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Executive Informational Overview®

AtheroNova Inc. (AHRO-OTC.BB)

Snapshot

June 6, 2012

AtheroNova Inc. ("AtheroNova" or "the Company") is a development-stage biotechnology company targeting novel compounds to dissolve or **regress† atherosclerotic plaque** deposits—a thickening of the arteries due to buildup of fat, **cholesterol**, and other substances. 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, works to significantly reduce the incidence and severity of plaque by employing a **bile salt** to dissolve existing atherosclerotic plaque deposits as well as prevent the formation of new ones. Bile salts are a U.S. Food and Drug Administration (FDA)-approved natural compound used to dissolve gallstones. Following a pre-**Investigational New Drug (IND)** meeting with the FDA in October 2011, the Company is now preparing for AHRO-001 to enter Phase I human clinical trials. Beyond development of AHRO-001, AtheroNova expects to employ its intellectual property (IP) to develop multiple pharmaceutical-grade applications for its compounds, potentially in the areas of obesity, hypertension, diabetes, PAD, localized transdermal fat dissolution, and the non-invasive dissolution of **lipomas**.

Corporate Headquarters

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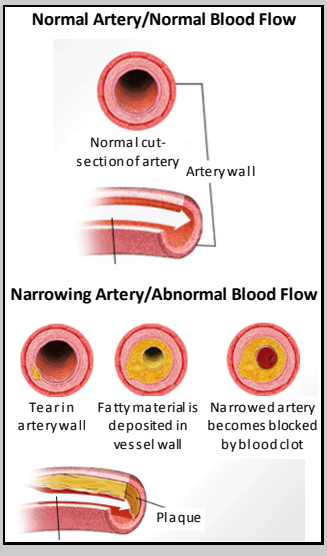
Financial Data

Ticker (Exchange)	AHRO (OTC.BB)
Recent Price (06/05/2012)	$0.70
52-week Range	$0.45 - $1.99
Shares Outstanding*	~28.5 million
Market Capitalization	~$20 million
Average 3-month Volume	12,397
Insider Owners + >5%	57.1%
Institutional Owners**	23%
EPS (Qtr. ended 03/31/2012)	$0.02 (dil.)
Employees	4

* As of May 8, 2012. ** Includes private corporations.

Key Points



- **Lipid regulators**, specifically **statins**, are the most effective method for reducing serum cholesterol levels, achieving blockbuster status with revenues of $37 billion as of 2010 (Source: IMS Health, Inc.). However, at commonly prescribed dosage levels, they are ineffective at reducing plaque, carry significant drawbacks in their tolerability, and may pose complications resulting from long-term use.
- AtheroNova's AHRO-001 is being developed to compete with lipid-regulating statins to become the new standard for reducing or eliminating atherosclerotic plaque. 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.
- In late 2011, AtheroNova signed a licensing agreement with Maxwell Biotech Group for AHRO-001, with Maxwell committing to fund Phase I and Phase II human clinical studies in Russia.
- The Company has a primary patent pending for the dissolution of arterial plaque. Furthermore, AtheroNova has patents pending for other applications of its compound and is developing a freedom-to-operate opinion from McDermott Will and Emory LLP, a global IP firm.
- AtheroNova's management team and Board of Directors has experience in other pharmaceutical-related projects, including Botox®, Lumigan®, and Restasis®, and its Scientific Advisory Board includes members from the Cleveland Clinic.
- The Company recently successfully completed preclinical studies with UCLA and Cedars-Sinai, with results expected to be published in scientific journals by early 2013.

†**BOLD** WORDS ARE REFERENCED IN THE GLOSSARY ON PAGES 46-48.

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Investment Highlights

- AtheroNova Inc. has developed intellectual property (IP) for a class of compounds that has the potential to significantly 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 the arteries causes thickening, hardening, and blockage. Atherosclerosis is the main cause of cardiovascular disease.
- Regression and stabilization of atherosclerotic plaque could become a new standard to treat patients with cardiovascular disease. Current standards of care, including statins, represent the most effective method to date for preventing atherosclerosis. However, at commonly prescribed dosage levels, statins are ineffective at reducing plaque and carry significant drawbacks related to their tolerability. Furthermore, complications can result from long-term use. Other standards of care, including drug eluting stents, catheterization, and balloon **angioplasty**, do not reduce plaque volume.
- AtheroNova seeks to become the standard for reducing or eliminating atherosclerosis. The Company's most advanced product candidate, AHRO-001, works to significantly reduce the incidence and severity of plaque by dissolving existing atherosclerotic plaque deposits and removing them by natural body processes (via a method called **delipidization**) as well as preventing the formation of new plaque deposits. AHRO-001 has not shown morbidity, adverse effects, or mortality in preclinical proof of principal and mechanism of action studies and is well tolerated at high doses. In the U.S., there are roughly 82 million individuals presenting with some form of cardiovascular disease, supporting a $37 billion U.S. market for lipid regulators (as of 2010).
- Initial preclinical study data conducted at UCLA's David Geffen School of Medicine showed that following exposure to AtheroNova's AHRO-001, mice with very high levels of plaque had a 95% reduction in the amount of innominate arterial plaque versus the control group. On the safety side, all blood tests for the group that was given AHRO-001 demonstrated no toxicity. These findings were presented at the 2011 American Heart Association (AHA) Scientific Sessions in Orlando, Florida.
- The U.S. Food and Drug Administration (FDA) has approved bile salts 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 salt-based therapeutic with a precedent for a positive safety and efficacy profile.
- Only one currently available statin, rosuvastatin (Crestor®) by AztraZeneca PLC (AZN-NYSE), has been able to show statistically significant measurable regression of atherosclerotic plaque within the coronary arteries. According to the Company, however, these results were achieved on patients taking the maximum approved dosage for two years.
- AtheroNova signed a binding term sheet in September 2011 with the Maxwell Biotech Group related to commercialization rights for AHRO-001, whereby Maxwell committed to fund Phase I and Phase II human clinical studies of AHRO-001 in Russia in return for up to $3.8 million in Common Stock and an exclusive license to develop and commercialize AHRO-001 in select territories within the Russian Federation and other former Soviet Republics. Also, the Company entered into an agreement with Frontage Laboratories, Inc. to commence work on the formulation, compounding, and tabletization of AHRO-001 in advance of the upcoming Phase I and Phase II human clinical studies. The first shipment of AHRO-001 Active Pharmaceutical Ingredient (API) took place in March 2012 for use in toxicology studies for Russian regulatory submission purposes.
- Beyond developing AHRO-001, AtheroNova plans to employ its IP 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.
- The Company has a primary patent pending for the dissolution of arterial plaque. 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 IP firm.
- AtheroNova's management possesses extensive experience in the healthcare and pharmaceutical spaces, both at established companies as well as successful start-up biotechnology ventures. The Company's leadership has helped in the development, regulatory approval, worldwide registration, and commercialization of several therapeutic compounds and devices.

