030)
2.5% Senior secured convertible notes, net of discount	289,986	360,803
Stockholders' Equity (Deficiency):		
Preferred stock $0.0001 par value, 10,000,000 shares authorized, none outstanding at September 30, 2013 and December 31, 2012	—	—
Common stock $0.0001 par value, 100,000,000 shares authorized, 41,584,020 and 37,223,640 outstanding at September 30, 2013 and December 31, 2012, respectively	4,147	3,711
Additional paid in capital	19,369,906	16,003,872
Deficit accumulated during the development stage	(19,558,634)	(14,215,072)
Total stockholders' equity (deficiency)	(184,581)	1,792,511
Total Liabilities and Stockholders' Equity (Deficiency)	$ 907,825	$ 2,793,959

Source: AtheroNova Inc.

Figure 20
AtheroNova Inc. (A Development-Stage Company)
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS (UNAUDITED)
For the nine-month periods ended Sept. 30, 2013 and 2012, and from December 13, 2006 (Inception) through September 30, 2013

	Nine months ended Sept. 30, 2013	2012	Cumulative From Inception
Operating Activities:			
Net income (loss)	$ (5,343,562)	$ 31,868	$ (19,558,634)
Adjustments to reconcile net income (loss) to net cash used in operating activities:			
Loss on settlement of payables and accrued interest	6,980	19,439	105,713
Amortization of debt discount	457,588	384,605	2,167,077
Depreciation	3,194	2,145	10,699
Fair value of vested options and warrants	725,442	696,795	3,297,198
Fair value of common stock issued for services	1,198,297	—	1,717,397
Fair value of shares transferred or sold to employees, directors, and vendors by controlling stockholder	481,400	123,050	604,450
Impairment charge-intellectual property	—	—	572,867
Cost of private placement	—	—	2,148,307
Cost to induce conversion of 12% notes	—	—	866,083
Gain on conversion of debt	—	(97,975)	(909,368)
Change in fair value of derivative liabilities	—	(2,640,497)	839,569
Cancellation of debt	—	—	(100,000)
Changes in operating assets and liabilities:			
Other assets	974	(33,514)	(40,425)
Accounts payable and accrued expenses	(199,327)	143,904	638,710
Net cash used in operating activities	(2,669,014)	(1,370,180)	(7,640,357)
Investing Activities			
Purchase of equipment	(1,920)	(4,300)	(17,939)
Investment in intellectual property	—	—	(372,867)
Cash received from reverse merger	—	—	1,281
Net cash used in investing activities	(1,920)	(4,300)	(389,525)
Financing Activities			
Proceeds from issuance of common stock	787,048	—	5,366,503
Proceeds from convertible notes-short term	—	645,200	645,200
Repayment of convertible notes-short term	—	—	(15,000)
Proceeds from sale of 2.5% senior secured convertible notes, net	—	500,000	2,893,339
Net cash provided by financing activities	787,048	1,145,200	8,890,042
Net change in cash	(1,883,886)	(229,280)	860,160
Cash - beginning balance	2,744,046	616,067	—
Cash - ending balance	**$ 860,160**	**$ 386,787**	**$ 860,160**
Supplemental disclosure of cash flow information:			
Cash paid for income taxes	$ 1,365	$ 1,365	$ 10,129
Cash paid for interest expense	$ —	$ —	$ 32,666
Supplemental disclosure of non-cash investing and financing transactions:			
Stockholder notes issued in exchange for intellectual property	$ —	$ —	$ 200,000
Conversion of convertible notes and interest payable to common stock	$ 169,765	$ 75,805	$ 2,190,616
Derivative liability created on issuance of convertible notes and warrants created	$ —	$ —	$ 1,500,000
Reclass of accounts payable to related party notes	$ —	$ —	$ 100,000
Common stock issued to settle accounts payable	$ 4,518	$ 23,748	$ 101,265
Derivative liability extinguished upon modification of 2.5% convertible notes	$ —	$ 3,472,549	$ 3,472,549
Fair value of warrants and beneficial conversion feature associated with issued convertible notes	$ —	$ 1,556,720	$ 1,556,720
Discount on short-term notes payable	$ —	$ 58,387	$ 58,387

Source: AtheroNova Inc.

Risks and Disclosures

This Executive Informational Overview® (EIO) has been prepared by AtheroNova Inc. ("AtheroNova" or "the Company") with the assistance of Crystal Research Associates, LLC ("CRA") based upon information provided by the Company. CRA has not independently verified such information. Some of the information in this EIO relates to future events or future business and financial performance. Such statements constitute forward-looking information within the meaning of the Private Securities Litigation Act of 1995. Such statements can only be predictions and the actual events or results may differ from those discussed due to the risks described in AtheroNova's statements on its Forms 10-K, 10-Q, and 8-K, as well as other forms filed from time to time.

The content of this report with respect to AtheroNova has been compiled primarily from information available to the public released by AtheroNova through news releases, Annual Reports, and U.S. Securities and Exchange Commission (SEC) filings. AtheroNova is solely responsible for the accuracy of this information. Information as to other companies has been prepared from publicly available information and has not been independently verified by AtheroNova or CRA. Certain summaries of activities and outcomes have been condensed to aid the reader in gaining a general understanding. CRA assumes no responsibility to update the information contained in this report. In addition, CRA has been compensated by the Company in cash of forty-two thousand U.S. dollars and fifty thousand restricted shares for its services in creating this report and for updates. For more complete information about AtheroNova, please refer to the Company's website at www.atheronova.com and its most recent SEC filings.

Investors should carefully consider the risks and information about AtheroNova's business described below. Investors should not interpret the order in which these considerations are presented as an indication of their relative importance. The risks and uncertainties described below are not the only risks that the Company faces. Additional risks and uncertainties not presently known to AtheroNova or that the Company currently believes to be immaterial may also adversely affect its business. If any of such risks and uncertainties develops into an actual event, AtheroNova's business, financial condition, and results of operations could be materially and adversely affected, and the trading price of the Company's shares could decline.

This report is published solely for information purposes and is not to be construed as an offer to sell or the solicitation of an offer to buy any security in any state. Past performance does not guarantee future performance. Additional information about AtheroNova and its public filings, as well as copies of this report, can be obtained in either a paper or electronic format by calling (949) 476-1100.

