ADVENTRX PHARMACEUTICALS INC
Form 424B5
November 10, 2011

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The information in this prospectus supplement is not complete and may be changed. This prospectus supplement and the accompanying prospectus are not an offer to sell these securities and we are not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED NOVEMBER 10, 2011

PRELIMINARY PROSPECTUS SUPPLEMENT **Filed pursuant to Rule 424(b)(5)**
NO. 4
(To Prospectus dated April 1, 2010) **Registration Statement No. 333-165691**

ADVENTRX Pharmaceuticals, Inc.

[ ] Shares of Common Stock
Warrants to Purchase [ ] Shares of Common Stock
[ ] Shares of Common Stock Underlying the Warrants

We are offering [ ] shares of our common stock, par value $0.001 per share, and warrants to purchase up to [ ] shares of our common stock to investors in this offering. We are also offering an aggregate of [ ] shares of our common stock issuable upon exercise of the warrants. The securities will be sold in multiples of a fixed combination consisting of one share of common stock and a warrant to purchase up to [ ] of a share of common stock. These common stock warrants are exercisable at any time on or after their date of issuance, which will be the closing date of this offering, and on or before the [ ] anniversary of their date of issuance at an exercise price of $[ ] per share. The shares of common stock and the warrants being offered will be issued separately, but can only be purchased together in the fixed combination described above. Each fixed combination will be sold at a price of $[ ].

Our common stock is listed on the NYSE Amex equities market under the symbol ANX. The last reported sale price of our common stock on November 9, 2011 was $0.98 per share. We do not intend to list the warrants on any national securities exchange.

This investment involves a high degree of risk. You should carefully review the risks and uncertainties described under the heading Risk Factors.

	Per Fixed Combination of One Share and a Warrant to Purchase [ ] of a Share	Total
Public offering price	$ [ ]	$ [ ]
Underwriting discounts and/or commissions (1)	$ [ ]	$ [ ]
Proceeds, before expenses, to ADVENTRX Pharmaceuticals, Inc. (2)	$ [ ]	$ [ ]

(1) In connection with the offering of our securities under this prospectus supplement, in consideration for its services, we have also agreed to issue to the representative of the underwriters and/or its designees warrants to purchase up to an aggregate of [ ] shares of our common stock at an exercise price of $[ ] per share. Neither these warrants nor the common stock issuable upon exercise of these warrants are covered by this prospectus supplement. We have also agreed to pay to the representative of the underwriters an expense reimbursement of 0.5% of the gross proceeds of the securities sold hereunder.

(2) Excludes potential proceeds from the exercise of the warrants offered hereby.

Delivery of the shares and warrants being sold in this offering will take place on or about November [ ], 2011, against payment of immediately available funds.

The underwriters may also exercise their option to purchase up to an additional [ ] shares of our common stock and warrants to purchase up to [ ] shares of our common stock at the public offering price per fixed combination, less the

underwriting discounts and commissions, to cover over-allotments, if any, within 45 days of the date 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.

Rodman & Renshaw, LLC

The date of this prospectus supplement is November [ ], 2011.

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus are part of a shelf registration statement on Form S-3 that we filed with the U.S. Securities and Exchange Commission, or the SEC, using a shelf registration process. This prospectus supplement describes the specific terms of this offering. The accompanying prospectus, including the documents incorporated by reference, provides general information about us, some of which, such as the section therein entitled Plan of Distribution, may not apply to this offering. Generally, when we refer to this prospectus, we are referring to both parts of this document, this prospectus supplement and the accompanying prospectus, combined.

We urge you to carefully read this prospectus supplement, the accompanying prospectus and the documents incorporated herein and therein, before buying any of the securities being offered under this prospectus supplement. These documents contain information you should consider when making your investment decision.

You should rely only on the information contained or incorporated by reference in this prospectus supplement and the accompanying prospectus. We have not, and the underwriters have not, authorized anyone to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. This prospectus supplement may add, update or change information contained in the accompanying prospectus. To the extent any information in this prospectus supplement is inconsistent with the accompanying prospectus, you should rely on the information in this prospectus supplement. The information in this prospectus supplement will be deemed to modify or supersede those made in the accompanying prospectus and the documents incorporated by reference therein, except for those documents incorporated by reference therein which we file with the SEC after the date hereof.

You should not assume that the information contained or incorporated by reference in this prospectus supplement and the accompanying prospectus is accurate on any date subsequent to the date set forth on the front cover of this prospectus supplement and the accompanying prospectus or on any date subsequent to the date of the document incorporated by reference, as applicable. Our business, financial condition, results of operations and prospects may have changed since those dates.

We are offering to sell, and seeking offers to buy, the securities described in this prospectus supplement only in jurisdictions where offers and sales are permitted. The distribution of this prospectus supplement and the offering of the securities in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus supplement must inform themselves about, and observe any restrictions relating to, the offering of the securities and the distribution of this prospectus supplement outside the United States. This prospectus supplement does 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 by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

We are not making any representation to you regarding the legality of an investment in our securities by you under applicable law. You should consult with your own legal advisors as to the legal, tax, business, financial and related aspect of a purchase of these securities.

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SUMMARY

This summary highlights selected information about us and this offering and does not contain all of the information that you need to consider in making your investment decision. You should carefully read this entire prospectus supplement and the accompanying prospectus, including the risks and uncertainties discussed under the heading Risk Factors beginning on page S-4 of this prospectus supplement, and the information incorporated by reference, including our financial statements, before making an investment decision. When used in this prospectus supplement, the terms ADVENTRX, we, us, our and our company refer to ADVENTRX Pharmaceuticals, Inc. and its consolidated subsidiaries, unless otherwise indicated or the context otherwise requires.

About ADVENTRX Pharmaceuticals, Inc.

We are a specialty pharmaceutical company focused on developing proprietary product candidates. Our current lead product candidates are ANX-188, a novel, purified, rheologic and antithrombotic compound, which we initially are developing as a first-in-class treatment for pediatric patients with sickle cell disease in acute crisis, and ANX-514, a detergent-free formulation of the chemotherapy drug Taxotere®.

We have devoted substantially all of our resources to research and development and to acquisition of our product candidates. We have not yet marketed or sold any products or generated any significant revenue and have incurred significant losses since inception. We had a loss from operations of $11.0 million for the nine months ended September 30, 2011 and cash, cash equivalents and short-term investments of approximately $38.3 million at September 30, 2011.

Our company was incorporated in Delaware in December 1995. In October 2000, we merged our wholly owned subsidiary, Biokeys Acquisition Corp., with and into Biokeys, Inc. and changed our name to Biokeys Pharmaceuticals, Inc. In May 2003, we merged Biokeys, Inc., our wholly owned subsidiary, with and into us and changed our name to ADVENTRX Pharmaceuticals, Inc. In April 2006, we acquired SD Pharmaceuticals, Inc., a Delaware corporation, as a wholly owned subsidiary, and, in April 2011, we acquired SynthRx, Inc., a Delaware corporation, as a wholly owned subsidiary.

Our executive offices are located at 12390 El Camino Real, Suite 150, San Diego, California 92130, and our telephone number is (858) 552-0866. Our corporate website is located at www.adventrx.com. We make available free of charge through our corporate Internet website our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. The information contained in, or that can be accessed through, our website does not constitute part of this prospectus supplement or any other prospectus supplement.

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The Offering

Securities offered by us:	[ ] shares of common stock; Warrants to purchase up to [ ] shares of common stock; and Up to [ ] shares of common stock issuable upon exercise of the warrants.
Description of warrants:	Each investor will receive a warrant to purchase up to [ ] shares of common stock. These common stock warrants are exercisable at any time on or after their date of issuance, which will be the closing date of this offering, and on or before the [ ] anniversary of their date of issuance at an exercise price of $[ ] per share.
Common stock to be outstanding after this offering (excluding over-allotment option):	[ ] shares, or [ ] shares if the warrants offered hereby are exercised in full
Common stock to be outstanding after this offering if over-allotment option exercised in full:	[ ] shares, or [ ] shares if the warrants offered hereby are exercised in full
Use of proceeds:	We currently intend to use the net proceeds from this offering to fund continued development of our current lead product candidates, including activities necessary to initiate and conduct our planned phase 3 clinical trials of ANX-188 and ANX-514, and for general corporate purposes. Please see Use of Proceeds below.
NYSE Amex Symbol:	ANX
No market for the warrants:	There is no established public trading market for the warrants and we do not intend to apply to list the warrants on any national securities exchange.
Risk Factors:	See Risk Factors below for a discussion of factors that you should carefully read and consider before investing in our securities.

The number of shares of our common stock that will be outstanding immediately after the offering is based on 26,465,709 shares outstanding as of September 30, 2011, and excludes:

- 1,553,692 shares of common stock issuable upon the exercise of stock options issued under our equity incentive plans prior to this offering and outstanding as of September 30, 2011, at a weighted average exercise price of $4.75 per share;
- 3,256,014 shares of common stock available as of September 30, 2011 for future issuance under our Amended and Restated 2008 Omnibus Incentive Plan;
- 7,777,988 shares of common stock issuable upon the exercise of warrants issued prior to this offering and outstanding as of September 30, 2011, at a weighted average exercise price of $6.58 per share;
- 13,478,050 shares of common stock that may be issued to the former stockholders of SynthRx, subject to the achievement of performance milestones pursuant to the terms of our merger agreement with SynthRx dated February 12, 2011;

[ ] shares of common stock issuable upon the exercise of the warrants to be issued to the investors in this offering, at an exercise price of $[ ] per share; and

[ ] shares of common stock issuable upon exercise of warrants to be issued to the representative of the underwriters for this offering and/or its designees, which are not covered by this prospectus supplement, at an exercise price of $[ ] per share.

All share and per share information in in this prospectus supplement related to dates or periods prior to April 23, 2010 reflects the 1-for-25 reverse split of our outstanding common stock that took place on that date. The information contained in documents incorporated herein by reference that we filed with the SEC before April 23, 2010 has not been revised to reflect

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retroactive application of the 1-for-25 reverse stock split. However, the information in documents that we filed after April 23, 2010 and information in documents that we will file in the future does and will reflect the 1-for-25 reverse stock split.

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RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully consider the risk factors discussed below, together with all the other information contained in any of our filings with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, incorporated by reference in this prospectus supplement and the accompanying prospectus before deciding whether to purchase any of the securities being offered by this prospectus supplement. Each of the risk factors could adversely affect our business, operating results and financial condition, as well as adversely affect the value of an investment in our securities, and the occurrence of any of these risks might cause you to lose all or part of your investment.

RISKS RELATED TO OUR BUSINESS

Risks Related to Our Capital Requirements, Finances and Operations

We have incurred losses since our inception, we expect our operating expenses to continue to exceed our revenues for the foreseeable future and we may never generate revenues sufficient to achieve profitability.