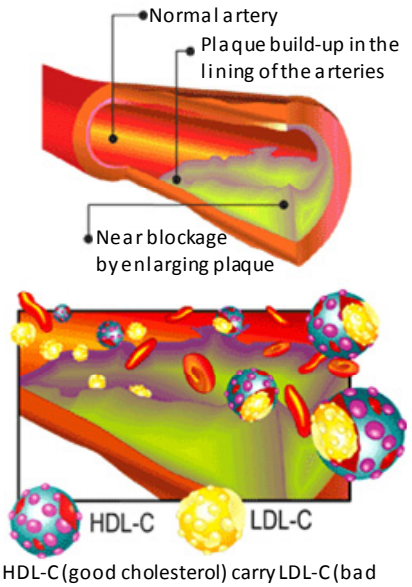
Executive Overview

AtheroNova Inc. ("AtheroNova" or "the Company") is a biotechnology company focused on discovering, researching, developing, and licensing pharmaceuticals to reduce or eliminate atherosclerosis—a thickening of the arteries that 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, with atherosclerosis being the primary fundamental pathology.

AtheroNova is researching patent-pending applications of bile salts (natural compounds that have been used previously to dissolve gallstones) to regress atherosclerotic plaques (**atheromas**) via a process called delipidization, which dissolves plaque in artery walls and removes it by natural body processes. The Company's most advanced compound, AHRO-001, is being developed as a breakthrough regression treatment of atherosclerotic plaque. Using a unique approach, AHRO-001 is intended to dissolve existing atherosclerotic plaques as well as prevent the formation of new ones. The Company seeks to market its product against currently approved therapies, which merely stabilize the disease. 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 further seeks to employ its intellectual property (IP) 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.

Formation of Atherosclerosis

Figure 1
UNDERSTANDING CHOLESTEROL



HDL-C (good cholesterol) carry 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.

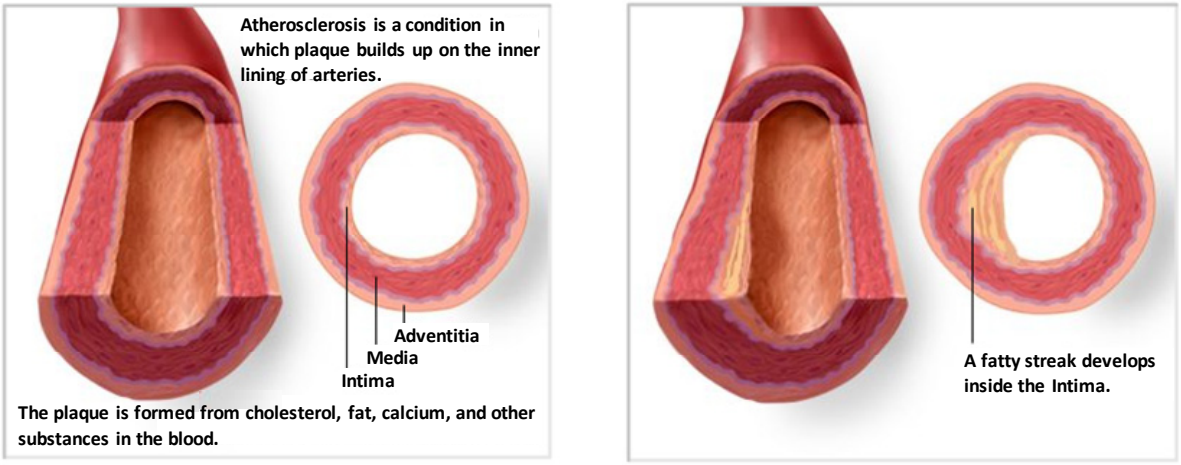
Cholesterol deposits or "plaque" accumulate in arteries over time and can be related to diet, heredity, and other blood chemistry factors. Plaque accumulations are the sum of the **low-density lipoprotein (LDL) cholesterol** that circulates within a person's blood. It is believed that a higher LDL reading 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. This process is illustrated in Figure 1.

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 [page 5]). This can result in conditions such as hypertension, kidney failure, **macular degeneration**, PAD, and erectile dysfunction. 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

Healthy Artery	Artery With Plaque (Atherosclerosis)



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. Other 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.

Market Size

In 2010, global lipid regulator spending reached $37 billion, driven by a high prevalence of cardiovascular disease and limited therapeutic options (Source: IMS Institute for Healthcare Informatics' *The Global Use of Medicines: Outlook Through 2015*, 2011). However, the lipid regulator market is expected to decline as the patent protection expiration of atorvastatin (Pfizer's Lipitor®) and rosuvastatin (AstraZeneca's Crestor®) during 2011 and 2012 leads to increased generic competition (Source: Visiongain's *Statins: World Market Outlook 2011-2021*, 2011). 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. IMS Health expects the total market for lipid regulators to decline to $31 billion by 2015 due to lower-cost generics coming to the market. Despite this decline, lipid regulators would still represent the fourth largest therapeutic area behind oncology, diabetes, and respiratory illnesses (Source: IMS Institute for Healthcare Informatics).

AtheroNova's Pipeline Candidate: AHRO-001

AtheroNova is developing, and seeks to eventually market, a product that could become a new standard of care for patients prone to plaque accumulations. The Company is preparing to enter human Phase I trials to explore the ability of bile salts to dissolve (regress) a statistically significant portion of atheromas in test subjects in a way that is both safe and effective. AtheroNova's most advanced compound in development, AHRO-001, is a bile salt administered via pill or tablet. Through a process called delipidization, 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 liquid Drano®, which is used to unclog drains.

AtheroNova is developing AHRO-001 to directly compete with statins that largely lower cholesterol and stabilize plaque. In preclinical studies, AHRO-001 did not show adverse effects, including morbidity or mortality. Also, it was well tolerated at high doses—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.

AtheroNova is conducting additional academic research and has recently completed studies at Cedars-Sinai and UCLA that were successful at verifying plaque and cholesterol reduction as well as safety. Should the Company prove successful in safely and effectively regressing soft, vulnerable plaque via delipidization, 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"—where a patient's first atherosclerotic event is a fatal heart attack or stroke.

In an important milestone, AtheroNova announced in December 2011 that it completed its pre-Investigational New Drug (IND) meeting with the FDA, with the FDA providing guidance on a clear development plan, including Phase I and Phase II protocol outlines. The Company is currently incorporating guidance from the FDA and moving forward with its IND-enabling activities. If successfully approved and marketed, AtheroNova's product candidate could be positioned to address one in three individuals—or greater than 82 million adults (39.9 million men; 42.7 million women)—who have one or more types of cardiovascular disease. As an ultimate goal of ridding the entire body of plaque, the Company conservatively believes that if it is able to regress only 5% with minimal side effects, its product would become a significant disruptive technology.

Agreement with Maxwell Biotech Group

AtheroNova joined forces in 2011 with the Maxwell Biotech Group (http://maxwellbio.com), Russia's premier 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 was provided by Maxwell to CardioNova with which 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 an initial stock purchase of up to $267,000, of which $150,000 has already been invested.

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 completes the preclinical stage of AHRO-001 and the initiation of clinical studies. AtheroNova announced in March 2012 that it commenced the first shipment of AHRO-001 Active Pharmaceutical Ingredient (API) to CardioNova. The clinical-grade material is designated to be used to commence the toxicology studies conducted for Russian regulatory purposes.

