

Ampio Pharmaceuticals, Inc.
Form 424B5
September 26, 2013
Table of Contents

Filed pursuant to Rule 424(b)(5)
Registration No. 333-177116

PROSPECTUS SUPPLEMENT

(To Prospectus Dated October 28, 2011)

4,600,319 Shares

Ampio Pharmaceuticals, Inc.

Common Stock

\$5.50 per share

Pursuant to this prospectus supplement and the accompanying prospectus, we are offering an aggregate of 4,600,319 shares of our common stock to a limited number of purchasers, mainly institutional investors (collectively, the Investors) pursuant to a securities purchase agreement we entered into with the Investors on September 25, 2013, at a price of \$5.50 per share of common stock. The aggregate purchase price for the shares of common stock is approximately \$25.3 million. We will receive net proceeds from the sale of these shares of approximately \$24.8 million after deducting our estimated offering expenses.

We are not using any placement agent for this offering.

Edgar Filing: Ampio Pharmaceuticals, Inc. - Form 424B5

Our common stock is quoted on the NYSE MKT LLC, or NYSE MKT, under the symbol AMPE. The last reported sale price of our common stock on the NYSE MKT on September 25, 2013, was \$6.61 per share.

Investing in our common stock involves risks. See Risk Factors beginning on page S-12 of this prospectus supplement.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement or the accompanying prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

We currently anticipate that the closing of the offering will take place on or about September 30, 2013. On the closing date, we will issue the shares of common stock to the Investors and receive funds in the amount of the aggregate purchase price.

The date of this prospectus supplement is September 26, 2013

Table of Contents

TABLE OF CONTENTS

	Page
Prospectus Supplement	
<u>ABOUT THIS PROSPECTUS SUPPLEMENT</u>	S-ii
<u>SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS</u>	S-iii
<u>PROSPECTUS SUPPLEMENT SUMMARY</u>	S-1
<u>RISK FACTORS</u>	S-12
<u>USE OF PROCEEDS</u>	S-32
<u>DIVIDEND POLICY</u>	S-32
<u>CAPITALIZATION</u>	S-33
<u>PRICE RANGE OF COMMON STOCK</u>	S-34
<u>DILUTION</u>	S-35
<u>PLAN OF DISTRIBUTION</u>	S-36
<u>LEGAL MATTERS</u>	S-36
<u>EXPERTS</u>	S-36
<u>WHERE YOU CAN FIND MORE INFORMATION</u>	S-36
<u>INCORPORATION OF CERTAIN INFORMATION BY REFERENCE</u>	S-36
Prospectus	
<u>ABOUT THIS PROSPECTUS</u>	1
<u>SUMMARY</u>	2
<u>RISK FACTORS</u>	5
<u>SELLING STOCKHOLDER</u>	5
<u>FORWARD-LOOKING STATEMENTS</u>	7
<u>USE OF PROCEEDS</u>	8
<u>PLAN OF DISTRIBUTION</u>	8
<u>DESCRIPTION OF CAPITAL STOCK</u>	10
<u>DESCRIPTION OF WARRANTS</u>	12
<u>DESCRIPTION OF UNITS</u>	14
<u>LEGAL MATTERS</u>	14
<u>EXPERTS</u>	14
<u>WHERE YOU CAN FIND ADDITIONAL INFORMATION</u>	15
<u>INCORPORATION OF CERTAIN INFORMATION BY REFERENCE</u>	15

Table of Contents

ABOUT THIS PROSPECTUS SUPPLEMENT

This document is in two parts. The first part is this prospectus supplement, which describes the specific terms of this offering and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. The second part, the accompanying prospectus, gives more general information about securities we may offer from time to time, some of which does not apply to this offering. Generally, when we refer to this prospectus, we are referring to both parts of this document combined together with all documents incorporated by reference. If the description of the offering varies between this prospectus supplement and the accompanying prospectus, you should rely on the information contained in this prospectus supplement. However, if any statement in one of these documents is inconsistent with a statement in another document having a later date—for example, a document incorporated by reference into this prospectus supplement or the accompanying prospectus—the statement in the document having the later date modifies or supersedes the earlier statement. You should not assume that the information appearing in this prospectus supplement, the accompanying prospectus, any related free writing prospectus or any document incorporated by reference is accurate as of any date other than the date of the applicable document. Our business, financial condition, results of operations and prospects may have changed since that date. You should rely only on the information contained in or incorporated by reference into this prospectus supplement or contained in or incorporated by reference into the accompanying prospectus to which we have referred you. We are responsible only for the information contained in or incorporated by reference into this prospectus supplement and the accompanying prospectus or information contained in a free writing prospectus that we authorize to be delivered to you. We have not authorized anyone to provide you with information that is different. If anyone provides you with different or inconsistent information, you should not rely on it. The information contained in, or incorporated by reference into, this prospectus supplement and contained in, or incorporated by reference into, the accompanying prospectus is accurate only as of the respective dates thereof, regardless of the time of delivery of this prospectus supplement and the accompanying prospectus or of any sale of securities. This prospectus supplement and the accompanying prospectus may be used only for the purpose for which they have been prepared. It is important for you to read and consider all information contained in this prospectus supplement and the accompanying prospectus, including the documents incorporated by reference herein and therein, in making your investment decision. You should also read and consider the information in the documents to which we have referred you under the captions “Where You Can Find More Information” and “Incorporation of Certain Information by Reference” in this prospectus supplement.

We are not making an offer to sell these securities in any jurisdiction where such an offer or sale is not permitted. The distribution of this prospectus supplement and the accompanying prospectus and the offering of the shares in certain jurisdictions or to certain persons within such jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus supplement and the accompanying prospectus must inform themselves about and observe any restrictions relating to the offering of the shares and the distribution of this prospectus supplement and the accompanying prospectus outside the United States. This prospectus supplement and the accompanying prospectus do not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus supplement and the accompanying prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation. Neither this prospectus supplement nor the accompanying prospectus constitutes an offer, or an invitation on our behalf, to subscribe for and purchase any of the securities.

Unless otherwise mentioned or unless the context requires otherwise, throughout this prospectus supplement and any related free writing prospectus, the words “Ampio Pharmaceuticals,” “Ampio,” “we,” “us,” “our,” “the company” or similar references refer to Ampio Pharmaceuticals, Inc. and its subsidiaries on a consolidated basis. References to “BioSciences” in this prospectus supplement mean DMI BioSciences, Inc., now a wholly-owned subsidiary of ours. References to “Life Sciences” in this prospectus supplement mean DMI Life Sciences, Inc., which is our predecessor for accounting purposes and a wholly-owned subsidiary of ours. Life Sciences was

Table of Contents

formed in December 2008 and commenced operations when it acquired certain assets of BioSciences in April 2009. In March 2010, Life Sciences merged with a subsidiary of Chay Enterprises, Inc., a publicly traded Colorado corporation, which we refer to in this prospectus supplement as Chay Enterprises. Immediately after the merger, Chay Enterprises changed its name to Ampio Pharmaceuticals, Inc., and reincorporated in Delaware. We acquired BioSciences, now a wholly-owned subsidiary of ours, in March 2011. References to Luoxis in this prospectus supplement mean Luoxis Diagnostics, Inc., which is an 80.9% owned subsidiary of ours and was formed on January 24, 2013 to focus on the development and commercialization of the Oxidation Reduction Potential (ORP) technology platform.

This prospectus supplement and the information incorporated herein by reference includes trademarks, such as Optina, Zertane, Ampion, and Luoxis, which are protected under applicable intellectual property laws and are our property or the property of our subsidiaries. This prospectus supplement may also contain trademarks, service marks, copyrights and trade names of other companies which are the property of their respective owners. Solely for convenience, our trademarks and tradenames referred to in this prospectus may appear without the ® or ™ symbols, but such references are not intended to indicate in any way that we will not assert, to the fullest extent under applicable law, our rights to these trademarks and tradenames.

The industry and market data and other statistical information contained in the documents we incorporate by reference are based on management's own estimates, independent publications, government publications, reports by market research firms or other published independent sources, and, in each case, are believed by management to be reasonable estimates. Although we believe these sources are reliable, we have not independently verified the information.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference into it contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. Forward-looking statements are those that predict or describe future events or trends and that do not relate solely to historical matters. You can generally identify forward-looking statements as statements containing the words believe, expect, may, will, anticipate, in estimate, project, plan, assume or other similar expressions, although not all forward-looking statements contain these identifying words. All statements contained in this prospectus and the documents incorporated by reference herein regarding our future strategy, plans and expectations regarding clinical trials, future regulatory approvals, our plans for the commercialization of our products, future operations, projected financial position, potential future revenues, projected costs, future prospects, and results that might be obtained by pursuing management's current plans and objectives are forward-looking statements. Forward-looking statements include, but are not necessarily limited to, those relating to:

our expectations related to the use of proceeds, if any, from this offering;

our need for, and ability to raise, additional capital;

the results and timing of our clinical trials;

the regulatory review process and any regulatory approvals that may be issued or denied by the Food and Drug Administration (FDA), the European Medicines Agency (EMA), or other regulatory agencies;

our need to secure collaborators to license, manufacture, market and sell any products for which we receive regulatory approval in the future;

the results of our internal research and development efforts;

the commercial success and market acceptance of any of our product candidates that are approved for marketing in the United States or other countries;

S-iii

Table of Contents

the safety and efficacy of medicines or treatments introduced by competitors that are targeted to indications which our product candidates have been developed to treat;

the acceptance and approval of regulatory filings;

our current or prospective collaborators' compliance or non-compliance with their obligations under our agreements with them, or decisions by our collaborators to discontinue clinical trials and return product candidates to us;

our plans to develop other product candidates; and

other factors discussed elsewhere in this prospectus or the documents incorporated by reference herein.

You should not place undue reliance on our forward-looking statements because the matters they describe are subject to known and unknown risks, uncertainties and other unpredictable factors, many of which are beyond our control. Our forward-looking statements are based on the information currently available to us and speak only as of the date on the cover of this prospectus. New risks and uncertainties arise from time to time, and it is impossible for us to predict these matters or how they may affect us. We have included important factors in the cautionary forward-looking statements included in this prospectus, particularly in the section of this prospectus supplement entitled "Risk Factors," which we believe over time, could cause our actual results, performance or achievements to differ from the anticipated results, performance or achievements that are expressed or implied by our forward-looking statements. We have no duty to, and do not intend to, update or revise the forward-looking statements in this prospectus after the date of this prospectus except to the extent required by the federal securities laws. You should consider all risks and uncertainties disclosed in our filings with the Securities and Exchange Commission, or the SEC, described in the sections of this prospectus supplement entitled "Where You Can Find More Information" and "Incorporation of Certain Information by Reference" and the sections of the accompanying prospectus entitled "Incorporation of Certain Information by Reference" and "Where You Can Find Additional Information," all of which are accessible on the SEC's website at www.sec.gov.

Table of Contents

PROSPECTUS SUPPLEMENT SUMMARY

*This summary highlights certain information about us, this offering and selected information contained elsewhere in, or incorporated by reference into, this prospectus supplement. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in our common stock. For a more complete understanding of our company and this offering, you should read and consider carefully the more detailed information in this prospectus supplement and the accompanying prospectus, including the information incorporated by reference in this prospectus supplement and the accompanying prospectus. If you invest in our common stock, you are assuming a high degree of risk. See *Risk Factors* in this prospectus supplement beginning on page S-12. All references in this prospectus supplement to our consolidated financial statements include, unless the context indicates otherwise, the related notes.*

Company Overview

Ampio Pharmaceuticals, Inc. is a development stage biopharmaceutical company focused primarily on the development of therapies to treat prevalent inflammatory conditions for which there are limited treatment options. Ampio's two lead product candidates in development are Ampion for osteoarthritis of the knee and Optina for diabetic macular edema. We have various other product candidates as well as a diagnostic platform that Ampio is currently developing.

Background

Our product portfolio is primarily based on the work of Dr. David Bar-Or, the Director of Trauma Research LLC for both the Swedish Medical Center located in Englewood, CO and St. Anthony Hospital located in Lakewood, CO. For over two decades, while directing these two trauma research laboratories, Dr. Bar-Or and his staff have built a robust portfolio of product candidates focusing on inflammatory conditions. Ampio's initial clinical programs were culled from Dr. Bar-Or's research based on certain criteria, particularly the ability to advance the candidates rapidly into late-stage clinical trials. The benchmarks used to build our pipeline were products with: (i) potential indications to address large underserved markets; (ii) strong intellectual property protection and the potential for market and data exclusivity; and (iii) a well-defined regulatory path to marketing approval.

We are primarily developing compounds that decrease inflammation by (i) inhibiting specific pro-inflammatory compounds by affecting specific pathways at the protein expression and at the transcription level; (ii) activating specific phosphatase or depleting available phosphate needed for the inflammation process; and (iii) decreasing vascular permeability.

Business Overview

Our Product Pipeline

Ampion for Osteoarthritis and Other Inflammatory Conditions

Ampion is a sub 5000 molecular weight (MW) fraction of commercial human serum albumin (HSA). The primary constituent ingredient is aspartyl-alanyl diketopiperazine, or DA-DKP, an endogenous immunomodulatory molecule derived from the N-terminus of HSA. Based on Ampio's published in-vitro findings, DA-DKP appears to play a significant role in the homeostasis of inflammation. DA-DKP is believed to reduce inflammation by suppressing pro-inflammatory cytokine production in T-cells. Ampion also contains other known small molecules that confer anti-inflammatory effects to complement the activity of DA-DKP and derive in-vitro and in-vivo effects. We believe the non-steroidal, low molecular weight, anti-inflammatory biologic has the potential to be used in a wide variety of acute and chronic inflammatory conditions as well as immune-mediated diseases. Ampio is currently developing Ampion as an intra-articular injection to treat osteoarthritis of the knee.

S-1

Table of Contents

Ampion is manufactured as the low molecular weight filtration product of commercial human serum albumin containing DA-DKP, N-acetyltryptophan, caprylate, and other small molecules either contained in HSA or added to HSA during the processing and production of commercial HSA products. DA-DKP, the primary constituent ingredient contained in Ampion, is a locally generated molecule formed as a physiological result of the cleavage and cyclization of the N-terminal aspartic acid and alanine residues of human albumin. The molecule was originally discovered in the blood and cerebrospinal fluid of patients several days after suffering severe closed head injuries. A high concentration of DA-DKP has also been detected in biofilms found on endotracheal tubes recovered from intubated patients and on implanted orthopedic plates and screws. Together these findings suggest a mechanism by which DA-DKP contributes to the ability to reduce the body's inflammatory response following insult or injury.

DA-DKP is believed to reduce inflammation through the activation of Ras-related protein 1 (Rap1). Rap1 interrupts the kinase cascade by regulating the amount of rapidly accelerated fibrosarcoma (Raf) kinases available for interaction with Ras, inhibiting antigen-specific Ras activation. This decrease disrupts the mitogen-activation protein kinase (MAPK) cascade and results in decreased immunoinflammatory cytokine gene transcription. The clinical results which are detailed below suggest an effect other than anti-inflammatory properties are at work and imply more prolonged healing-like effects.

Market Opportunity.

Osteoarthritis is the most common form of arthritis, affecting over 27 million people in the United States. It is a progressive disorder of the joints involving degradation of the intra-articular cartilage, joint lining, ligaments, and bone. The incidence of developing osteoarthritis of the knee or hip over a lifetime is approximately 45% and 25%, respectively. Certain risk factors in conjunction with natural wear and tear lead to the breakdown of cartilage. Osteoarthritis is caused by inflammation of the soft tissue and bony structures of the joint, which worsens over time and leads to progressive thinning of articular cartilage. Other progressive effects include narrowing of the joint space, synovial membrane thickening, osteophyte formation and increased density of subchondral bone. The global osteoarthritis therapeutics market continues to expand and is expected to exceed \$7 billion by 2015 and the global demand for osteoarthritis of the knee treatment is expected to be fueled by favorable demographics and increasing awareness of treatment options. Despite the size and growth of the osteoarthritis of the knee market, few adequate treatment options currently exist.

Inflammation of the synovium interrupts the natural chondrocyte metabolism, which is responsible for the production and maintenance of the components of cartilage's extracellular matrix. Osteoarthritic synovial fluid activates pro-inflammatory cytokines in active chondrocytes through autocrine and paracrine mechanisms. The cytokines, such as tumor necrosis factor- α (TNF- α), interleukin-17 (IL-17), and interleukin-18 (IL-18), stimulate the synthesis of matrix metalloproteinase (MMPs) whose enzymatic activity leads to the digestion of cartilage.

Phase I Clinical Trial Results.

In October 2011, we announced results from the first part of our Ampion-in-Knee (AIK) study of Ampion in the treatment of osteoarthritis of the knee. We conducted our Phase I trial in Australia because the biologics legislation governing the Australian Therapeutic Goods Administration (TGA) allowed us to move Ampion directly into human clinical trials as the TGA recognized that HSA has an already established safety profile in humans by virtue of its longstanding commercial use. The AIK trial was conducted in patients diagnosed with moderately-severe to severe osteoarthritis of the knee. The 60 patients were enrolled in a 3 arm randomized double-blind trial designed to establish tolerability and efficacy of Ampion. In the three arms of the trial, patients were injected in the knee with: (i) steroid, lidocaine, and saline; (ii) steroid, lidocaine, and Ampion, and; (iii) steroid, saline, and Ampion. There were very few moderate to severe adverse events with those subjects receiving the standard of care (Lidocaine/Steroids, 3 patients or 15%) and even fewer in either arm receiving

Table of Contents

Ampion in addition to steroids (2 patients or 10%). Overall, there were 4 treatment-related adverse events reported, but no moderate to severe treatment-related adverse events were reported. Upon establishing Ampion was safe for human use, these favorable results allowed us to proceed to the second part of the Phase I trial evaluating Ampion as a monotherapy against saline.

In April 2012, we announced results from the second part of our AIK study of Ampion in the treatment of osteoarthritis of the knee. The second part of the AIK study was a 30 patient randomized (1:1), double-blind, vehicle controlled trial designed to evaluate the safety and efficacy of Ampion 4mL in osteoarthritis of the knee patients. The 30 patients represented the efficacy evaluable population who did not receive a betamethasone injection as rescue medication of the intent-to-treat population of 43 patients. The primary endpoint was mean change in pain from baseline for Ampion compared to saline at 84 days following a single intra-articular injection into the knee measured on the pain scale known as the Numerical Rating Scale (NRS). Secondary endpoints included evaluating the safety as well as rescue medication use (acetaminophen), and responder rate (defined as a 2 point reduction in pain on the NRS). A brief summary of the combined Ampion topline results is as follows:

Patients receiving Ampion achieved a significantly greater reduction in pain from baseline to 12 weeks compared to saline vehicle control (1.76; $p=0.04$).

Patients receiving Ampion achieved a greater responder rate, defined as a 2 point shift on the NRS, from baseline to 12 weeks compared to saline vehicle control (63% vs. 33%; $p=0.10$).

Overall, patients receiving Ampion achieved a statistically significant -2.22 reduction in pain from baseline ($p<0.05$) to 12 weeks compared to saline vehicle control (-0.46; $p=0.34$). A graph depicting the least squares (LS) mean change in pain from baseline for both Ampion and saline vehicle control is depicted below.