RISKS RELATED TO ATHERONOVA'S BUSINESS

AtheroNova will need additional funding to support its operations and capital expenditures. Such funds may not be available, which could reduce operating income, R&D activities, and future business prospects.

While the Company has historically funded working capital needs through the sale of equity and debt interests and capital contributions from related parties, it will need to obtain significant additional funding to continue planned operations, pursue business opportunities, react to unforeseen difficulties, and/or respond to competitive pressures. AtheroNova's private placement financing raised about $2.7 million and also placed an additional $1.5 million in senior convertible notes during the year ended December 31, 2012, which allowed the Company to continue to devote efforts to developing the necessary compounds and supplies to be used in additional testing of its formulations as well as continuing corporate obligations. AtheroNova estimates that the net funds from this private placement transaction will be sufficient to fund its planned activities through February 2014.

While the Company will need to raise significant additional funds, it currently has no committed sources of additional capital, and there can be no assurance that any financing arrangements will be available in amounts or on terms acceptable to the Company, if at all. Furthermore, the sale of additional equity or convertible debt securities may result in additional dilution to existing stockholders. If adequate additional funds are not available, the Company may be required to delay, reduce the scope of, or eliminate material parts of the implementation of

its business strategy. This limitation would impede growth and could result in a contraction of operations, which would reduce operating income, R&D activities, and future business prospects.

AtheroNova may be unable to continue as a going concern if it does not successfully raise additional capital.

If the Company is unable to successfully raise the capital it needs, it may need to reduce the scope of its business to fully satisfy future short-term liquidity requirements. If the Company cannot raise additional capital or reduce the scope of its business, it may be otherwise unable to achieve goals or continue operations. As discussed in Note 2 in the Notes to the Consolidated Financial Statements of AtheroNova's Form 10-K filed with the SEC on April 1, 2013, the Company has incurred losses from operations in the prior two years and has a lack of liquidity. These factors raise substantial doubt about its ability to continue as a going concern. In addition, its auditors have included in their report on its audited financial statements at December 31, 2012 and 2011 an explanatory paragraph expressing substantial doubt about its ability to continue as a going concern. While the Company believes that it will be able to raise the capital it needs to continue operations, there can be no assurances that it will be successful in these efforts or will be able to resolve its liquidity issues or eliminate operating losses.

AtheroNova has a history of operating losses and there can be no assurance that it can achieve or maintain profitability.

AtheroNova has a history of operating losses and may not achieve or sustain profitability. Even if it achieves profitability, given the competitive and evolving nature of the industry in which it operates, the Company may not be able to sustain or increase profitability and its failure to do so would adversely affect its business, including its ability to raise additional funds.

AtheroNova and its licensees will be subject to federal and state regulation. AtheroNova's inability to comply with these regulations would cause it to curtail or cease operating activities, which would result in a reduction in revenue and harm its business, operating results, and financial condition.

AtheroNova and its potential licensing partners are subject to many laws and regulations, and any adverse regulatory action may affect the Company's ability to exploit its IP. Developing, manufacturing, and marketing regulated medical products and pharmaceuticals are subject to extensive and rigorous regulation by numerous government and regulatory agencies, including the FDA and comparable foreign agencies. Under the Federal Food, Drug, and Cosmetic Act (the "FDA Act"), regulated medical devices must receive FDA clearance and approval before they can be commercially marketed in the U.S. Markets outside the U.S. require similar clearance and approval before a medical product or pharmaceutical can be commercially marketed.

AtheroNova cannot guarantee that the FDA or other regulatory authorities will accept any IND applications the Company may file or that such authorities will not delay consideration of accepted applications. AtheroNova also cannot guarantee that the Company will be able to agree on matters raised during the regulatory review process or obtain, directly or through licensees, marketing clearance from the FDA and other governing agencies for any new products, or modifications or enhancements to existing products, which the Company depends on for royalty revenues. Furthermore, if FDA clearance is obtained, such clearance could (i) take a significant amount of time; (ii) require the expenditure of substantial resources; (iii) involve rigorous preclinical and clinical testing; (iv) require significant modifications to, or replacements of, products; and/or (v) result in limitations on the proposed uses of products.

Even after regulated medical products or pharmaceuticals have received marketing clearance, approvals by the FDA can be withdrawn due to failure to comply with regulatory standards or the occurrence of unforeseen issues following initial approval. Failure to comply with regulatory standards or subsequent discovery of unknown problems with a regulated medical product could result in fines, suspensions of regulatory approvals, seizures or recalls of devices, operating restrictions, and/or criminal prosecution. There can be no assurance that any FDA approval will not be subsequently withdrawn. Any adverse regulatory action by the FDA or another regulatory agency may restrict the Company and its licensees from effectively marketing and selling its IP applications in medical products, resulting in a reduction in revenue and harm to the business, operating results, and financial condition.

In addition, foreign laws and regulations have become more stringent and regulated medical products may become subject to increased regulation by foreign agencies in the future. Penalties for the Company's licensees for any of their noncompliance with foreign governmental regulations could be severe, including revocation or suspension of their business licenses and criminal sanctions. Any foreign law or regulation imposed on the Company's IP applications may materially affect projected operations and revenues by adversely impacting the distribution and sale of regulated medical products in foreign jurisdictions through intended licensees.

AtheroNova depends on third parties for testing the product candidates it intends to develop. Any failure of those parties to perform as expected or required could adversely affect the Company's product development and commercialization plans.

AtheroNova has used and intends to continue to use various types of collaborative arrangements with commercial and academic entities as vehicles for testing compounds and molecules for its future product candidates. AtheroNova's research arrangements and any other similar relationships the Company may establish may not proceed on the expected timetable, or the Company's collaborators may not perform as expected or required under their agreements with AtheroNova. The research performed under such collaborations and arrangements may not provide results that are satisfactory for regulatory approval of products containing its compounds or molecules. If research and commercial relationships fail to yield product candidates that the Company can take into development, such failure will delay or prevent its ability to commercialize products.