We are a development stage company and have not generated sustainable revenues from operations or been profitable since inception, and it is possible we will never achieve profitability. We have devoted our resources to acquiring and developing proprietary product candidates, but such product candidates cannot be marketed until the regulatory process is completed and governmental approvals have been obtained. Accordingly, there is no current source of revenues from operations, much less profits, to sustain our present activities, and no revenues from operations will likely be available until, and unless, our product candidates are approved by the FDA or other regulatory agencies and successfully marketed, either by us or a partner, an outcome which we may not achieve.

The success of our business currently is dependent primarily on the success of our two lead product candidates and these product candidates may not receive regulatory approval or be successfully commercialized.

We currently have no products for sale and only two product candidates, ANX-188 and ANX-514, for which we actively are pursuing regulatory approval on an independent basis. Accordingly, the success of our business currently depends primarily on our ability, ourselves or with a future partner of ours, to obtain regulatory approval for and successfully market and sell these product candidates and our efforts in this regard may prove unsuccessful. Until recently, we were also pursuing FDA approval of Exelbine, our novel emulsion formulation of the chemotherapy drug vinorelbine. In November 2010, we submitted a new drug application, or NDA, for Exelbine (vinorelbine injectable emulsion) to the U.S. Food and Drug Administration, or FDA, and in August 2011, we received a complete response letter from the FDA stating that it could not approve the Exelbine NDA in its present form. In particular, the letter stated that, based on inspections at clinical sites, the authenticity of the drug products used in the pivotal bioequivalence trial could not be verified and that the bioequivalence trial would need to be repeated to address this deficiency. During a meeting with the FDA in September 2011, FDA staff indicated that the failure of the clinical sites to randomly select and retain reserve samples of the test article (Exelbine) and reference standard (Navelbine) could not be overcome by alternative methods of verifying authenticity and reiterated that the bioequivalence study would need to be repeated. Failure to obtain approval of the Exelbine NDA, in particular, as a result of logistical matters that investors may perceive as within our control, and our subsequent discontinuation of the Exelbine program may be viewed negatively and adversely affect investor confidence in our company, which could have a material adverse effect on our stock price and our ability to raise additional capital to pursue development and regulatory approval of our other product candidates.

With respect to ANX-514, following our meeting with the FDA in February 2011, we announced that the FDA determined ANX-514 could not be approved based on the findings from our bioequivalence study of ANX-514, which we refer to as Study 514-01, because the Cmax for total docetaxel was higher in patients who received ANX-514 relative to those who received Taxotere in Study 514-01. In October 2011, we met with the FDA to discuss our clinical development plans for ANX-514 and the FDA agreed that our proposed clinical trial, a non-inferiority study with a primary objective of comparing fluid retention following treatment with ANX-514, administered without corticosteroid premedication, and Taxotere, administered with corticosteroid premedication, which would enroll approximately 400 patients, which we refer to as Study 514-02, would generate sufficient clinical data to support approval of ANX-514 without requiring corticosteroid premedication. Despite reaching agreement with the FDA that the results of Study 514-02, together with those of Study 514-01, could support approval of ANX-514 without

requiring corticosteroid premedication, the FDA may, in the future, require additional clinical and/or nonclinical studies to support approval of ANX-514, which would increase development expense and may delay regulatory approval. For example, the FDA may determine that it cannot verify the authenticity of the study drugs used in Study 514-01 and require that the bioequivalence study be repeated prior to approval of ANX-514.

If any of our current or future product candidates is approved by the FDA or any foreign regulatory agency, our ability to generate revenues from these products will depend in substantial part on the extent to which they are accepted by the medical community and reimbursed by third-party payors and our ability to ensure that our third-party manufacturer or manufacturers produce sufficient quantities of the products to meet commercial demand, if any.

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Our financial resources are limited, we will need to obtain additional funding to pursue our current business strategy and we may not be able to obtain such funding on a timely basis or on commercially reasonable terms, if at all.

We have experienced significant losses in acquiring and funding the development of our product candidates, accumulating net losses totaling approximately $169.2 million as of September 30, 2011, and we expect to continue to incur substantial operating losses for the foreseeable future, even if we or a future partner of ours is successful in advancing our product candidates to market. We do not expect to generate cash flows from sales of our products unless and until our products are approved for marketing, the timing of which we cannot predict accurately.

Our future expenditures on our programs are subject to many uncertainties, including whether our product candidates will be developed or commercialized with a partner or independently. Our future capital requirements will depend on, and could increase significantly as a result of, many factors, including:

- the costs of seeking regulatory approval for our product candidates, including any nonclinical testing or clinical studies, process development, scale-up and other manufacturing and stability activities, or other work required to achieve such approval, as well as the timing of such activities and approval;
- the extent to which we invest in or acquire new technologies, product candidates, products or businesses and the development requirements with respect to any acquired programs;
- the scope, prioritization and number of development programs we pursue and the rate of progress and costs with respect to such programs;
- the costs related to developing, acquiring and/or contracting for sales, marketing and distribution capabilities and regulatory compliance capabilities, if we commercialize any of our product candidates for which we obtain regulatory approval without a partner;
- the timing and terms of any collaborative, licensing and other strategic arrangements that we may establish;
- the extent to which we will need to rebuild our workforce, which currently consists of 12 employees, and the costs involved in recruiting, training and incentivizing new employees;
- the effect of competing technological and market developments; and
- the cost involved in establishing, enforcing or defending patent claims and other intellectual property rights.

We anticipate that our cash, cash equivalents and short-term investments as of September 30, 2011, which were approximately $38.3 million, will be sufficient to fund our currently planned level of operations at least the next 12 months. However, we may determine to grow our organization and/or pursue development and/or commercialization activities for our current or future product candidates at levels or on timelines, or we may incur unexpected expenses, that shorten the period through which our current operating funds will sustain us. We may also acquire new technologies, product candidates and/or products and the cost to acquire, develop and/or commercialize such new technologies, product candidates and/or products may shorten the period through which our current operating funds will sustain us. We may seek additional funding through public or private sales of our equity securities, debt financings, collaborations, licensing arrangements or other strategic or partnering transactions. However, we may not be able to obtain sufficient additional funding on satisfactory terms, if at all. We believe global economic conditions, including the continued volatility of U.S. and international equity markets, may adversely impact our ability to raise additional capital.

We may incur substantial costs in connection with evaluating and negotiating future strategic or partnering and/or capital-raising transactions, the effect of which may be to shorten the period through which our current

operating funds will sustain us. Even if we incur costs in pursuing, evaluating and negotiating particular strategic or partnering and/or capital-raising transactions, our efforts may not prove successful.

Our ability to raise capital may be limited by applicable laws and regulations.

Historically, we have raised capital through the sale and issuance of our equity securities. Our ability to raise additional capital through the sale and issuance of our equity securities may be limited by, among other things, current SEC and NYSE Amex rules and regulations. Since June 2009, we completed six equity financings under shelf registration statements on Form S-3. Use of a shelf registration statement for primary offerings typically enables an issuer to raise additional capital on a more timely and cost effective basis than through other means, such as registration of a securities offering under a Form S-1 registration statement. Under current SEC rules and regulations, to be eligible to use a Form S-3 registration statement for primary offerings without restriction as to the amount of securities to be sold and issued, an issuer must, among other requirements, have outstanding common equity with a market value of at least $75.0 million held by non-affiliates. If we file a shelf Form S-3 registration statement at a time when the aggregate market value of our common stock held by non-affiliates, or public float, is less than $75.0 million (calculated as set forth in

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Form S-3 and SEC rules and regulations), the amount we could raise through primary offerings of our securities in any 12-month period using the Form S-3 registration statement may be limited to an aggregate of one-third of our public float. Moreover, the market value of all securities sold by us under a Form S-3 registration statement during the prior 12 months may be subtracted from that amount to determine the amount we can then raise under the Form S-3 registration statement. Even if we file a shelf Form S-3 registration statement at a time when our public float is $75.0 million or more (calculated as set forth in Form S-3 and SEC rules and regulations), we may become subject to the one-third of public float limitation described above in the future. The SEC s rules and regulations require that we periodically re-evaluate the value of our public float. If, at a re-evaluation date, our public float is less than $75.0 million (calculated as set forth in Form S-3 and SEC rules and regulations), the amount we could raise through primary offerings of our securities in any 12-month period using a Form S-3 registration statement would be subject to the one-third of public float limitation described above.

In addition, under current SEC rules and regulations, if our public float is less than $75.0 million or if we seek to register a resale offering (i.e., an offering of securities of ours by persons other than us), we must, among other requirements, maintain our listing with the NYSE Amex or have our common stock listed and registered on another national securities exchange in order to be eligible to use a Form S-3 registration statement for any primary or resale offering. Alternative means of raising capital through sales of our securities, including through the use of a Form S-1 registration statement, may be more costly and time-consuming.

Currently, our common stock is listed on the NYSE Amex equities market. The NYSE Amex will review the appropriateness of continued listing of any issuer that falls below the exchange s continued listing standards. Previously, including during part of 2010, we were not in compliance with certain NYSE Amex continued listing standards and were at risk of being delisted from the NYSE Amex equities market. For additional information regarding this risk, see the risk factor below titled If we are unable to maintain compliance with NYSE Amex continued listing standards, we may be delisted from the NYSE Amex equities market, which would likely cause the liquidity and market price of our common stock to decline. If our common stock were delisted from the NYSE Amex, our ability to raise capital on terms and conditions we deem acceptable, if at all, may be materially impaired.

Our ability to timely raise sufficient additional capital also may be limited by the NYSE Amex s requirements relating to stockholder approval for transactions involving the issuance of our common stock or securities convertible into our common stock. For instance, the NYSE Amex requires that we obtain stockholder approval of any transaction involving the sale, issuance or potential issuance by us of our common stock (or securities convertible into our common stock) at a price less than the greater of book or market value, which (together with sales by our officers, directors and principal stockholders) equals 20% or more of our presently outstanding common stock, unless the transaction is considered a public offering by the NYSE Amex staff. Based on our outstanding common stock as of September 30, 2011 and a closing price of $0.98, which was the closing price of our common stock on November 9, 2011, we could not raise more than approximately $5.2 million without stockholder approval, unless the transaction is deemed a public offering or does not involve the sale, issuance or potential issuance by us of our common stock (or securities convertible into our common stock) at a price less than the greater of book or market value. However, certain prior sales by us may be aggregated with any offering we may propose in the near-term, further limiting the amount we could raise in any future offering that is not considered a public offering by the NYSE Amex staff and would involve the sale, issuance or potential issuance by us of our common stock (or securities convertible into our common stock) at a price less than the greater of book or market value. The NYSE Amex will also require stockholder approval if the issuance or potential issuance of additional shares will be considered by the exchange staff to result in a change of control of us.