Clinical Development Pathway.

Upon conclusion of the AIK trial which yielded the positive results summarized above, we presented a package containing both pre-clinical and clinical data to the blood products division of the Center for Biologics Evaluation and Research (CBER) of the FDA. The original guidance toward an Ampion Biologics License Application (BLA) filing included instruction to conduct customary toxicology work inclusive of animal studies prior to progressing into U.S. human trials. However, following the FDA's recognition of the established safety

Table of Contents

profile and standardization of production of HSA, the FDA allowed us to progress directly into U.S. human clinical trials. The FDA initially indicated that we should design and conduct two well-controlled trials with a 12 week primary endpoint measured on the Western Ontario and McMaster Universities Arthritis Index (WOMAC) pain subscale (WOMAC A). If we wished to request a chronic use label for Ampion, we would need to expose 1,500 patients to Ampion, including exposure of 300-600 patients for at least six months and 100 patients for at least one year, according to the FDA's ICH-E1A guidance.

In February 2013, in response to our Investigational New Drug (IND) application and two submissions describing two concurrent Phase III study protocols enrolling in excess of 1,600 patients, the FDA did not object to two sequential well-conducted trials in support of a license application. Under such a development program the dose ranging trial objectives would be twofold: compare two volumes for efficacy and safety and demonstrate statistical power. We referred to the dose ranging trial as our SPRING study.

Dose Ranging SPRING Trial Results.

On August 14, 2013, we announced results of the SPRING study of Ampion for the treatment of osteoarthritis of the knee. The SPRING study was a U.S. multicenter randomized (1:1:1:1), double-blind, vehicle controlled trial designed to evaluate the safety and efficacy of Ampion in osteoarthritis of the knee patients. 329 patients were randomized to receive one of two doses (4 mL or 10 mL) of Ampion or corresponding saline control via intra-articular injection. The primary study objective was to evaluate the relative efficacy of Ampion 4 mL versus Ampion 10 mL. The primary endpoint was mean change in pain as measured on the WOMAC, a standardized scoring metric for pain, from baseline for Ampion compared to the same volume of saline. Secondary endpoints included evaluating safety and quality of life, as well as stiffness and function. Ampion dose cohorts experienced statistically significant reductions in pain compared to control. There were no significant differences between the efficacy of the two Ampion doses. Selection of the optimal dose for the Phase III pivotal trial will be decided in consultation with the FDA. A brief summary of the combined Ampion topline results is as follows:

Patients receiving Ampion achieved significantly greater reduction in pain (WOMAC A) from baseline to 12 weeks compared to saline vehicle control ($p = 0.0038$).

Patients receiving Ampion experienced, on average, a greater than 40% reduction in pain from baseline.

Patients receiving Ampion also achieved significantly greater improvement in function (WOMAC C) from baseline to 12 weeks compared to saline vehicle control ($p = 0.044$).

Patients receiving Ampion also demonstrated significantly greater improvement in overall quality of life measures (Patient Global Assessment) from baseline to 12 weeks compared to saline vehicle control ($p = 0.012$).

Clinical efficacy defined as pain reduction was evident as early as four weeks after the injection ($p = 0.025$) and continued to show improvement through 12 weeks ($p = 0.0038$).

Ampion was well tolerated with minimal adverse events (AEs) reported in the study. AEs were well balanced between Ampion and control groups. There were no drug-related serious adverse events (SAEs).

Future Development.

We expect to share the SPRING trial data with the FDA prior to and during the October 29, 2013 Pre-BLA meeting scheduled by the FDA and start the Phase III pivotal trial based upon these discussions. We currently expect that the upcoming Phase III pivotal trial will be a U.S. multicenter, randomized (1:1) double-blind, vehicle controlled trial enrolling approximately 500 patients evaluating the difference in reduction in pain of Ampion 4 mL to a saline vehicle comparator of identical injection volume. We currently expect to commence enrollment in the Phase III pivotal trial in fourth quarter of 2013, announce top-line results in the second quarter of 2014. We

S-4

Table of Contents

believe that the number of patients enrolled in our dose ranging SPRING trial and the number of patients planned for enrollment in the Phase III pivotal trial will meet the safety requirements of the FDA, and that these two trials will fulfill the clinical study requirements allowing us to proceed to a BLA filing for Ampion for treatment of osteoarthritis of the knee in the third quarter of 2014.

We plan to use a portion of the proceeds of this offering to design, develop and scale up a manufacturing facility where we would manufacture Ampion for registration batching and commercial supply as well as future clinical supplies. We have identified multiple potential production facilities in the Denver, CO metro area and have drafted proposed scale up plans. We have also initiated preliminary discussions regarding HSA raw material supply agreements with manufacturers.

We also plan to initiate market development activities for Ampion, including engagement of thought leaders as well as development of pricing, reimbursement, and coding strategy to maximize Ampion's value proposition. This market development work will maximize commercial possibilities as we progress toward the submission of the Ampion BLA.

We also intend to study Ampion for therapeutic applications outside of osteoarthritis of the knee. We expect to engage development partners to study Ampion in various conditions including: (i) acute and chronic inflammatory conditions; (ii) degenerative bone diseases; and (iii) respiratory and allergic disorders. Based on the continuing evaluation, we are also studying Ampion's effects on cellular behavior to indicate potential effects on disease modification across multiple conditions. If successful, we believe these additional formulations and potential therapeutic indications will supplement the Ampion clinical portfolio, and will enable clinical applications in large therapeutic markets where there are significant unmet needs. We expect that initial investigations into strategically attractive indications will be conducted on an investigator-sponsored basis.

Competition.

The currently available treatments for osteoarthritis of the knee include oral non-steroidal anti-inflammatory agents, opioids, pain patches, intra-articular (IA) corticosteroids, and hyaluronic acid (HA) injections. Despite wide availability and years of clinical use, none of these agents are recommended for use as evidenced by the most recently published knee osteoarthritis clinical practice guidelines. In May 2013, the American Academy of Orthopedic Surgeons (AAOS) issued their second edition of clinical practice guidelines for the treatment of osteoarthritis of the knee. The AAOS was unable to recommend for or against the use of intra-articular corticosteroid injections as studies designed to indicate efficacy are inconclusive. Further, the AAOS was also unable to recommend for or against the use of acetaminophen, opioids, or pain patches as the efficacy studies in this area are also inconclusive. Most importantly, the AAOS does not recommend (with a strong strength of recommendation) the use of hyaluronic acid injections as, in the association's assessment, the clinical evidence does not support their use. This latest clinical practice guideline underscores a pervasive unmet need in the treatment of osteoarthritis of the knee given few accepted and available treatments. We believe Ampion is a novel treatment option that, if approved, would be the first non-steroidal, non-hyaluronic-based intra-articular treatment available for the treatment of osteoarthritis of the knee.

Intellectual Property and Data Exclusivity.

As of September 1, 2013, the current Ampion patent portfolio consists of 44 issued patents and 42 pending applications worldwide. The portfolio primarily consists of two families filed in the United States and throughout the world. The first family includes four issued U.S. patents and one issued European Patent Office (EPO) patent validated in 19 countries with claims relating to methods of treating inflammatory disease and compositions of matter comprising diketopiperazine derivatives, including DA-DKP. This family also includes issued patents in Canada, China, Hong Kong, Japan and South Africa and two pending applications in the U.S. The standard 20-year expiration for patents in this family is

in 2021.

S-5

Table of Contents

The second family includes four issued U.S. patents with claims directed to methods of treating inflammation and T-cell mediated or inflammatory diseases with compositions of matter comprising DA-DKP. This family also includes issued patents in Australia, India, New Zealand, Singapore and South Africa and pending applications in the U.S., Australia, Canada, China, EPO, Israel, Japan and Korea. The standard 20-year expiration for patents in this family is in 2024.

In addition, as provided by the Patient Protection and Affordable Care Act (PPACA), the FDA will grant newly approved biologic agents 12 years of data exclusivity. We believe Ampion, if approved, would qualify for such exclusivity.

Optina for Diabetic Macular Edema

Optina is a low-dose formulation of danazol that we are developing to treat diabetic macular edema. Danazol is a synthetic derivative of modified testosterone ethisterone, and we believe it affects vascular endothelial cell linkage in a biphasic manner. At low doses, danazol decreases vascular permeability by increasing the barrier function of endothelial cells. The lipophilic low-molecular-weight weak androgen has the potential to treat multiple angiopathies.

Steroid hormones control a variety of functions through slow genomic and rapid non-genomic mechanisms. Danazol immediately increases intracellular cyclic adenosine monophosphate (cAMP) through the rapid activation of membrane-associated androgen, steroid binding globulin, and calcium channel receptors. At lower concentrations such as Optina, danazol binds to androgen and steroid binding globulin receptors stimulating the formation of a cortical actin ring. At higher concentrations, activation of the calcium channels shift the balance towards stress fiber formation and increase vascular permeability.

When organized into a cortical ring, filamentous actin (f-actin) increases the barrier function of endothelial cells by tethering adhesion molecule complexes to the cytoskeleton. In this orientation, increased cortical actin improves tight junctions which strengthen cell-to-cell adhesions. Formation of the cortical actin ring thereby restricts leakage across the cell membrane.

Market Opportunity.

Type 1 and type 2 diabetes mellitus affects 26 million people in the United States. One of the many symptoms of diabetes is the local and systemic inflammation of the microvascular system. Diabetic retinopathy is a complication of diabetes and is characterized by damage to the blood vessels of the retina and can either be proliferative or non-proliferative. Proliferative damage occurs when a reduction in oxygen levels in the retina due to impaired glucose metabolism causes fragile blood vessels to grow in the vitreous humor. Non-proliferative damage occurs when existing vessels experience poor endothelial cell linkage due to increased blood glucose levels and hypertension. Macular edema is the most common form of non-proliferative diabetic retinopathy. In diabetic macular edema, prolonged hyperglycemia compromises endothelial cell linkage leading to vascular permeability. The leakage of fluid, solutes, proteins and immune cells cause the macula to swell and thicken. This leads to damage of the central retinal tissue and can significantly impair sharp central vision. The prevalence of diabetes is 11.3% of the population above the age of 20, with an annual incidence of 1.9 million cases in the United States alone. In this population, the prevalence of diabetic macular edema is estimated at 30% of patients inflicted by the disease for 20 years or more.

Phase II results.

In 2012, we concluded our Phase II randomized, double-masked, placebo-controlled, dose-ranging study evaluating the efficacy and safety of Optina in subjects with diabetic macular edema at St. Michael's Hospital in Toronto, Canada. The trial was randomized (1:1:1) and included 34 patients with moderate to severe diabetic macular edema (316-707 microns of central retinal thickness) that were treated orally with either one of three

S-6

Table of Contents

doses of Optina (5mg, 15mg, 45mg) twice a day (BID) or placebo for 12 weeks. The primary endpoint was mean central retinal thickness (CRT) measured by optical coherence tomography (OCT). Secondary endpoints included improvement in best corrected visual acuity (BCVA) and safety. On a pooled basis, Optina failed to demonstrate significant reduction in CRT versus placebo.

The trial was terminated early based on the review of the interim analysis data. No significant safety issues were identified, but the overall study design was complicated by the lipophilic nature of danazol. That lipophilic nature when combined with the critical nature of the blood level (as compared to tissue level) meant that the dose administered to all the patients needed to take Body Mass Index (BMI) into account. Patients who were randomly allocated to a dose not appropriate for their body mass did not contribute scientifically useful proof of efficacy (or lack thereof). We, therefore, decided to terminate this study and initiate a redesigned study to evaluate the safety and efficacy of danazol dosing based on BMI.

However, recognizing danazol is very fat soluble, we subsequently stratified patients by body mass index (BMI). These results produced a strong correlation between BMI and efficacy at the different doses of Optina. A brief summary of the topline results is as follows:

Patients stratified around a BMI of 35 receiving Optina 15mg BID achieved significant reduction in CRT (96.24 microns; p=0.01).

Patients stratified around a BMI of 26 receiving Optina 5mg BID achieved a trend toward significant reduction in CRT (166.08 microns; p=0.13).

47% of patients receiving Optina improved at least one BCVA category.

Two serious adverse events were identified, one unlikely related and one unrelated to Optina. There were three treatment related adverse events (TRAEs) all of which were considered possibly related to Optina.

Overall, patients receiving Optina achieved a reduction in CRT in a BMI dosage-adjusted manner at 12 weeks in the per-protocol population (n=23).

Clinical Development Pathway.

Danazol has been on the market for more than three decades with approved dosing of 200mg to 800mg. There also exist peer-reviewed publications studying the safety and efficacy in lower doses for the approved

Table of Contents

indications, such as idiopathic thrombocytopenic purpura. Given the vast body of safety data, we leveraged the established drug profile and are pursuing approval of Optina under the §505(b)(2) regulatory pathway, referencing the preexisting danazol literature. The FDA indicated that this approach to approval of Optina is acceptable after we presented results from the Phase II trial to the ophthalmology division of the Center for Drug Evaluation and Research (CDER) of the FDA. Under this clinical pathway, we confirmed with the ophthalmology division of the CDER that it may be possible for Optina to be approved on the basis of positive results from a single clinical trial accompanied by additional literature, such as an existing Drug Master File (DMF), toxicology work, and contra-indications, which would allow us to proceed to a New Drug Application (NDA) filing.

Clinical Trials in Support of a §505(b)(2) NDA.

The FDA has indicated that, for §505(b)(2) NDAs, complete studies of the safety and effectiveness of a candidate product may not be necessary if appropriate bridging studies provide an adequate basis for reliance upon FDA's findings of safety and effectiveness for a previously approved product. In support of a §505(b)(2) application for Optina, we commenced enrollment in a 450 patient Phase IIb trial in February 2013. The U.S. multicenter dose ranging trial is designed to evaluate the safety and efficacy of oral Optina compared with placebo over 12 weeks in adult patients with DME. The active treatment duration of 12 weeks is the maximum time allowed to withdraw treatment in the ophthalmology community. We have enrolled over 200 patients and expect enrollment to be completed in the first quarter of 2014. Patients are randomized (1:1:1) to receive one of two oral doses of Optina (0.5mg per BMI and 1.0mg per BMI per day) or placebo. The primary endpoint is improvement in best-corrected visual acuity in treated patients compared to a placebo. Secondary endpoints are (i) measurements of changes in central macular thickness in treated patients compared to a placebo and (ii) safety and tolerability of the two Optina doses. We anticipate releasing top-line results in the third quarter of 2014.

Additionally, patients from the active treatment arms of the trial will be followed for four weeks without treatment following the 12 week treatment period in order to study any regression of effect. All patients will also be given the option to enter into an open label extension of the trial. The open label study will evaluate patients' improvement in BCVA over 12 weeks by administering the optimal dose of Optina. The optimal dose will be one of the two studied in the trial determined by an interim analysis occurring at week 4 involving approximately 150 patients. We expect to make an announcement around the interim analysis in the fourth quarter of 2014.

Future Development.

While we believe the data from a single clinical trial would support a NDA filing, we will assess the need for an additional trial in conjunction with the FDA upon the successful outcome of the trial in support of a §505(b)(2) NDA. The FDA has previously indicated that a Phase III trial may be necessary following the current trial. During this current trial, we are also gathering data on patients' proteinuria levels. If Optina proves to be successful in inhibiting vascular permeability, we will assess the prospects of Optina for treatment of other diabetic angiopathies such as diabetic nephropathy.

Competition.

There is no orally administered treatment for DME currently available nor one to our knowledge being tested in clinical trials. The current standard of care in the U.S. for the treatment of DME is laser photocoagulation. The first and only approved therapy in the U.S. is intravitreal Lucentis (ranibizumab) injections. Ranibizumab belongs to a therapeutic class inhibiting vascular endothelial growth factor agonist (anti-VEGF). It is important to note, there is significant competition from off-label anti-VEGF treatment of DME from bevacizumab. Iluvien, fluocinolone acetonide micro-insert intravitreal implant, is available in six European countries, and is awaiting FDA marketing approval in

Edgar Filing: Ampio Pharmaceuticals, Inc. - Form 424B5

patients suffering from DME with a Prescription Drug User Fee Act (PDUFA) goal date of October 17, 2013. Ozurdex (dexamethasone intravitreal implant) is available in the U.S. for macular edema following retinal vein occlusion and noninfectious uveitis and the product s

S-8

Table of Contents

sponsor has submitted for U.S. and European approval in DME. Recently, two positive one-year results were announced from two Phase III trials of bimonthly intravitreal Eylea (aflibercept) injections (after five initial monthly injections), and the product's sponsor plans marketing regulatory submissions in DME by the end of 2013. Aflibercept is also an anti-VEGF antibody.

Intellectual Property.

As of September 1, 2013, the Optina patent portfolio currently consists of 40 issued patents and 44 pending applications worldwide. The portfolio consists primarily of one patent family which includes one issued patent in each of the U.S., EPO (validated in 36 countries) and Canada with claims relating to methods of treating macular edema with danazol. This family also includes pending applications in Australia, Brazil, China, Eurasian Patent Organization, Indonesia, Israel, Japan, Korea, Mexico, Malaysia, New Zealand, Philippines, Singapore, and South Africa. The standard 20-year expiration for patents in this family is in 2030.

Other Products

Sexual Dysfunction Portfolio

Zertane is an on-demand, orally dissolving tablet under development for the treatment of premature ejaculation, a condition that has a major impact on the quality of life for men and their sexual partners. The active ingredient, tramadol, has multiple mechanisms that can delay ejaculation. This drug also has an excellent safety record established during 30 years of human use for other medical indications. Zertane-ED, a combination of Zertane and a PDE-5 inhibitor, can be used to treat premature ejaculation and erectile dysfunction. Ampio is actively seeking a partnership for the completion of the U.S. Phase III clinical trials and worldwide commercialization of Zertane. In June 2013, Ampio submitted the application to the Therapeutic Goods Administration (TGA) for approval of Zertane in Australia. We expect to receive approval for marketing Zertane in Australia in 2014.

Luoxis Diagnostics

In January 2013, we formed a subsidiary, Luoxis Diagnostics, which is an in-vitro diagnostics company focused on the development and commercialization of our ORP technology platform. All of the technology and patents related to the ORP technology platform as well as other diagnostic technologies have been assigned to Luoxis. Our novel ORP diagnostic platform is comprised of a point of care device and disposable testing strips that together measure the presence of oxidative stress and antioxidant reserves in patients. These measures can be applied across multiple acute illnesses and injuries as well as chronic diseases. Ampio owns 80.9% of Luoxis, and the balance is owned by non-affiliated investors.

Our ORP Diagnostic System is the only in-vitro diagnostic test that measures human ORP, an important, complete measure of oxidative stress that is implicated in both critical and chronic illnesses. As demonstrated over decades in multiple peer-reviewed publications, ORP is an important marker in the assessment of patient morbidity across a wide range of diseases and conditions. There are numerous clinical applications for this oxidative stress marker for which there is no currently available diagnostic test. Knowing the antioxidant reserves and ORP status of a patient is important for clinical management of the patient in the hospital or for discharge disposition and adds an objective metric for resuscitation efforts on a real-time basis from a single drop of plasma.