Agreement with Frontage Laboratories, Inc.

In April 2012, the Company announced that it had entered into an agreement with Exton, Pennsylvania-based Frontage Laboratories, Inc. (http://www.frontagelab.com) to commence work on the formulation, compounding, and tabletization of AHRO-001 in advance of the upcoming Phase I and Phase II human clinical studies. Frontage is one of the leading pharmaceutical contract research organizations (CROs) in the U.S. Under this agreement, Frontage has commenced work on the analysis, formulation, and validation of the various processes and procedures for manufacturing AHRO-001 tablets.

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. As of March 9, 2012, AtheroNova had two full-time employees and two contract employees.

Corporate 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 (IP) involving naturally occurring bile salts that could regress or altogether eliminate atherosclerotic fatty plaques. The Company seeks to use bile salts 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 preparing for upcoming Phase I and Phase II 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 salts in medical applications. One such example is the Company's agreement with the Maxwell Biotech Group (a Russian biotech venture capital firm) via its 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 recently entered into a relationship with Frontage Laboratories, which is responsible for formulating, compounding, and tabletizing AHRO-001 in advance of the upcoming Phase I studies.

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 IP 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 IP surrounding the use of bile salts, potentially via different delivery methods, including transdermal and intravenous.

Intellectual Property

AtheroNova is developing one of the first novel applications for the treatment, regression, and prevention of atherosclerosis. The Company's patent activity has been largely focused on securing protection for the use of bile salts in regression of atherosclerotic plaque and other applications. 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 nine product families since inception for different applications of delivery. Its patents include method patents, covering a novel use on an existing compound, as well as composition of matter patents, covering new compounds.

Through IP protection, AtheroNova plans to secure the supply chain of bile salts 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 salt-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 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 salts in the regression of atherosclerotic plaque via pharmaceutical preparation. The Company's patent activities cover uses of bile salts in the regression of atherosclerosis as well as administration methods, including transdermal and intravenous delivery. Such administrations bypass the normal physical sequestration of bile salts within the digestive tract, as bile salts that break down fat during digestion are typically re-absorbed by the liver for reprocessing or excretion.

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 will 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. Biographies for key individuals within management are provided below and on the accompanying pages. The Company has expressed plans to hire a medical director in the near term as it prepares to initiate its first human clinical trial with AHRO-001.

Thomas W. Gardner, Chairman and Chief Executive Officer

Mr. Thomas W. 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. Mark 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.

Balbir (Bal) S. Brar, DVM, Ph.D., Senior Vice President, Drug Development

Dr. Balbir 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 Inc. [PFE-NYSE]), 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.

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.

Boris Ratiner, M.D.

Dr. Boris 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. Chaim 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.

Gary Freeman

Mr. Gary 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.

Alexander Polinsky, Ph.D.

Dr. Alexander 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. Paul 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. Thijs 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.

Scientific Advisory Board

AtheroNova's Scientific Advisory Board is largely composed of experts and/or leaders who are internationally recognized within the field of atherosclerosis research. Within the past year, the Company has appointed two key members to its Scientific Advisory Board: (1) Stephen J. Nicholls, M.B.B.S., Ph.D., a noted atherosclerosis researcher at the Cleveland Clinic with experience in clinical trials using advanced imaging technologies to investigate anti-atherosclerotic compounds; and (2) Ephraim Sehayek, M.D., also of the Cleveland Clinic, who has authored over 50 peer-reviewed publications and has expertise in atherosclerosis, lipids, genomics, and reverse cholesterol transport research.

Giorgio Zadini, M.D.
Company Founder/Emergency Medicine, California Hospital Medical Center

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

Stephen Nicholls, M.B.B.S., Ph.D.
Medical Director - Intravascular Ultrasound and Angiography Core Laboratories, 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

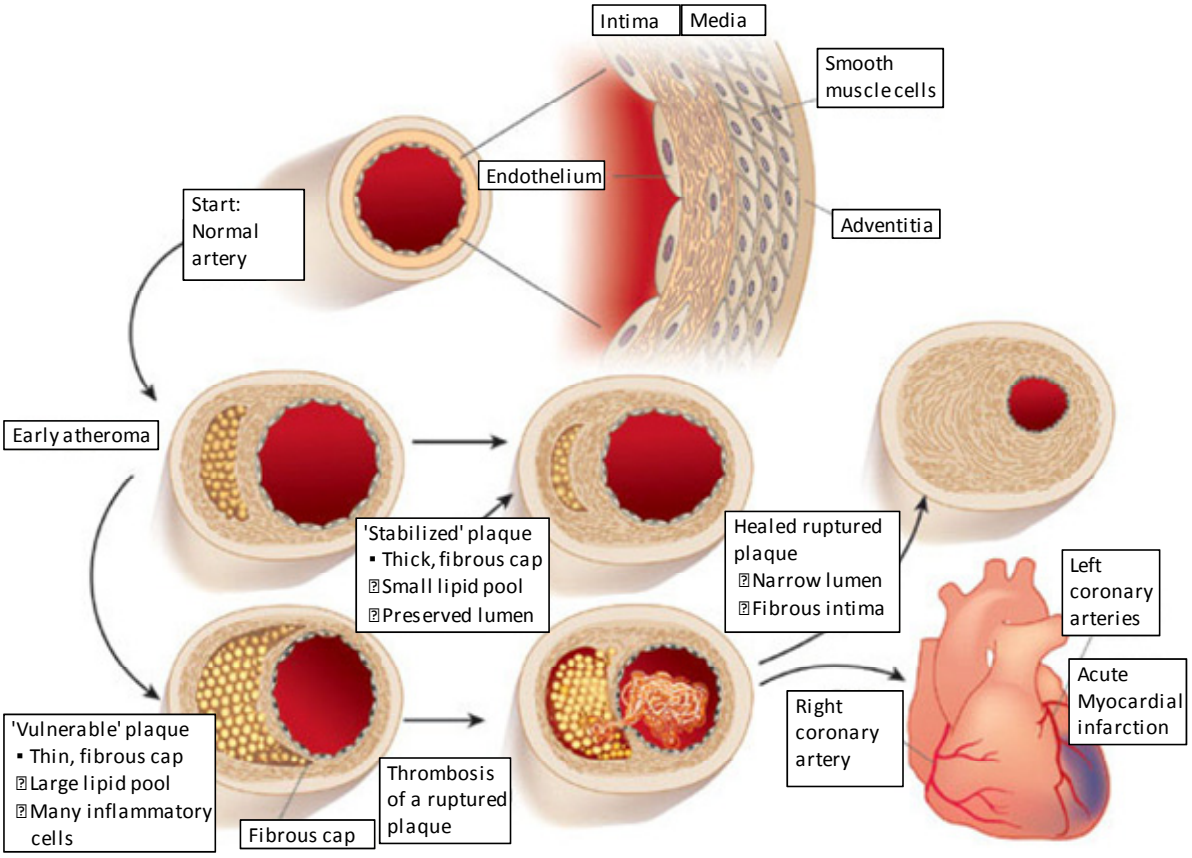
Core Story

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, these plaques 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 4 illustrates the life cycle of an atherosclerotic plaque (atheroma).