Obtaining stockholder approval is a costly and time-consuming process. If we are required to obtain stockholder approval, we would expect to spend substantial additional money and resources. In addition, seeking stockholder approval would delay our receipt of otherwise available capital, which may materially and adversely affect our ability to execute our current business strategy, and there is no guarantee our stockholders ultimately would approve a proposed transaction. A public offering under the NYSE Amex rules typically involves broadly announcing the proposed transaction, which often times has the effect of depressing the issuer s stock price. Accordingly, the price at which we could sell our securities in a public offering may be less and the dilution existing stockholders experience

may in turn be greater than if we were able to raise capital through other means.

Our ability to raise capital may be limited by contractual restrictions.

In the past, in connection with raising capital through the sale and issuance of our equity securities, we have agreed to certain restrictions on our ability to raise additional capital through additional equity financing transactions. For example, in connection with an equity financing we completed in July 2005, we entered into a rights agreement with certain of the purchasers of our securities, including entities affiliated with Carl C. Icahn. Pursuant to the Rights Agreement, dated July 27, 2005, as amended, or the Rights Agreement, we agreed to, among other things, grant the investors that were party to the Rights Agreement, or the Rights Investors, the right to participate in sales of our securities for up to seven years (with certain enumerated exceptions as set forth in the Rights Agreement). Pursuant to the Rights Agreement, we must notify the Rights Investors of certain proposed transactions on the timeline specified in the Rights Agreement. In many of our prior financing transactions, we have requested and received waivers from the Rights Investors with respect to their participation rights, but if we are unable to obtain such waivers in a timely manner, or at all, with respect to future financing transactions, we may be unable to consummate a financing that otherwise may be available to us and in the best interest of our company and stockholders.

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Raising additional capital may cause dilution to our existing stockholders, require us to relinquish proprietary rights or restrict our operations.

We may raise additional capital at any time and may do so through one or more financing alternatives, including public or private sales of our equity securities, debt financings, collaborations, licensing arrangements or other strategic transactions. Each of these financing alternatives carries certain risks. Raising capital through the issuance of common stock may depress the market price of our stock and may substantially dilute our existing stockholders. If we instead seek to raise capital through strategic transactions, such as licensing arrangements or sales of one or more of our technologies or product candidates, we may be required to relinquish valuable rights and dilute the current and future value of our assets. For example, any licensing arrangement would likely require us to share a significant portion of any revenues generated by our licensed technologies with our licensees. Additionally, our control over the development and/or marketing of any products or product candidates licensed or sold to third parties may be reduced and thus we may not realize the full value of any such products or product candidates. Debt financings could involve covenants that restrict our operations. These restrictive covenants may include limitations on additional borrowing and specific restrictions on the use of our assets, as well as prohibitions on our ability to create liens or make investments and may, among other things, preclude us from making distributions to stockholders (either by paying dividends or redeeming stock) and taking other actions beneficial to our stockholders. In addition, investors could impose more one-sided investment terms and conditions on companies that have or are perceived to have limited remaining funds or limited ability to raise additional funds. The lower our cash balance, the more difficult it is likely to be for us to raise additional capital on commercially reasonable terms, or at all.

Our business may suffer if we are unable to retain and attract key personnel and manage internal growth.

We are highly dependent on the expertise and deep background in our product candidates of our chief executive officer and our president and chief operating officer. If we lose one or both of these key employees, our ability to successfully implement our current business strategy could be seriously harmed. Replacing these key employees may be difficult and take an extended period of time, particularly due to the fact that we currently do not have other executive officers or personnel to assume all of the responsibilities of these key employees and the intense competition for qualified personnel among biotechnology, pharmaceutical and other businesses, particularly in the San Diego, California area. Our chief executive officer and our president and chief operating officer may terminate their employment with us at any time with or without notice.

In addition, we may seek to increase the size of our organization in connection with initiating clinical activities with respect to ANX-188 and ANX-514, should we reach agreement with the FDA regarding clinical studies for those product candidates. Currently, we have only 12 employees and we rely on third parties to perform many essential services for us. The success of our business will depend, in part, on our ability to attract and retain highly qualified personnel, and on our ability to develop and maintain important relationships with respected service providers and industry-leading consultants and advisors. Competition for these types of personnel and relationships is intense from numerous pharmaceutical and biotechnology companies, universities and other research organizations, particularly in the San Diego, California area. Recruiting and retaining employees, including senior-level personnel, with relevant product development and regulatory experience may be costly and time-consuming. Our ability to provide competitive compensation to our management and other employees may also be adversely affected by our capital resources and our highly volatile stock price. If we cannot attract and retain additional skilled personnel, we may not achieve our development and other goals.

If we are unable to raise sufficient additional capital as needed, we may be forced to reduce our current and/or planned development activities, partner our product candidates or products at inopportune times or pursue less expensive but higher-risk development paths, which we have done in the past.

Although we anticipate that our cash, cash equivalents and short-term investments as of September 30, 2011 will be sufficient to fund our operations at their current levels for at least the next 12 months, we expect to need to raise additional capital in order to execute our current business plan. If we are not able to raise sufficient additional capital, we may be required to reduce our development activities or attempt to continue them by entering into arrangements with partners or others that may not be available on favorable terms, or at all, and may require us to relinquish some or all of our rights to our product candidates or products or the financial benefits thereof. For

example, in late 2008, due to an immediate need for additional capital, we discontinued all of our development programs other than with respect to Exelbine and ANX-514 and limited our activities with respect to Exelbine and ANX-514 to those we believed necessary to preparing and submitting NDAs for Exelbine and ANX-514. Going forward, if we do not have sufficient capital, we may determine, for example, not to conduct any nonclinical testing and/or clinical studies in addition to our planned phase 3 clinical trials that may be required by the FDA to support approval of our lead product candidates or any post-approval clinical studies to support uses of our product candidates in new indications or other label changes intended to expand the scale and scope of their market potential.

Our failure to successfully acquire, develop and commercialize additional technologies, product candidates and/or products may impair our ability to grow.

During 2010 and the first half of 2011, our business strategy involved a particular focus on expanding our product pipeline through one or more in-license, asset acquisition or merger transactions. Although, currently, we are focused on developing our two lead product candidates, from time to time we evaluate pipeline expansion opportunities that we believe may increase the value of our

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company. Because we neither have, nor currently intend to establish, internal research capabilities, we are dependent upon pharmaceutical and biotechnology companies, universities and other research organizations to sell or license technologies, product candidates, products or businesses to us. The process of identifying, evaluating, negotiating and implementing the purchase or license of new assets is lengthy and complex and may disrupt other development programs and distract our personnel. We have limited experience and resources with respect to identifying, evaluating, negotiating and implementing the acquisition of new assets or rights thereto and integrating them into our current infrastructure. Supplementing our current resources to complete one or more transactions may be costly. In addition, given our recent market capitalization and our desire to preserve our cash for development activities, any merger or other business combination transaction pursuant to which we acquire additional technologies, product candidates and/or products primarily will involve the issuance of shares of our common stock, or securities convertible into our common stock, and the amount of new securities issuable in connection with any such transaction may be substantial. For example, in addition to the 2,800,851 shares we issued upon the completion of our acquisition of SynthRx, we could issue up to an aggregate of 13,478,050 additional shares of our common stock to SythRx s former stockholders upon achievement of milestones related to the development and regulatory approval of ANX-188 for the treatment of sickle cell crisis in children. If all milestones are achieved without reduction, the number of shares we issue in connection with the SynthRx acquisition would, in the aggregate, represent an approximately 41% ownership stake in our company (based on shares outstanding as of the date of this prospectus supplement plus shares issued in connection with achievement of the milestones). The issuance of shares in connection with other future strategic transactions, if any, may result in the stockholders who own the majority of our voting securities prior to one or more of such transactions owning less than a majority after such transactions.

Our success in acquiring or acquiring rights to new technologies, product candidates and/or products may also be adversely affected by competition for the same assets by other companies, including some with substantially greater development and commercialization resources and with a proven record of successfully developing and/or commercializing product candidates. In addition, we may not be able to identify, acquire or acquire the rights to additional technologies, product candidates and/or products on terms that we find acceptable, or at all.

Any technology and/or product candidate that we acquire or to which we acquire rights likely will require additional development efforts prior to commercial sale, including extensive clinical testing and approval by the FDA and applicable foreign regulatory authorities. All product candidates are subject to risks of failure typical of pharmaceutical product development, including the possibility that a product candidate will not be shown to be sufficiently safe or effective for approval by regulatory authorities and other risks described under the section titled Risks Related to Drug Development and Commercialization.

If we acquire or acquire rights to new technologies, product candidates and/or products and fail to integrate them successfully into our operations, we may incur unexpected costs and disruptions to our business.

We may evaluate new technologies, product candidates and/or products that we believe have a strategic fit with our current or future business strategy. However, any future strategic transaction, including any in-license, asset acquisition and merger transaction, may entail numerous operational and financial risks, including:

- exposure to unknown liabilities;
- disruption of our business and diversion of our management s time and attention to develop and/or commercialize acquired technologies, products candidates and/or products;
- incurrence of substantial debt or dilutive issuances of securities to pay for acquisitions;
- higher than expected acquisition and integration costs;
- increased amortization expenses;
- difficulty and cost in combining the operations and personnel of any acquired businesses with our operations and personnel;

impairment of relationships with key suppliers and/or customers of any acquired businesses due to changes in management and ownership; and

inability to retain key employees of any acquired businesses.

We may devote resources to potential acquisition or in-licensing opportunities that are never completed, or we may fail to realize the anticipated benefits of such efforts.

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The use of our net operating loss carry forwards and research and development tax credits has been and may be limited further by changes in ownership within the meaning of IRC Section 382.

Our net operating loss carry forwards and research and development tax credits may expire and not be used. As of December 31, 2010, we had generated federal and state net operating loss carry forwards of approximately $31.5 million and $34.4 million, respectively, and federal and state research and development tax credit carry forwards of approximately $145,000 and $87,000, respectively. Federal net operating loss carry forwards and research and development tax credits have a 20-year carry forward period and California net operating losses have a carry forward period that varies depending on the year such net operating losses are generated. California research and development tax credits carry forward indefinitely. Our federal net operating loss carry forwards will begin to expire in 2016 and our California net operating loss carry forwards will begin to expire in 2013 if we have not used them prior to that time. Our federal research and development tax credits will begin to expire in 2029.