In June 2013, Luoxis announced positive Phase III summary data using our ORP Diagnostic System. The results are reported from a cohort of 153 elderly patients who suffered hip fractures as a result of a fall, the most common cause of hip fractures among the elderly. This study was performed by Luoxis using stored plasma samples of patients that were prospectively collected from patients diagnosed with a fall-related hip fracture. The study was conducted at a single site in the U.S. When studying the markers measured by the ORP diagnostic

S-9

Table of Contents

system, investigators demonstrated statistically significant correlations between patients' antioxidant reserve levels and established comorbidity measures as measured by the Charlson Comorbidity Index ($p=0.02$). Investigators also reported a statistically significant correlation between patients' ORP levels and injury severity as measured by the validated Injury Severity Score (ISS; $p=0.01$). These clinical study results indicate the predictive value of oxidation-reduction potential and antioxidant reserves and their value as prognostic markers among elderly hip fracture patients in a clinical setting. Hip fracture in patients over 65 years of age is associated with 2-3% in hospital mortality and grows to approximately 20-30% in the following six months.

NCE 001

NCE001 (para-phenoxy-methylphenidate) is a novel, small molecule methylphenidate derivative. Its basic mechanism of action is believed to be to increase methylation of the catalytic sub unit of Protein Phosphatase 2 A (PP2A), with activation of this phosphatase achieving an effect similar to kinase inhibitors. PP2A is known to be largely involved in inflammation, angiogenesis, and cell proliferation, and by decreasing phosphorylation, the intracellular phosphatase inhibits pro-carcinogenic cytokines and chemokines and cell signaling factors. Our pre-clinical research is focused on neuroblastoma, glioblastoma multiforme, renal cell carcinoma, and inflammatory breast cancer.

Company Information

Our predecessor, DMI Life Sciences, Inc., or Life Sciences, was incorporated in Delaware in December 2008 and did not conduct any business activity until April 16, 2009, at which time Life Sciences purchased certain assigned intellectual property, business products and tangible property from BioSciences. Life Sciences issued 3,500,000 shares of its common stock to BioSciences, and assumed certain liabilities, as consideration for the assets purchased from BioSciences. The assets Life Sciences acquired from BioSciences had a carrying value of zero, as BioSciences had expensed all of the research and development costs it incurred with respect to the intellectual property purchased by Life Sciences.

In March 2010, Life Sciences was merged with a subsidiary of Chay Enterprises, Inc., a publicly-traded company then traded on the OTC Bulletin Board. Chay Enterprises had minimal operations prior to the time of this merger, and like similar entities, was referred to as a public shell. As a result of this merger, Life Sciences stockholders became the controlling stockholders of Chay Enterprises and the former sole officer and director of Chay Enterprises appointed a majority of our current management team to their present positions.

We were reincorporated in Delaware at that time as Ampio Pharmaceuticals, Inc. and commenced trading on the OTC Bulletin Board as Ampio Pharmaceuticals, Inc. in late March 2010.

On March 23, 2011, Ampio acquired all of the outstanding stock of BioSciences. Its principal asset consisted of the worldwide rights to Zertane, as to which BioSciences held 32 issued patents and 31 pending patent applications. Zertane is a repurposed drug to treat male sexual dysfunction pertaining to premature ejaculation (PE) in men.

In May 2011, our common stock commenced trading on the NASDAQ Capital Market under the symbol **AMPE**, at which time our common stock ceased trading on the OTC Bulletin Board.

Edgar Filing: Ampio Pharmaceuticals, Inc. - Form 424B5

On June 17, 2013, our common stock commenced trading on the NYSE MKT under the symbol `AMPE` at which time our common stock ceased trading on the NASDAQ.

Our principal executive offices are located at 5445 DTC Parkway, Suite 925, Greenwood Village, Colorado 80111, and our telephone number is (720) 437-6500. Additional information about us is available on our website at www.ampiopharma.com. The information contained on or that may be obtained from our website is not, and shall not be deemed to be, a part of this prospectus.

S-10

Table of Contents

The Offering

Common Stock Offered By Us	4,600,319 shares
Common Stock To Be Outstanding Immediately After This Offering	41,731,258 shares
NYSE MKT Listing Symbol	Our common stock is listed on the NYSE MKT under the symbol AMPE.
Use Of Proceeds	We estimate that our net proceeds from this offering, after deducting our estimated offering expenses, will be approximately \$24.8 million based upon a price of \$5.50 per share. We anticipate that we will use the net proceeds from this offering for working capital and for general corporate purposes, including continuation and completion of our Ampion and Optina clinical trials, potential submission of a BLA relating to Ampion and a NDA relating to Optina, acquisition of manufacturing equipment and related outfitting in connection with the leasing of a new manufacturing facility and the potential hiring of additional personnel to manufacture Ampion. See Use of Proceeds on page S-32 of this prospectus supplement.
Risk Factors	Investing in our common stock involves a high degree of risk. See Risk Factors beginning on page S-12 of this prospectus supplement, and in the documents incorporated by reference into this prospectus supplement and the accompanying prospectus for a discussion of factors you should carefully consider before investing in our securities.

The number of shares of common stock to be outstanding immediately after this offering as reflected above is based on the actual number of shares outstanding as of September 25, 2013, which was 37,130,939 shares and excludes as of that date:

Options representing the right to purchase a total of 5,474,065 shares of common stock at a weighted average exercise price of \$2.71 per share;

An aggregate of 1,621,808 additional shares of our common stock reserved for future issuance under our 2010 Stock Incentive Plan; and

Warrants representing the right to purchase a total of 687,134 shares of common stock at a weighted average exercise price of \$2.93 per share.

Table of Contents

RISK FACTORS

An investment in our common stock involves a high degree of risk. Before you make a decision to invest in our common stock, you should consider carefully the risks described below, together with other information in this prospectus supplement, the accompanying prospectus and the information incorporated by reference herein and therein. Any of the following risks could have a material adverse effect on our business, operating results, prospects or financial condition. This could cause the trading price of our common stock to decline and you may lose all or part of your investment. These risks are not the only ones that we face. Additional risks not presently known to us or that we currently deem immaterial may also affect our business operations.

Risks Related to Our Business

We have incurred significant losses since inception, expect to incur net losses for at least the next several years and may never achieve or sustain profitability.

We have experienced significant net losses since inception. As of June 30, 2013, we had an accumulated deficit of approximately \$50.4 million. We expect our annual net losses to continue over the next several years as we advance our development programs and incur significant clinical development costs.

We have not received, and do not currently expect to receive, any revenues from the commercialization of our product candidates in the near term. In September 2011, we entered into a license, development and commercialization agreement with a major Korean pharmaceutical company with respect to Zertane in South Korea, which provided for a \$500,000 upfront payment and future milestone payments that are contingent upon achievement of regulatory approvals and cumulative net sales targets. We may enter into additional licensing and collaboration arrangements, which may provide us with potential milestone payments and royalties and those arrangements, if obtained, will be our primary source of revenues for the coming years. We cannot be certain that any other licensing or collaboration arrangements will be concluded, or that the terms of those arrangements will result in our receiving material revenues. To obtain revenues from product candidates, we must succeed, either alone or with others, in a range of challenging activities, including completing clinical trials of our product candidates, obtaining marketing approval for these product candidates, manufacturing, marketing and selling those products for which we, or our collaborators, may obtain marketing approval, satisfying any post-marketing requirements and obtaining reimbursement for our products from private insurance or government payors. We, and our collaborators, may never succeed in these activities and, even if we do, or one of our collaborators does, we may never generate revenues that are large enough for us to achieve profitability.

If we do not secure collaborations with strategic partners to test, commercialize and manufacture product candidates, we may not be able to successfully develop products and generate meaningful revenues.

A key aspect of our current strategy is to selectively enter into collaborations with third parties to conduct clinical testing, as well as to commercialize and manufacture product candidates. Our ability to generate revenues from these arrangements will depend on our collaborators abilities to successfully perform the functions assigned to them in these arrangements. We currently have only one collaboration agreement in effect, which relates to Zertane in South Korea. Collaboration agreements typically call for milestone payments that depend on successful demonstration of efficacy and safety, obtaining regulatory approvals, and clinical trial results. Collaboration revenues are not guaranteed, even when efficacy and safety are demonstrated. The current economic environment may result in potential collaborators electing to reduce their external spending, which may prevent us from developing our product candidates.

Even if we succeed in securing collaborators, the collaborators may fail to develop or effectively commercialize products using our product candidates or technologies. Collaborations involving our product candidates pose a number of risks, including the following:

collaborators may not have sufficient resources or decide not to devote the necessary resources due to internal constraints such as budget limitations, lack of human resources, or a change in strategic focus;

S-12

Table of Contents

collaborators may believe our intellectual property or the product candidate infringes on the intellectual property rights of others;

collaborators may dispute their responsibility to conduct development and commercialization activities pursuant to the applicable collaboration, including the payment of related costs or the division of any revenues;

collaborators may decide to pursue a competitive product developed outside of the collaboration arrangement;

collaborators may not be able to obtain, or believe they cannot obtain, the necessary regulatory approvals;

collaborators may delay the development or commercialization of our product candidates in favor of developing or commercializing another party's product candidate; or

collaborators may decide to terminate or not to renew the collaboration for these or other reasons.

Thus, collaboration agreements may not lead to development or commercialization of product candidates in the most efficient manner or at all. For example, our former collaborator that licensed Zertane conducted clinical trials which we believe demonstrated efficacy in treating premature ejaculation (PE), but the collaborator undertook a merger that we believe altered its strategic focus and thereafter terminated the collaboration agreement. The merger also created a potential conflict with a principal customer of the acquired company, which sells a product to treat PE in certain European markets.

Collaboration agreements are generally terminable without cause on short notice. Once a collaboration agreement is signed, it may not lead to commercialization of a product candidate. We also face competition in seeking out collaborators. If we are unable to secure new collaborations that achieve the collaborator's objectives and meet our expectations, we may be unable to advance our product candidates and may not generate meaningful revenues.

We will need substantial additional capital to fund our operations. If we are unable to raise capital when needed, we could be forced to delay, reduce or eliminate our product development programs and commercialization efforts.

Developing pharmaceutical products, including conducting preclinical studies and clinical trials, is a very time-consuming, expensive and uncertain process that takes years to complete. We expect our expenses to increase in connection with our ongoing activities, particularly as we initiate new clinical trials of, initiate new research and preclinical development efforts for and seek marketing approval for, our product candidates. We will require additional capital to fund our operations, including to:

continue to fund clinical trials of Ampion and Optina;

prepare for and apply for regulatory approval for our product candidates;

further develop and assess the clinical utility of the oxidation reduction potential (ORP) diagnostic device, or the ORP device;

develop additional product candidates;

conduct additional clinical research and development;

pursue existing and new claims covered by intellectual property we own or license; and

sustain our corporate overhead requirements, and hire and retain necessary personnel.

Until we can generate revenue from collaboration agreements to finance our cash requirements, which we may not accomplish, we expect to finance future cash needs primarily through offerings of our debt or equity

S-13

Table of Contents

securities. We currently have only one collaboration agreement in effect, which relates to Zertane in South Korea.

We do not know whether additional funding will be available to us on acceptable terms, or at all. If we are unable to secure additional funding when needed, we may have to delay, reduce the scope, or eliminate development of one or more of our product candidates, or substantially curtail or close our operations altogether. Alternatively, we may have to obtain a collaborator for one or more of our product candidates at an earlier stage of development, which could lower the economic value of those product candidates to us.

Ampion, Optina and our ORP Device are currently undergoing, or are expected to undergo, clinical trials that are time-consuming and expensive, the outcomes of which are unpredictable, and for which there is a high risk of failure. If clinical trials of our product candidates fail to satisfactorily demonstrate safety and efficacy to the FDA and other regulators, we, or our collaborators, may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of these product candidates.

Pre-clinical testing and clinical trials are long, expensive and unpredictable processes that can be subject to extensive delays. We cannot guarantee that any clinical studies will be conducted as planned or completed on schedule, if at all. It may take several years to complete the pre-clinical testing and clinical development necessary to commercialize a drug or biologic, and delays or failure can occur at any stage. Interim results of clinical trials do not necessarily predict final results, and success in pre-clinical testing and early clinical trials does not ensure that later clinical trials will be successful. A number of companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in advanced clinical trials even after promising results in earlier trials and we cannot be certain that we will not face similar setbacks. The design of a clinical trial can determine whether its results will support approval of a product and flaws in the design of a clinical trial may not become apparent until the clinical trial is well advanced.

Our product development programs are at various stages of development. We continue to work toward completion and analysis of clinical trials for our two primary products Ampion and Optina, as well as for the ORP device. An unfavorable outcome in one or more trials for Ampion, Optina or the ORP device would be a major set-back for the development programs for these product candidates and for us. Due to our limited financial resources, an unfavorable outcome in one or more of these trials may require us to delay, reduce the scope of, or eliminate one of these product development programs, which could have a material adverse effect on our business and financial condition and on the value of our common stock.

In connection with clinical testing and trials, we face a number of risks, including:

a product candidate is ineffective, inferior to existing approved medicines, unacceptably toxic, or has unacceptable side effects;

patients may die or suffer other adverse effects for reasons that may or may not be related to the product candidate being tested;

the results may not confirm the positive results of earlier testing or trials; and

the results may not meet the level of statistical significance required by the U.S. Food and Drug Administration, or FDA, or other regulatory agencies to establish the safety and efficacy of our product candidates.

Edgar Filing: Ampio Pharmaceuticals, Inc. - Form 424B5

The results of pre-clinical studies do not necessarily predict clinical success, and larger and later-stage clinical studies may not produce the same results as earlier-stage clinical studies. Frequently, product candidates developed by pharmaceutical companies have shown promising results in early pre-clinical or clinical studies, but have subsequently suffered significant setbacks or failed in later clinical studies. In addition, clinical studies of potential products often reveal that it is not possible or practical to continue development efforts for these product candidates.

S-14

Table of Contents

If we do not successfully complete pre-clinical and clinical development, we will be unable to market and sell products derived from our product candidates and generate revenues. Even if we do successfully complete clinical trials, those results are not necessarily predictive of results of additional trials that may be needed before a NDA or BLA may be submitted to the FDA. Although there are a large number of drugs and biologics in development in the U.S. and other countries, only a small percentage result in the submission of an NDA or BLA to the FDA, even fewer are approved for commercialization, and only a small number achieve widespread physician and consumer acceptance following regulatory approval. If our clinical studies are substantially delayed or fail to prove the safety and effectiveness of our product candidates in development, we may not receive regulatory approval of any of these product candidates and our business and financial condition will be materially harmed.

Delays, suspensions and terminations in our clinical trials could result in increased costs to us and delay or prevent our ability to generate revenues.

Human clinical trials are very expensive, time-consuming, and difficult to design, implement and complete. We currently expect clinical trials of our product candidates could take from six to 24 months to complete, but the completion of trials for our product candidates may be delayed for a variety of reasons, including delays in:

demonstrating sufficient safety and efficacy to obtain regulatory approval to commence a clinical trial;

reaching agreement on acceptable terms with prospective contract research organizations and clinical trial sites;

manufacturing sufficient quantities of a product candidate;

obtaining approval of an IND from the FDA;

obtaining institutional review board approval to conduct a clinical trial at a prospective clinical trial site;

determining dosing and making related adjustments; and

patient enrollment, which is a function of many factors, including the size of the patient population, the nature of the protocol, the proximity of patients to clinical trial sites, the availability of effective treatments for the relevant disease and the eligibility criteria for the clinical trial.

The commencement and completion of clinical studies for our product candidates may be delayed, suspended or terminated due to a number of factors, including:

lack of effectiveness of product candidates during clinical studies;

adverse events, safety issues or side effects relating to the product candidates or their formulation;

Edgar Filing: Ampio Pharmaceuticals, Inc. - Form 424B5

inability to raise additional capital in sufficient amounts to continue clinical trials or development programs, which are very expensive;

the need to sequence clinical studies as opposed to conducting them concomitantly in order to conserve resources;

our inability to enter into collaborations relating to the development and commercialization of our product candidates;

failure by us or our collaborators to conduct clinical trials in accordance with regulatory requirements;

our inability or the inability of our collaborators to manufacture or obtain from third parties materials sufficient for use in pre-clinical and clinical studies;

governmental or regulatory delays and changes in regulatory requirements, policy and guidelines, including mandated changes in the scope or design of clinical trials or requests for supplemental information with respect to clinical trial results;

S-15

Table of Contents

failure of our collaborators to advance our product candidates through clinical development;

delays in patient enrollment, variability in the number and types of patients available for clinical studies, and lower-than anticipated retention rates for patients in clinical trials;

difficulty in patient monitoring and data collection due to failure of patients to maintain contact after treatment;

a regional disturbance where we or our collaborative partners are enrolling patients in our clinical trials, such as a pandemic, terrorist activities or war, or a natural disaster; and

varying interpretations of data by the FDA and similar foreign regulatory agencies.

Many of these factors may also ultimately lead to denial of regulatory approval of a current or potential product candidate. If we experience delay, suspensions or terminations in a clinical trial, the commercial prospects for the related product candidate will be harmed, and our ability to generate product revenues will be delayed. We cannot be certain we will successfully complete the Phase III Ampion and §505(b)(2) Optina trials within any specific time period, if at all.

In addition, we may encounter delays or product candidate rejections based on new governmental regulations, future legislative or administrative actions, or changes in FDA policy or interpretation during the period of product development. If we obtain required regulatory approvals, such approvals may later be withdrawn. Delays or failures in obtaining regulatory approvals may:

adversely affect the commercialization of any product candidates we develop;

diminish any competitive advantages that such product candidates may have or attain.

Furthermore, if we fail to comply with applicable FDA and other regulatory requirements at any stage during this regulatory process, we may encounter or be subject to:

delays in clinical trials or commercialization;

refusal by the FDA to review pending applications or supplements to approved applications;

product recalls or seizures;

suspension of manufacturing;

withdrawals of previously approved marketing applications; and

finances, civil penalties, and criminal prosecutions.

If our product candidates are not approved by the FDA, we will be unable to commercialize them in the United States.

The FDA must approve any new medicine before it can be commercialized, marketed, promoted or sold in the United States. We must provide the FDA with data from pre-clinical and clinical studies that demonstrate that our product candidates are safe and effective for a defined indication before they can be approved for commercial distribution. Clinical testing is expensive, difficult to design and implement, can take many years to complete and is inherently uncertain as to outcome. We will not obtain approval for a product candidate unless and until the FDA approves a NDA for a drug and a BLA for a biologic. The processes by which regulatory approvals are obtained from the FDA to market and sell a new or repositioned product are complex, require a number of years and involve the expenditure of substantial resources. We cannot assure you that any of our product candidates will receive FDA approval in the future, and the time for receipt of any such approval is currently incapable of estimation.

S-16

Table of Contents

We or our collaborators intend to seek FDA approval for most of our product candidates using an expedited process established by the FDA. If we, or our collaborators, are unable to secure clearances to use expedited development pathways from the FDA for certain of our drug product candidates, we, or they, may be required to conduct additional pre-clinical studies or clinical trials beyond those that we, or they, contemplate, which could increase the expense of obtaining, and delay the receipt of, necessary marketing approvals and of any product revenues.