Figure 4
LIFE HISTORY OF ATHEROMA



Source: Nature 420: 868-874.

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.

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 delipidization—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 5.

Potential Market Opportunity

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 6 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 5

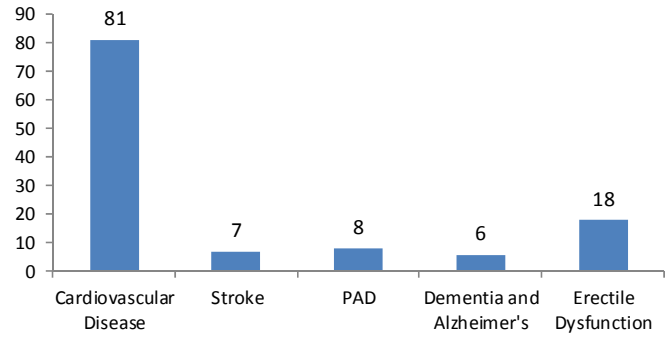
RISK FACTORS FOR HEART DISEASE

- 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 6

U.S. DISEASES AND PREVALENCES (mms)



Source: American Heart Association, Inc.

In the U.S., more than 82 million adults (39.9 million men; 42.7 million women)—greater than one in three adults—has one or more types of cardiovascular disease. Of that total, 40 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.

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 16.3 million U.S. adults (age 20 and older) in 2007. 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 610,000 new attacks and 325,000 recurrent attacks each year. As well, an estimated 195,000 "silent" first heart attacks occur. In 2010, the direct and indirect costs of CHD were estimated at $177.1 billion (Source: the Pharmaceutical Manufacturers Association [PhRMA]).

AtheroNova believes that atherosclerosis is really a story of failed drug therapies. The current standard of care for individuals with atherosclerosis (or the risk factors for) entails lipid-regulating drugs (the most common of which are statins). These products generated over $37 billion in sales in 2010 for 255 million prescriptions (as shown in Figure 7), making them the most widely prescribed drug in the U.S. (Source: IMS Institute for Healthcare Informatics' *The Global Use of Medicines: Outlook Through 2015*, 2011). 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.

Figure 7

THERAPEUTIC CLASSES BY SPENDING (2006-2010)

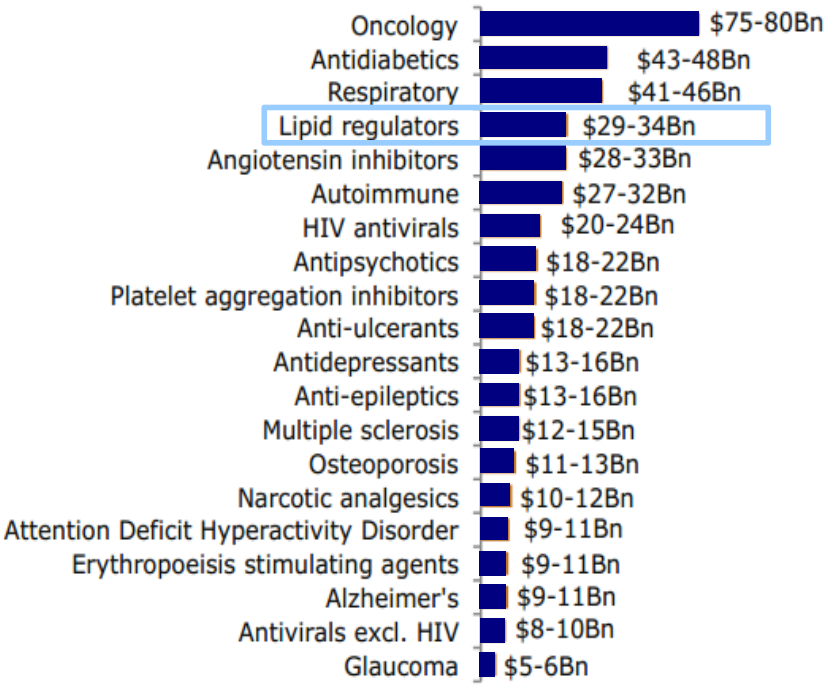
	DISPENSED PRESCRIPTIONS MN	2010	2009	2008	2007	2006
	Total US Market	**3,995.2**	**3,949.2**	**3,866.3**	**3,824.9**	**3,706.4**
1	Lipid Regulators	255.4	249.7	237.1	228.8	210.4
2	Antidepressants	253.6	246.1	239.8	236.5	231.1
3	Narcotic Analgesics	244.3	241.0	238.6	230.5	220.7
4	Beta Blockers (Plain & Combo)	191.5	167.8	160.7	160.3	156.6
5	Ace Inhibitors	168.7	165.7	160.2	158.0	154.2
6	Antidiabetes	165.0	159.0	154.7	152.1	147.8
7	Respiratory Agents	153.3	152.4	146.3	146.0	139.8
8	Anti-Ulcerants	147.1	145.7	138.8	133.9	127.9
9	Diuretics	131.0	131.7	132.4	135.2	138.1
10	Anti-Epileptics	121.7	115.3	109.3	101.8	94.9
11	Tranquilizers	108.6	104.0	100.0	97.6	94.4
12	Thyroid Preps	107.2	105.3	105.5	102.8	101.4
13	Calcium Antagonists (Plain & Combo)	97.9	94.9	91.9	90.4	90.5
14	Antirheumatics	95.0	92.5	89.8	89.0	88.6
15	Hormonal Contraceptives	92.3	93.9	93.8	94.0	94.3
16	Angiotensin II	83.7	84.4	86.1	83.1	78.5
17	Penicillins	76.1	76.6	74.5	77.1	79.1
18	Macrolides & Similar Type	73.9	69.3	66.4	62.8	60.9
19	Vitamins & Minerals	71.9	69.8	64.7	61.6	60.6
20	Hypnotics & Sedatives	66.0	65.5	60.3	57.4	52.3

Source: IMS Health, National Sales Perspectives, December 2010.

Furthermore, IMS Heath expects the lipid regulator market to decline to $31 billion by 2015, as the patent expirations of Lipitor® (atorvastatin) and Crestor® (rosuvastatin) during 2011 and 2012, respectively, lead to an increase in generic competition. Nevertheless, the total market for lipid regulators is still projected to be the fourth largest therapeutic area behind oncology, diabetes, and respiratory illnesses, as illustrated in Figure 8 (Source: IMS Institute for Healthcare Informatics). AtheroNova believes that based on the tremendous investment made to treat 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.

Figure 8

PROJECTED LEADING THERAPY CLASSES IN 2015



Source: IMS Institute for Healthcare Informatics; Therapy Forecaster, May 2011.

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 regarding 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 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.com). 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.

AtheroNova's AHRO-001

AtheroNova is creating what it believes to be a unique-in-class candidate, AHRO-001, to treat atherosclerosis. This compound is being developed to compete with statins and become a new standard to reduce or eliminate atherosclerosis. 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 salts 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.