Pursuant to Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, or IRC, our ability to use any net operating loss carry forwards and research and development credits to offset taxable income in the future is limited if we experience a cumulative change in ownership of more than 50% within a three-year period. During 2010, we completed an analysis to determine whether any such change in ownership had occurred during the period from January 1, 2008 through January 7, 2010, and identified several changes in ownership within the meaning of IRC Section 382. Upon application of limitations prescribed by IRC Section 382, we determined that our net operating loss carry forwards and research and development credits were significantly adversely affected by the identified changes in control, and we adjusted our deferred tax assets accordingly. We have not completed an analysis to determine whether any change in ownership within the meaning of IRC Section 382 has occurred since January 7, 2010, but we believe a change in ownership may have occurred as a result of our equity securities financings in May 2010 and January 2011. If any such change in ownership has occurred since January 7, 2010 or were to occur in the future, the amount of our net operating loss carry forwards and research and development tax credits we could utilize annually in the future to offset taxable income could be further significantly restricted or eliminated. Inability to fully utilize our net operating loss carry forwards and research and development tax credits could have an adverse impact on our financial position and results of operations.

If we fail to maintain an effective system of internal control over financial reporting and disclosure controls and procedures, we may not be able to accurately report our financial results. As a result, current and potential investors could lose confidence in our financial reporting, which could harm our business and have an adverse effect on our stock price.

Pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, we are required to annually furnish a report by our management on our internal control over financial reporting. Such report must contain, among other matters, an assessment by our principal executive officer and our principal financial officer on the effectiveness of our internal control over financial reporting, including a statement as to whether or not our internal control over financial reporting is effective as of the end of our fiscal year. This assessment must include disclosure of any material weakness in our internal control over financial reporting identified by management. Performing the system and process documentation and evaluation needed to comply with Section 404 is both costly and challenging. In addition, because our public float was more than $75 million as of June 30, 2011, we will be required, for the first time in several years, to obtain an attestation report from our independent registered public accounting firm as to our year-end assessment of the effectiveness of our internal control over financial reporting, which likely will consume significant additional financial and managerial resources.

We have in the past discovered, and may in the future discover, areas of internal controls that need improvement. For example, during the fourth quarter of 2008, we discovered that we did not correctly apply generally accepted accounting principles relating to accounting for warrant liability because our accounting staff did not have adequate training or expertise, and determined that we had a material weakness in our internal control over financial reporting as of December 31, 2007. A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected on a timely basis. For a detailed description of this material weakness and our remediation of this material weakness, see Part II Item 9A(T) Controls and Procedures of

our annual report on Form 10-K for the year ended December 31, 2008. If we identify a material weakness in our internal control over financial reporting in the future, we may not be able to conclude that our internal control over financial reporting is effective, and we may need to implement expensive and time-consuming remedial measures. As a result of reductions in our workforce and other personnel departures that occurred in 2008 and 2009, we have experienced substantial turnover in our personnel responsible for performing activities related to our internal control over financial reporting. From July 2009 to March 2011, our president and chief operating officer, who has no formal education in finance or accounting, served as our principal financial and principal accounting officer. He continues to serve as our principal financial officer. We have used third-party contractors in an effort to maintain effective internal control over financial reporting during and since that turn-over period. However, we cannot be certain that a material weakness will not be identified in the future and, if we fail to maintain effective internal control over financial reporting, we could lose investor confidence in the accuracy and completeness of our financial reports, which could have a material adverse effect on our stock price.

Internal control over financial reporting cannot provide absolute assurance of achieving financial reporting objectives because of its inherent limitations, including the possibility of human error and circumvention by collusion or overriding of controls. Accordingly, even an effective internal control system may not prevent or detect material misstatements on a timely basis. Also,

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projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions or that the degree of compliance with the policies or procedures may deteriorate.

Our operations might be interrupted by the occurrence of a natural disaster or other catastrophic event.

Our corporate headquarters are located in a single commercial facility in San Diego, California. Important documents and records, including copies of our regulatory documents and other records for our product candidates, are located at our facilities and we depend on our facilities for the continued operation of our business. Natural disasters and other catastrophic events, such as wildfires and other fires, earthquakes and extended power interruptions, which have impacted San Diego businesses in the past, and terrorist attacks or severe weather conditions, could significantly disrupt our operations and result in additional, unplanned expense. As a small company, we have limited capability to establish and maintain a comprehensive disaster recovery program and, accordingly, we do not have a formal business continuity or disaster recovery plan, and any natural disaster or catastrophic event could disrupt our business operations and result in setbacks to our development programs. Even though we believe we carry commercially reasonable insurance, we might suffer losses that exceed the coverage available under these insurance policies. In addition, we are not insured against terrorist attacks or earthquakes.

Risks Related to Drug Development and Commercialization

Further testing and/or validation of our product candidates and related manufacturing processes may be required and regulatory approval may be delayed or denied, which would limit or prevent us from marketing our product candidates and significantly impair our ability to generate revenues.

Human pharmaceutical products generally are subject to rigorous nonclinical testing and clinical trials and other approval procedures mandated by the FDA and foreign regulatory authorities. Various federal and foreign statutes and regulations also govern or influence the manufacturing, safety, labeling, storage, record keeping and marketing of pharmaceutical products. The process of obtaining these approvals and the subsequent compliance with appropriate U.S. and foreign statutes and regulations is time-consuming and requires the expenditure of substantial resources. In addition, these requirements and processes vary widely from country to country.

To varying degrees based on the regulatory plan for each of our product candidates, the effect of government regulation and the need for FDA and other regulatory agency approval will delay commercialization of our product candidates, impose costly procedures upon our activities, and put us at a disadvantage relative to larger companies with which we compete. There can be no assurance that FDA or other regulatory approval for any product candidates developed by us, alone or with a future partner, will be granted on a timely basis, or at all. For example, in August 2011, we received a complete response letter from the FDA stating that it could not approve the Exelbine NDA in its present form. In particular, the letter stated that, based on inspections at clinical sites, the authenticity of the drug products used in the pivotal bioequivalence trial could not be verified and that the bioequivalence trial would need to be repeated to address this deficiency. As a result, we discontinued making significant additional capital investments into the Exelbine program and are seeking a partner or outside investor for the program.

In connection with any NDA that we file under Section 505(b)(2) of the U.S. Federal Food, Drug and Cosmetic Act, or FDCA, including an NDA for ANX-514, we may be required to notify third parties that we have certified to the FDA that any patents listed for the reference product in the FDA s Orange Book publication are invalid or will not be infringed by the manufacture, use or sale of our product. If the third party files a patent infringement lawsuit against us within 45 days of its receipt of notice of our certification, the FDA is automatically prevented from approving our NDA until, subject to certain adjustments, the earliest of 30 months, expiration of the patent, settlement of the lawsuit or a decision in the infringement case that is favorable to us. Accordingly, we may invest significant time and expense in the development of our product candidates, including ANX-514, only to be subject to significant delay and patent litigation before our products may be commercialized.

We may not achieve our projected development, commercialization and other goals in the time frames we announce. Delays in the commencement or completion of nonclinical testing, clinical trials or manufacturing, regulatory or other activities could result in increased costs to us and delay or limit our ability to generate revenues.

We set goals for and make public statements regarding our estimates of the timing of the accomplishment of objectives material to successful development, approval and future commercialization of our product candidates. The actual timing of these events can vary dramatically due to any number of factors, including delays or failures in our nonclinical testing, clinical trials and manufacturing, regulatory and commercial launch activities and the uncertainties inherent in the regulatory approval process. For example, while our regulatory strategy for ANX-514 previously had been to demonstrate its bioequivalence to Taxotere in a small, bioequivalence trial in humans, in February 2011, we announced that the FDA determined ANX-514 could not be approved based on the findings from Study 514-01. Although we have met with the FDA and reached agreement that our proposed 400-patient, non-inferiority study of ANX-514 would generate sufficient additional clinical data to support approval of ANX-514 without requiring corticosteroid premedication, the requirement for this additional clinical study has increased significantly the development time and cost associated with seeking regulatory approval of ANX-514 relative to our previously planned regulatory approval pathway for ANX-514. In addition, if the FDA determines that the authenticity of the study drugs used in Study 514-01 cannot be verified,

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including because of the manner in which reserve samples were selected and maintained, we may be required to repeat the bioequivalence study prior to regulatory approval of ANX-514, and the results of a repeat study may cause the FDA to require clinical studies in addition to the planned non-inferiority study. Further, even though the FDA has confirmed the appropriateness of a Section 505(b)(2) regulatory path for ANX-514, the FDA s views may change and the FDA may not allow us to rely on data regarding the safety and efficacy of Taxotere in its evaluation of an NDA for ANX-514 or the FDA may allow us to rely only on certain subsets of the efficacy data related to Taxotere, in which case we likely would need to conduct substantial, additional clinical and nonclinical work prior to regulatory approval. Furthermore, we may determine to conduct clinical studies with respect to ANX-514 to support uses in new indications or other label changes or for other reasons. With respect to ANX-188, we plan to meet with the FDA to reach agreement on a phase 3 clinical trial protocol for the treatment of pediatric patients with sickle cell disease in acute crisis. Although we believe that a properly designed and executed phase 3 clinical trial will demonstrate that ANX-188 is a safe and effective treatment for patients with sickle cell disease in acute crisis, the FDA may require additional nonclinical testing and/or clinical studies for regulatory approval. In the event our regulatory plan for any of our product candidates becomes more extensive and costly than anticipated, we may determine that the associated time and cost are not financially justifiable and, as a result, discontinue the program. If we discontinue either of our current lead product candidate programs, our business and stock price may suffer.

We conduct nonclinical activities in the course of our development programs, including in connection with the manufacture of our product candidates, and in response to requests by regulatory authorities, as well as for other reasons. Delays in our nonclinical activities could occur for a number of reasons, including:

- delays in reaching agreement on acceptable terms with prospective contract research organizations, or CROs, and contract manufacturing organizations, or CMOs, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and CMOs;
- failures on the part of our CROs and CMOs in developing procedures and protocols or otherwise conducting activities on timeframes requested by us;
- delays in identifying and hiring or engaging, as applicable, additional employees or consultants to assist us in managing CRO and/or CMO activities;
- changes in regulatory requirements or other standards or guidance relating to nonclinical testing, including testing of pharmaceutical products in animals;
- a lack of availability of capacity at our CMOs, or of the component materials, including the active pharmaceutical ingredient, or API, or related materials, including vials and stoppers, necessary to manufacture our product candidates or products; and
- unforeseen results of nonclinical testing that require us to amend study or test designs or delay future testing or clinical trials and related regulatory filings.