Assuming successful completion of clinical trials, we expect to submit NDAs to the FDA at various times in the future under §505(b)(2) of the Food, Drug and Cosmetic Act, as amended, or the FDCA. NDAs submitted under this section are eligible to receive FDA approval by relying in part on the FDA's findings of safety and efficacy for a previously approved drug. We are currently pursuing in our clinical trials a §505(b)(2) pathway for Optina and may also do so for other product candidates. The FDA's 1999 guidance on §505(b)(2) applications states that new indications for a previously approved drug, a new combination product, a modified active ingredient, or changes in dosage form, strength, formulation, and route of administration of a previously approved product are encompassed within the §505(b)(2) NDA process. Relying on §505(b)(2) is advantageous because we or our collaborators may not be required (i) to perform the full range of safety and efficacy trials that is otherwise required to secure approval of a new drug, and (ii) obtain a right of reference from the applicant that obtained approval of the previously approved drug. However, a §505(b)(2) application must support the proposed change of the previously approved drug by including necessary and adequate information, as determined by the FDA, and the FDA may still require us to perform a full range of safety and efficacy trials.

If one of our product candidates achieves clinical trial objectives, we must prepare and submit to the FDA a comprehensive NDA or BLA. Review of the application may lead the FDA to request more information or require us to perform additional clinical trials, thus adding to product development costs and delaying any marketing approval from the FDA. Additionally, time to review may vary significantly based on the disease to be treated, availability of alternate treatments, severity of the disease, and the risk/benefit profile of the proposed product. Even if one of our products receives FDA marketing approval, we could be required to conduct post-marketing Phase IV studies and surveillance to monitor for adverse effects. If we experience delays in NDA application processing, requests for additional information or further clinical trials, or are required to conduct post-marketing studies or surveillance, our product development costs could increase substantially, and our ability to generate revenues from a product candidate could be postponed, perhaps indefinitely. The resulting negative impact on our operating results and financial condition may cause the value of our common stock to decline, and you may lose all or a part of your investment.

The approval process outside the United States varies among countries and may limit our ability to develop, manufacture and sell our products internationally. Failure to obtain marketing approval in international jurisdictions would prevent our product candidates from being marketed abroad.

In order to market and sell our products in the European Union and many other jurisdictions, we, and our collaborators, must obtain separate marketing approvals and comply with numerous and varying regulatory requirements. The approval procedure varies among countries and can involve additional testing. We may conduct clinical trials for, and seek regulatory approval to market, our product candidates in countries other than the United States. Depending on the results of clinical trials and the process for obtaining regulatory approvals in other countries, we may decide to first seek regulatory approvals of a product candidate in countries other than the U.S., or we may simultaneously seek regulatory approvals in the U.S. and other countries. If we or our collaborators seek marketing approvals for a product candidate outside the U.S., we will be subject to the regulatory requirements of health authorities in each country in which we seek approvals. With respect to marketing authorizations in Europe, we will be required to submit a European marketing authorization application, or MAA, to the European Medicines Agency, or EMA, which conducts a validation and scientific approval process in evaluating a product for safety and efficacy. The approval procedure varies among regions and countries and can involve additional testing, and the time required to obtain approvals may differ from that required to obtain FDA approval. Obtaining regulatory approvals from health authorities in countries outside the

Table of Contents

U.S. is likely to subject us to all of the risks associated with obtaining FDA approval described above. In addition, marketing approval by the FDA does not ensure approval by the health authorities of any other country, and approval by foreign health authorities does not ensure marketing approval by the FDA.

Even if we, or our collaborators, obtain marketing approvals for our product candidates, the terms of approvals and ongoing regulation of our products may limit how we, or they, manufacture and market our products, which could materially impair our ability to generate revenue.

Even if we receive regulatory approval for a product candidate, this approval may carry conditions that limit the market for the product or put the product at a competitive disadvantage relative to alternative therapies. For instance, a regulatory approval may limit the indicated uses for which we can market a product or the patient population that may utilize the product, or may be required to carry a warning in its labeling and on its packaging. Products with boxed warnings are subject to more restrictive advertising regulations than products without such warnings. These restrictions could make it more difficult to market any product candidate effectively.

In addition, manufacturers of approved products and those manufacturers' facilities are required to comply with extensive FDA requirements, including ensuring that quality control and manufacturing procedures conform to cGMPs, which include requirements relating to quality control and quality assurance as well as the corresponding maintenance of records and documentation and reporting requirements. We, our contract manufacturers, our collaborators and their contract manufacturers could be subject to periodic unannounced inspections by the FDA to monitor and ensure compliance with cGMPs.

Accordingly, assuming we, or our collaborators, receive marketing approval for one or more of our product candidates, we, and our collaborators, and our and their contract manufacturers will continue to expend time, money and effort in all areas of regulatory compliance, including manufacturing, production, product surveillance and quality control.

Any of our product candidates for which we, or our collaborators, obtain marketing approval in the future could be subject to post-marketing restrictions or withdrawal from the market and we, and our collaborators, may be subject to substantial penalties if we, or they, fail to comply with regulatory requirements or if we, or they, experience unanticipated problems with our products following approval.

Any of our product candidates for which we, or our collaborators, obtain marketing approval in the future, as well as the manufacturing processes, post-approval studies and measures, labeling, advertising and promotional activities for such products, among other things, will be subject to continual requirements of and review by the FDA and other regulatory authorities. These requirements include submissions of safety and other post-marketing information and reports, registration and listing requirements, requirements relating to manufacturing, quality control, quality assurance and corresponding maintenance of records and documents, requirements regarding the distribution of samples to physicians and recordkeeping. Even if marketing approval of a product candidate is granted, the approval may be subject to limitations on the indicated uses for which the product may be marketed or to the conditions of approval, including the FDA requirement to implement a Risk Evaluation and Mitigation Strategy (REMS) to ensure that the benefits of a drug or biological product outweigh its risks.

The FDA may also impose requirements for costly post-marketing studies or clinical trials and surveillance to monitor the safety or efficacy of a product. The FDA and other agencies, including the Department of Justice, closely regulate and monitor the post-approval marketing and promotion of products to ensure that they are manufactured, marketed and distributed only for the approved indications and in accordance with the provisions of the approved labeling. The FDA imposes stringent restrictions on manufacturers' communications regarding off-label use and if we, or our collaborators, do not market any of our product candidates for which we, or they, receive marketing approval for only their approved

Edgar Filing: Ampio Pharmaceuticals, Inc. - Form 424B5

indications, we, or they, may be subject to warnings or enforcement action for off-label marketing. Violation of the FDCA, the Public Health Service Act (PHSA), and

S-18

Table of Contents

other statutes, including the False Claims Act, relating to the promotion and advertising of prescription drugs may lead to investigations or allegations of violations of federal and state health care fraud and abuse laws and state consumer protection laws.

If we do not achieve our projected development and commercialization goals in the timeframes we announce and expect, the commercialization of our product candidates may be delayed, our business will be harmed, and our stock price may decline.

We sometimes estimate for planning purposes the timing of the accomplishment of various scientific, clinical, regulatory and other product development objectives. These milestones may include our expectations regarding the commencement or completion of scientific studies, clinical trials, the submission of regulatory filings, or commercialization objectives. From time to time, we may publicly announce the expected timing of some of these milestones, such as the completion of an ongoing clinical trial, the initiation of other clinical programs, receipt of marketing approval, or a commercial launch of a product. The achievement of many of these milestones may be outside of our control. All of these milestones are based on a variety of assumptions which may cause the timing of achievement of the milestones to vary considerably from our estimates, including:

our available capital resources or capital constraints we experience;

the rate of progress, costs and results of our clinical trials and research and development activities, including the extent of scheduling conflicts with participating clinicians and collaborators, and our ability to identify and enroll patients who meet clinical trial eligibility criteria;

our receipt of approvals by the FDA and other regulatory agencies and the timing thereof;

other actions, decisions or rules issued by regulators;

our ability to access sufficient, reliable and affordable supplies of compounds used in the manufacture of our product candidates;

the efforts of our collaborators with respect to the commercialization of our products; and

the securing of, costs related to, and timing issues associated with, product manufacturing as well as sales and marketing activities.

If we fail to achieve announced milestones in the timeframes we announce and expect, our business and results of operations may be harmed and the price of our stock may decline.

Our success is dependent in large part upon the continued services of our Chief Scientific Officer.

Our success is dependent in large part upon the continued services of our Chief Scientific Officer, Dr. David Bar-Or. We have an employment agreement with Dr. Bar-Or and a research agreement with Trauma Research LLC, an entity owned by Dr. Bar-Or that conducts research and development activities on our behalf. These agreements are terminable on short notice for cause by us or Dr. Bar-Or and may also be terminated

Edgar Filing: Ampio Pharmaceuticals, Inc. - Form 424B5

without cause under certain circumstances. We do not maintain key-man life insurance on Dr. Bar-Or, although we may elect to obtain such coverage in the future. If we lost the services of Dr. Bar-Or for any reason, our clinical testing and other product development activities may experience significant delays, and our ability to develop and commercialize new product candidates may be diminished.

If we do not obtain the capital necessary to fund our operations, we will be unable to successfully develop, obtain regulatory approval of, and commercialize, pharmaceutical products.

The development of pharmaceutical products is capital-intensive. At June 30, 2013, we had cash and cash equivalents of approximately \$12.5 million. Based upon our current expectations, we believe our capital resources at June 30, 2013, together with the proceeds that we expect to receive from the sale of shares in this offering, will be sufficient to fund our currently planned operations for the foreseeable future. We have not

S-19

Table of Contents

received, and do not expect to receive for several years, any revenues from the commercialization of our product candidates. We anticipate we will require significant additional financing to continue to fund our operations. Our future capital requirements will depend on, and could increase significantly as a result of, many factors including:

progress in, and the costs of, our pre-clinical studies and clinical trials and other research and development programs;

the scope, prioritization and number of our research and development programs;

the achievement of milestones or occurrence of other developments that trigger payments under any collaboration agreements we obtain;

the extent to which we are obligated to reimburse, or entitled to reimbursement of, clinical trial costs under future collaboration agreements, if any;

the costs involved in filing, prosecuting, enforcing and defending patent claims and other intellectual property rights;

the costs of securing manufacturing arrangements for commercial production; and

the costs of establishing or contracting for sales and marketing capabilities if we obtain regulatory clearances to market our product candidates.

Until we can generate significant continuing revenues, we expect to satisfy our future cash needs through collaboration arrangements, private or public sales of our securities, debt financings, or by licensing one or more of our product candidates. Dislocations in the financial markets have generally made equity and debt financing more difficult to obtain, and may have a material adverse effect on our ability to meet our fundraising needs. We cannot be certain that additional funding will be available to us on acceptable terms, if at all. If funds are not available, we may be required to delay, reduce the scope of, or eliminate one or more of our research or development programs or our commercialization efforts. Additional funding, if obtained, may significantly dilute existing shareholders if that financing is obtained through issuing equity or instruments convertible into equity.

We rely on third parties to conduct our clinical trials and perform data collection and analysis, which may result in costs and delays that prevent us from successfully commercializing product candidates.

Although we design and manage our current pre-clinical studies, we do not have the in-house capability to conduct clinical trials for our product candidates. We rely, and will rely in the future, on medical institutions, clinical investigators, contract research organizations, contract laboratories, and collaborators to perform data collection and analysis and other aspects of our clinical trials. We rely primarily on Trauma Research LLC, a related party, to conduct pre-clinical studies and provide assessments of clinical observations.

Our pre-clinical activities or clinical trials conducted in reliance on third parties may be delayed, suspended, or terminated if:

Edgar Filing: Ampio Pharmaceuticals, Inc. - Form 424B5

the third parties do not successfully carry out their contractual duties or fail to meet regulatory obligations or expected deadlines;

we replace a third party; or

the quality or accuracy of the data obtained by third parties is compromised due to their failure to adhere to clinical protocols, regulatory requirements, or for other reasons.

Third party performance failures may increase our development costs, delay our ability to obtain regulatory approval, and delay or prevent the commercialization of our product candidates. While we believe that there are numerous alternative sources to provide these services, in the event that we seek such alternative sources, we may not be able to enter into replacement arrangements without incurring delays or additional costs.

S-20

Table of Contents

Even if collaborators with which we contract in the future successfully complete clinical trials of our product candidates, those candidates may not be commercialized successfully for other reasons.

Even if we contract with collaborators that successfully complete clinical trials for one or more of our product candidates, those candidates may not be commercialized for other reasons, including:

failure to receive regulatory clearances required to market them as drugs;

being subject to proprietary rights held by others;

being difficult or expensive to manufacture on a commercial scale;

having adverse side effects that make their use less desirable; or

failing to compete effectively with products or treatments commercialized by competitors.

Relying on third-party manufacturers may result in delays in our clinical trials and product introductions.

Our core business strategy is to maintain a strong foundation in basic scientific research and combine that foundation with our clinical development capabilities. To date, we have contracted original equipment manufacturers (OEMs) to produce the biologic for our Ampion clinical trials and the drug candidate for our Optina clinical trials. Our long-term objective is to build a successful, integrated biopharmaceutical company that provides patients and medical professionals with new and better options for preventing and treating human diseases. However, developing and commercializing new medicines entails significant risks and expenses. We have no manufacturing facilities and have no experience in the manufacturing of drugs or in designing drug-manufacturing processes. We currently obtain the HSA need to produce Ampion for our clinical trials from two manufacturers in the United States. Our clinical trials may be delayed if one or both manufacturers are unable to assure a sufficient quantity of the drug product to meet our study needs. We plan to design, develop and scale up a manufacturing facility in Denver, Colorado where we would manufacture Ampion for registration, batching and commercial supply, as well as future clinical supplies. If we experience delays or difficulties in this effort, our clinical trials may be impacted, our commercialization efforts may be impeded, or our costs may increase. We obtain the active pharmaceutical ingredient (API) for Optina from an Indian company, which is one of only four suppliers of the API in the world. Our clinical trials and ultimately FDA approval may be delayed if we are unable to obtain a sufficient quantity of the drug product on a timely basis or if we need to establish an alternative source of supply for the API.

Once regulatory approval is obtained, a marketed product and its manufacturer are subject to continual review. The discovery of previously unknown problems with a product or manufacturer may result in restrictions on the product, manufacturer or manufacturing facility, including withdrawal of the product from the market. Any manufacturers with which we contract HSA for Ampion or danazol for Optina supplies are required to operate in accordance with FDA-mandated current good manufacturing practices, or cGMPs. A failure of any of our contract manufacturers to establish and follow cGMPs and to document their adherence to such practices may lead to significant delays in the launch of products based on our product candidates into the market. Failure by third-party manufacturers to comply with applicable regulations could result in sanctions being imposed on us, including fines, injunctions, civil penalties, revocation or suspension of marketing approval for any products granted pre-market approvals, seizures or recalls of products, operating restrictions, and criminal prosecutions.

Our transactions with related parties may not benefit us and may harm us.

We are party to a sponsored research agreement with Trauma Research LLC, a related party controlled by our director and Chief Scientific Officer, Dr. Bar-Or. We rely primarily on Trauma Research LLC to conduct pre-clinical studies and provide assessments of clinical observations. In addition, our 80.9% owned subsidiary, Luoxis, is party to an agreement with Trauma Research LLC, under which Luoxis pays Trauma Research LLC for services related to research and development of Luoxis Oxidation-Reduction Potential platform.

S-21

Table of Contents

We believe that we have conducted our related-party transactions on an arm's-length basis and on terms comparable to, or more favorable to us than, similar transactions we would enter into with independent third parties. However, we cannot assure you that all our future transactions with related parties will be beneficial to us.

We intend to enter into agreements with third parties to sell and market any products we develop and for which we obtain regulatory approvals, which may affect the sales of our products and our ability to generate revenues.

We do not currently maintain an organization for the sale, marketing and distribution of pharmaceutical products and may contract with, or license, third parties to market any products we develop that receive regulatory approvals. Outsourcing sales and marketing in this manner may subject us to a variety of risks, including:

our inability to exercise control over sales and marketing activities and personnel;

failure or inability of contracted sales personnel to obtain access to or persuade adequate numbers of physicians to prescribe our products;

disputes with third parties concerning sales and marketing expenses, calculation of royalties, and sales and marketing strategies; and

unforeseen costs and expenses associated with sales and marketing.

If we are unable to partner with a third party that has adequate sales, marketing, and distribution capabilities, we may have difficulty commercializing our product candidates, which would adversely affect our business, financial condition, and ability to generate product revenues.

We face substantial competition from companies with considerably more resources and experience than we have, which may result in others discovering, developing, receiving approval for, or commercializing products before or more successfully than us.

Our ability to succeed in the future depends on our ability to discover, develop and commercialize pharmaceutical products that offer superior efficacy, convenience, tolerability, and safety when compared to existing treatment methodologies. We intend to do so by identifying product candidates that address new indications using previously approved drugs, use of new combinations of previously approved drugs, or which are based on a modified active ingredient which previously received regulatory approval. Because our strategy is to develop new product candidates primarily for treatment of diseases that affect large patient populations, those candidates are likely to compete with a number of existing medicines or treatments, and a large number of product candidates that are being developed by others.

Many of our potential competitors have substantially greater financial, technical, personnel and marketing resources than we do. In addition, many of these competitors have significantly greater resources devoted to product development and pre-clinical research. Our ability to compete successfully will depend largely on our ability to:

Edgar Filing: Ampio Pharmaceuticals, Inc. - Form 424B5

discover and develop product candidates that are superior to other products in the market;

attract and retain qualified personnel;

obtain patent and/or other proprietary protection for our product candidates;

obtain required regulatory approvals; and

obtain collaboration arrangements to commercialize our product candidates.

Established pharmaceutical companies devote significant financial resources to discovering, developing or licensing novel compounds that could make our product candidates obsolete. Our competitors may obtain patent protection, receive FDA approval, and commercialize medicines before us. Other companies are engaged in the discovery of compounds that may compete with the product candidates we are developing.

S-22

Table of Contents

Any new product that competes with a currently-approved treatment or medicine must demonstrate compelling advantages in efficacy, convenience, tolerability and/or safety in order to address price competition and be commercially successful. If we are not able to compete effectively against our current and future competitors, our business will not grow and our financial condition and operations will suffer.

Product liability and other lawsuits could divert our resources, result in substantial liabilities and reduce the commercial potential of our product candidates.

The risk that we may be sued on product liability claims is inherent in the development and commercialization of pharmaceutical products. Side effects of, or manufacturing defects in, products that we develop which are commercialized by any collaborators could result in the deterioration of a patient's condition, injury or even death. Once a product is approved for sale and commercialized, the likelihood of product liability lawsuits increases. Claims may be brought by individuals seeking relief for themselves or by individuals or groups seeking to represent a class. These lawsuits may divert our management from pursuing our business strategy and may be costly to defend. In addition, if we are held liable in any of these lawsuits, we may incur substantial liabilities and may be forced to limit or forgo further commercialization of the affected products.

We may be subject to legal or administrative proceedings and litigation other than product liability lawsuits which may be costly to defend and could materially harm our business, financial condition and operations.