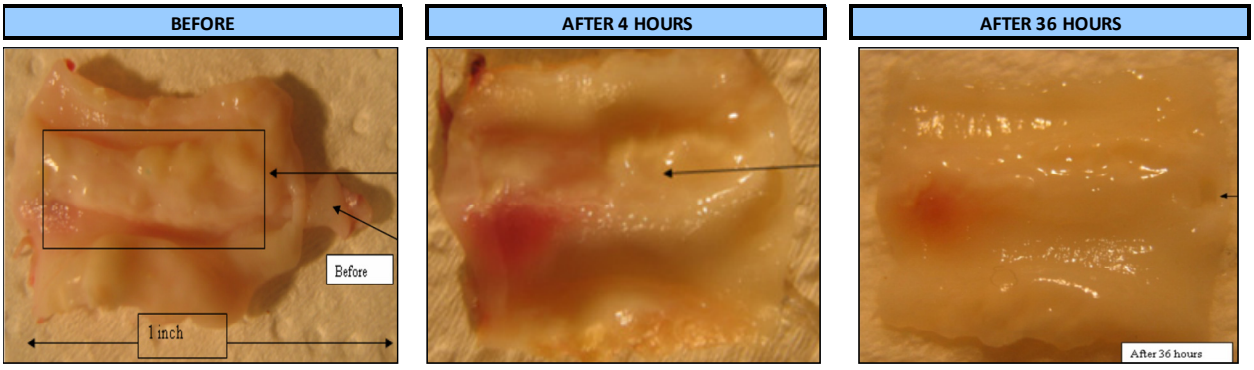
Based on this observation, the Zadinis investigated the disease and found that these patients also have a high level of circulating bile salts, which are normally sequestered in the gut, where the purpose of the bile salts is to dissolve and break down lipids after eating. In PBC patients, since the liver is breaking down, these bile salts 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 salts. These findings encouraged the Zadinis to conduct tests hypothesizing that exposure to bile salts would lead to plaque dissolution.

Initial In Vitro Experiments

The first in vitro experiment was performed using bacon, where the bacon was immersed in a bile salt 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 salt 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 9, 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 9
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 salt 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 10 depicts the institutions where the hypothesis was validated.

Figure 10

HYPOTHESIS VALIDATION

Cleveland Clinic CEDARS-SINAI UCLA

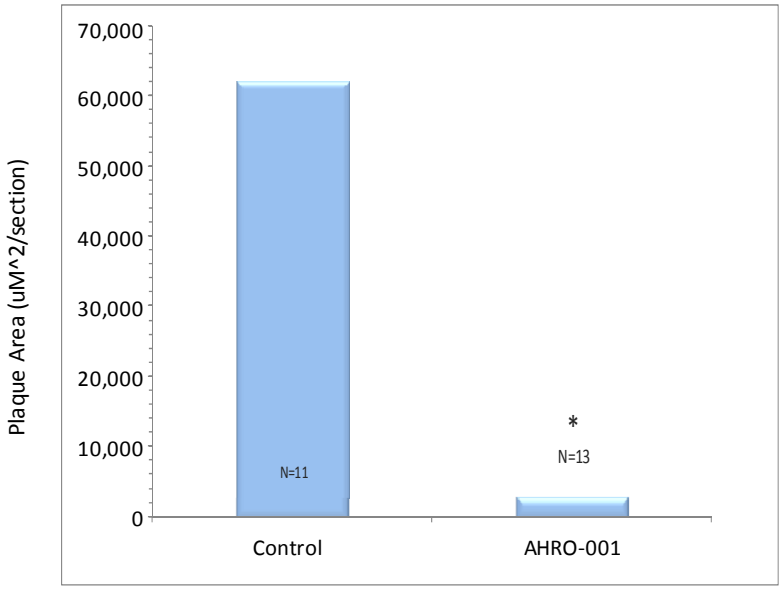
Source: AtheroNova Inc.

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 11. These data were presented by Diana Shih, Ph.D., associate professor of medicine in the Division of Cardiology at the David Geffen School of Medicine, at the November 2011 American Heart Association (AHA) Scientific Sessions in Orlando, Florida.

Figure 11

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. These factors indicate multiple methods of action for an anti-atherogenic effect, suggesting potential for AtheroNova's therapy. Figure 12 illustrates the arterial stain results, where the bright red areas indicate dense areas of plaque. The group given AHRO-001 shows greatly reduced red areas compared to the control group.

Figure 12

ARTERIAL STAIN RESULTS

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

Source: AtheroNova Inc.

Positive Safety and Tolerability Data

On the safety side, all blood tests for the group given AHRO-001 demonstrated no toxicity, including no morbidity nor mortality. As well, the compound was well tolerated at high doses, as has been seen in other compounds in this family (see UDCA, page 24). AtheroNova believes that these safety results are highly favorable as all of the mice lived through the study, with the treatment arm performing significantly better than the control group in terms of health.

Additional Preclinical Studies: UCLA and Cedars-Sinai

A second study at the Lusis Lab at the David Geffen School of Medicine at UCLA was recently completed that evaluated 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.

The comparative mechanisms of action for AHRO-001 demonstrate successful outcomes according to eight measures (with competing treatments achieving positive results in two to four groups). Figure 13 (page 23) demonstrates the mechanisms of action that distinguish AHRO-001 from other currently available products treating atherosclerosis based on data from this second preclinical study at UCLA.

Results for the two studies conducted by the Lusis Lab were presented at the American Heart Association Scientific Sessions (AHA) in November 2011, which is available on the AHA website via the following website link located at http://circ.ahajournals.org/cgi/content/meeting_abstract/124/21_MeetingAbstracts/A17113.

Additionally, a third preclinical study recently 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. Both of the recently concluded studies are in a final data analysis stage and AtheroNova expects the studies to be published in scientific journals by early 2013.

Figure 13
COMPARATIVE MECHANISMS OF ACTION

	AHRO-001	Statins	CETP Inhibitors [1]	Ezetimibe (Zetia®) [2]	Niaspan® [3]
Emulsification of plaques	☑	—	—	—	—
Upregulate ABCA1/ABCG1 gene expression	☑	—	—	—	—
Decrease cholesterol absorption	☑	—	—	☑	—
Potential plaque reversibility	☑	☑ *	—	—	—
Decrease plasma LDL cholesterol levels	☑	☑	☑	☑	☑
Increases efficiency of HDL	☑	—	☑	—	—
Stimulate reverse cholesterol transport	☑	—	☑	☑	—
Atheroprotective effect	☑	☑	—	☑	☑

* minimal efficacy at maximum dosage

[1] CETP Inhibitors are a developmental class of therapeutics inhibiting cholesteryl ester transfer protein (CETP) to address atherosclerosis.

[2] Zetia®, from Merck & Company, Inc., is approved to help lower cholesterol but is not shown to prevent heart disease or heart attacks.

[3] Niaspan®, from Abbott Laboratories, Inc., is approved to help manage cholesterol and lower the risk of heart attacks, as well as slow down or lessen the build up of plaque.

Source: AtheroNova Inc.

Current Status

Based on these results, AtheroNova is moving forward with the development of this compound. The Company completed its pre-IND meeting with the FDA in late 2011, where it met its goal of obtaining clarification on the nonclinical, clinical, and chemical, manufacturing, and control (CMC) requirements that must be met in order to submit an acceptable IND. The Company is preparing to enter Phase I human trials during 2012, applying the guidance provided by the FDA.