In addition, planned clinical trials may not commence on time or be completed on schedule, if at all. The commencement and completion of trials can be delayed for a variety of reasons, including delays related to:

- obtaining regulatory approval to commence a trial;
- identifying appropriate trial sites and reaching agreement on acceptable terms with prospective CROs, trial sites and investigators, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs, trial sites and investigators;
- identifying and hiring or engaging, as applicable, additional employees or consultants to assist us in managing a trial and analyzing the data resulting from a trial;

manufacturing sufficient quantities of a product candidate;

obtaining institutional review board, or IRB, approval to conduct a trial at a prospective site;

recruiting and enrolling patients to participate in trials for a variety of reasons, including competition from other clinical trials for the same indication as our product candidates and the perception that the design of a trial or the proposed treatment regimen is less beneficial to patients than available alternatives; and

retaining patients who have initiated a trial but may be prone to withdraw due to side effects from the therapy, lack of efficacy, improvement in condition before treatment has been completed or personal issues, or who are lost to further follow-up.

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Even if we complete a planned clinical trial with successful results, we may not achieve our projected development, approval, commercialization or other goals in the time frames we initially anticipate or announce. For example, in August 2011, we received a complete response letter from the FDA stating that the pivotal bioequivalence study of Exelbine would need to be repeated because the authenticity of the drug products used in the trial could not be verified. Thereafter, we discontinued making significant additional capital investments into the Exelbine program and are seeking a partner or outside investor for the program.

In addition to the potential for delays in commencing and completing a clinical trial described above, a trial may be suspended or terminated by us, an IRB, the FDA or other regulatory authorities due to a number of factors, including:

- failure to conduct the trial in accordance with regulatory requirements or the trial s protocol;
- inspection of trial operations or trial sites by the FDA or other regulatory authorities resulting in the imposition of a clinical hold;
- unforeseen safety issues; or
- lack of adequate funding to continue the trial.

Additionally, changes in regulatory requirements and guidance relating to clinical trials may occur and we may need to amend trial protocols to reflect these changes. Amendments may require us to resubmit protocols to IRBs for reexamination or renegotiate terms with CROs, trial sites and trial investigators, all of which may impact the costs, timing or successful completion of a trial. Changes may also occur in regulatory requirements or policy during the period of product development and/or regulatory review of a submitted NDA relating to the data required to be included in marketing applications. For example, despite including in our initial Exelbine NDA submission in December 2009 data that we believe met the filing requirements for a new drug promulgated by the International Conference on Harmonization, or ICH, as well as site-specific stability data from lots manufactured at the intended commercial manufacturing site, we received a refusal-to-file letter from the FDA indicating that the data included in that submission was insufficient to support a commercially-viable expiration dating period. Consequently, we had to wait for 12 months of site-specific stability data from the intended commercial manufacturing site to be generated before resubmitting an NDA for Exelbine, which we did in November 2010. A change in regulatory policy, which may not have been formalized or publicly disseminated, may have been a factor underlying the FDA s refusal to file our December 2009 submission.

There can be no assurance that our nonclinical testing and clinical trials will commence or be completed, that we will make regulatory submissions or receive regulatory approvals as planned or that we will be able to adhere to anticipated schedules for the development or approval of any of our product candidates. The length of time necessary to complete clinical trials and manufacturing development work and to submit an application for marketing approval for a final decision by a regulatory authority varies significantly and is difficult to predict accurately. If we experience delays in the completion of, or if we terminate, our clinical trials or nonclinical testing or if we are otherwise unable to adhere to our current schedule for the development of our product candidates, the commercial prospects for our product candidates may be harmed and our ability to generate product revenues will be delayed. In addition, many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials or nonclinical testing may also ultimately lead to the denial of regulatory approval of a product candidate. Even if we are able to ultimately commercialize our product candidates, other therapies for the same indications may have been introduced to the market in the interim and established a competitive advantage.

Positive results in nonclinical testing and clinical trials do not ensure that future clinical trials will be successful or that our product candidates will receive the regulatory approvals necessary for their commercialization.

Before obtaining regulatory approvals for the commercial sale of any of our product candidates, we must demonstrate through nonclinical testing and clinical trials that each product is safe and effective for use in each target indication. Success in nonclinical testing and clinical trials, including bioequivalence trials, does not ensure that subsequent or large-scale trials will be successful. Additionally, throughout development, we must provide adequate assurance to the FDA and other regulatory authorities that we can consistently produce our product candidates in

conformance with current good manufacturing practices, or cGMP, and other regulatory standards. Clinical trial results are frequently susceptible to varying interpretations and regulatory authorities may disagree on what are appropriate methods for analyzing data, which may delay, limit or prevent regulatory approvals. For instance, despite positive nonclinical testing that indicated bioequivalence between ANX-514 and the reference product, Taxotere, Study 514-01 did not demonstrate pharmacokinetic equivalence between ANX-514 and Taxotere, the primary endpoint of Study 514-01, based on the FDA s benchmark regulatory standards. In February 2011, we announced that the FDA determined ANX-514 could not be approved based on the findings from Study 514-01. In October 2011, we met with the FDA and reached agreement that our proposed Study 514-02 would generate sufficient additional clinical data to support approval of ANX-514 without requiring corticosteroid premedication. However, the FDA s requirements for development activities beyond Study 514-01 will significantly increase the time and cost associated with regulatory approval of ANX-514 relative to our previously planned regulatory approval pathway for ANX-514. In addition, the FDA may inquire regarding the manufacturing source, in-process and product release specifications and overall uniformity of reference product used in Study 514-01, particularly since it was conducted at sites in multiple countries, and we may be unable to provide documentation satisfactory to the FDA with respect to such reference product, which may result in the FDA

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requiring that we evaluate additional patients, re-perform the bioequivalence study, conduct clinical studies or take other remedial measures. Further, the form of API used in the manufacture of ANX-514 for purposes of Study 514-01 will not be the same form of API used in the manufacture of ANX-514 for purposes of the planned non-inferiority study of ANX-514 or for process validation batches or commercial supply. To ensure the comparability of the ANX-514 used in Study 514-01 and the ANX-514 intended for use in the planned non-inferiority study and commercial sale, the FDA may require that we evaluate each form of ANX-514 in additional patients, conduct other clinical studies or take other remedial actions. We may have insufficient quantities of each form of ANX-514 and could incur substantial cost and delay in acquiring such quantities, in addition to the time and expense associated with conducting the evaluation, conducting other clinical studies or taking other remedial measures. Furthermore, we have licensed to a third party certain rights to ANX-514 in South Korea and have limited control over any nonclinical testing or clinical studies such third party, or a future third-party licensee, may conduct. If data from investigations of ANX-514 sponsored by a third-party licensee identify a safety or efficacy concern with respect to ANX-514, or the lack of comparable pharmacokinetics between ANX-514 and Taxotere, such data could have an adverse effect on the U.S. regulatory process.

There is a significant risk that any of our product candidates could fail to show anticipated results in human trials, as was the case in our bioequivalence study of ANX-514, or manufacturing development, and, as a result, we may not continue their development. A failure to obtain requisite regulatory approvals or to obtain approvals of the scope requested will delay or preclude us from marketing our products or limit the commercial use of the products, and would have a material adverse effect on our business, financial condition and results of operations.

We currently have no sales or marketing capability and our failure to acquire or develop these and related capabilities internally or contract with third parties to perform these activities successfully could delay and/or limit our ability to generate revenues in the event one or more of our product candidates obtains regulatory approval.

We currently do not have sales, marketing or other commercialization personnel. To commercialize our products, we will have to acquire or develop marketing, distribution and sales capabilities and associated regulatory compliance capabilities, or rely on marketing partners or other arrangements with third parties for the marketing, distribution and sale of our products. There is no guarantee that we will be able to establish marketing, distribution or sales capabilities or make arrangements with third parties to perform those activities on terms satisfactory to us, or at all, or that any internal capabilities or third-party arrangements will be cost-effective. The acquisition or development of commercialization and associated regulatory compliance capabilities likely will require substantial financial and other resources and divert the attention of our management and key personnel, and, if not completed on time, could delay the launch of a product candidate and otherwise negatively impact our product development and commercialization efforts.

To the extent we establish marketing, distribution or sales arrangements with any third parties, those third parties may hold significant control over important aspects of the commercialization of our products, including market identification, marketing methods, pricing, composition of sales force and promotional activities. Even if we are successful in establishing and maintaining these arrangements, there can be no assurance that we will be able to control the amount and timing of resources that any third party may devote to our products or prevent any third party from pursuing alternative technologies or products that could result in the development of products that compete with, or the withdrawal of support for, our products. If we retain third-party service providers to perform functions related to the marketing, distribution and sale of our products, key aspects of those functions that may be out of our direct control could include warehousing and inventory management, distribution, contract administration and chargeback processing, accounts receivable management and call center management. In this event, we would place substantial reliance on third-party providers to perform services for us, including entrusting our inventories of products to their care and handling. If these third-party service providers fail to comply with applicable laws and regulations, fail to meet expected deadlines, or otherwise do not carry out their contractual duties to us, or encounter natural or other disasters at their facilities, our ability to deliver product to meet commercial demand could be significantly impaired. In addition, we may use third parties to perform various other services for us relating to sample accountability and regulatory monitoring, including adverse event reporting, safety database management and other product maintenance services. If the quality or accuracy of the data maintained by these service providers is insufficient, our ability to

continue to market our products could be jeopardized or we could be subject to regulatory sanctions.

If any of our product candidates for which we receive regulatory approval do not achieve broad market acceptance (including as a result of our inability to differentiate our products from competitor products or promote any such differences or as a result of failing to obtain reimbursement rates for our products that make our products competitive from the healthcare provider s perspective), the revenues we generate from their sales will be limited and our business may not be profitable.

Our success will depend in substantial part on the extent to which our products for which we obtain marketing approval from the FDA and comparable foreign regulatory authorities are accepted by the medical community and reimbursed by third-party payors, including government payors. The degree of market acceptance with respect to each of our products, if approved, will depend upon a number of factors, including, among other things:

our product s perceived advantages over existing treatment methods (including the incidence and severity of any adverse side effects);

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the establishment and demonstration in the medical community of the safety and efficacy of our product and our ability to provide acceptable evidence of safety and efficacy;

claims or other information (including limitations or warnings) in our product s approved labeling;

the resources we devote to marketing our product and restrictions on promotional claims we can make with respect to the product;

reimbursement and coverage policies of government and other third-party payors;

pricing and cost-effectiveness;

availability of alternative treatments; and

the prevalence of off-label substitution of chemically equivalent products or alternative treatments.

We cannot predict whether physicians, patients, healthcare insurers or maintenance organizations, or the medical community in general, will accept or utilize any of our products. If our products are approved but do not achieve an adequate level of acceptance by these parties, we may not generate sufficient revenues from these products to become or remain profitable. In addition, our efforts to educate the medical community and third-party payors regarding the benefits, if any, of our products may require significant resources and may never be successful.