Although we maintain general liability and product liability insurance, this insurance may not fully cover potential liabilities. In addition, inability to obtain or maintain sufficient insurance coverage at an acceptable cost or to otherwise protect against potential product or other legal or administrative liability claims could prevent or inhibit the commercial production and sale of any of our product candidates that receive regulatory approval, which could adversely affect our business. Product liability claims could also harm our reputation, which may adversely affect our collaborators' ability to commercialize our products successfully.

If any of our product candidates are commercialized, this does not assure acceptance by physicians, patients, third party payors, or the medical community in general. Even if we, or our collaborators, are able to commercialize our product candidates, the products may become subject to unfavorable pricing regulations, third party payor reimbursement practices or healthcare reform initiatives that could harm our business.

The commercial success of our product candidates will depend substantially, both domestically and abroad, on the extent to which the costs of our product candidates will be paid by health maintenance, managed care, pharmacy benefit and similar healthcare management organizations, or reimbursed by government health administration authorities, private health coverage insurers and other third party payors. If reimbursement is not available, or is available only to limited levels, we, or our collaborators, may not be able to successfully commercialize our product candidates. Even if coverage is provided, the approved reimbursement amount may not be high enough to allow us, or our collaborators, to establish or maintain pricing sufficient to realize a sufficient return on our or their investments. We cannot be sure that any of our product candidates, if and when approved for marketing, will be accepted by these parties. Even if the medical community accepts a product as safe and efficacious for its indicated use, physicians may choose to restrict the use of the product if we or any collaborator is unable to demonstrate that, based on experience, clinical data, side-effect profiles and other factors, our product is preferable to any existing medicines or treatments. We cannot predict the degree of market acceptance of any product candidate that receives marketing approval, which will depend on a number of factors, including, but not limited to:

the demonstration of the clinical efficacy and safety of the product;

the approved labeling for the product and any required warnings;

the advantages and disadvantages of the product compared to alternative treatments;

S-23

Table of Contents

our and any collaborator's ability to educate the medical community about the safety and effectiveness of the product;

the reimbursement policies of government and third party payors pertaining to the product; and

the market price of our product relative to competing treatments.

Government restrictions on pricing and reimbursement, as well as other healthcare payor cost-containment initiatives, may negatively impact our ability to generate revenues if we obtain regulatory approval to market a product.

The continuing efforts of the government, insurance companies, managed care organizations and other payors of health care costs to contain or reduce costs of health care may adversely affect one or more of the following:

our or our collaborators' ability to set a price we believe is fair for our products, if approved;

our ability to generate revenues and achieve profitability; and

the availability of capital.

The 2010 enactments of the Patient Protection and Affordable Care Act, or PPACA, and the Health Care and Education Reconciliation Act are expected to significantly impact the provision of, and payment for, health care in the United States. Various provisions of these laws take effect over the next four years, and are designed to expand Medicaid eligibility, subsidize insurance premiums, provide incentives for businesses to provide health care benefits, prohibit denials of coverage due to pre-existing conditions, establish health insurance exchanges, and provide additional support for medical research. Additional legislative proposals to reform healthcare and government insurance programs, along with the trend toward managed healthcare in the United States, could influence the purchase of medicines and reduce demand and prices for our products, if approved. This could harm our or our collaborators' ability to market any products and generate revenues. Cost containment measures that health care payors and providers are instituting and the effect of further health care reform could significantly reduce potential revenues from the sale of any of our product candidates approved in the future, and could cause an increase in our compliance, manufacturing, or other operating expenses. In addition, in certain foreign markets, the pricing of prescription drugs is subject to government control and reimbursement may in some cases be unavailable. We believe that pricing pressures at the federal and state level, as well as internationally, will continue and may increase, which may make it difficult for us to sell our potential products that may be approved in the future at a price acceptable to us or any of our future collaborators.

If Trauma Research LLC uses hazardous and biological materials in a manner that causes injury or violates applicable law, we may be liable for damages or fines.

The research and development activities conducted on our behalf by Trauma Research LLC, a related party controlled by Dr. Bar-Or, involve the controlled use of potentially hazardous substances, including chemical, biological and radioactive materials. In addition, Trauma Research LLC's operations produce hazardous waste products. Federal, state and local laws and regulations govern the use, manufacture, storage, handling and disposal of hazardous materials. If Trauma Research LLC experiences a release of hazardous substances, it is possible that this release could cause personal injury or death, and require decontamination of facilities. Trauma Research LLC has advised us that it believes it is in compliance with laws applicable to the handling of hazardous substances, but such compliance does not assure that a release of hazardous substances will

Edgar Filing: Ampio Pharmaceuticals, Inc. - Form 424B5

not occur, or assure that such compliance will be maintained in the future. In the event of an accident involving research being conducted on our behalf, Trauma Research LLC could be held liable for damages or face substantial penalties for which we could also be responsible. We do not have any insurance for liabilities arising from the procurement, handling, or discharge of hazardous materials. Compliance with applicable environmental laws and regulations is expensive, and current or future environmental regulations may impair our research, development and production efforts, which could harm our business.

S-24

Table of Contents

Business interruptions could limit our ability to operate our business.

Our operations are vulnerable to damage or interruption from computer viruses, human error, natural disasters, telecommunications failures, intentional acts of misappropriation, and similar events. We have not established a formal disaster recovery plan, and our back-up operations and our business interruption insurance may not be adequate to compensate us for losses that occur. A significant business interruption could result in losses or damages incurred by us and require us to curtail our operations.

Risks Related to Our Intellectual Property

Our ability to compete may decline if we do not adequately protect our proprietary rights.

Our commercial success depends on obtaining and maintaining proprietary rights to our product candidates and compounds and their uses, as well as successfully defending these rights against third-party challenges. We will only be able to protect our product candidates, proprietary compounds, and their uses from unauthorized use by third parties to the extent that valid and enforceable patents, or effectively protected trade secrets, cover them.

Our ability to obtain patent protection for our product candidates and compounds is uncertain due to a number of factors, including:

we may not have been the first to make the inventions covered by pending patent applications or issued patents;

we may not have been the first to file patent applications for our product candidates or the compounds we developed or for their uses;

others may independently develop identical, similar or alternative products or compounds;

our disclosures in patent applications may not be sufficient to meet the statutory requirements for patentability;

any or all of our pending patent applications may not result in issued patents;

we may not seek or obtain patent protection in countries that may eventually provide us a significant business opportunity;

any patents issued to us may not provide a basis for commercially viable products, may not provide any competitive advantages, or may be successfully challenged by third parties;

our proprietary compounds may not be patentable;

Edgar Filing: Ampio Pharmaceuticals, Inc. - Form 424B5

others may design around our patent claims to produce competitive products which fall outside of the scope of our patents; or

others may identify prior art which could invalidate our patents.

Even if we have or obtain patents covering our product candidates or compounds, we may still be barred from making, using and selling our product candidates or technologies because of the patent rights of others. Others have or may have filed, and in the future may file, patent applications covering compounds or products that are similar or identical to ours. There are many issued U.S. and foreign patents relating to chemical compounds and therapeutic products, and some of these relate to compounds we intend to commercialize. Numerous U.S. and foreign issued patents and pending patent applications owned by others exist in the area of metabolic disorders, cancer, inflammatory responses, and the other fields in which we are developing products. These could materially affect our ability to develop our product candidates or sell our products if approved. Because patent applications can take many years to issue, there may be currently pending applications unknown to us that may later result in issued patents that our product candidates or compounds may infringe. These patent applications may have priority over patent applications filed by us.

We periodically conduct searches to identify patents or patent applications that may prevent us from obtaining patent protection for our compounds or that could limit the rights we have claimed in our patents and

S-25

Table of Contents

patent applications. Disputes may arise regarding the source or ownership of our inventions. It is difficult to determine if and how such disputes would be resolved. Others may challenge the validity of our patents. If our patents are found to be invalid, we will lose the ability to exclude others from making, using or selling the compounds or products addressed in those patents. In addition, compounds or products we may license may become important to some aspects of our business. We generally will not control the prosecution, maintenance or enforcement of patents covering licensed compounds or products.

Confidentiality agreements with employees and others may not adequately prevent disclosure of our trade secrets and other proprietary information and may not adequately protect our intellectual property, which could limit our ability to compete.

Because we operate in the highly technical field of drug discovery and development of therapies that can address metabolic disorders, cancer, inflammation and other conditions, we rely in part on trade secret protection in order to protect our proprietary technology and processes. However, trade secrets are difficult to protect. We enter into confidentiality and intellectual property assignment agreements with our employees, consultants, outside scientific collaborators, sponsored researchers, and other advisors. These agreements generally require that the other party keep confidential and not disclose to third parties all confidential information developed by the party or made known to the party by us during the course of the party's relationship with us. These agreements also generally provide that inventions conceived by the party in the course of rendering services to us will be our exclusive property.

However, these agreements may not be honored and may not effectively assign intellectual property rights to us. Enforcing a claim that a party illegally obtained and is using our trade secrets is difficult, expensive and time consuming and the outcome is unpredictable. In addition, courts outside the United States may be less willing to protect trade secrets. The failure to obtain or maintain trade secret protection could adversely affect our competitive position. We have entered into non-compete agreements with certain of our employees, but the enforceability of those agreements is not assured.

A dispute concerning the infringement or misappropriation of our proprietary rights or the proprietary rights of others could be time consuming and costly, and an unfavorable outcome could harm our business.

There is significant litigation in the pharmaceutical industry regarding patent and other intellectual property rights. While we are not currently subject to any pending intellectual property litigation, and are not aware of any such threatened litigation, we may be exposed to future litigation by third parties based on claims that our product candidates, technologies or activities infringe the intellectual property rights of others. In particular, there are many patents relating to repositioned drugs and chemical compounds used to treat metabolic disorders, cancer and inflammation. Some of these may encompass repositioned drugs or compounds that we utilize in our product candidates. If our development activities are found to infringe any such patents, we may have to pay significant damages or seek licenses to such patents. A patentee could prevent us from using the patented drugs or compounds. We may need to resort to litigation to enforce a patent issued to us, to protect our trade secrets, or to determine the scope and validity of third-party proprietary rights. From time to time, we may hire scientific personnel or consultants formerly employed by other companies involved in one or more areas similar to the activities conducted by us. Either we or these individuals may be subject to allegations of trade secret misappropriation or other similar claims as a result of prior affiliations. If we become involved in litigation, it could consume a substantial portion of our managerial and financial resources, regardless of whether we win or lose. We may not be able to afford the costs of litigation. Any legal action against us or our collaborators could lead to:

payment of damages, potentially treble damages, if we are found to have willfully infringed a party's patent rights;

injunctive or other equitable relief that may effectively block our ability to further develop, commercialize, and sell products; or

Table of Contents

us or our collaborators having to enter into license arrangements that may not be available on commercially acceptable terms, if at all.

As a result, we could be prevented from commercializing current or future product candidates.

Pharmaceutical patents and patent applications involve highly complex legal and factual questions, which, if determined adversely to us, could negatively impact our patent position.

The patent positions of pharmaceutical companies can be highly uncertain and involve complex legal and factual questions. For example, some of our patents and patent applications cover methods of use of repositioned drugs, while other patents and patent applications cover composition of a particular compound. The interpretation and breadth of claims allowed in some patents covering pharmaceutical compounds may be uncertain and difficult to determine, and are often affected materially by the facts and circumstances that pertain to the patented compound and the related patent claims. The standards of the United States Patent and Trademark Office, or USPTO, are sometimes uncertain and could change in the future. Consequently, the issuance and scope of patents cannot be predicted with certainty. Patents, if issued, may be challenged, invalidated or circumvented. U.S. patents and patent applications may also be subject to interference proceedings, and U.S. patents may be subject to reexamination proceedings in the USPTO. Foreign patents may be subject also to opposition or comparable proceedings in the corresponding foreign patent office, which could result in either loss of the patent or denial of the patent application or loss or reduction in the scope of one or more of the claims of the patent or patent application. In addition, such interference, reexamination and opposition proceedings may be costly. Accordingly, rights under any issued patents may not provide us with sufficient protection against competitive products or processes.

In addition, changes in or different interpretations of patent laws in the United States and foreign countries may permit others to use our discoveries or to develop and commercialize our technology and products without providing any compensation to us, or may limit the number of patents or claims we can obtain. The laws of some countries do not protect intellectual property rights to the same extent as U.S. laws and those countries may lack adequate rules and procedures for defending our intellectual property rights. For example, some countries do not grant patent claims directed to methods of treating humans and, in these countries, patent protection may not be available at all to protect our product candidates. In addition, U.S. patent laws may change, which could prevent or limit us from filing patent applications or patent claims to protect our products and/or compounds.

If we fail to obtain and maintain patent protection and trade secret protection of our product candidates, proprietary compounds and their uses, we could lose our competitive advantage and competition we face would increase, reducing any potential revenues and adversely affecting our ability to attain or maintain profitability.

Risks Related to Our Common Stock

The price of our stock has been extremely volatile and may continue to be volatile and fluctuate substantially, which could result in substantial losses for purchasers of our common stock.

The price of our common stock has been extremely volatile and may continue to be so. The stock market in general and the market for pharmaceutical companies in particular have experienced extreme volatility that has often been unrelated to the operating performance of particular companies, to a greater extent during the last few years. The following factors, in addition to the other risk factors described in this section, may also have a significant impact on the market price of our common stock:

any actual or perceived adverse developments in clinical trials for Ampion, Optina or the ORP device;

any actual or perceived difficulties or delays in obtaining regulatory approval of any of our product candidates in the United States or other countries once clinical trials are completed;

S-27

Table of Contents

any finding that our product candidates are not safe or effective, or any inability to demonstrate clinical effectiveness of our product candidates when compared to existing treatments;

any actual or perceived adverse developments in repurposed drug technologies, including any change in FDA policy or guidance on approval of repurposed drug technologies for new indications;

any announcements of developments with, or comments by, the FDA, the EMEA, or other regulatory authorities with respect to product candidates we have under development;

any announcements concerning our retention or loss of key employees, especially Dr. Bar-Or;

our success or inability to obtain collaborators to conduct clinical trials, commercialize a product candidate for which regulatory approval is obtained, or market and sell an approved product candidate;

any actual or perceived adverse developments with respect to our relationship with Trauma Research LLC;

any licensee's termination of a license, such as that experienced with Zertane in 2010;

announcements of patent issuances or denials, product innovations, or introduction of new commercial products by our competitors that will compete with any of our product candidates;

publicity regarding actual or potential study results or the outcome of regulatory reviews relating to products under development by us, our collaborators, or our competitors;

economic and other external factors beyond our control; and

sales of stock by us or by our shareholders.

The price of our stock may be vulnerable to manipulation.

In December 2011, our common stock was the subject of significant short selling efforts by certain market participants. Short sales are transactions in which a market participant sells a security that it does not own. To complete the transaction, the market participant must borrow the security to make delivery to the buyer. The market participant is then obligated to replace the security borrowed by purchasing the security at the market price at the time of required replacement. If the price at the time of replacement is lower than the price at which the security was originally sold by the market participant, then the market participant will realize a gain on the transaction. Thus, it is in the market participant's interest for the market price of the underlying security to decline as much as possible during the period prior to the time of replacement.

Because our unrestricted public float (not subject to lockup restrictions) has been small relative to other issuers, previous short selling efforts have impacted, and may in the future continue to impact, the value of our stock in an extreme and volatile manner to our detriment and the detriment of our shareholders. In addition, market participants with admitted short positions in our stock have published, and may in the future

Edgar Filing: Ampio Pharmaceuticals, Inc. - Form 424B5

continue to publish, negative information regarding us and our management team on internet sites or blogs that we believe is inaccurate and misleading. We believe that the publication of this negative information has led, and may in the future continue to lead, to significant downward pressure on the price of our stock to our further detriment and the further detriment of our shareholders. These and other efforts by certain market participants to manipulate the price of our common stock for their personal financial gain may cause our stockholders to lose a portion of their investment, may make it more difficult for us to raise equity capital when needed without significantly diluting existing stockholders, and may reduce demand from new investors to purchase shares of our stock.

S-28

Table of Contents

If we cannot continue to satisfy the NYSE MKT listing maintenance requirements and other rules, including the director independence requirements, our securities may be delisted, which could negatively impact the price of our securities.

Although our common stock is listed on the NYSE MKT, we may be unable to continue to satisfy the listing maintenance requirements and rules. If we are unable to satisfy the NYSE MKT criteria for maintaining our listing, our securities could be subject to delisting. To qualify for continued listing on the NYSE MKT, we must continue to meet specific criteria, including the following:

The minimum bid price of our shares must be at least \$3.00, the market value of our publicly held shares must be at least \$15,000,000, our stockholders' equity must be at least \$4,000,000, and we must have at least (i) 800 public shareholders and 500,000 publicly held shares, or; (ii) 400 public shareholders and 1,000,000 publicly held shares;

The minimum bid price of our shares must be at least \$2.00, the market value of our publicly held shares must be at least \$15,000,000, our stockholders' equity must be at least \$4,000,000, our market capitalization must exceed \$50,000,000, and we must have at least (i) 800 public shareholders and 500,000 publicly held shares, or; (ii) 400 public shareholders and 1,000,000 publicly held shares; or

The minimum bid price of our shares must be at least \$3.00, the market value of our publicly held shares must be at least \$20,000,000, our market capitalization must exceed \$75,000,000 or our assets and revenue must exceed \$75,000,000, and we must have at least (i) 800 public shareholders and 500,000 publicly held shares, or; (ii) 400 public shareholders and 1,000,000 publicly held shares.

Under the NYSE MKT rules, shares that are held by public shareholders do not include shares held by officers, directors, controlling shareholders and concentrated (10% or greater), affiliated or family holdings.

If the NYSE MKT delists our securities, we could face significant consequences, including:

a limited availability for market quotations for our securities;

reduced liquidity with respect to our securities;

a determination that our common stock is a penny stock, which will require brokers trading in our common stock to adhere to more stringent rules and possibly result in reduced trading;

activity in the secondary trading market for our common stock;

limited amount of news and analyst coverage; and

a decreased ability to issue additional securities or obtain additional financing in the future.

Edgar Filing: Ampio Pharmaceuticals, Inc. - Form 424B5

In addition, we would no longer be subject to the NYSE MKT rules, including rules requiring us to have a certain number of independent directors and to meet other corporate governance standards.

Concentration of our ownership limits the ability of our shareholders to influence corporate matters.

As of September 25, 2013, our directors, executive officers and their affiliates beneficially owned approximately 24.2% of our outstanding common stock. These shareholders may control effectively the outcome of actions taken by us that require shareholder approval.

Anti-takeover provisions in our charter and bylaws and in Delaware law could prevent or delay a change in control of Ampio.

Provisions of our certificate of incorporation and bylaws may discourage, delay or prevent a merger or acquisition that shareholders may consider favorable, including transactions in which shareholders might otherwise receive a premium for their shares. These provisions include:

requiring supermajority shareholder voting to effect certain amendments to our certificate of incorporation and bylaws;

S-29

Table of Contents

restricting the ability of shareholders to call special meetings of shareholders;

prohibiting shareholder action by written consent except in certain circumstances; and

establishing advance notice requirements for nominations for election to the board of directors or for proposing matters that can be acted on by shareholders at shareholder meetings.