In addition, the Company relies on third parties, such as contract laboratories and clinical research organizations, to conduct, supervise, or monitor, some or all aspects of the preclinical studies and clinical trials for the Company's product candidates, and the Company has limited ability to control many aspects of their activities. Accordingly, the Company has less control over the timing and other aspects of those clinical trials than if it conducted them on its own. Third-party contractors may not complete activities on schedule, or may not conduct the Company's preclinical studies or clinical trials in accordance with regulatory requirements or the Company's trial design. The failure of these third parties to perform their obligations could delay or prevent the development, approval, and commercialization of product candidates.

AtheroNova's inability to effectively manage growth could harm its business and materially and adversely affect operating results and financial condition.

AtheroNova's strategy envisions growing its business. The Company plans to expand its technology, sales, administrative, and marketing organizations. Any growth in or expansion of its business is likely to continue to place a strain on management and administrative resources, infrastructure, and systems. As with other growing businesses, the Company expects that it will need to further refine and expand its business development capabilities, systems and processes, and access to financing sources. AtheroNova also will need to hire, train, supervise, and manage new employees. These processes are time consuming and costly, will increase management's responsibilities, and will divert management's attention. AtheroNova cannot assure investors that it will be able to accomplish the following:

- expand systems effectively or efficiently or in a timely manner;
- allocate human resources optimally;
- meet capital needs;
- identify and hire qualified employees or retain valued employees; or
- incorporate effectively the components of any business or product line that the Company may acquire in its effort to achieve growth.

AtheroNova's inability or failure to manage growth and expansion effectively could harm its business and materially and adversely affect operating results and financial condition.

Future developments in technology or future pharmacological compounds may make the products the Company is planning to bring to market obsolete, with a consequent negative impact on profitability.

AtheroNova believes that the methods for treating and preventing atherosclerosis of the pharmacological compounds it intends to market enjoy certain competitive advantages, including superior performance and cost-effectiveness. Although the Company is not aware of any other treatments or methods currently being developed that would compete with the methods it intends to employ, there can be no assurance that future developments in technology or pharmacological compounds will not make its technology non-competitive or obsolete, or significantly reduce operating margins or the demand for its offerings, or otherwise negatively impact profitability.

AtheroNova's inability to effectively protect IP would adversely affect its ability to compete effectively, and its revenue, financial condition, and results of operations.

AtheroNova and its licensees may be unable to obtain IP rights to effectively protect its technology. Patents and other proprietary rights are a critical part of its business plans. AtheroNova's ability to compete effectively may be affected by the nature and breadth of the Company's IP rights. AtheroNova intends to rely on a combination of patents, trade secrets, and licensing arrangements to protect its technology. While the Company intends to defend against any threats to its IP rights, there can be no assurance that any of its patents, patent applications, trade secrets, licenses, or other arrangements will adequately protect its interests.

At this time, AtheroNova has one approved patent, issued in November 2012, covering the use of hyodeoxycholic acid to treat atherosclerotic plaque. There can also be no assurance that this or any additional patent issued to or licensed by the Company in the future will not be challenged or circumvented by competitors, or that any patent issued to or licensed by AtheroNova will be found to be valid or be sufficiently broad to protect it and its technology. A third party could also obtain a patent that may require the Company to negotiate a license to conduct business, and there can be no assurance that the required license would be available on reasonable terms or at all.

Although the Company has pending patent applications in the U.S. and under the international Patent Cooperation Treaty covering uses of its technology, it has not received, and may never receive, any additional patent protection for its technology. AtheroNova cannot guarantee any particular result or decision by the U.S. Patent and Trademark Office or a U.S. court of law, or by any patent office or court of any country in which it has sought patent protection. If the Company is unable to secure patent protection for its technology, AtheroNova's revenue and earnings, financial condition, or results of operations would be adversely affected.

AtheroNova does not warrant any opinion as to patentability or validity of any pending patent application. AtheroNova does not warrant any opinion as to non-infringement of any patent, trademark, or copyright by the Company or any of its affiliates, providers, or distributors. Nor does the Company warrant any opinion as to invalidity of any third-party patent or unpatentability of any third-party pending patent application.

AtheroNova may also rely on nondisclosure and non-competition agreements to protect portions of its technology. There can be no assurance that these agreements will not be breached, that the Company will have adequate remedies for any breach, that third parties will not otherwise gain access to the Company's trade secrets or proprietary knowledge, or that third parties will not independently develop the technology.

IP litigation would be costly and could adversely impact the Company's business operations.

AtheroNova may have to take legal action in the future to protect its technology or to assert its IP rights against others. Any legal action would be costly and time consuming, and no assurances can be made that any action will be successful. The invalidation of any patent or IP rights that the Company may own, or an unsuccessful outcome in lawsuits to protect its technology, could have a material adverse effect on its business, financial position, or results of operations.

AtheroNova operates and competes in an industry that is characterized by extensive IP litigation. In recent years, it has been common for companies in the medical product and pharmaceutical businesses to aggressively file patent-infringement and other IP litigation in order to prevent the marketing of new or improved medical products, treatments, or pharmaceuticals. IP litigation can be costly, complex, and protracted. Because of such complexity, and the vagaries of the jury system, IP litigation may result in significant damage awards and/or injunctions that could prevent the manufacture, use, distribution, importation, exportation, and sale of products or require the Company and/or any of its licensing partners to pay significant royalties in order to continue to manufacture, use, distribute, import, export, or sell products. Furthermore, in the event that the Company's right to license or to market its technology is successfully challenged, and if it and/or its licensing partners fail to obtain a required license or are unable to design around a patent held by a third party, the Company's business, financial condition, or results of operations could be materially adversely affected. AtheroNova believes that the patents it has applied for, if granted, would provide valuable protection for its IP, but there nevertheless could be no assurances that they would be respected or not subject to infringement by others.

Product safety and product liability claims and litigation would be costly and adversely impact the Company's financial condition.

AtheroNova's pharmaceutical compounds will have known side effects and could have significant side effects that are not identified during the research and approval phases. If patients are affected by known or unknown side effects, related claims may exceed insurance coverage and materially and adversely impact the Company's financial condition.

AtheroNova's industry is highly competitive and the Company has less capital and resources than many of its competitors, which may give competitors an advantage in developing and marketing similar products or make the Company's products obsolete.