If we, or a future partner or licensee, fail to obtain a unique Healthcare Common Procedure Coding System, or HCPCS, product code for any of our approved products, we, or our partner or licensee, may be unable to sell those products at a price that exceeds their respective manufacturing, marketing and distribution costs. Even if we, or our partner or licensee, obtain unique HCPCS product codes for one or more of our approved products, if they are perceived to provide little or no advantage relative to competing products or for other reasons, we, or our partner or licensee, as applicable, may be required to price those products at levels that do not cover the costs to manufacture, market and distribute the products or provide any profit, or to price those products at levels at which they are not competitive. For instance, even if Study 514-02 demonstrates that ANX-514 can be administered safely without corticosteroid premedication, and the FDA approves ANX-514 without requiring a high-dose corticosteroid premedication regimen, the medical community and/or third-party payors may not perceive the avoidance of high-dose corticosteroid premedication as a meaningful benefit to patients, which likely would negatively impact adoption of, and the price that we could charge for, ANX-514.

There can be no assurance that, in the future, we will continue to develop or seek regulatory approval for our current lead product candidates as quickly as possible, or at all. Additionally, in the future, we may reduce our expenditures on the development and/or the process of seeking regulatory approval of these product candidates while we evaluate whether and on what timeline to move the programs forward. For example, in September 2011, following receipt of a complete response letter from the FDA regarding our Exelbine NDA, we discontinued making significant additional capital investments into the Exelbine program and are seeking a partner or outside investor for the program. In the future, we may devote our resources to identifying, acquiring and developing new product candidates. In such event, we will have significant flexibility in determining which new product candidates to pursue. Stockholders will be required to rely on the judgment of our management and our board of directors in this regard and may have limited or no opportunity to evaluate potential new product candidates, including the terms of their acquisition, the costs of their future development and their commercial potential.

We do not have manufacturing capabilities and are dependent on third parties to conduct manufacturing process development activities and to provide us with materials for clinical trials and, if any of our products are approved, commercial product, and the loss of any of these manufacturers, or their failure to provide to us with an adequate supply of our product candidates in a timely manner and on commercially acceptable terms, or at all, could harm our business.

We do not have any manufacturing capability and, currently, do not have any long-term development or supply agreements, whether for clinical or commercial purposes, with any third-party manufacturer or component supplier and we may not be able to establish these relationships in a timely manner or on commercially acceptable terms, or at all. If we fail to establish and maintain such relationships, we may not be able to complete development of our product candidates or market our products, if approved, on a timely basis, or at all, which would have a material and adverse effect on our business. Even if we successfully establish these relationships with third-party manufacturers and component suppliers on commercially acceptable terms, our manufacturers and suppliers may not perform as agreed or may terminate their agreements with us. Because many of our suppliers provide manufacturing services to a number of other pharmaceutical companies, our suppliers may experience capacity constraints or choose to prioritize one or more of their other customers over us. Any significant problem that our manufacturers or suppliers experience could delay or interrupt the supply to us of clinical trial materials or commercial products until the manufacturer or supplier cures the problem or until we locate, negotiate for and validate an alternative source of supply, if an alternative source is available. Currently, we do not anticipate engaging alternative sources to backup our primary sources of clinical trial materials or commercial products. Therefore, if our primary sources become unable or unwilling to perform, we could experience protracted delays or interruptions in the supply of our product candidates for our clinical trials and, ultimately, for commercial sale, which could materially and adversely affect our

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development programs and commercial activities and operations.

In addition to supplying product candidates for our planned clinical trials, we rely on third-parties to conduct key manufacturing development activities, including qualification of equipment, developing and validating methods, defining critical process parameters, releasing component materials and conducting stability testing, among other things. If these third parties are unable to perform successfully in a timely manner, whether for technical, financial or other reasons, we may be unable to secure material for our clinical trials, which likely would delay the initiation, conduct or completion of our clinical trials, which likely would have a material and adverse effect on our business.

Further, there may be a limited number of third-party manufacturers with the technical capabilities and desire to perform the development and supply services that we require. For instance, ANX-188 is a purified form of commercial-grade poloxamer 188 that is produced through a proprietary supercritical fluid extraction, or SCFE, process. SCFE is complex and requires highly specialized equipment and there are a limited number of CMOs capable and willing to perform SCFE as we require, which will make identifying and establishing relationships with CMOs more difficult and may provide them with substantial leverage over us in any negotiations. In addition, although commercial-grade poloxamer 188 is widely available, it generally is manufactured to cGMP requirements applicable to excipients, rather than cGMP requirements applicable to API. If the FDA or other regulatory agencies require the ANX-188 active ingredient starting material to be manufactured consistent with cGMP requirements applicable to API, we likely would engage a CMO to manufacture the ANX-188 active ingredient starting material, which would add significant additional cost to the development and commercialization of ANX-188 and likely would adversely affect our ability to develop ANX-188 on a timely and competitive basis, if we are able to find a CMO capable and willing to conduct such activities at all.

All manufacturers of our clinical and commercial products and product candidates, as well as the manufacturers of the active ingredients included in our products and product candidates, must comply with cGMP requirements enforced by the FDA through its facilities inspection program, as well as applicable requirements of foreign regulatory authorities. These requirements include quality control, quality assurance and the maintenance of records and documentation. Manufacturers of our products and product candidates may be unable to comply with these cGMP requirements and with other FDA, state and foreign regulatory requirements. While we or our representatives generally monitor and audit our manufacturers systems, we have little control over our manufacturers ongoing compliance with these regulations and standards. A failure to comply with these requirements may result in fines and civil penalties, suspension of production, suspension or delay in product approval, product seizure or recall, or withdrawal of product approval.

Furthermore, the manufacture of pharmaceutical products requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. Manufacturers of pharmaceutical products often encounter difficulties in production, particularly in scaling-up initial production. These problems include difficulties with production costs and yields, quality control, including stability of the product candidate and quality assurance testing, and shortages of qualified personnel.

If our manufacturers encounter any of these difficulties or otherwise fail to comply with their contractual obligations, our ability to provide sufficient quantities of our product candidates for our planned and any future clinical trials or to meet commercial demand may be jeopardized. In addition, any delay or interruption in the supply of supplies necessary or useful to manufacture our product candidates could delay the completion of our planned and any future clinical trials, increase the costs associated with maintaining our development programs and, depending upon the period of delay, require us to commence new trials at significant additional expense or terminate the trials completely. We cannot ensure that manufacturing or quality control problems will not arise in connection with the manufacture of our products or product candidates, or that third-party manufacturers will be able to maintain the necessary governmental licenses and approvals to continue manufacturing such products or product candidates. Any of the above factors could cause us to delay or suspend anticipated or on-going trials, regulatory submissions, required approvals or commercialization of our product candidates, entail higher costs or result in our being unable to effectively commercialize our products. Our dependence upon third parties for the manufacture of our products and product candidates may adversely affect our future costs and our ability to develop and commercialize our products and product candidates on a timely and competitive basis.

If any of our product candidates should be approved, any problems or delays experienced in their manufacturing processes may impair our ability to provide commercial quantities of the products, which would limit our ability to sell the products and adversely affect our business. It could take significant time to redesign our manufacturing processes or identify alternative suppliers in response to problems we may encounter as we manufacture our products, if such alternative processes and suppliers are available at all. Even if we are able to identify alternative suppliers, they may be unwilling to manufacture our products on commercially reasonable terms. None of our product candidates have been manufactured at the scales we believe will be necessary to maximize their commercial value and, accordingly, we or a future partner of ours may encounter difficulties in production while scaling-up initial production and may not succeed in scaling-up initial production.

Any new supplier of products or component materials, including API, would be required to qualify under applicable regulatory requirements and would need to have sufficient rights under applicable intellectual property laws to the method of manufacturing such products or ingredients. The FDA may require us to conduct additional clinical trials, collect stability data and provide additional information concerning any new supplier, or change in a validated manufacturing process, before we could distribute products from that supplier or revised process. For example, if FDA requires substantial stability or other data from the new manufacturer, which data will take time and is costly to generate, it could cause interruptions in our ability to meet commercial

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demand, if any. In addition, obtaining the necessary FDA approvals or other qualifications under applicable regulatory requirements and ensuring non-infringement of third-party intellectual property rights could result in a significant interruption of supply and require the new supplier to bear significant additional costs, which may be passed on to us.

We rely significantly on third parties to conduct our nonclinical testing and clinical studies and other aspects of our development programs and if those third parties do not satisfactorily perform their contractual obligations or meet anticipated deadlines, the development of our product candidates could be adversely affected.

We do not employ personnel or possess the facilities necessary to conduct many of the activities associated with our programs. We engage consultants, advisors, CROs, CMOs, clinical investigators and others to design, conduct, analyze and interpret the results of nonclinical tests and clinical studies in connection with the research and development of our product candidates, and we expect to continue to outsource to a significant degree such activities. As a result, many important aspects of our product candidates development are and will continue to be outside our direct control. For instance, we lacked the internal capabilities to fully analyze the data from our bioequivalence study of ANX-514 and relied on multiple third-party consultants to help us interpret and understand the data. Because of the impact different analyses of the data may have on our business, an employee may have approached the data and analysis in a substantially more rigorous, thoughtful and creative manner than a consultant or contractor. There can be no assurance that such third parties will perform all of their obligations under arrangements with us or will perform those obligations satisfactorily.

The CROs with which we contract for execution of our clinical studies play a significant role in the conduct of the studies and subsequent collection and analysis of data, and we likely will depend on these and other CROs and clinical investigators to conduct any future clinical studies or assist with our analysis of completed studies and to develop corresponding regulatory strategies. Individuals working at the CROs with which we contract, as well as investigators at the sites at which our studies are conducted, are not our employees, and we cannot control the amount or timing of resources that they devote to our programs. If these CROs and/or investigators fail to devote sufficient time and resources to our studies, if they do not comply with all regulatory and contractual requirements or if their performance is substandard, it will delay the approval of our applications to regulatory agencies and the introduction of our products. Moreover, these CROs may have relationships with other commercial entities, some of which may compete with us. If they assist our competitors at our expense, it could harm our competitive position. Failure of these CROs to meet their obligations could adversely affect development of our product candidates. For example, in 2006, we engaged a CRO to assist with the primary conduct of our bioequivalence study of Exelbine, including monitoring participating clinical sites to ensure compliance with regulatory requirements. FDA guidance recommends that clinical sites randomly select and retain reserve samples of study drugs used in bioequivalence studies. However, the clinical sites that participated in our bioequivalence study of Exelbine failed to do so. In August 2011, we received a complete response letter from the FDA stating that the authenticity of the study drugs used in Study 530-01 could not be verified and, consequently, the bioequivalence study would need to be repeated to address that deficiency.

Even if we receive regulatory approval for one or more of our emulsion-formulation product candidates, we may face competition from generic products and other reformulations, which could exert downward pressure on the pricing and market share of our products and limit our ability to generate revenues.