Increased costs associated with corporate governance compliance may significantly impact our results of operations.

Changing laws, regulations and standards relating to corporate governance, public disclosure and compliance practices, including the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, the Sarbanes-Oxley Act of 2002, and new SEC regulations, may create difficulties for companies such as ours in understanding and complying with these laws and regulations. As a result of these difficulties and other factors, devoting the necessary resources to comply with evolving corporate governance and public disclosure standards has resulted in and may in the future result in increased general and administrative expenses and a diversion of management time and attention to compliance activities. We also expect these developments to increase our legal compliance and financial reporting costs. In addition, these developments may make it more difficult and more expensive for us to obtain director and officer liability insurance, and we may be required to accept reduced coverage or incur substantially higher costs to obtain coverage. Moreover, we may be unable to comply with these new laws and regulations on a timely basis.

These developments could make it more difficult for us to retain qualified members of our Board of Directors, or qualified executive officers. We are presently evaluating and monitoring regulatory developments and cannot estimate the timing or magnitude of additional costs we may incur as a result. To the extent these costs are significant; our general and administrative expenses are likely to increase.

If securities analysts do not publish research or reports about our business or if they downgrade our stock after instituting coverage, the price of our common stock could decline.

The research and reports that industry or financial analysts publish about us or our business may vary widely and may not predict accurate results, but will likely have an effect on the trading price of our common stock. If an industry analyst decides not to cover us, or if an industry analyst institutes coverage and later decides to cease covering us, we could lose visibility in the market, which in turn could cause our stock price to decline. If an industry analyst who covers our stock decides to downgrade that stock, our stock price would likely decline rapidly in response.

We have no plans to pay dividends on our common stock.

We have no plans to pay dividends on our common stock. We generally intend to invest future earnings, if any, to fund our growth. Any payment of future dividends will be at the discretion of our Board of Directors and will depend on, among other things, our earnings, financial condition, capital requirements, level of indebtedness, statutory and contractual restrictions applying to the payment of dividends and other considerations our Board of Directors deem relevant. Any future credit facilities or preferred stock financing we obtain may further limit our ability to pay dividends on our common stock.

Risks Related to This Offering

We will have broad discretion as to the use of the proceeds from this offering, and we may not use the proceeds effectively.

Our management will have broad discretion in the application of the net proceeds from this offering and could spend the proceeds in ways that do not improve our results of operations or enhance the value of our

S-30

Table of Contents

common stock. We intend to use the net proceeds for general corporate purposes and working capital, including continuation and completion of our Ampion and Optina clinical trials, the potential submission of a BLA relating to Ampion and a NDA relating to Optina, acquisition of manufacturing equipment and related outfitting in connection with the leasing of a new manufacturing facility and the potential hiring of additional personnel to manufacture Ampion. We may fail to use these funds effectively to yield a significant return, or any return, on any investment of these proceeds and we cannot assure you the proceeds will be used in a manner which you would approve. Our failure to apply these funds effectively could have a material adverse effect on our business or the development of our product candidates and cause the price of our common stock to decline.

You will experience immediate and substantial dilution in the net tangible book value per share of the stock you purchase.

The purchase price of the common stock offered pursuant to this prospectus supplement is substantially higher than the net tangible book value per share of our common stock. Therefore, if you purchase shares of common stock in this offering, you will incur immediate and substantial dilution in the pro forma net tangible book value per share of common stock from the price per share that you pay for the common stock. If the holders of outstanding options exercise those options at prices below the offering price, you will incur further dilution. See the section entitled

Dilution in this prospectus supplement for a more detailed discussion of the dilution you will incur if you purchase common stock in this offering.

This offering and future sales of our common stock may depress our stock price.

We have registered our common stock under a registration statement filed with the SEC. Sales of these shares of our common stock in the public market, including the shares sold in this offering, or the perception that these sales may occur, could cause the market price of our common stock to decline. In addition, sales by certain of our stockholders of their shares could impair our ability to raise capital through the sale of common or preferred stock. As of September 25, 2013, there were 37,130,939 shares of our common stock issued and outstanding, excluding 5,474,065 shares issuable upon exercise of outstanding options to purchase our common stock, 1,621,808 shares reserved for future issuance under our 2010 Stock Incentive Plan, and 687,134 shares issuable upon the exercise of outstanding warrants to purchase of common stock.

We could issue additional shares of common stock or other securities convertible or exchangeable into common stock, including preferred stock, which could be entitled to dividend, liquidation and other special rights and preferences not shared by holders of our common stock and which could cause you to experience future dilution.

To raise additional capital, we may in the future offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock. Our board of directors has the authority to establish the designation of additional shares of preferred stock that may be convertible into common stock without any action by our stockholders, and to fix the rights, preferences, privileges and restrictions, including voting rights, of such shares. Any such additional shares of preferred stock may have rights, preferences and privileges senior to those of outstanding common stock, and the issuance and conversion of any such preferred stock would further dilute the percentage ownership of our stockholders. The issuance of any such preferred stock could materially adversely affect the rights of holders of our common stock and, therefore, could reduce the value of our common stock. The price per share at which we sell additional shares of our common stock or other securities convertible into or exchangeable for our common stock in future transactions may be higher or lower than the price per share in this offering, and the investors purchasing shares or other securities in the future could have rights superior to existing stockholders.

Table of Contents

USE OF PROCEEDS

We estimate that the net proceeds we will receive from this offering will be approximately \$24.8 million after deducting estimated offering expenses that we must pay.

We anticipate that we will use the net proceeds from this offering for working capital and general corporate purposes, including continuation and completion of our Ampion and Optina clinical trials, the potential submission of a BLA relating to Ampion and a NDA relating to Optina, acquisition of manufacturing equipment and related outfitting in connection with the leasing of a new manufacturing facility and the potential hiring of additional personnel to manufacture Ampion. The timing and amount of our actual expenditures will be based on many factors. Accordingly, we will retain broad discretion in determining how we will allocate the net proceeds from this offering.

DIVIDEND POLICY

We have never declared or paid cash dividends on our capital stock. We currently intend to retain our future earnings, if any, for use in our business and therefore do not anticipate paying cash dividends in the foreseeable future. Payment of future dividends, if any, will be at the discretion of our board of directors after taking into account various factors, including our financial condition, operating results, current and anticipated cash needs and plans for expansion.

Table of Contents**CAPITALIZATION**

The following table sets forth our capitalization as of June 30, 2013:

on an actual basis; and

on an as-adjusted basis to give effect to the sale of 4,600,319 shares of common stock offered by us in this offering at a price of \$5.50 per share, after deducting estimated offering expenses that we must pay.

You should read the following table in conjunction with Management's Discussion and Analysis of Financial Condition and Results of Operations and our financial statements and related notes incorporated by reference in this prospectus and the accompanying prospectus. The following information is illustrative only of our cash and cash equivalents and capitalization after the completion of this offering and will change based on the actual public offering price and other terms of this offering determined at pricing.

	As of June 30, 2013	
	Actual	As Adjusted (unaudited)
Cash and cash equivalents	\$ 12,456,834	\$ 37,258,589
Common stock, \$0.0001 par value, 100,000,000 shares authorized; 37,095,755 shares issued and outstanding at June 30, 2013 actual; 41,696,074 shares issued and outstanding at June 30, 2013 as adjusted	3,709	4,169
Preferred stock, \$0.0001 par value, 10,000,000 shares authorized; none issued	68,691,296	93,492,591
Additional paid-in capital	(90,640)	(90,640)
Advances to stockholders	(50,366,846)	(50,366,846)
Deficit accumulated in the development stage	(50,366,846)	(50,366,846)
Total Ampio stockholders' equity	18,237,519	43,039,274
Non-controlling interests	452,249	452,249
Total equity	18,689,768	43,491,523
Total capitalization	\$ 31,146,602	\$ 80,750,112

The number of shares of common stock to be outstanding after this offering is based on 37,095,755 shares outstanding on June 30, 2013 and excludes as of that date:

Options representing the right to purchase a total of 5,023,650 shares of common stock at a weighted average exercise price of \$2.35 per share;

An aggregate of 2,078,894 additional shares of our common stock reserved for future issuance under our 2010 Stock Incentive Plan; and

Edgar Filing: Ampio Pharmaceuticals, Inc. - Form 424B5

Warrants representing the right to purchase a total of 745,647 shares of common stock at a weighted average exercise price of \$3.00 per share.

S-33

Table of Contents**PRICE RANGE OF COMMON STOCK**

Our common stock is traded on the NYSE MKT. Prior to June 17, 2013, our common stock had been trading on the NASDAQ Capital Market under the ticker symbol **AMPE**, and prior to May 19, 2011, it was previously quoted on the Over-the-Counter Bulletin Board under the symbol **AMPE.OB**. The following table sets forth the intra-day high and low sale price information for our common stock as reported by the NYSE MKT, NASDAQ Capital Market and the Over-the-Counter Bulletin Board, for the respective periods that our common stock was traded thereon.

Period	High	Low
Fiscal 2013		
Period from July 1, 2013 through September 25, 2013	\$ 7.88	\$ 5.06
Quarter ended June 30, 2013	\$ 7.17	\$ 4.31
Quarter ended March 31, 2013	\$ 5.14	\$ 3.50
Fiscal 2012		
Quarter ended December 31, 2012	\$ 4.33	\$ 3.05
Quarter ended September 30, 2012	\$ 6.25	\$ 2.55
Quarter ended June 30, 2012	\$ 5.50	\$ 2.54
Quarter ended March 31, 2012	\$ 4.69	\$ 2.61
Fiscal 2011		
Quarter ended December 31, 2011	\$ 8.50	\$ 3.60
Quarter ended September 30, 2011	\$ 9.27	\$ 3.98
Quarter ended June 30, 2011	\$ 8.75	\$ 2.70
Quarter ended March 31, 2011	\$ 9.00	\$ 2.20

As of September 6, 2013, there were of record approximately 4,600 holders of our common stock.

We have never paid cash dividends and intend to employ all available funds in the development of our business for the foreseeable future. We have no plans to pay cash dividends in the near future. If we issue in the future any preferred stock or obtain financing from a bank, the terms of those financings may contain restrictions on our ability to pay dividends for so long as the preferred stock or bank financing is outstanding.

Table of Contents

DILUTION

Our net tangible book value as of June 30, 2013 was \$10,419,417, or \$0.28 per share. Net tangible book value per share is determined by dividing our total tangible assets, less total liabilities, by the number of shares of our common stock outstanding as of June 30, 2013. Dilution in net tangible book value per share represents the difference between the amount per share paid by purchasers of shares of common stock in this offering and the net tangible book value per share of our common stock immediately after this offering.

After giving effect to the sale of 4,600,319 shares of our common stock in this offering at a price of \$5.50 per share, and after deducting estimated offering expenses we must pay, our as adjusted net tangible book value as of June 30, 2013 would have been approximately \$35,221,172, or \$0.84 per share. This represents an immediate increase in net tangible book value of \$0.56 per share to existing stockholders and immediate dilution in net tangible book value of \$4.66 per share to new investors purchasing our common stock in this offering. The following table illustrates this dilution on a per share basis:

Price per share	\$ 5.50
Net tangible book value per share as of June 30, 2013	\$ 0.28
Increase per share attributable to new investors	\$ 0.56
As adjusted net tangible book value per share after this offering	\$ 0.84
Dilution per share to new investors	\$ 4.66

The number of shares of common stock to be outstanding after this offering is based on 37,095,755 shares outstanding on June 30, 2013 and excludes as of that date:

Options representing the right to purchase a total of 5,023,650 shares of common stock at a weighted average exercise price of \$2.35 per share;

An aggregate of 2,078,894 additional shares of our common stock reserved for future issuance under our 2010 Stock Incentive Plan; and

Warrants representing the right to purchase a total of 745,647 shares of common stock at a weighted average exercise price of \$3.00 per share.

To the extent that outstanding options or warrants are exercised, investors purchasing our common stock in this offering will experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

Table of Contents

PLAN OF DISTRIBUTION

We are selling an aggregate of 4,600,319 shares of our common stock under this prospectus supplement and the accompanying prospectus directly to the Investors at a price of \$5.50 per share of common stock pursuant to a securities purchase agreement dated September 25, 2013.

We currently anticipate that the closing of the sale of such shares in this offering will take place on or about September 30, 2013. On the closing date, we will issue the shares of our common stock to the Investors and receive funds in the amount of the aggregate purchase price.

LEGAL MATTERS

The validity of the shares of common stock offered hereby will be passed upon for us by Goodwin Procter LLP, New York, New York.

EXPERTS

The consolidated financial statements of Ampio Pharmaceuticals, Inc. and its subsidiaries as of December 31, 2012 and 2011, and for each of the years in the three-year period ended December 31, 2012, and management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2012 have been incorporated by reference herein and in the Registration Statement in reliance upon the report of EKS&H LLLP, independent registered public accounting firm, incorporated by reference herein, and upon authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus supplement is part of a registration statement that we have filed with the SEC. Certain information in the registration statement has been omitted from this prospectus supplement in accordance with the rules of the SEC. We are a public company and file proxy statements, annual, quarterly and special reports and other information with the SEC. The registration statement, such reports and other information can be inspected and copied at the Public Reference Room of the SEC located at 100 F Street, N.E., Washington D.C. 20549. Copies of such materials, including copies of all or any portion of the registration statement, can be obtained from the Public Reference Room of the SEC at prescribed rates. You can call the SEC at 1-800-SEC-0330 to obtain information on the operation of the Public Reference Room. Such materials may also be accessed electronically by means of the SEC's home page on the Internet (www.sec.gov).

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference the information we file with it, which means that we can disclose important information to you by referring you to those documents instead of having to repeat the information in this prospectus supplement. The information incorporated by reference is considered to be part of this prospectus supplement, and later information that we file with the SEC will automatically update and

Edgar Filing: Ampio Pharmaceuticals, Inc. - Form 424B5

supersede this information. We incorporate by reference the documents listed below that we have filed with the SEC:

our Annual Report on Form 10-K for the year ended December 31, 2012, filed on March 6, 2013;

our Quarterly Report on Form 10-Q for the quarter ended March 31, 2013, filed on May 3, 2013;

our Quarterly Report on Form 10-Q for the quarter ended June 30, 2013, filed on August 9, 2013;

S-36

Table of Contents

our Current Reports on Form 8-K and 8-K/A (other than portions thereof furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items) filed on January 25, 2013, February 15, 2013, March 1, 2013, April 4, 2013, June 7, 2013, July 19, 2013, August 20, 2013, September 5, 2013 and September 10, 2013; and

The description of our common stock contained or incorporated by reference in our registration statement on Form 8-A (File No. 001-35182) filed with the SEC on May 17, 2011, including any amendment or reports filed for the purpose of updating such description.

We also incorporate by reference into this prospectus supplement all documents (other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items) that are filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus supplement until we sell all of the shares covered by this prospectus supplement.

You may access our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to any of these reports, free of charge on the SEC's website. You may also access the documents incorporated by reference on our website at www.ampiopharma.com. Other than the foregoing documents incorporated by reference, the information contained in, or that can be accessed through, our website is not part of this prospectus supplement.

In addition, we will furnish without charge to each person, including any beneficial owner, to whom a prospectus supplement is delivered, on written or oral request of such person, a copy of any or all of the documents incorporated by reference in this prospectus supplement (not including exhibits to such documents, unless such exhibits are specifically incorporated by reference in this prospectus supplement or into such documents). Such requests may be directed to Corporate Secretary, Ampio Pharmaceuticals, Inc., 5445 DTC Parkway, Suite 925, Greenwood Village, Colorado 80111; telephone: (720) 437-6500.

S-37

Table of Contents

PROSPECTUS

\$80,000,000

Common Stock

Warrants

Units

1,000,000 Shares of Common Stock

Offered by the Selling Stockholders

From time to time, we may offer up to \$80,000,000 of any combination of the securities described in this prospectus, either individually or in units. The warrants may be exercisable or exchangeable for common stock. In addition, the selling stockholders may offer and sell, from time to time, up to an aggregate of 1,000,000 shares of common stock under this prospectus. We will not receive any of the proceeds from the sale of shares of our common stock by the selling stockholders.

Each time we or the selling stockholders offer securities, we will provide the specific terms of the securities offered in one or more supplements to this prospectus. We may also authorize one or more free writing prospectuses to be provided to you in connection with these offerings. The prospectus supplement and any related free writing prospectus may also add, update or change information contained in this prospectus. You should carefully read this prospectus, the applicable prospectus supplement and any related free writing prospectus, as well as any documents incorporated by reference, before buying any of the securities being offered.

The securities offered by this prospectus may be sold directly by us or the selling stockholders to investors, through agents designated from time to time or to or through underwriters or dealers. We will set forth the names of any underwriters or agents and any applicable fees, commissions, discounts and over-allotments in an accompanying prospectus supplement. For additional information on the methods of sale, you should refer to the section entitled "Plan of Distribution" in this prospectus and in the applicable prospectus supplement. The price to the public of such securities and the net proceeds we expect to receive from such sale will also be set forth in a prospectus supplement.

Our common stock is traded on the NASDAQ Capital Market under the symbol "AMPE". On October 12, 2011, the last reported sale price of our common stock on the NASDAQ Capital Market was \$8.10. The applicable prospectus supplement will contain information, where applicable, as to any other listing, if any, on the NASDAQ Capital Market or any securities market or other exchange of the securities covered by the applicable prospectus supplement.

This prospectus may not be used to offer or sell any securities unless accompanied by a prospectus supplement.

INVESTING IN OUR SECURITIES INVOLVES A HIGH DEGREE OF RISK. YOU SHOULD REVIEW CAREFULLY THE RISKS AND UNCERTAINTIES REFERENCED UNDER THE HEADING RISK FACTORS ON PAGE 5 OF THIS PROSPECTUS AS WELL AS THOSE CONTAINED IN THE APPLICABLE PROSPECTUS SUPPLEMENT AND ANY RELATED FREE WRITING PROSPECTUS, AND IN THE OTHER DOCUMENTS THAT ARE INCORPORATED BY REFERENCE INTO THIS PROSPECTUS.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is October 28, 2011.