AtheroNova is engaged in highly competitive fields of pharmaceutical R&D. Competition from numerous existing companies and others entering the fields in which the Company operates is intense and expected to increase. AtheroNova expects to compete with, among others, conventional pharmaceutical companies. Most of these companies have substantially greater R&D, manufacturing, marketing, financial, technological personnel, and managerial resources than the Company does. Acquisitions of competing companies by large pharmaceutical or healthcare companies could further enhance such competitors' financial, marketing, and other resources. Moreover, competitors that are able to complete clinical trials, obtain required regulatory approvals, and commence commercial sales of their products before the Company does may enjoy a significant competitive advantage. There are also existing therapies that may compete with the products the Company is developing. There can be no assurance that AtheroNova will be able to successfully compete against these other entities.

If the Company does not establish strategic partnerships to commercialize its products under development, it will have to undertake commercialization efforts on its own, which could be costly and may ultimately be unsuccessful.

AtheroNova may selectively partner with other companies to obtain assistance for the commercialization of certain of its products. AtheroNova may enter into strategic partnerships with third parties to develop and commercialize some of its products that are intended for larger markets or that otherwise require a large, specialized sales and marketing organization, and the Company may enter into strategic partnerships for products that are targeted beyond its selected target markets. AtheroNova faces competition in seeking appropriate strategic partners, and these strategic partnerships can be intricate and time consuming to negotiate and document.

AtheroNova may not be able to negotiate strategic partnerships on acceptable terms, or at all. The Company is not able to predict when, if ever, it will enter into any strategic partnerships due to the numerous risks and uncertainties associated with establishing strategic partnerships. If the Company is unable to negotiate strategic partnerships for its products under development, the Company may be forced to reduce the scope of its anticipated sales or marketing activities or undertake commercialization activities at its own expense. In addition, the Company will bear the entire risk related to the commercialization of these products. If the Company elects to increase its expenditures to fund commercialization activities on its own, it will need to obtain additional capital, which may not be available on acceptable terms, or at all.

If the Company's licensees fail to sustain compliance with regulatory standards and laws applicable to medical products production, manufacturing, and quality processes, the marketing of the Company's products could be suspended, and such suspension could, for the Company's licensees, lead to fines, withdrawal of regulatory clearances, product recalls, or other consequences, any of which could in turn adversely affect the Company's projected business operations, financial condition, or results of operations.

AtheroNova's licensees, which will be manufacturers of medical products or pharmaceuticals, will be subject to periodic inspection by the FDA for compliance with regulations that require manufacturers to comply with certain practices and standards, including testing, quality control, and documentation procedures. In addition, federal medical device reporting regulations will require licensees to provide information to the FDA whenever there is evidence that reasonably suggests that a medical product may have caused or contributed to a death or serious injury or, if a malfunction were to occur, could cause or contribute to a death or serious injury. Compliance with these requirements is subject to continual review and is rigorously monitored through periodic FDA inspections. In foreign markets, the Company's licensing partners will be required to obtain certain certifications in order to sell medical products and will have to undergo periodic inspections by regulatory bodies to maintain these certifications. If the Company's licensees fail to adhere to any laws and standards applicable to medical product manufacturers, the marketing of products could be suspended, and such failure could, for the Company's licensees, lead to fines, withdrawal of regulatory clearances, product recalls, or other consequences, any of which could adversely affect projected business operations, financial condition, or results of operations.

AtheroNova's licensees will also be subject to certain environmental laws and regulations. AtheroNova's licensing partners' manufacturing operations may involve the use of substances and materials regulated by various environmental protection agencies and regulatory bodies. AtheroNova cannot guarantee that any licensee will sustain compliance with environmental laws, and that regulations will not have a material impact on earnings, financial condition, or business operations.

Failure of the Company's licensees to comply with laws and regulations relating to reimbursement of healthcare products may adversely impact the Company's business operations.

Medical products are subject to regulation regarding quality and cost by the U.S. Department of Health and Human Services, Centers for Medicare & Medicaid Services, and comparable state and foreign agencies that are responsible for payment and reimbursement of healthcare goods and services. In the U.S., healthcare laws apply to the Company's licensing partners' business operations when a reimbursement claim is submitted under a federal government funded healthcare program. Federal laws and regulations prohibit the filing of false or improper claims for federal payment and unlawful inducements for the referral of business reimbursable under federally funded healthcare programs (known as the anti-kickback laws). If a government agency or regulatory body were to conclude that the Company's licensees were not in compliance with applicable laws and regulations regarding payment or reimbursement of medical products, they could be subject to criminal and civil penalties, including exclusion from participation as a supplier of products to beneficiaries covered by government healthcare programs. Such exclusions could negatively affect the Company's distribution channels, financial condition, or results of operations.

Quality problems with a licensee's manufacturing processes could harm the Company's reputation and affect demand for medical products using its technology.

Ensuring the quality of products and manufacturing processes is critical for medical product companies due to the high cost and seriousness of product failures or malfunctions. If any of the Company's licensees failed to meet adequate quality standards, AtheroNova and its reputation could be damaged and revenues would decline. In addition, production of medical products that utilize its technology may depend on licensees' abilities to engineer and manufacture precision components and assemble such components into intricate medical products. AtheroNova cannot guarantee that its licensees or third-party suppliers will not encounter problems or delays in timely manufacturing or assembling the Company's products and other materials related to the manufacture or assembly of products, or in manufacturing products in amounts sufficient to support the Company's development and commercialization efforts. If licensees fail to meet these requirements or fail to adapt to changing requirements, AtheroNova and its reputation may suffer and demand for products implementing the Company's technology would decline significantly.

Uncertainties regarding healthcare reimbursements may adversely affect the Company's business.

Healthcare cost-containment pressures decrease the prices end-users are willing to pay for medical products, which could have an adverse effect on the Company's royalty revenue. Products that may implement the Company's technology may be purchased by hospitals or physicians, which typically bill governmental programs, private insurance plans, and managed care plans for the healthcare devices and services provided to their patients. The ability of these customers to obtain reimbursement from private and governmental third-party payors for the products and services they provide to patients is critical to commercial success. The availability of reimbursement affects which products customers purchase and the prices they are willing to pay. Reimbursement varies from country to country and can significantly impact the acceptance of new products and services. Although the Company and its licensees may have a promising new product, the Company and its licensees may find limited demand for the medical product unless reimbursement approval is obtained from private and governmental third-party payors. Even if reimbursement approval is obtained from private and governmental third-party payors, the Company may still find limited demand for the product for other reasons. In addition, legislative or administrative reforms to the U.S., or to international reimbursement systems, in a manner that significantly reduces reimbursement for products or procedures using its technology, or denial of coverage for those products or procedures, could have a material adverse effect on AtheroNova's business, financial condition, or results of operations.