The currently marketed reference products against which our emulsion-formulation product candidates would compete are available as generics. For instance, ANX-514 would compete against Taxotere, for which generic equivalents may soon be and reformulations currently are available in the U.S. Even if we obtain a unique HCPCS product code for our products, the existence of generic products could make it more difficult for our branded products to gain or maintain market share and could cause prices for our products to drop, potentially below our cost of goods, which could adversely affect our business.

Even if we receive regulatory approval for one or more of our product candidates, we may face competition for our products from lower priced products from foreign countries that have placed price controls on pharmaceutical products.

Proposed federal legislative changes may expand consumers ability to import lower priced versions of our and competing products from Canada. Further, several states and local governments have implemented importation schemes for their citizens, and, in the absence of federal action to curtail such activities, it is possible other states and

local governments to launch importation efforts. The importation of foreign products that compete with our own products could negatively impact our business and prospects.

Even if we receive regulatory approval for one or more of our product candidates, they may still face future development and regulatory difficulties that could materially and adversely affect our business, financial condition and results of operations and cause our stock price to decline.

Even if initial regulatory approval is obtained, the FDA or a foreign regulatory agency may still impose significant restrictions on a product s indicated uses or marketing or impose ongoing requirements for potentially costly post-approval studies or marketing surveillance programs. Our product candidates will also be subject to ongoing FDA requirements related to the labeling, packaging, storage, distribution, advertising, promotion, record-keeping and submission of safety and other post-market information regarding the product. For instance, the FDA may require changes to approved drug labels, require post-approval clinical trials and impose distribution and use restrictions on certain drug products. In addition, approved products, manufacturers and manufacturers facilities are subject to continuing regulatory review and periodic inspections. If previously unknown problems with a product are

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discovered, such as adverse events of unanticipated severity or frequency, or problems with the facility where the product is manufactured, the FDA may impose restrictions on that product or us, including requiring withdrawal of the product from the market. If we or a CMO of ours fail to comply with applicable regulatory requirements, a regulatory agency may:

- issue warning letters or untitled letters;
- impose civil or criminal penalties;
- suspend or withdraw regulatory approval;
- suspend or terminate any ongoing clinical trials;
- refuse to approve pending applications or supplements to approved applications;
- exclude our product from reimbursement under government healthcare programs, including Medicaid or Medicare;
- impose restrictions or affirmative obligations on our or our CMO s operations, including costly new manufacturing requirements;
- close the facilities of a CMO; or
- seize or detain products or require a product recall.

Even if we receive regulatory approval to market one or more of our product candidates in the U.S., we may never receive approval or commercialize our products outside of the U.S., which would limit our ability to realize the full commercial potential of our product candidates.

In order to market any products outside of the U.S., we must establish and comply with numerous and varying regulatory requirements of other countries regarding safety and efficacy. Approval procedures vary among countries and can involve additional product testing and validation and additional administrative review periods. The time required to obtain approval in other countries might differ from that required to obtain FDA approval. In particular, other countries may not have a comparable regulatory procedure as is available under Section 505(b)(2) of FDCA. Even if a country did have a comparable procedure, that country may require a more robust data package than the FDA. The regulatory approval process in other countries may include all of the risks detailed above regarding FDA approval in the U.S., as well as other risks. Regulatory approval in one country does not ensure regulatory approval in another, but a failure or delay in obtaining regulatory approval in one country may have a negative effect on the regulatory process in others. Failure to obtain regulatory approval in other countries or any delay or setback in obtaining such approval could have the same adverse effects detailed above regarding FDA approval in the U.S. As described above, such effects include the risks that our product candidates may not be approved for all indications requested, which could limit the uses of our product candidates and have an adverse effect on product sales, and that such approval may be subject to limitations on the indicated uses for which the product may be marketed or require costly, post-marketing follow-up studies.

Our product candidates may cause undesirable side effects or have other properties that could delay or prevent their regulatory approval or commercialization.

Undesirable side effects caused by our product candidates could interrupt, delay or halt clinical trials and could result in the denial of regulatory approval by the FDA or other regulatory authorities for any or all indications, and in turn prevent us from commercializing our product candidates and generating revenues from their sale. For example, in a phase 3 study of ANX-188 conducted by a prior sponsor, a modest but statistically significant increase in levels of alanine aminotrasferase and direct bilirubin was observed. If in our planned phase 3 clinical trial of ANX-188 we observe more pronounced increases in these or other levels, or we observe other previously unidentified adverse

events, whether or not statistically significant, we may be required to conduct additional clinical trials of ANX-188 or ANX-188 may not receive regulatory approval. In addition, if in our planned phase 3 clinical trial of ANX-514 we observe adverse events, including as a result of eliminating corticosteroid premedication, we may be required to conduct additional clinical trials of ANX-514 or ANX-514 may not receive regulatory approval.

If any of our product candidates receive marketing approval and we or others later identify undesirable side effects caused by the product or the reference product:

- regulatory authorities may require the addition of labeling statements, such as a black box warning or a contraindication;
- regulatory authorities may withdraw their approval of the product;

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we may be required to change the way the product is administered, conduct additional clinical trials or change the labeling of the product; and

our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of the affected product or could substantially increase the costs and expenses of commercializing the product, which in turn could delay or prevent us from generating significant revenues from its sale.

Risks Related to Our Intellectual Property

Our success will depend on patents and other protection we obtain on our product candidates and proprietary technology.

Our success will depend in part on our ability to:

obtain and maintain patent and other exclusivity with respect to our products;

prevent third parties from infringing upon our proprietary rights;

maintain trade secrets;

operate without infringing upon the patents and proprietary rights of others; and

obtain appropriate licenses to patents or proprietary rights held by third parties if infringement would otherwise occur, both in the U.S. and in foreign countries.

The patent and intellectual property positions of specialty pharmaceutical companies, including ours, are uncertain and involve complex legal and factual questions. There is no guarantee that we have or will develop or obtain the rights to products or processes that are patentable, that patents will issue from any pending applications or that claims allowed will be sufficient to protect the technology we develop or have developed or that is used by us, our CMOs or our other service providers. In addition, we cannot be certain that patents issued to us will not be challenged, invalidated, infringed or circumvented, including by our competitors, or that the rights granted thereunder will provide competitive advantages to us.

Furthermore, patent applications in the U.S. are confidential for a period of time until they are published, and publication of discoveries in scientific or patent literature typically lags actual discoveries by several months. As a result, we cannot be certain that the inventors listed in any patent or patent application owned by us were the first to conceive of the inventions covered by such patents and patent applications or that such inventors were the first to file patent applications for such inventions.

We also may rely on unpatented trade secrets and know-how and continuing technological innovation to develop and maintain our competitive position, which we seek to protect, in part, by confidentiality agreements with employees, consultants, collaborators and others. We also have invention or patent assignment agreements with our employees and certain consultants. There can be no assurance, however, that binding agreements will not be breached, that we will have adequate remedies for any breach, or that trade secrets will not otherwise become known or be independently discovered by competitors. In addition, there can be no assurance that inventions relevant to us will not be developed by a person not bound by an invention assignment agreement with us.

With respect to ANX-188 for the treatment of sickle cell crisis, we acquired exclusive rights to a variety of issued patents that cover, among other things, poloxamer 188, purified poloxamer 188, methods of treating sickle cell anemia using poloxamer 188 and methods of preparing purified poloxamer 188. However, we expect many of the patents covering ANX-188 for the treatment of sickle cell crisis will expire prior to regulatory approval of ANX-188 for that indication. For exclusivity, we expect to rely primarily on the orphan drug designation that the FDA has granted for poloxamer 188 for the treatment of sickle cell crisis. However, the orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review or approval process. ANX-188 would not receive the seven-year orphan drug marketing exclusivity if it is not the first to obtain FDA marketing approval. In addition, orphan drug exclusive marketing rights may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the drug.

Furthermore, if the FDA later determines another drug or biologic for the treatment of sickle cell crisis to be clinically superior to or different from ANX-188, the FDA may approve such other product candidate for marketing during ANX-188 s seven year exclusive marketing period.

Patent protection for our emulsion-formulation product candidates may be difficult to obtain and any issued claims may be limited because of the nature of patent protection available for these candidates.

Our formulations consist of common excipients that emulsify the underlying chemical entity. We believe the specific combinations of excipients in our formulations are not obvious and that many of the properties that the resulting formulations exhibit are surprising. However, there is substantial prior art involving the emulsification of drugs and a patent examiner may combine numerous disparate references in order to reject our formulations for obviousness. A patent examiner could also determine that, even

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without combining references, the prior art taught the specific combination of excipients in our formulations or that, for other reasons, such combination was obvious. If our formulations are deemed obvious, the invention would not be patentable.

In addition, while the patent applications and issued patents covering our emulsion-formulation product candidates, including Exelbine and ANX-514, include product claims, they cover only specific formulations of the API, and not the API itself. Such product claims are not as strong as claims covering APIs, which are widely viewed as the strongest form of intellectual property protection for pharmaceutical products, as they apply without regard to how the API is formulated or the method in which the API is used. A competitor may modify our formulations and obtain regulatory approval for products with largely the same formulation as our products. Such competitive products may not infringe any patents we may hold in the future covering our specific formulation of the API.

If we are sued for infringing the proprietary rights of third parties, it will be costly and time consuming, and an unfavorable outcome would have an adverse effect on our business.

Our commercial success depends on our ability and the ability of our CMOs and component suppliers to develop, manufacture, market and sell our products and product candidates and use our proprietary technologies without infringing the proprietary rights of third parties. Numerous U.S. and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which we are or may be developing products. As the biotechnology and pharmaceutical industry expands and more patents are issued, the risk increases that we will be subject to claims that our products or product candidates, or their use, infringe the rights of others. Because patent applications can take many years to publish and issue, there currently may be pending applications, unknown to us, that may later result in issued patents that our products, product candidates or technologies infringe, or that the process of manufacturing our products or any of their respective component materials, or the component materials themselves, infringe, or that the use of our products, product candidates or technologies infringe.

We or our CMOs or component material suppliers may be exposed to, or threatened with, future litigation by third parties having patent or other intellectual property rights alleging that our products, product candidates and/or technologies infringe their intellectual property rights or that the process of manufacturing our products or any of their respective component materials, or the component materials themselves, or the use of our products, product candidates or technologies, infringe their intellectual property rights. If one of these patents was found to cover our products, product candidates, technologies or their uses, or any of the underlying manufacturing processes or components, we could be required to pay damages and could be unable to commercialize our products or use our technologies or methods unless we are able to obtain a license to the patent or intellectual property right. A license may not be available to us in a timely manner or on acceptable terms, if at all. In addition, during litigation, a patent holder could obtain a preliminary injunction or other equitable remedy that could prohibit us from making, using or selling our products, technologies or methods.