Table of Contents

TABLE OF CONTENTS

	Page
<u>ABOUT THIS PROSPECTUS</u>	1
<u>SUMMARY</u>	2
<u>RISK FACTORS</u>	5
<u>SELLING STOCKHOLDERS</u>	5
<u>FORWARD-LOOKING STATEMENTS</u>	7
<u>USE OF PROCEEDS</u>	8
<u>PLAN OF DISTRIBUTION</u>	8
<u>DESCRIPTION OF CAPITAL STOCK</u>	10
<u>DESCRIPTION OF WARRANTS</u>	12
<u>DESCRIPTION OF UNITS</u>	14
<u>LEGAL MATTERS</u>	14
<u>EXPERTS</u>	14
<u>WHERE YOU CAN FIND ADDITIONAL INFORMATION</u>	15
<u>INCORPORATION OF CERTAIN INFORMATION BY REFERENCE</u>	15

Table of Contents

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the SEC, utilizing a shelf registration process. Under this shelf registration process, we may offer shares of our common stock and/or warrants to purchase our common stock, either individually or in units, in one or more offerings, up to a total dollar amount of \$80,000,000. The selling stockholders may, from time to time, use this prospectus to sell in one or more offerings an aggregate of up to 1,000,000 shares of our common stock. We will not receive any proceeds from the sale of securities by the selling stockholders. This prospectus provides you with a general description of the securities we or the selling stockholders may offer. Each time we or the selling stockholders offer a type or series of securities under this prospectus, we will provide a prospectus supplement that will contain more specific information about the specific terms of the offering. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. Each such prospectus supplement (and any related free writing prospectus that we may authorize to be provided to you) may also add, update or change information contained in this prospectus or in documents incorporated by reference into this prospectus. We urge you to carefully read this prospectus, any applicable prospectus supplement and any related free writing prospectus, together with the information incorporated herein by reference as described under the headings **Where You Can Find Additional Information** and **Incorporation of Certain Information by Reference** before buying any of the securities being offered. **THIS PROSPECTUS MAY NOT BE USED TO OFFER OR SELL SECURITIES UNLESS IT IS ACCOMPANIED BY A PROSPECTUS SUPPLEMENT.**

You should rely only on the information contained or incorporated by reference in this prospectus, any applicable prospectus supplement and any related free writing prospectus. Neither we nor the selling stockholders have authorized anyone to provide you with different information in addition to or different from that contained in this prospectus, any applicable prospectus supplement and any related free writing prospectus. No dealer, salesperson or other person is authorized to give any information or to represent anything not contained in this prospectus, any applicable prospectus supplement or any related free writing prospectus that we may authorize to be provided to you. You must not rely on any unauthorized information or representation. This prospectus is an offer to sell only the securities offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. You should assume that the information in this prospectus, any applicable prospectus supplement or any related free writing prospectus is accurate only as of the date on the front of the document and that any information incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus, any applicable prospectus supplement or any related free writing prospectus, or any sale of a security.

This prospectus contains summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been filed, will be filed or will be incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under the heading **Where You Can Find Additional Information**.

Table of Contents

SUMMARY

This summary highlights selected information from this prospectus or incorporated by reference in this prospectus, and does not contain all of the information that you need to consider in making your investment decision. You should carefully read the entire prospectus, the applicable prospectus supplement and any related free writing prospectus, including the risks of investing in our securities contained in the applicable prospectus supplement and any related free writing prospectus, and in the other documents that are incorporated by reference into this prospectus. You should also carefully read the information incorporated by reference into this prospectus, including our financial statements, and the exhibits to the registration statement of which this prospectus is a part.

Unless otherwise mentioned or unless the context requires otherwise, throughout this prospectus, any applicable prospectus supplement and any related free writing prospectus, the words Ampio, we, us, our, the company or similar references refer to Ampio Pharmaceuticals, Inc. and its subsidiaries on a consolidated basis. References to BioSciences in this prospectus mean DMI BioSciences, Inc., now a wholly-owned subsidiary of ours. References to Life Sciences in this prospectus mean DMI Life Sciences, Inc., which is our predecessor for accounting purposes and a wholly-owned subsidiary of ours. The term securities refers collectively to our common stock, warrants to purchase common stock, or units or any combination of the foregoing securities; the term selling stockholders refers to certain of our stockholders who may sell their securities under this prospectus and who are named in this prospectus.

This prospectus and the information incorporated herein by reference includes trademarks, such as Optina, Vasaloc, Zertane, and Ampion, which are protected under applicable intellectual property laws and are our property or the property of our subsidiaries. This prospectus may also contain trademarks, service marks, copyrights and trade names of other companies which are the property of their respective owners. Solely for convenience, our trademarks and tradenames referred to in this prospectus may appear without the ® or symbols, but such references are not intended to indicate in any way that we will not assert, to the fullest extent under applicable law, our rights to these trademarks and tradenames.

Overview

We are a development stage company engaged in developing innovative, proprietary pharmaceutical drugs and diagnostic products to identify, treat and prevent a broad range of human diseases including metabolic disorders, eye disease, kidney disease, acute and chronic inflammation diseases and male sexual dysfunction. We intend to develop proprietary pharmaceutical drugs and diagnostic products which capitalize on our intellectual property that includes assigned patents, pending patent applications, and trade secrets and know-how, some of which may be the subject of future patent applications. Our intellectual property is strategically focused on three primary areas: new uses for FDA-approved drugs, referred to as repositioned drugs, new molecular entities, or NMEs, and rapid point-of-care tests for diagnosis, monitoring and screening.

Corporate Background

Our predecessor, DMI Life Sciences, Inc., or Life Sciences, was incorporated in Delaware in December 2008 and did not conduct any business activity until April 16, 2009, at which time Life Sciences purchased certain assigned intellectual property (including 107 patents and pending patent applications), business products and tangible property from BioSciences. Life Sciences issued 3,500,000 shares of its common stock to BioSciences, and assumed certain liabilities, as consideration for the assets purchased from BioSciences. The assets Life Sciences acquired from BioSciences had a carrying value of zero, as BioSciences had expensed all of the research and development costs it incurred with respect to the intellectual property purchased by Life Sciences.

Table of Contents

In March 2010, Life Sciences was merged with a subsidiary of Chay Enterprises, Inc., a publicly-traded company then traded on the OTC Bulletin Board. Chay Enterprises had minimal operations prior to the time of this merger, and like similar entities, was referred to as a public shell. As a result of this merger, Life Sciences stockholders became the controlling stockholders of Chay Enterprises and the former sole officer and director of Chay Enterprises appointed a majority of our current management team to their present positions.

We were reincorporated in Delaware at that time as Ampio Pharmaceuticals, Inc. and commenced trading on the OTC Bulletin Board as Ampio Pharmaceuticals, Inc. in late March 2010.

On March 23, 2011, Ampio acquired all of the outstanding stock of BioSciences. Its principal asset consisted of the worldwide rights to Zertane, as to which BioSciences held 32 issued patents and 31 pending patent applications. Zertane is a repurposed drug to treat male sexual dysfunction pertaining to premature ejaculation (PE) in men.

In May 2011, our common stock commenced trading on the NASDAQ Capital Market under the symbol `AMPE`, at which time our common stock ceased trading on the OTC Bulletin Board.

Corporate Information

Our principal executive offices are located at 5445 DTC Parkway, Suite 925, Greenwood Village, Colorado 80111, and our telephone number is (720) 437-6500. Additional information about us is available on our website at www.ampiopharma.com. The information contained on or that may be obtained from our website is not, and shall not be deemed to be, a part of this prospectus. You can review filings we make with the SEC at its website (www.sec.gov), including our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports electronically filed or furnished pursuant to Section 15(d) of the Exchange Act.

The Securities We May Offer

We may offer shares of our common stock and/or warrants to purchase our common stock, either individually or in units, with a total value of up to \$80,000,000 from time to time under this prospectus at prices and on terms to be determined at the time of any offering. This prospectus provides you with a general description of the securities we may offer. Each time we offer a type or series of securities under this prospectus, we will provide a prospectus supplement that will describe the specific amounts, prices and other important terms of the securities, including, to the extent applicable:

designation or classification;

aggregate offering price;

maturity, if applicable;

redemption, conversion, exercise, or exchange terms, if any;

restrictive covenants, if any; and

voting or other rights, if any.

The prospectus supplement and any related free writing prospectus that we may authorize to be provided to you may also add, update or change information contained in this prospectus or in documents we have incorporated by reference. However, no prospectus supplement or free writing prospectus will offer a security that is not registered and described in this prospectus at the time of the effectiveness of the registration statement of which this prospectus is a part.

Table of Contents

This prospectus may not be used to offer or sell securities unless it is accompanied by a prospectus supplement.

We may sell the securities directly to investors or to or through agents, underwriters or dealers. We, and our agents or underwriters, reserve the right to accept or reject all or part of any proposed purchase of securities. If we do offer securities to or through agents or underwriters, we will include in the applicable prospectus supplement:

the names of those agents or underwriters;

applicable fees, discounts and commissions to be paid to them;

details regarding over-allotment options, if any; and

the net proceeds to us.

Common Stock. We may issue shares of our common stock from time to time. Holders of shares of our common stock are entitled to one vote for each share held of record on all matters to be voted on by stockholders and do not have cumulative voting rights. Subject to the preferences that may be applicable to any then outstanding preferred stock, the holders of our outstanding shares of common stock are entitled to receive dividends, if any, as may be declared from time to time by our board of directors out of legally available funds. In the event of our liquidation, dissolution or winding up, holders of our common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities, subject to the satisfaction of any liquidation preference granted to the holders of any outstanding shares of preferred stock.

Warrants. We may issue warrants for the purchase of common stock in one or more series. We may issue warrants independently or together with common stock, and the warrants may be attached to or separate from our common stock. In this prospectus, we have summarized certain general features of the warrants. We urge you, however, to read the applicable prospectus supplement (and any free writing prospectus that we may authorize to be provided to you) related to the particular series of warrants being offered, as well as the complete warrant agreements and/or warrant certificates that contain the terms of the warrants. We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, the forms of warrant agreement and/or warrant certificates that describe the terms of the series of warrants we are offering before the issuance of the related series of warrants.

We will evidence each series of warrants by warrant certificates that we will issue. Warrants may be issued under an applicable warrant agreement that we enter into with a warrant agent. We will indicate the name and address of the warrant agent, if applicable, in the prospectus supplement relating to the particular series of warrants being offered.

Units. We may issue, in one or more series, units consisting of common stock and/or warrants for the purchase of common stock in any combination. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. In this prospectus, we have summarized certain general features of the units. We urge you, however, to read the applicable prospectus supplement (and any free writing prospectus that we may authorize to be provided to you) related to the series of units being offered, as well as the complete unit agreement, if any, that contains the terms of the units. We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, any form of unit agreement and any supplemental agreements that describe the terms of the series of units we are offering before the issuance of the related series of units.

Table of Contents**RISK FACTORS**

Investing in our securities involves risks. You should carefully consider the risk factors contained in the applicable prospectus supplement and any related free writing prospectus for a specific offering of securities, as well as those incorporated by reference in this prospectus, before making an investment decision. You should also carefully consider other information contained and incorporated by reference in this prospectus and any applicable prospectus supplement, including our financial statements and the related notes thereto incorporated by reference in this prospectus. The risks and uncertainties described in the applicable prospectus supplement and our other filings with the SEC incorporated by reference herein are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently consider immaterial may also adversely affect us. If any of the described risks occur, our business, financial condition or results of operations could be materially harmed. In such case, the value of our securities could decline and you may lose all or part of your investment.

SELLING STOCKHOLDERS

We are registering the possible resale of 1,000,000 shares of our common stock by the selling stockholders, which includes (i) 676,200 shares of common stock issued in connection with our acquisition of DMI BioSciences, Inc. in April 2009; (ii) 52,800 shares of common stock issued in connection with our reverse merger with a subsidiary of Chay Enterprises, Inc. in March 2010; (iii) 181,000 shares of common stock issued in connection with a private placement transaction in April 2009; (iv) 52,144 shares of common stock issued in connection with a private placement transaction in February 2010; (v) 7,856 shares acquired in connection with a private purchase in April 2010; and (vi) 30,000 shares of common stock issued in connection with the exercise of stock options granted in August 2010. The selling stockholders may offer the shares for resale from time to time.

The following table sets forth the number and percentage of our shares of common stock owned by the selling stockholders, the amount available to be offered, and the number and percentage of our shares of common stock that will be owned assuming the sale of all the shares offered hereby.

Name of Selling Stockholder (1)	Number of	Percentage	Number of	Number of	Percentage of
	Shares of	of Common		Common Stock	Common Stock
	Common Stock	Stock	Shares of	Beneficially	Beneficially
	Beneficially	Beneficially	Common Stock	Owned After	After
	Owned	Owned (2)	to be Sold	Offering	Offering (2)
David Bar-Or (3)	3,166,667	9.9%	248,400	2,918,267	9.2%
Raphael Bar-Or (4)	1,025,000	3.4%	94,300	930,700	3.1%
Bruce G. Miller (5)	1,500,000	5.0%	138,000	1,362,000	4.5%
Kristin Clift (6)	575,000	2.0%	52,800	522,200	1.8%
Wannell Crook (7)	1,100,000	3.7%	101,200	998,800	3.4%
James Winkler (8)	1,025,000	3.4%	94,300	930,700	3.1%
Michael Macaluso (9)	2,618,484	8.3%	181,000	2,437,484	7.8%
Richard B. Giles (10)	621,758	2.1%	60,000	561,758	1.9%
Philip H. Coelho (11)	379,545	1.3%	30,000	349,545	1.2%
Total	12,011,454	39.1%	1,000,000	11,011,454	36.1%

- (1) The address of each selling stockholder listed in the table above is c/o Ampio Pharmaceuticals, Inc., 5445 DTC Parkway, Suite 925, Greenwood Village, Colorado 80111.
- (2) Calculated on the basis of 28,778,751 shares of common stock, which is the number of shares of our common stock outstanding on September 30, 2011. For purposes of calculating each person's percentage ownership, stock options, debentures and warrants exercisable within 60 days after September 30, 2011 are included for that person but not the stock options, debentures, or warrants of any other person.

Table of Contents

- (3) Includes 466,667 shares of common stock which Dr. Bar-Or has the right to acquire through the exercise of stock options. Dr. Bar-Or acquired the shares of common stock to be sold by him through our acquisition of DMI BioSciences, Inc. in April 2009. Dr. Bar-Or is our Chief Scientific Officer and a member of our Board of Directors.
- (4) Mr. Bar-Or acquired the shares of common stock to be sold by him through our acquisition of DMI BioSciences, Inc. in April 2009.
- (5) Mr. Miller acquired the shares of common stock to be sold by him through our acquisition of DMI BioSciences, Inc. in April 2009. Mr. Miller is our former Chief Financial Officer.
- (6) Mrs. Clift acquired the shares of common stock to be sold by her through a transfer from her husband, Vaughan Clift, in March 2010. Dr. Clift, our Chief Regulatory Affairs Officer, originally acquired these shares through our reverse merger with a subsidiary of Chay Enterprises, Inc. in March 2010. Excludes 243,333 shares of common stock that Dr. Clift has the right to acquire through the exercise of stock options, as to which Mrs. Clift disclaims beneficial ownership.
- (7) Ms. Crook acquired the shares of common stock to be sold by her through our acquisition of DMI BioSciences, Inc. in April 2009.
- (8) Dr. Winkler acquired the shares of common stock to be sold by him through our acquisition of DMI BioSciences, Inc. in April 2009.
- (9) Includes (i) 550,000 shares of common stock which Mr. Macaluso has the right to acquire through the exercise of stock options, and (ii) 27,379 shares of common stock Mr. Macaluso has the right to acquire through the exercise of warrants. Mr. Macaluso acquired the shares of common stock to be sold by him through a private placement transaction in April 2009. Mr. Macaluso is the chairman of our board of directors.
- (10) Includes (i) 440,000 shares of common stock which Mr. Giles has the right to acquire through the exercise of stock options, and (ii) 11,918 shares of common stock Mr. Giles has the right to acquire through the exercise of warrants. The total common stock beneficially owned by Mr. Giles includes (i) 1,821 shares held by his adult son who resides with him and (ii) 40,000 shares of common stock which can be exercised through stock options belonging to his wife, Barbara Giles, who is our controller. Mr. Giles acquired the shares of common stock to be sold by him through (i) a private placement transaction in February 2010 (with respect to 52,144 shares) and (ii) a private purchase in April 2010 (with respect to 7,856 shares). Mr. Giles is a member of our board of directors.
- (11) Includes 375,000 shares of common stock which Mr. Coelho has the right to acquire through the exercise of stock options. Mr. Coelho acquired the shares of common stock to be sold by him through the exercise of stock options granted to him in August 2010. Mr. Coelho is a member of our board of directors.

Table of Contents

FORWARD-LOOKING STATEMENTS

This prospectus includes forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act. Forward-looking statements are those that predict or describe future events or trends and that do not relate solely to historical matters. You can generally identify forward-looking statements as statements containing the words believe, expect, may, will, anticipate, intend, estimate, project, plan, assume or other similar expressions, although not all forward-looking statements contain these identifying words. All statements contained in this prospectus regarding our future strategy, plans and expectations regarding clinical trials, future regulatory approvals, our plans for the commercialization of our products, future operations, projected financial position, potential future revenues, projected costs, future prospects, and results that might be obtained by pursuing management's current plans and objectives are forward-looking statements. Forward-looking statements include, but are not necessarily limited to, those relating to:

the results and timing of our clinical trials, particularly the results of our Optina, Vasaloc, Ampion and Oxidation Reduction Potential (ORP) Diagnostic Device trials;

the regulatory review process and any regulatory approvals that are issued or denied by the FDA, the EMEA, or other regulatory agencies;

our need to secure collaborators to license, manufacture, market and sell any products for which we receive regulatory approval in the future;

the benefits we expect to obtain from the BioSciences acquisition, including our objective to license Zertane;

the results of our internal research and development efforts;

the commercial success and market acceptance of any of our product candidates that are approved for marketing in the United States or other countries;

the safety and efficacy of medicines or treatments introduced by competitors that are targeted to indications which our product candidates have been developed to treat;

acceptance and approval of regulatory filings;

our need for, and ability to raise, additional capital;

our collaborators' compliance or non-compliance with their obligations under our agreements with them, or decisions by our collaborators to discontinue clinical trials and return product candidates to us; and

our plans to develop other product candidates.

You should not place undue reliance on our forward-looking statements because the matters they describe are subject to known and unknown risks, uncertainties and other unpredictable factors, many of which are beyond our control. Our forward-looking statements are based on the information currently available to us and speak only as of the date on the cover of this prospectus. New risks and uncertainties arise from time to

Edgar Filing: Ampio Pharmaceuticals, Inc. - Form 424B5

time, and it is impossible for us to predict these matters or how they may affect us. Over time, our actual results, performance or achievements will likely differ from the anticipated results, performance or achievements that are expressed or implied by our forward-looking statements, and such differences might be significant and materially adverse to our investors. We have no duty to, and do not intend to, update or revise the forward-looking statements in this prospectus after the date of this prospectus except to the extent required by the federal securities laws. You should consider all risks and uncertainties disclosed in our filings with the SEC, described below under the heading "Where You Can Find Additional Information," all of which are accessible on the SEC's website at www.sec.gov.

Table of Contents

USE OF PROCEEDS

Except as described in any prospectus supplement or in any related free writing prospectus that we may authorize to be provided to you, the net proceeds received by us from our sale of the securities described in this prospectus will be added to our general funds and will be used for our general corporate purposes. We will not receive any of the proceeds from the sale of shares by any selling stockholders. From time to time, we may engage in additional public or private financings of a character and amount which we may deem appropriate.

PLAN OF DISTRIBUTION

We and the selling stockholders may sell the securities from time to time pursuant to underwritten public offerings, negotiated transactions, block trades or a combination of these methods. We and the selling stockholders may sell the securities to or through underwriters or dealers, through agents, or directly to one or more purchasers. We and the selling stockholders may distribute securities from time to time in one or more transactions:

at a fixed price or prices, which may be changed;

at market prices prevailing at the time of sale;

at prices related to such prevailing market prices; or

at negotiated prices.