Major third-party payors for hospital services in the U.S. and abroad continue to work to contain healthcare costs. The introduction of cost-containment incentives, combined with closer scrutiny of healthcare expenditures by both private health insurers and employers, has resulted in increased discounts and a contractual adjustment to hospital charges for services performed and has shifted services between inpatient and outpatient settings. Initiatives to limit the increase of healthcare costs, including price regulation, are also ongoing in markets in which the Company's licensees may do business. Hospitals or physicians may respond to these cost-containment pressures by insisting that the Company's licensees lower prices, which may adversely affect royalties.

In response to increasing healthcare costs, there has been and may continue to be proposals by legislators, regulators, and third-party payors to reduce these costs. If these proposals are passed, limitations and/or reductions may be placed on the net or allowable price of products implementing the Company's technology or the amounts of reimbursement available for these products from customers, governmental bodies, and third-party payors. These limitations and reductions on prices may have a material adverse effect on the Company's financial position and results of operations.

AtheroNova and the Company's licensees will be required to attract and retain top quality talent to compete in the marketplace.

AtheroNova believes that the Company's future growth and success will depend in part on its and its licensees' abilities to attract and retain highly skilled managerial, product development, sales and marketing, and finance personnel. There can be no assurance of success in attracting and retaining such personnel. Shortages in qualified personnel could limit the Company's ability to increase sales of existing products and services and launch new product and service offerings.

AtheroNova's forecasts are highly speculative in nature and the Company cannot predict results in a development-stage company with a high degree of accuracy.

Any financial projections, especially those based on ventures with minimal operating history, are inherently subject to a high degree of uncertainty, and their ultimate achievement depends on the timing and occurrence of a complex series of future events, both internal and external to the enterprise. There can be no assurance that potential revenues or expenses the Company project will, in fact, be received or incurred.

AtheroNova will be subject to evolving and costly corporate governance regulations and requirements. Failure to adequately adhere to these requirements or the failure or circumvention of the Company's controls and procedures could seriously harm its business.

As a publicly traded company, the Company is subject to various federal, state, and other rules and regulations, including applicable requirements of the Sarbanes-Oxley Act of 2002. Compliance with these evolving regulations is costly and requires a significant diversion of management's time and attention, particularly with regard to disclosure controls and procedures and internal control over financial reporting. AtheroNova's internal controls and procedures may not be able to prevent errors or fraud in the future. Faulty judgments, simple errors or mistakes, or the failure of personnel to adhere to established controls and procedures may make it difficult for the Company to ensure that the objectives of the control system are met. A failure of controls and procedures to detect other than inconsequential errors or fraud could seriously harm AtheroNova's business and results of operations.

AtheroNova's limited senior management team size may hamper its ability to effectively manage a publicly traded company while developing products and harm the Company's business.

AtheroNova's management team has experience in the management of publicly traded companies and complying with federal securities laws, including compliance with recently adopted disclosure requirements on a timely basis. They realize it will take significant resources to meet these requirements while simultaneously working on licensing, developing, and protecting the Company's IP. AtheroNova's management will be required to design and implement appropriate programs and policies in response to increased legal, regulatory compliance, and reporting requirements, and any failure to do so could lead to the imposition of fines and penalties and harm the Company's business.

The issuance of Notes in a May 2010 Capital Raise Transaction has subjected the Company to possible remedies of a secured creditor and has limited the Company's financing alternatives.

AtheroNova's obligations under the Notes are debt obligations secured by security interests in all of its and all of the assets of its subsidiaries, including IP. If the Company defaults on obligations under the Notes and related agreements, the Note holders will be entitled to all the remedies available to secured creditors under the applicable Uniform Commercial Code, including (without limitation) the ability to accelerate the due date for the entire principal amount, charge default interest and penalties, and foreclose on the Company's assets. In addition, the Company is required to comply with certain covenants under the Notes, including covenants relating to incurring additional indebtedness without the Note holders' consent. These covenants, in the absence of waiver by the Note holders, limit the Company's ability to fund operations through additional debt financing. Additionally, financial penalties in the Notes and Warrants may make it difficult to obtain funding from, or be acquired by, a third party.

AtheroNova's CEO does not devote his full-time efforts to the Company. His departure could be an event of default under the Notes.

While the Company believes that Thomas Gardner's services will be available to it, he currently has a non-exclusive contractual agreement to perform the services of CEO of PhyGen LLC, which designs, manufactures, and sells instruments and implants for spine surgery. During 2012, PhyGen LLC entered into an Asset Purchase Agreement under which Alphatec Holdings, Inc. purchased all right, title and interest in certain assets used by PhyGen in the design, development, marketing and distribution of certain of PhyGen's spinal implant products, together with the intellectual property rights, contractual rights, inventories and certain liabilities thereto. Mr. Gardner is obligated to continue to provide management services to Alphatec as a member of a transition management team during the integration process. To assist with ongoing operations, the Company employs CFO Mark Selawski on a full-time basis to assist in the day-to-day operations. Mr. Selawski has over 16 years' experience in the healthcare field and has had a previous working relationship with Mr. Gardner. To supplement this arrangement, the Company has secured office space adjacent to Mr. Gardner's current place of business in order to facilitate a proximal work environment for him and Mr. Selawski. There can be no assurances that the financial arrangements that the Company has made for Mr. Gardner, or the provisions of the management consulting agreement the Company entered into with him, will be effective and adequate at this stage in development to retain his services. If Mr. Gardner ceases to be an employee of the Company (other than due to a termination without good cause), that will be an event of default under the Notes unless the Company obtains a reasonably acceptable full-time replacement for Mr. Gardner within 90 days after such termination.

RISKS RELATED TO ATHERONOVA'S COMMON STOCK

The limited trading market for the Company's common stock results in limited liquidity for shares of the Company's common stock and significant volatility in stock price.