Potential for Fast Track

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 being targeted toward and the high rates of morbidity and mortality associated with AtheroNova's target indication. 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, which is expected to be filed by the end of the third quarter 2012
- 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.

Close Compound to AHRO-001: Ursodeoxycholic acid (UDCA)

AHRO-001 has not shown morbidity nor mortality in preclinical studies, nor has 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. 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 primary biliary cirrhosis (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.

The exact mechanism by which UDCA works in individuals with PBC is unknown, though, it is recognized that higher amounts of UDCA in the body will generally lower the amount of liver-toxic bile acids, which should reduce or prevent damage of bile duct cells. Individuals in certain studies treated with UDCA have been shown to decrease bile duct destruction; however, other studies have shown that UDCA does not prevent bile duct destruction. As an alternative, UDCA appears only to protect against the consequences of bile duct damage. This explains that while UDCA can delay, it does not prevent progression to cirrhosis in people with PBC.

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 was provided by Maxwell to CardioNova with which 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, of which $150,000 occurred in the fourth quarter 2011.

This relationship is important as 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 milestone as the Company completes the preclinical stage of AHRO-001 and prepares to commence clinical studies.

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) to commence work on the formulation, compounding, and tabletization of AHRO-001 in advance of the upcoming Phase I studies. Frontage is a U.S. pharmaceutical contract research organization (CRO). It is expected to immediately begin work on the analysis, formulation, and validation of the various processes and procedures for manufacturing AHRO-001 tablets.

Additional Pipeline Candidates

Beyond treating atherosclerosis, delipidization has significant applications in other medical fields. Accordingly, AtheroNova plans to develop treatments for additional indications, including those listed in Figure 14. AHRO-003 is a patented statin combination that contains a low-dose statin and a high dose of AHRO-001, which could be promising compounds together. From a biological point, these compounds could lower cholesterol, with the low-dose statin—about half the minimum dose of 10 mg—expected to minimize side effects. As well, AtheroNova has filed for protection for dispensing its compound into dialysis material; has filed a family of patents for obesity treatment following evidence of weight loss in mice; and has filed patents as it relates to dissolution of lipomas (small, benign fat tumors), which could be delivered via transdermal patch.

Figure 14

PRODUCT PIPELINE

- AHRO-001/002 Enteric Coated Tablet and Stepwise Therapeutic
- AHRO-003 Statin Combination
- AHRO-200 Dialysate Additive
- AHRO-100 Obesity Treatment
- AHRO-010 Dissolution of Lipomas

Source: AtheroNova Inc.

Competition

AtheroNova is engaged in the competitive field of pharmaceutical research and development, as described under Potential Market Opportunity, pages 15-17, and Current Methods of Treatment, pages 17-19. 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 15 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 15 and profiled on page 27.

Figure 15
COMPETITION AND ACQUISITION ACTIVITY

Company Name	Symbol (Exchange)	Last Trade (06/05/12)	52-week Range	Avg. Vol. (3 months)	Market Capitalization
Bayer AG	BAYN (XETRA)	€47.97	€35.36 - €58.64	2,904,920	€39.66 billion
GlaxoSmithKline plc	GSK (NYSE)	$43.72	$38.76 - $47.48	2,213,140	$108.47 billion
Isis Pharmaceuticals, Inc.	ISIS (NASDAQ)	$10.10	$6.25 - $10.26	614,902	$1.01 billion
Eli Lilly & Company	LLY (NYSE)	$40.62	$33.75 - $42.03	6,115,960	$45.37 billion
Merck & Co., Inc.	MRK (NYSE)	$37.50	$29.47 - $39.50	13,792,400	$114.06 billion
Novartis AG	NVS (NYSE)	$51.48	$51.20 - $63.37	2,302,580	$124.70 billion
Regeneron Pharmaceuticals, Inc.	REGN (NASDAQ)	$129.05	$42.83 - $145.04	919,448	$12.06 billion
Sanofi SA	SNY (NYSE)	$33.96	$30.98 - $40.58	3,704,520	$89.91 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 people 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 currently in clinical trials to evaluate its efficacy in the prevention and treatment of a broad range of acute and chronic blood-clotting disorders. 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 is developing Darapladib, an orally active Lp-PLA2 inhibitor, for the treatment of atherosclerosis. Elevated activity by the Lp-PLA2 enzyme has been implicated in the development and progression of atherosclerosis. Daraplabid is in Phase III development as a potential anti-atherosclerosis agent. 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) are partnering 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 evaluated in four Phase III studies in which all primary, secondary, and tertiary endpoints were met. Following the FDA's request, the companies are conducting a final 12-month Phase III clinical trial that began in 2011. Genzyme submitted a marketing application for Kynamro™ in the U.S. and the EU in March 2012 and July 2011, respectively. 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. 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 clinical programs for the treatment of atherosclerosis: (1) Anacetrapib (MK-0859), an oral inhibitor of CETP, in Phase III trials; and (2) MK-0524A, a fixed-dose combination of extended release nicotinic acid (niacin) and laropiprant; a flushing pathway inhibitor designed to reduce flushing often associated with niacin treatment. MK-0524A is also being studied in combination with the statin simvastatin (Zocor®), under the MK-0524B program. Both compounds are 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, a human monoclonal antibody 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 II 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.

Milestones

Recent Milestones

AtheroNova has achieved multiple key regulatory and clinical milestones within the past 12 months, including those highlighted below, as the Company continues to advance its lead candidate toward a Phase I clinical study.

- Completed a pre-IND meeting for AHRO-001 with the FDA, which has accepted the Company's clinical plan
- Entered into a development and commercialization agreement with Maxwell Biotech Group, which has agreed to fund Phase I and Phase II studies for AHRO-001 through its Russian subsidiary, CardioNova Ltd., in exchange for an exclusive license to develop and commercialize AHRO-001 in certain parts of Russia
- Entered into agreements with SAFC (a division of Sigma-Aldrich Corporation) for chemical synthesis and with PCA (Prodotti Chimici e Alimentari S.p.A.) for compound supply
- Hired a contract research organization (CRO), Frontage Laboratories, to assist with the formulation and manufacture of AHRO-001 tablets for the upcoming Phase I studies
- Shipped clinical-grade AHRO-001 to CardioNova to support ongoing toxicology studies, which are necessary for Russian regulatory purposes
- Appointed two key members to its Scientific Advisory Board: (1) Stephen J. Nicholls, M.B.B.S., Ph.D., a noted atherosclerosis researcher with experience in clinical trials using advanced imaging technologies to investigate anti-atherosclerotic compounds; and (2) Ephraim Sehayek, M.D., who has authored over 50 peer-reviewed publications and has expertise in atherosclerosis, lipids, genomics, and reverse cholesterol transport research
- Appointed Johan M. (Thijs) Spoor, who possesses extensive experience across the medical device, biotechnology, and pharmaceutical industries, as an independent director
- Appointed Balbir (Bal) S. Brar, Ph.D., DVM, who has over 25 years of drug and device development experience and has authored/co-authored over 50 scientific publications, as senior vice president of drug development

Potential Milestones

Continuing the momentum from the past year, AtheroNova has identified several critical development milestones to create value for the Company over the next 12 to 24 months (see below). In addition to these clinical and regulatory milestones, AtheroNova is also awaiting publication of preclinical data from studies conducted at the Cedars-Sinai Heart Institute's Division of Cardiology as well as the University of California, Los Angeles (UCLA), which could serve as near-term value triggers. The Company further plans to hire a medical director as it prepares to initiate the first clinical trial with AHRO-001 in humans.