Each time we or the selling stockholders offer and sell securities, we will provide a prospectus supplement that will set forth the terms of the offering of the securities, including:

the name or names of the underwriters, if any;

the purchase price of the securities and the proceeds we or the selling stockholders will receive from the sale;

any over-allotment options under which underwriters may purchase additional securities;

any agency fees or underwriting discounts and other items constituting agents or underwriters compensation;

any public offering price;

any discounts or concessions allowed or reallocated or paid to dealers; and

any securities exchange or market on which the securities may be listed.

If underwriters are used in the sale, they will acquire the securities for their own account and may resell the securities from time to time in one or more transactions at a fixed public offering price or at varying prices determined at the time of sale. The obligations of the underwriters to

Edgar Filing: Ampio Pharmaceuticals, Inc. - Form 424B5

purchase the securities will be subject to the conditions set forth in the applicable underwriting agreement. We or the selling stockholders may offer the securities to the public through underwriting syndicates represented by managing underwriters or by underwriters without a syndicate. Subject to certain conditions, the underwriters will be obligated to purchase all of the securities offered by the prospectus supplement, other than securities covered by any over-allotment option. Any public offering price and any discounts or concessions allowed or reallocated or paid to dealers may change from time to time. We and the selling stockholders may use underwriters with whom we or they have a material relationship. The prospectus supplement, naming the underwriter, will describe the nature of any such relationship.

We and the selling stockholders may sell securities directly or through agents we or they designate from time to time. The prospectus supplement will name any agent involved in the offering and sale of securities and any commissions we and the selling stockholders will pay to them. Unless the prospectus supplement states otherwise, any agent will be acting on a best-efforts basis for the period of its appointment.

Table of Contents

We and the selling stockholders may authorize agents or underwriters to solicit offers by certain purchasers to purchase securities from us or them at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. The prospectus supplement will set forth the conditions to these contracts and any commissions we or the selling stockholders must pay for solicitation of these contracts.

We and the selling stockholders may provide agents and underwriters with indemnification against civil liabilities, including liabilities under the Securities Act, or contribution with respect to payments that the agents or underwriters may make with respect to these liabilities. Agents and underwriters may engage in transactions with, or perform services for, us or the selling stockholders in the ordinary course of business.

Any warrants we may offer will be new issues of securities with no established trading market. Any underwriters may make a market in these securities, but will not be obligated to do so and may discontinue any market making at any time without notice. We cannot guarantee the liquidity of the trading markets for any securities.

Any underwriter may engage in over-allotment, stabilizing transactions, short-covering transactions and penalty bids in accordance with Regulation M under the Exchange Act. Over-allotment involves sales in excess of the offering size, which create a short position. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum price. Syndicate-covering or other short-covering transactions involve purchases of the securities, either through exercise of the over-allotment option or in the open market after the distribution is completed, to cover short positions. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the securities originally sold by the dealer are purchased in a stabilizing or covering transaction to cover short positions. Those activities may cause the price of the securities to be higher than it would otherwise be. If commenced, the underwriters may discontinue any of the activities at any time.

Any underwriters that are qualified market makers on the NASDAQ Capital Market may engage in passive market making transactions in the common stock on the NASDAQ Capital Market in accordance with Regulation M under the Exchange Act, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the common stock. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded. Passive market making may stabilize the market price of the securities at a level above that which might otherwise prevail in the open market and, if commenced, may be discontinued at any time.

In compliance with guidelines of the Financial Industry Regulatory Authority, or FINRA, the maximum consideration or discount to be received by any FINRA member or independent broker dealer may not exceed 8% of the aggregate amount of the securities offered pursuant to this prospectus and any applicable prospectus supplement.

Table of Contents

DESCRIPTION OF CAPITAL STOCK

General

Our authorized capital stock consists of 100,000,000 shares of common stock, par value \$0.0001 per share, of which 28,778,751 shares are issued and outstanding as of September 30, 2011, and 10,000,000 shares of undesignated preferred stock, \$0.0001 par value, of which no shares are issued or outstanding.

The following summary description of our capital stock is based on the provisions of our certificate of incorporation and bylaws and the applicable provisions of the Delaware General Corporation Law. This information is qualified entirely by reference to the applicable provisions of our certificate of incorporation, bylaws and the Delaware General Corporation Law. For information on how to obtain copies of our certificate of incorporation and bylaws, please see [Where You Can Find Additional Information](#) and [Incorporation of Certain Information by Reference](#).

Common Stock

As of September 30, 2011, there were 28,778,751 shares of our common stock outstanding held by approximately 1,400 stockholders of record. Holders of common stock will have voting rights for the election of our directors and all other matters requiring stockholder action, except with respect to amendments to our certificate of incorporation that alter or change the powers, preferences, rights or other terms of any outstanding preferred stock if the holders of such affected series of preferred stock are entitled to vote on such an amendment. There is no cumulative voting with respect to the election of directors, with the result that the holders of more than 50% of the shares voted for the election of directors can elect all of the directors. Holders of common stock will be entitled to one vote per share on matters to be voted on by stockholders and also will be entitled to receive such dividends, if any, as may be declared from time to time by our board of directors in its discretion out of funds legally available therefor. The payment of dividends, if ever, on the common stock will be subject to the prior payment of dividends on any outstanding preferred stock, of which there is currently none. Upon our liquidation or dissolution, the holders of common stock will be entitled to receive *pro rata* all assets remaining available for distribution to stockholders after payment of all liabilities and provision for the liquidation of any shares of preferred stock at the time outstanding. Our stockholders have no conversion, preemptive or other subscription rights and there are no sinking fund or redemption provisions applicable to the common stock.

Preferred Stock

Our certificate of incorporation provides that shares of preferred stock may be issued from time to time in one or more series. Our board of directors is authorized to fix the voting rights, if any, designations, powers, preferences, the relative, participating, optional or other special rights and any qualifications, limitations and restrictions thereof, applicable to the shares of each series. Our board of directors will be able to, without stockholder approval, issue preferred stock with voting and other rights that could adversely affect the voting power and other rights of the holders of the common stock and could have anti-takeover effects. The ability of our board of directors to issue preferred stock without stockholder approval could have the effect of delaying, deferring or preventing a change of control of us or the removal of existing management. We have no preferred stock outstanding at the date hereof. Although we do not currently intend to issue any shares of preferred stock, we cannot assure you that we will not do so in the future.

Delaware Anti-Takeover Law and Provisions of our Certificate of Incorporation and Bylaws

Delaware Anti-Takeover Law.

As a Delaware corporation, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which generally has an anti-takeover effect for transactions not approved in advance by our board of directors. This may discourage takeover attempts that might result in payment of a premium over the market price for the shares of common stock held by stockholders. In general, Section 203 prohibits a publicly

Table of Contents

held Delaware corporation from engaging in a business combination with an interested stockholder for a three-year period following the time that such stockholder becomes an interested stockholder, unless the business combination is approved in a prescribed manner. A business combination includes, among other things, a merger, asset or stock sale or other transaction resulting in a financial benefit to the interested stockholder. An interested stockholder is a person who, together with affiliates and associates, owns, or did own within three years prior to the determination of interested stockholder status, 15% or more of the corporation's voting stock.

Under Section 203, a business combination between a corporation and an interested stockholder is prohibited unless it satisfies one of the following conditions:

before the stockholder became interested, the board of directors approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder; or

upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, shares owned by:

persons who are directors and also officers; and

employee stock plans, in some instances; or

at or after the time the stockholder became interested, the business combination was approved by the board of directors of the corporation and authorized at an annual or special meeting of the stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

Staggered board of directors

Our Delaware certificate of incorporation provides that our board of directors will be classified into three classes of directors of approximately equal size at a date selected by the board. As a result, in most circumstances, a person can gain control of our board only by successfully engaging in a proxy contest at two or more annual meetings.

Advance notice requirements for stockholder proposals and director nominations

Our Delaware bylaws provide that stockholders seeking to bring business before our annual meeting of stockholders, or to nominate candidates for election as directors at our annual meeting of stockholders, must provide timely notice of their intent in writing. To be timely, a stockholder's notice needs to be delivered to our principal executive offices not later than the close of business on the 90th day nor earlier than the close of business on the 120th day prior to the first anniversary of the preceding year's annual meeting of stockholders. Our bylaws also specify certain requirements as to the form and content of a stockholders' meeting. These provisions may preclude our stockholders from bringing matters before our annual meeting of stockholders or from making nominations for directors at our annual meeting of stockholders.

Authorized but unissued shares

Our authorized but unissued shares of common stock and preferred stock are available for future issuances without stockholder approval and could be utilized for a variety of corporate purposes, including future offerings to raise additional capital, acquisitions and employee benefit plans. The existence of authorized but unissued and unreserved common stock and preferred stock could render more difficult or discourage an attempt to obtain control of us by means of a proxy contest, tender offer, merger or otherwise.

Limitation on liability and indemnification of directors and officers

Our Delaware certificate of incorporation and bylaws provide that our directors and officers will be indemnified by us to the fullest extent authorized by Delaware law as it now exists or may in the future be

Table of Contents

amended, against all expenses and liabilities reasonably incurred in connection with their service for or on our behalf. Our bylaws permit us to secure insurance on behalf of any officer, director or employee for any liability arising out of his or her actions, regardless of whether Delaware law would permit indemnification.

These provisions may discourage stockholders from bringing a lawsuit against our directors for breach of their fiduciary duty. These provisions also may have the effect of reducing the likelihood of derivative litigation against directors and officers, even though such an action, if successful, might otherwise benefit us and our stockholders. Furthermore, a stockholder's investment may be adversely affected to the extent we pay the costs of settlement and damage awards against directors and officers pursuant to these indemnification provisions. We believe that these provisions, insurance and the indemnity agreements are necessary to attract and retain talented and experienced directors and officers.

There is no pending litigation or proceeding involving any of our directors or officers where indemnification by us would be required or permitted. We are not aware of any threatened litigation or proceeding that might result in a claim for such indemnification. Insofar as indemnification for liabilities arising under the Securities Act of 1933, or the Act, may be permitted to our directors, officers and controlling persons pursuant to the foregoing provisions, or otherwise, we have been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Corporate Stock Transfer, Inc., 3200 Cherry Creek Drive South, Suite 430, Denver, Colorado 80209.

DESCRIPTION OF WARRANTS

We may issue warrants for the purchase of common stock in one or more series. We may issue warrants independently or together with common stock, and the warrants may be attached to or separate from these securities. While the terms summarized below will apply generally to any warrants that we may offer, we will describe the particular terms of any series of warrants in more detail in the applicable prospectus supplement. The terms of any warrants offered under a prospectus supplement may differ from the terms described below.

We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, the form of warrant agreement, including a form of warrant certificate, that describes the terms of the particular series of warrants we are offering before the issuance of the related series of warrants. The following summaries of material provisions of the warrants and the warrant agreements are subject to, and qualified in their entirety by reference to, all the provisions of the warrant agreement and warrant certificate applicable to the particular series of warrants that we may offer under this prospectus. We urge you to read the applicable prospectus supplements related to the particular series of warrants that we may offer under this prospectus, as well as any related free writing prospectuses, and the complete warrant agreements and warrant certificates that contain the terms of the warrants.

General

We will describe in the applicable prospectus supplement the terms of the series of warrants being offered, including:

the offering price and aggregate number of warrants offered;

the currency for which the warrants may be purchased;

if applicable, the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each such security or each principal amount of such security;

Table of Contents

the currency for which the warrants may be purchased;

if applicable, the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each such security or each principal amount of such security;

if applicable, the date on and after which the warrants and the related securities will be separately transferable;

the number of shares of common stock purchasable upon the exercise of one warrant and the price at which these shares may be purchased upon such exercise;

the effect of any merger, consolidation, sale or other disposition of our business on the warrant agreements and the warrants;

the terms of any rights to redeem or call the warrants;

any provisions for changes to or adjustments in the exercise price or number of securities issuable upon exercise of the warrants;

the dates on which the right to exercise the warrants will commence and expire;

the manner in which the warrant agreements and warrants may be modified;

a discussion of any material or special United States federal income tax consequences of holding or exercising the warrants;

the terms of the securities issuable upon exercise of the warrants; and

any other specific terms, preferences, rights or limitations of or restrictions on the warrants.

Before exercising their warrants, holders of warrants will not have any of the rights of holders of the securities purchasable upon such exercise, including the right to receive dividends, if any, or, payments upon our liquidation, dissolution or winding up or to exercise voting rights, if any

Exercise of Warrants

Each warrant will entitle the holder to purchase the securities that we specify in the applicable prospectus supplement at the exercise price that we describe in the applicable prospectus supplement. Unless we otherwise specify in the applicable prospectus supplement, holders of the warrants may exercise the warrants at any time up to the specified time on the expiration date that we set forth in the applicable prospectus supplement. After the close of business on the expiration date, unexercised warrants will become void.

Holders of the warrants may exercise the warrants by delivering the warrant certificate representing the warrants to be exercised together with specified information, and paying the required amount to the warrant agent in immediately available funds, as provided in the applicable prospectus supplement. We will set forth on the reverse side of the warrant certificate and in the applicable prospectus supplement the information that the holder of the warrant will be required to deliver to the warrant agent.

Upon receipt of the required payment and the warrant certificate properly completed and duly executed at the corporate trust office of the warrant agent or any other office indicated in the applicable prospectus supplement, we will issue and deliver the securities purchasable upon

Edgar Filing: Ampio Pharmaceuticals, Inc. - Form 424B5

such exercise. If fewer than all of the warrants represented by the warrant certificate are exercised, then we will issue a new warrant certificate for the remaining amount of warrants. If we so indicate in the applicable prospectus supplement, holders of the warrants may surrender securities as all or part of the exercise price for warrants.

Governing Law

Unless we provide otherwise in the applicable prospectus supplement, the warrants and warrant agreements will be governed by and construed in accordance with the laws of the State of New York.

Table of Contents

Enforceability of Rights by Holders of Warrants

Each warrant agent will act solely as our agent under the applicable warrant agreement and will not assume any obligation or relationship of agency or trust with any holder of any warrant. A single bank or trust company may act as warrant agent for more than one issue of warrants. A warrant agent will have no duty or responsibility in case of any default by us under the applicable warrant agreement or warrant, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a warrant may, without the consent of the related warrant agent or the holder of any other warrant, enforce by appropriate legal action its right to exercise, and receive the securities purchasable upon exercise of, its warrants.

DESCRIPTION OF UNITS

We may issue, in one or more series, units consisting of common stock and/or warrants for the purchase of common stock in any combination. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The units may be issued under unit agreements to be entered into between us and a unit agent, as detailed in the prospectus supplement relating to the units being offered. The prospectus supplement will describe:

the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances the securities comprising the units may be held or transferred separately;

a description of the terms of any unit agreement governing the units;

a description of the provisions for the payment, settlement, transfer or exchange of the units; and

whether the units if issued as a separate security will be issued in fully registered or global form.

While the terms summarized above will apply generally to any units that we may offer, we will describe the particular terms of any series of units in more detail in the applicable prospectus supplement. The terms of any units offered under a prospectus supplement may differ from the terms described above. We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, any form of unit agreement, including any related agreements or certificates, that describes the terms of the particular series of units we are offering before the issuance of the related series of units. The material provisions of the units and any unit agreements are subject to, and qualified in their entirety by reference to, all the provisions of the unit agreement and related agreements and certificates applicable to the particular series of units that we may offer under this prospectus. We urge you to read the applicable prospectus supplements related to the particular series of units that we may offer under this prospectus, as well as any related free writing prospectuses, and the complete unit agreements and related agreements and certificates that contain the terms of the units.

LEGAL MATTERS

The validity of the securities being offered by this prospectus will be passed upon by Goodwin Procter LLP, New York, New York.

EXPERTS

The consolidated financial statements of Ampio Pharmaceuticals, Inc. and subsidiaries as of December 31, 2010 and 2009, and for each of the years in the two-year period ended December 31, 2010, have been incorporated by reference herein from our Annual Report on Form 10-K for the year ended December 31, 2010, in reliance upon the report of Ehrhardt Keefe Steiner & Hottman PC, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

Table of Contents

WHERE YOU CAN FIND ADDITIONAL INFORMATION

This prospectus is part of a registration statement that we have filed with the SEC. Certain information in the registration statement has been omitted from this prospectus in accordance with the rules of the SEC. We are a public company and file proxy statements, annual, quarterly and special reports and other information with the SEC. The registration statement, such reports and other information can be inspected and copied at the Public Reference Room of the SEC located at 100 F Street, N.E., Washington D.C. 20549. Copies of such materials, including copies of all or any portion of the registration statement, can be obtained from the Public Reference Room of the SEC at prescribed rates. You can call the SEC at 1-800-SEC-0330 to obtain information on the operation of the Public Reference Room. Such materials may also be accessed electronically by means of the SEC's home page on the Internet (*www.sec.gov*).

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference the information we file with it, which means that we can disclose important information to you by referring you to those documents instead of having to repeat the information in this prospectus. The information incorporated by reference is considered to be part of this prospectus, and later information that we file with the SEC will automatically update and supersede this information. We incorporate by reference the documents listed below that we have filed with the SEC:

our Annual Report on Form 10-K for the year ended December 31, 2010, filed on February 15, 2011;

our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2011 and June 30, 2011, filed on May 12, 2011 and August 12, 2011, respectively;

our Current Reports on Form 8-K or Form 8-K/A (other than portions thereof furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items) filed on January 7, 2011, February 15, 2011, March 16, 2011, March 25, 2011, April 4, 2011, April 12, 2011, April 19, 2011, June 8, 2011, June 21, 2011, July 7, 2011, September 13, 2011, October 5, 2011 and October 6, 2011; and

the description of our common stock contained or incorporated by reference in our Registration Statement on Form 8-A, filed on May 17, 2011, including any amendment or reports filed for the purpose of updating this description.

We also incorporate by reference into this prospectus all documents (other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items) that are filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (i) after the date of the initial filing of the registration statement of which this prospectus is a part and prior to effectiveness of the registration statement, or (ii) after the date of this prospectus until we, together with all selling stockholders, sell all of the shares covered by this prospectus or the sale of shares by us and the selling stockholders pursuant to this prospectus is terminated.

You may access our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to any of these reports, free of charge on the SEC's website. You may also access the documents incorporated by reference on our website at *www.ampio-pharma.com*. Other than the foregoing documents incorporated by reference, the information contained in, or that can be accessed through, our website is not part of this prospectus.

In addition, we will furnish without charge to each person, including any beneficial owner, to whom a prospectus is delivered, on written or oral request of such person, a copy of any or all of the documents incorporated by reference in this prospectus (not including exhibits to such documents, unless such exhibits are specifically incorporated by reference in this prospectus or into such documents). Such requests may be directed to Ampio Pharmaceuticals, Inc., 5445 DTC Parkway, Suite 925, Greenwood Village, Colorado 80111 or call (720) 437-6500.

Table of Contents

4,600,319 Shares

Ampio Pharmaceuticals, Inc.

Common Stock

PROSPECTUS SUPPLEMENT

September 26, 2013