Although prices for the Company's shares of common stock are quoted on the OTC electronic interdealer quotation system ("OTCQB"), there is little current trading and no assurance can be given that an active public trading market will develop or, if developed, that it will be sustained. The OTCQB is generally regarded as a less efficient and less prestigious trading market than other national markets. There is no assurance if or when the Company's common stock will be quoted on another more prestigious exchange or market. Active trading markets generally result in lower price volatility and more efficient execution of buy and sell orders. The absence of an active trading market reduces the liquidity of the Company's common stock.

The market price of the Company's stock is likely to be highly volatile because for some time there will likely be a thin trading market for the stock, which causes trades of small blocks of stock to have a significant impact on the Company's stock price. As a result of the lack of trading activity, the quoted price for the Company's common stock on the OTCQB is not necessarily a reliable indicator of its fair market value. Further, if the Company ceases to be quoted, holders of its common stock would find it more difficult to dispose of, or to obtain accurate quotations as to the market value of, its common stock, and the market value of its common stock would likely decline.

Trading in the Company's Common Stock will be subject to regulatory restrictions since the Common Stock is considered a "penny stock."

AtheroNova's common stock is currently, and in the near future will likely continue to be, considered a penny stock. The SEC has adopted rules that regulate broker-dealer practices in connection with transactions in penny stocks. Penny stocks generally are equity securities with a price of less than $5.00 (other than securities registered on certain national securities exchanges or quoted on the NASDAQ system, provided that current price and volume information with respect to transactions in such securities is provided by the exchange or system). The penny stock rules require a broker-dealer, prior to a transaction in a penny stock not otherwise exempt from those rules, to deliver a standardized risk disclosure document prepared by the SEC, which specifies information about penny stocks and the nature and significance of risks of the penny stock market. The broker-dealer also must provide the customer with bid and offer quotations for the penny stock, the compensation of the broker-dealer and any salesperson in the transaction, and monthly account statements indicating the market value of each penny stock held in the customer's account. In addition, the penny stock rules require that, prior to a transaction in a penny

stock not otherwise exempt from those rules, the broker-dealer must make a special written determination that the penny stock is a suitable investment for the purchaser and receive the purchaser's written agreement to the transaction. These disclosure and other requirements may adversely affect the trading activity in the secondary market for the Company's common stock.

Substantial future sales of the Company's Common Stock in the public market could cause the stock price to fall.

Sales of a significant number of shares of the Company's common stock in the open market could cause additional harm to the market price of the common stock. Further reduction in the market price for the shares could make it more difficult to raise funds through future equity offerings. Some of the shares may also be offered from time-to-time in the open market pursuant to Rule 144, and these sales may have a depressive effect on the market for the shares. In general, a non-affiliate who has held restricted shares for a period of six months may sell an unrestricted number of shares of the Company's common stock into the market.

AtheroNova has not paid dividends in the past and does not expect to pay dividends for the foreseeable future, and any return on investment may be limited to potential future appreciation on the value of the Company's Common Stock.

AtheroNova currently intends to retain any future earnings to support the development and expansion of the business and does not anticipate paying cash dividends in the foreseeable future. AtheroNova's payment of any future dividends will be at the discretion of the Board of Directors after taking into account various factors, including (without limitation) financial condition, operating results, cash needs, growth plans, and the terms of any credit agreements that the Company may be a party to at the time. To the extent the Company does not pay dividends, its stock may be less valuable because a return on investment will only occur if and to the extent the stock price appreciates, which may never occur. In addition, investors must rely on sales of their common stock after price appreciation as the only way to realize their investment, and if the price of the stock does not appreciate, then there will be no return on investment. Investors seeking cash dividends should not purchase the Company's common stock.

AtheroNova's officers, directors, and principal stockholders can exert significant influence over the Company and may make decisions that are not in the best interests of all stockholders.

AtheroNova's officers, directors, and principal stockholders (greater than 5% stockholders) collectively own approximately 32% of the Company's outstanding common stock. As a result of such ownership and the Voting Agreement that is in place, these stockholders will be able to affect the outcome of, or exert significant influence over, all matters requiring stockholder approval, including the election and removal of directors and any change in control. In particular, this concentration of ownership of the Company's common stock could have the effect of delaying or preventing a change of control or otherwise discouraging or preventing a potential acquirer from attempting to obtain control. This, in turn, could have a negative effect on the market price of the common stock. It could also prevent the Company's stockholders from realizing a premium over the market prices for their shares of common stock. Moreover, the interests of this concentration of ownership may not always coincide with the Company's interests or the interests of other stockholders, and accordingly, they could cause the Company to enter into transactions or agreements that it would not otherwise consider.

Anti-takeover provisions may limit the ability of another party to acquire the Company, which could cause the Company's stock price to decline.

AtheroNova's certificate of incorporation, as amended, its bylaws, and Delaware law contain provisions that could discourage, delay, or prevent a third party from acquiring the Company, even if doing so may be beneficial to the Company's stockholders. In addition, these provisions could limit the price investors would be willing to pay in the future for shares of the Company's common stock.

Recent Events

12/05/2013—Announced the achievement of a major milestone with the completion of the active treatment portion of its Phase I clinical trial with its lead compound, AHRO-001. The Phase I study objective is to evaluate the safety, tolerability and pharmacokinetics of AHRO-001 in healthy volunteers. The clinical study is being conducted in Russia with AtheroNova's licensing partner, OOO CardioNova.

10/15/2013—Announced that Erik S.G. Stroes, M.D., chair and professor at the Academic Medical Center located at the University of Amsterdam, has been appointed to the Company's Clinical Advisory Board.

06/27/2013—Announced publication of the preclinical study that supported the clinical development of the Company's investigational AHRO-001 drug. The study, which was conducted by scientists at the David Geffen School of Medicine, University of California Los Angeles, was published in the June 10, 2013, online issue of the *FASEB Journal* in advance of the print issue. This study results showed AHRO-001's potential to not only lower cholesterol level but decrease atherosclerotic lesions.

06/25/2013—Announced the achievement of a major milestone with the initiation of a Phase I clinical trial with its lead compound, AHRO-001. The Phase I study is designed to evaluate the safety, tolerability, and pharmacokinetics of AHRO-001 in healthy volunteers. The clinical study is being conducted in Russia with AtheroNova's licensing partner, CardioNova.