Near Term (2012)

- File an IND with the FDA and with the Russian Ministry of Health for AHRO-001
- Initiate and complete Phase I human clinical studies
- Conduct a pre-Phase II meeting with the FDA
- Commence Phase II clinical study—potentially the Company's largest value creation milestone

2013 and Beyond

- Complete Phase II study
- Conduct a pre-Phase III meeting with the FDA
- Secure a corporate partner to support the Company's exit strategy

Historical Financial Results

Figures 16, 17, and 18 provide a summary of AtheroNova's key historical financial statements as of its most recently filed SEC Form 10-Q for the quarter ended March 31, 2012: its Consolidated Statements of Operations, Balance Sheets, and Statements of Cash Flows.

Figure 16
AtheroNova Inc. and Subsidiary (A Development-Stage Company)
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS (UNAUDITED)
For the three-month periods ended March 31, 2012 and 2011,
And for the period from December 13, 2006 (Inception) through March 31, 2012

	Three months ended March 31,		Cumulative
	2012	2011	From Inception
Revenue, net	$ —	$ —	$ —
Operating expenses:			
Research and development	161,305	88,263	1,034,380
General and administrative expenses	743,086	338,050	4,824,448
Impairment charge-intellectual property	—	—	572,868
Total operating expenses	904,391	426,313	6,431,696
Loss from operations	(904,391)	(426,313)	(6,431,696)
Other income (expenses):			
Other income	204	64	3,754
Merger-related expenses	—	—	(323,294)
Cancellation of related-party debt	—	—	100,000
Interest expense	(62,566)	(96,203)	(1,070,649)
Private Placement Costs	—	—	(2,148,307)
Gain on extinguishment of derivative liability	—	—	811,393
Change in fair value of derivative liabilities	1,727,274	7,221,430	(1,752,792)
Total other income (expense)	1,664,912	7,125,291	(4,379,895)
Net income (loss) before income taxes	760,521	6,698,978	(10,811,591)
Provision for income taxes	565	3,240	7,964
Net income (loss)	$ 759,956	$ 6,695,738	$ (10,819,555)
Basic income per share	$ 0.03	$ 0.29	
Diluted income per share	$ 0.02	$ 0.25	
Basic weighted average shares outstanding	28,426,926	23,429,232	
Diluted weighted average shares outstanding	31,615,602	26,449,122	

Source: AtheroNova Inc.

Figure 17

AtheroNova Inc. and Subsidiary (A Development-Stage Company)

CONSOLIDATED BALANCE SHEETS

Assets	March 31, 2012 (unaudited)	December 31, 2011
Current Assets		
Cash	$ 276,007	$ 616,067
Other Current Assets	7,213	12,909
Total Current Assets	283,220	628,976
Equipment, net	5,324	4,000
Total Assets	$ 288,544	$ 632,976
Liabilities and Stockholders' Deficiency		
Current Liabilities:		
Accounts payable and accrued expenses	$ 315,944	$ 170,449
Interest payable	45,754	39,716
Derivative Liability	4,483,747	6,211,021
Total Current Liabilities	4,845,445	6,421,186
2.5% Senior secured convertible notes, net of discount	452,183	395,655
Stockholders' Deficiency:		
Preferred stock $0.0001 par value, 10,000,000 shares authorized, none outstanding at March 31, 2012 and December 31, 2011	—	—
Common stock $0.0001 par value, 100,000,000 shares authorized, 28,450,260 and 28,390,260 outstanding at March 31, 2012 and December 31, 2011, respectively	2,834	2,828
Additional paid in capital	5,807,637	5,392,818
Deficit accumulated during the development stage	(10,819,555)	(11,579,511)
Total stockholders' deficiency	(5,009,084)	(6,183,865)
Total Liabilities and Stockholders' Deficiency	$ 288,544	$ 632,976

Source: AtheroNova Inc.

Figure 18

AtheroNova Inc. and Subsidiary (A Development-Stage Company)

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS (UNAUDITED)

For the three-month periods ended March 31, 2012 and 2011,

And for the period from December 13, 2006 (Inception) through March 31, 2012

	Three months ended March 31,		Cumulative
	2012	2011	From Inception
Operating Activities:			
Net income (loss)	$ 759,956	$ 6,695,738	$ (10,819,555)
Adjustments to reconcile net income (loss) to net cash used in operating activities:			
Loss on settlement of payables	—	—	54,377
Amortization of debt discount	56,528	87,442	996,832
Depreciation	675	589	4,781
Stock based compensation	414,825	117,687	2,445,811
Impairment charge-intellectual property	—	—	572,867
Cost of private placement	—	—	2,148,307
Gain on extinguishment of debt	—	—	(811,393)
Change in fair value of derivative liabilities	(1,727,274)	(7,221,430)	1,752,792
Cancellation of debt	—	—	(100,000)
Changes in operating assets and liabilities:			
Other current assets	5,696	7,386	(7,213)
Accounts payable and accrued expenses	151,533	125,005	507,418
Net cash used in operating activities	(338,061)	(187,583)	(3,254,976)
Investing Activities			
Purchase of equipment	(1,999)	—	(10,105)
Investment in intellectual property	—	—	(372,867)
Cash received from reverse merger	—	—	1,281
Net cash used in investing activities	(1,999)	—	(381,691)
Financing Activities			
Proceeds from issuance of common stock	—	25,000	2,517,668
Proceeds from sale of 2.5% senior secured convertible notes, net	—	—	1,395,006
Net cash provided by financing activities	—	25,000	3,912,674
Net change in cash	(340,060)	(162,583)	276,007
Cash - beginning balance	616,067	177,802	—
Cash - ending balance	$ 276,007	**$ 15,219**	**$ 276,007**
Supplemental disclosure of cash flow information:			
Cash paid for income taxes	$ 565	$ 3,240	$ 7,964
Supplemental disclosure of non-cash investing and financing transactions:			
Stockholder notes issued in exchange for intellectual property	$ —	$ —	$ 200,000
Conversion of convertible notes payable to additional paid-in capital	$ —	$ —	$ 572,721
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	$ —	$ —	$ 72,999

Source: AtheroNova Inc.

Risks

Some of the information in this Executive Informational Overview® (EIO) relates to future events or future business and financial performance. 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 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. Certain summaries of activities have been condensed to aid the reader in gaining a general understanding. For more complete information about AtheroNova, please refer to the Company's website at www.atheronova.com and/or 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.

AtheroNova will need additional funding to support its operations and capital expenditures. Such funds may not be available to the Company, 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 through 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 latest private placement financing transaction raised about $1.9 million during 2011 and will allow the Company to continue to devote significant 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 September 2012.