05/30/2013—Announced that it shipped the necessary clinical supplies of AHRO-001 to its Russian licensing partner, CardioNova.

05/09/2013—Announced that CardioNova received written notification of approval of the Phase I protocol in its Investigational New Drug (IND) application with the Ministry of Healthcare of the Russian Federation (Minzdrav). CardioNova expects to obtain approval of its importation license for AHRO-001 in the next few weeks and commencement of patient screenings for its Phase I trial once the compound is at the participating clinical centers.

04/15/2013—Announced that John J.P. Kastelein, M.D., Ph.D., professor of medicine at the department of vascular medicine at the Academic Medical Center and strategic chair of genetics in cardiovascular disease at the University of Amsterdam, has joined the Company as a member of the Clinical Advisory Board and is expected to be a co-principal investigator in the Company's upcoming clinical trials

04/11/2013—Announced that Stephen Nicholls, M.B.B.S., Ph.D., heart disease theme leader at the South Australia Health and Medical Research Institute (SAHMRI), was appointed as chair of the Clinical Advisory Board, replacing the recently retired Dr. Giorgio Zadini, one of the co-founders of AtheroNova. Dr. Nicholls is also expected to be a co-principal investigator in the Company's upcoming clinical trials.

03/21/2013—AtheroNova filed a Form 8-K with the U.S. Securities and Exchange Commission (SEC) announcing that the Company's financial statements for the fiscal quarters ended June 30, 2012, and September 30, 2012, needed to be restated, due to an amendment of certain notes and warrants issued in 2010. AtheroNova filed the restated financial statements on March 29, 2013.

3/14/2013—Announced that Dr. Giorgio Zadini, one of the Company's co-founders, transferred certain of his holdings in connection with his retirement from all business activities. The transactions were concluded with investors from the Company's recent private placement offering as well as other long-term investors of AtheroNova.

01/29/2013—Announced the launch of its new website, designed to allow investors and interested parties to follow the coming developments in the Company as it transitions from a preclinical to a clinical-stage company. The website, which went live January 18, 2013, has augmented content and graphics to enhance the user experience. Concurrently, the Company developed a mobile app that allows users and investors to receive update alerts on AtheroNova's news and access public documents of the Company.

01/08/2013—Announced that Joan E. Shaw, MT (ASCP), SCC joined the Company as senior director of clinical operations. Ms. Shaw brings more than 20 years of drug development experience leading to successful NDA submissions and product launches for leading organizations such as AstraZeneca and DuPont Pharmaceuticals.

12/18/2012—Announced that Mark K. Wedel, M.D., J.D. joined the Company as senior vice president of clinical affairs and chief medical officer.

11/15/2012—Announced that it has received a Notice of Issuance for its patent application for Dissolution of Arterial Plaque. This patent issuance is the first major step in the development of the Company's intellectual property involving lipid modulation and reduction. This issuance culminates a major effort by the Company and its patent counsel in pursuit of a patent covering the use of hyodeoxycholic acid for atherosclerotic plaque lesions.

11/13/2012—Announced that its Russian licensing partner OOO CardioNova formally submitted its IND application with Minzdrav. This filing was the first step in the process of obtaining approval in Russia to conduct the Phase I human clinical trials.

11/07/2012—Announced that Fred Knoll, the principal and portfolio manager of Knoll Capital Management, was named to the Company's Board of Directors.

10/11/2012—Announced that it closed a sale to accredited investors of an aggregate of 5,850,000 units, which are composed of one share of the Company's common stock and a warrant to purchase 0.5 shares of common stock. The private placement raised a total of $2,925,000, with net proceeds of approximately $2.0 million. The Company expects to use the proceeds for working capital and for continued development of its compounds.

10/09/2012—Announced today that the Company is supporting an additional preclinical study to expand the uses of compounds under the Company's pending patents. The study is being conducted at UCLA's The David Geffen School of Medicine on a contract basis.

Glossary

Amyotrophic Lateral Sclerosis (ALS)—Also known as Lou Gehrig's disease, ALS is a progressive degeneration of the motor neurons of the central nervous system, leading to wasting of the muscles and paralysis.

Aneurysm—An excessive localized enlargement or bulging of an artery caused by a weakening of the artery wall.

Angioplasty—A surgical procedure to repair or unblock a blood vessel. The procedure consists of mechanically widening a narrowed or obstructed blood vessel, a condition typically associated with atherosclerosis.

Angiotensin-Converting Enzyme (ACE) Inhibitors—A group of blood pressure medications used primarily in the treatment of hypertension and congestive heart failure. ACE inhibitors work by reducing the production of angiotensin, a chemical that causes arteries to constrict.

Antiplatelets—An antithrombotic pharmaceutical that decreases platelet aggregation and inhibits blood clot formation.

Antithrombotic Drugs—Medications that interfere with the formation of blood clots (i.e., thrombi). There are two main types of antithrombotic therapeutics: anticoagulants and antiplatelet drugs.

Atheromas—A fatty deposit in the intima (inner lining) of an artery that can obstruct blood flow. The deposit is cell debris that contains lipids (cholesterol and fatty acids), calcium, and a variable amount of fibrous connective tissue. Also known as atherosclerotic plaque.

Atherosclerosis—The clogging or hardening of arteries or blood vessels caused by the accumulation of fatty deposits or plaques. Also known as arteriosclerotic vascular disease (ASVD).

Atherosclerotic Plaque—See *Atheromas*.

Beta Blockers (BBs)—Any of a class of drugs that prevent the stimulation of the adrenergic receptors responsible for increased cardiac action. BBs are used to control heart rhythm, treat angina, and reduce high blood pressure.

Bile Acid—Alkaline acids present in the bile that function as an emulsifier of lipids and fatty acids. Bile acids are derivatives of cholesterol produced in the liver, with detergent properties that aid in the breakdown of dietary fats in the digestive tract.

Calcium Channel Blockers (CCBs)—A class of drugs that blocks the movement of calcium into the heart and blood vessel muscle cells, causing the muscles to relax. CCBs dilate the arteries, thus lowering blood pressure, slowing the heart rate, and decreasing oxygen demands of the heart. CCBs are primarily used for treating high blood pressure, rapid heart rhythms, and may also be prescribed after a heart attack.

Cholesterol Efflux—The action or process for extrusion or elimination of cholesterol.

Coronary Artery Disease (CAD)—A condition marked by the accumulation of plaques and narrowing of the coronary arteries, reducing blood flow and affecting the supply of oxygen and nutrients to the heart. Also known as atherosclerotic heart disease.

Emulsifiers—Compounds capable of breaking up fatty substances into small particles that can be suspended in a fluid and not settle out.

Fast Tracked (or Fast Track)—An FDA status reserved for products that demonstrate the potential to treat a serious or life-threatening condition that has unmet medical needs. Fast Track designation, which was mandated by the FDA Modernization Act of 1997, can potentially facilitate development and expedite the review of new therapeutic agents.

Fibrous Cap—A layer of fibrous connective tissue separating an atherosclerotic lesion or plaque accumulation from the arterial lumen.

Gallstones—A small, hard crystalline mass formed abnormally in the gallbladder or bile ducts from bile pigments, cholesterol, and calcium acids. Gallstones can cause severe pain and blockage of the bile duct.

High-Density Lipoprotein (HDL) Cholesterol—A lipoprotein that transports cholesterol in the blood, composed of a high proportion of protein and relatively little cholesterol. High levels are thought to be associated with decreased risk of coronary heart disease and atherosclerosis.

Hyperglycemia—An excess of glucose in the bloodstream, often associated with diabetes mellitus.

Innominate Arterial Plaque (Innominate Artery Disease)—Involves blockages in the artery that supplies blood to the right arm and head and neck. Also known as the brachiocephalic artery, the innominate artery is the first branch from the aortic arch, the top portion of the main artery carrying blood away from the heart.

Intravascular Ultrasonography (IVUS)—A medical ultrasound imaging methodology using a specially designed catheter with an attached miniaturized ultrasound probe. It sees from inside blood vessels out through the surrounding blood column, visualizing the endothelium (inner wall) of blood vessels in living individuals.

Investigational New Drug (IND)—An application containing laboratory (preclinical) study results of a drug candidate submitted to the FDA to request permission to conduct clinical trials in humans.

Lipid Regulators—A class of therapeutic compounds, mainly statins, used to prevent dyslipidemia (high blood cholesterol) and reduce the risk of cardiovascular problems. In addition, lipid regulators have been prescribed for the prevention and treatment of many other illnesses, including osteoporosis and post-menopause complications.

Lipomas—A benign tumor of fatty tissue.

Low-Density Lipoprotein (LDL) Cholesterol—A lipoprotein that transports cholesterol in the blood, composed of a moderate amount of protein and a large amount of cholesterol. High levels are thought to be associated with increased risk of coronary heart disease and atherosclerosis.

Macular Degeneration—Eye disease caused by degeneration of the cells of the inner lining of the eye, or macula, which results in loss of central vision, blurred vision, and in some cases blindness.

Master Black Belts—Teachers and leaders of team responsible for measuring, analyzing, improving and controlling key processes that influence customer satisfaction and/or productivity growth.

Myoglobin—A red protein that carries and stores oxygen in muscle cells. It is structurally similar to a subunit of hemoglobin.

Necrosis—The death of cells in an organ or tissue due to disease, injury, or failure of the blood supply.

Nitrates—Any compound containing the nitrate group (such as an acid or ester of nitric acid). Nitrates act as vasodilators, relaxing the muscle in the wall of the vessel so that blood can flow more easily. Nitrates are an effective therapy in the treatment of heart failure.

Peripheral Artery Disease (PAD)—Obstruction or narrowing of large arteries not within the coronary, aortic arch vasculature, or brain, causing circulatory problems and reduced blood flow most commonly in the arteries of the pelvis and leg. Commonly referred to as peripheral vascular disease (PVD).

Peripheral Neuropathy—Disorder that involves the damage to nerves of the peripheral nervous system, which may be caused either by diseases of the nerve or from the side effects of systemic illness. Peripheral neuropathy commonly affects the feet, legs, or hands, and can cause pain, numbness, or a tingling feeling.

Polyneuropathy—A general degeneration of peripheral nerves that spreads toward the center of the body.

Primary Biliary Cirrhosis (PBC)—An autoimmune disease of the liver marked by the slow progressive destruction of the small bile ducts. When these ducts are damaged, bile builds up in the liver and over time damages the tissue.

Pulmonary Embolism—The blockage or obstruction of a pulmonary artery, usually by a detached blood clot or foreign matter, which causes a stoppage of blood into the lungs. Symptoms include shortness of breath, chest pain and fainting. Pulmonary embolisms can also sometimes result in death.

RAW 264.7—Mouse monocyte macrophage cells normally used in studies of lipid metabolism, inflammation, and apoptosis.

Smooth Muscle Cells—Type of long, spindle-shaped muscle cell making up the muscular tissue found in the walls of arteries and of the intestines, as well as other locations of the body.

Stable Plaque—Atherosclerotic lesions or plaques that show a rich fibrous cap, preventing the detachment of the plaques into the circulation. Stable plaque accumulation tends to be asymptomatic.

Statins—A class of lipid-lowering drugs that reduce the amount of triglycerides and low-density lipoprotein (LDL) cholesterol in the blood by inhibiting an enzyme involved in its biosynthesis.

Total Global Amnesia—A clinical neurology syndrome whose key defining characteristic is the temporary but almost total disruption of short-term memory with a range of problems accessing older memories. The sudden, temporary episode of memory loss typical of this condition are not attributed to a more common neurological condition, such as epilepsy or stroke.

Type 2 Diabetes—A metabolic disorder that is characterized by high blood glucose in the context of insulin resistance and relative insulin deficiency. Also known as non-insulin-dependent diabetes mellitus (NIDDM) or adult-onset diabetes.

Unstable Plaque—Atherosclerotic lesions or plaques that show a weak fibrous cap prone to rupture, which can lead to coronary occlusion and embolisms.

Ursodeoxycholic Acid (UDCA)—One of the secondary bile acids. The compound, which is naturally produced by the body, can be used for dissolving cholesterol-rich gallstones. Also known as UDCA or ursodiol.

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