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 March 16, 2012, 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, 2011 and 2010 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. Regardless, 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.

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 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. There can also be no assurance that any 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 the Company 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.

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, as described on pages 26-29. 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.

As described on page 23 of the Company's Forms 10-K filed with the SEC on March 16, 2012, 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.

Anti-dilution adjustments under the Notes and Warrants issued in the Capital Raise Transaction may dilute the interests of the Company's stockholders.

If the Company is forced in the future to issue shares for prices less than the conversion price of the Notes or exercise price of the Warrants, that may trigger anti-dilution adjustments that increase the numbers of shares that are issuable on conversions of the Notes or exercises of the Warrants issued in the Capital Raise Transaction. Such adjustments, particularly possible "ratchet" adjustments not weighted by the relative magnitude of the particular low-price share issuance, may significantly dilute the holdings of stockholders other than the investors in the Capital Raise Transaction.

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. 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 15 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 58.2% of the Company's outstanding Common Stock, and approximately 56.9% of the Company's fully diluted 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

05/29/2012—AtheroNova Inc. announced via an SEC Form 8-K that on May 22, 2012, it entered into a Securities Purchase Agreement (the "Purchase Agreement"), effective as of May 14, 2012, with ACT Capital Partners, L.P. ("ACT") and Amir L. Ecker ("Ecker" and together with ACT, collectively, the "Initial Purchasers"), pursuant to which, the Initial Purchasers purchased from AtheroNova (i) 12% Convertible Notes for an aggregate cash purchase price of $700,000, and (ii) Common Stock Purchase Warrants pursuant to which the Initial Purchasers may purchase up to an aggregate of 140,000 shares of Company Common Stock at an exercise price initially equal to the lower of (a) $0.90 per share and (b) to the extent consummated, 115% of the per share price at which shares of the Company's Common Stock are sold in a Qualified Equity Financing (as such term is defined in the Purchase Agreement). Pursuant to the Purchase Agreement, AtheroNova may sell and issue to the Initial Purchasers or other purchasers up to an additional $300,000 in principal amount of the Notes in exchange for a cash purchase price.

05/10/2012—Filed its Form 10-Q and announced financial results for the quarter ended March 31, 2012.

04/25/2012—Announced that it signed an agreement with Frontage Laboratories, Inc. to assist with the formulation and manufacturing of the Company's lead compound, AHRO-001, in advance of the upcoming Phase I human clinical studies. Frontage, a pharmaceutical contract research organization (CRO), is expected to commence work on the analysis, formulation, and validation of the processes and procedures for manufacturing AHRO-001 tablets.

03/21/2012—Announced the release of its financial results for fiscal year 2011. In addition, the Company announced that its clinical and development activities remain on schedule.

03/01/2012—Announced that it initiated the first shipment of AHRO-001 Active Pharmaceutical Ingredient (API) to its research and development partner CardioNova, Ltd., a Russia-based biotech company responsible for AHRO-001's Phase I and Phase II human clinical studies. The clinical-grade material is expected to be used to commence the toxicology studies required for the Russian regulatory process.

01/05/2012—Announced that it appointed Mr. Johan M. (Thijs) Spoor (biography on page 12) as a new member to the Company's Board of Directors, effective January 3, 2012. Mr. Spoor is an independent director serving on the Audit and Medical Committees of the Board.

12/14/2011—Announced that it established development plans for AHRO-001, including Phase I and Phase II protocol outlines, based on guidelines from U.S. Food and Drug Administration (FDA) given during the pre-Investigational New Drug (IND) meeting with the agency. AtheroNova plans to move forward with the submission of the IND application during 2012. In addition, the Company announced that the sourcing and production of AHRO-001's API is progressing according to schedule.

12/01/2011—Announced that its development and commercialization agreement with Maxwell Biotech Group has been ratified by both companies. According to the agreement, CardioNova is expected to fund clinical studies for AHRO-001. Maxwell provided the initial funding of $900,000 to CardioNova for the initiation of Phase I studies in Russia. In addition, under a separate securities purchase agreement, CardioNova is expected to become an equity investor in the Company with an initial stock purchase of up to $267,000.

11/22/2011—Announced that a recent presentation by Dr. Diana Shih, UCLA's Associate Professor of Medicine, at the 2011 American Heart Association (AHA) Scientific Sessions in Orlando, Florida, included results from the Company's AHRO-001 preclinical study. The data demonstrated that dietary supplementation of AHRO-001 resulted in a 95% reduction in arterial plaque formation, a significant reduction in plasma cholesterol and dietary cholesterol absorption, and improved HDL function, when compared to the control group.

10/26/2011—Announced that it completed its pre-IND meeting with the FDA. During the meeting, the FDA provided guidance on the development plan of AHRO-001. The goal of the pre-IND meeting was to obtain clarification on the nonclinical, clinical, and chemical, manufacturing, and control (CMC) requirements that need to be met in order to submit an acceptable IND.

09/08/2011—Signed a binding term sheet with the Maxwell Biotech Group to license commercialization rights for AHRO-001. Maxwell, with funding provided by Russian biotech venture capital firm Maxwell Biotech Venture Fund, committed to fund Phase I and Phase II in Russia.

06/20/2011—Announced that Ephraim Sehayek, M.D. of the Cleveland Clinic has been named to the Company's Scientific Advisory Board. Dr. Sehayek is assistant staff at the Genomic Medicine Institute, Lerner Research Institute, Cleveland Clinic, and assistant professor of Molecular Medicine, Cleveland Clinic Lerner College of Medicine of Case Western Reserve University.

06/16/2011—Announced that Balbir (Bal) S. Brar, Ph.D., DVM (biography on page 10) has been appointed senior vice president of drug development.

05/16/2011—Announced that Stephen J. Nicholls, M.B.B.S., Ph.D., medical director of intravascular ultrasound and angiography core laboratories at the Cleveland Clinic and clinical director of the Cleveland Clinic Center for Cardiovascular Diagnostics and Prevention, has been named to the Company's Scientific Advisory Board.

05/03/2011—Announced that it plans to pursue an additional indication to address significant unmet needs in stroke prevention with a compound to treat intracranial atherosclerosis disease (ICAD). Atherosclerotic plaque is the primary cause of coronary artery disease (CAD). In addition, a rapidly growing body of evidence suggests that atherosclerotic plaque is also a major cause of stroke and may play a role in the development of Alzheimer's disease, cognitive impairment, and dementia. There has been no medical consensus on best treatment for symptomatic ICAD, and no approved medications for the reduction of intracranial atherosclerotic plaques in any form of the disease.

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 Salt—Alkaline salts present in the bile that function as an emulsifier of lipids and fatty acids. Bile salts 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—A compound of the sterol type found in most body tissues, including the blood and the nerves. Cholesterol and its derivatives are important constituents of cell membranes, but high concentrations in the blood (mainly derived from animal fats in the diet) are thought to promote atherosclerosis.

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.

Delipidization—Process by which lipids are physically or chemically reduced or eliminated.

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

Fast Track Designation—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.

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.

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 a salt 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.

Regress—A subsidence of the symptoms or process of a disease.

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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