There is a substantial amount of litigation involving patent and other intellectual property rights in the biotechnology and pharmaceutical industries generally. If a third party claims that we or our CMOs or component material suppliers infringe its intellectual property rights, we may face a number of issues, including, but not limited to:

- infringement and other intellectual property claims which, with or without merit, may be expensive and time consuming to litigate and may divert our management s attention from our core business;
- substantial damages for infringement, including the potential for treble damages and attorneys fees, which we may have to pay if a court decides that the product at issue infringes or violates the third party s rights;
- a court prohibiting us from selling or licensing the product unless the third party licenses its product rights to us, which it may not be required to do;
- if a license is available from the third party, we may have to pay substantial royalties, fees and/or grant cross-licenses to our products; and

redesigning our products or processes so they do not infringe, which may not be possible or may require substantial expense and time.

No assurance can be given that patents do not exist, have not been filed, or could not be filed or issued, which contain claims covering our products, product candidates or technology or those of our CMOs or component material suppliers or the use of our products, product candidates or technologies. Because of the number of patents issued and patent applications filed in the pharmaceutical industry, we believe there is a risk that third parties may allege they have patent rights encompassing our products, product candidates or technologies, or those of our CMOs or component material suppliers, or uses of our products, product candidates or technologies.

In addition, it may be necessary for us to enforce patents under which we have rights, or to determine the scope, validity and unenforceability of other parties proprietary rights, which may affect our rights. There can be no assurance that our patents would be

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held valid by a court or administrative body or that an alleged infringer would be found to be infringing. The uncertainty resulting from the mere institution and continuation of any patent related litigation or interference proceeding could have a material and adverse effect on us.

RISKS RELATED TO OUR INDUSTRY

We expect intense competition in the marketplace for each of our products, if any of our product candidates are approved.

The industry in which we operate is highly competitive and rapidly changing. If successfully developed and approved, our products will likely compete with existing and new products and therapies and our competitors may succeed in commercializing products more rapidly or effectively than us, which would have a material and adverse effect on our ability to generate revenues from product sales. In addition, there are numerous companies with a focus in oncology and/or that are pursuing the development of pharmaceuticals that target the same diseases as are targeted by the products that we currently are, or in the future may be, developing or that focus on reformulating currently approved drugs. We anticipate that we will face intense and increasing competition in the future as new products enter the market and new technologies become available. Existing products or new products developed by competitors may be more effective, or more effectively marketed and sold, than those we may market and sell. Competitive products may render our products and product candidates obsolete or noncompetitive.

ANX-514 and Exelbine, if approved, would compete against Taxotere and Navelbine, respectively, as well as their generic equivalents and other formulations of docetaxel and vinorelbine. In addition to Navelbine, in the U.S., currently there are seven commercially available generic versions of vinorelbine. In addition, there is an oral formulation of vinorelbine approved for use in the EU against which Exelbine would compete if Exelbine were approved for use in the EU. With respect to docetaxel, four non-Taxotere formulations of docetaxel have been approved under NDAs by the FDA. In addition, generic versions of Taxotere may soon be commercially available.

If our emulsion-formulation product candidates receive regulatory approval based on bioequivalence to their currently marketed reference products, our ability to differentiate them from competing products will be limited. Even if we believe they demonstrate clinical, pharmacoeconomic or other benefits relative to competing products, we may be unable to market or promote them based on these benefits. If our products do not receive unique HCPCS product codes, we may be required to price our products at levels that do not cover our costs to manufacture, market and distribute the products or provide any profit, or to price our products at levels at which they are not competitive.

In addition, numerous companies are focused on reformulating currently approved chemotherapeutic agents. In particular, the taxanes, the class of drugs of which Taxotere is a member, have experienced substantial commercial success, in part as a result of their effectiveness in treating a wide variety of cancers, which has generated significant interest in reformulating Taxotere and other taxanes. For instance, in 2010, the FDA approved Jevtana® for treatment of patients with hormone-refractory metastatic prostate cancer previously treated with a docetaxel-containing treatment regimen. The active ingredient of Jevtana is cabazitaxel, an antineoplastic agent belonging to the taxane class. In addition to our approach of emulsifying docetaxel, other companies may be pursuing alternative delivery vehicles, including the use of albumin nanoparticles, prodrugs, polyglutamates, analogs, co-solvents, liposomes and microspheres. Many of these or similar approaches could be applied to vinorelbine. Relative to our formulations, formulations based on one or more of these other methods may result in greater efficacy or safety, provide better drug delivery to tumor sites or otherwise increase benefits to patients and healthcare providers.

With respect to competition for ANX-188 for the treatment of sickle cell crisis, we are aware of numerous companies with product candidates in varying stages of development for the treatment of sickle cell crisis. In addition, we expect advances in the understanding of the signaling pathways associated with sickle cell disease to lead to further interest and development of treatment options. More broadly, ANX-188, if approved for the treatment of sickle cell crisis, would compete against agents designed to treat sickle cell disease, of which sickle cell crisis is a condition. Hydroxyurea, a form of chemotherapy used for myeloproliferative disease, has been shown to decrease the severity of sickle cell disease by reducing the frequency of crisis. Blood transfusions also are used to treat sickle cell disease. Bone marrow and stem cell transplantation have also been shown to be effective to treat and, in some cases, cure sickle cell disease. In addition, there is increasing interest in developing drugs for rare diseases, which may have the effect of increasing the development of agents to treat sickle cell disease generally or sickle cell crisis in particular.

GlaxoSmithKline and Pfizer each have a unit focused on rare diseases. Legislative action, such as the potential to expand the priority review voucher system to rare pediatric diseases, may further generate interest. If an effective treatment or cure for sickle cell disease or sickle cell crisis receives regulatory approval, the commercial success of ANX-188, if approved, could be severely jeopardized.

Companies likely to have products that will compete with our product candidates have significantly greater financial, technical and human resources than we do, and are better equipped to develop, manufacture, market and distribute products. Many of these companies have extensive experience in nonclinical testing and clinical trials, obtaining FDA and other regulatory approvals and manufacturing and marketing products, have products that have been approved or are in late-stage development, and operate large, well-funded research, development and commercialization programs.

Smaller companies may also prove to be significant competitors, particularly through collaborative arrangements with large

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pharmaceutical and biotechnology companies. Furthermore, academic institutions, government agencies and other public and private research organizations are becoming increasingly aware of the commercial value of their inventions and are actively seeking to commercialize the technologies they have developed.

We are subject to uncertainty relating to healthcare reform measures and reimbursement policies that, if not favorable to our products, could hinder or prevent our products commercial success, if any of our product candidates are approved.

Our ability to commercialize our products successfully will depend in part on the extent to which reimbursement for the costs of such products and related treatments will be available from government health administration authorities, private health insurers and other third-party payors. Significant uncertainty exists as to the reimbursement status of newly approved medical products. The continuing efforts of the government, insurance companies, managed care organizations and other payors of healthcare services to contain or reduce costs of healthcare may adversely affect:

our ability to set a price we believe is fair for our products;

our ability to generate revenues or achieve or maintain profitability;

the future revenues and profitability of our potential customers, suppliers and collaborators; and

the availability to us of capital.

Our ability to successfully commercialize our product candidates will depend in part on the extent to which governmental authorities, private health insurers and other organizations establish what we believe are appropriate coverage and reimbursement levels for the cost of our products. These payors are increasingly attempting to contain healthcare costs by limiting both coverage and the level of reimbursement, particularly for new therapeutic products or if there is a perception that the target indication of the new product is well-served by existing drugs or other treatments. Accordingly, even if coverage and reimbursement are provided, market acceptance of our products would be adversely affected if the amount of coverage and/or reimbursement rates for the use of our products proved to be unprofitable for healthcare providers or less profitable than alternative treatments.

There have been federal and state proposals to subject the pricing of healthcare goods and services to government control and to make other changes to the U.S. healthcare system. While we cannot predict the outcome of current or future legislation, we anticipate, particularly given the passage in 2010 of the Patient Protection and Affordable Care Act, that Congress and state legislatures will introduce initiatives directed at lowering the total cost of healthcare. In addition, in certain foreign markets, the pricing of drug products is subject to government control and reimbursement may in some cases be unavailable or insufficient. It is uncertain if future legislative proposals, whether domestic or abroad, will be adopted that might affect our products or product candidates or what actions federal, state, or private payors for healthcare treatment and services may take in response to any such healthcare reform proposals or legislation. Any such healthcare reforms could have a material and adverse effect on the marketability of any products for which we ultimately receive FDA or other regulatory agency approval.

We face potential product liability exposure and, if successful claims are brought against us, we may incur substantial liability for a product or product candidate and may have to limit its commercialization. In the future, we anticipate that we will need to obtain additional or increased product liability insurance coverage and it is uncertain that such increased or additional insurance coverage can be obtained on commercially reasonable terms, if at all.

Our business (in particular, the use of our product candidates in clinical trials and the sale of any products for which we obtain marketing approval) will expose us to product liability risks. Product liability claims might be brought against us by patients, healthcare providers, pharmaceutical companies or others selling our products. If we cannot successfully defend ourselves against any such claims, we will incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

decreased demand for our products;

impairment of our business reputation;

withdrawal of clinical trial participants;

costs of related litigation;

substantial monetary awards to patients or other claimants;

loss of revenues; and

the inability to commercialize our products and product candidates.

We maintain limited product liability insurance for our clinical trials, but our insurance coverage may not reimburse us or

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may not be sufficient to reimburse us for all expenses or losses we may suffer. Moreover, insurance coverage is becoming increasingly expensive and, in the future, we may not be able to maintain insurance coverage at a reasonable cost or in sufficient amounts to protect us against losses.

We expect that we would expand our insurance coverage to include the sale of commercial products if we obtain marketing approval of any of our product candidates, but we may be unable to obtain product liability insurance on commercially acceptable terms or may not be able to maintain such insurance at a reasonable cost or in sufficient amounts to protect us against potential losses. Large judgments have been awarded in class action lawsuits based on drug products that had unanticipated side effects. A successful product liability claim or series of claims brought against us could cause our stock price to fall and, if judgments exceed our insurance coverage, could decrease our cash and adversely affect our business.

RISKS RELATED TO OUR COMMON STOCK

If we are unable to maintain compliance with NYSE Amex continued listing standards, we may be delisted from the NYSE Amex equities market, which would likely cause the liquidity and market price of our common stock to decline.

Our common stock currently is listed on the NYSE Amex equities market. The NYSE Amex normally will consider suspending dealings in, or removing from the list, securities of an issuer that has stockholders equity of less than $6.0 million if such issuer has sustained losses from continuing operations and/or net losses in its five most recent fiscal years. In addition, the NYSE Amex will normally consider suspending dealings in, or removing from the list, securities selling for a substantial period of time at a low price per share if the issuer fails to effect a reverse split of such stock within a reasonable time after being notified that the NYSE Amex deems such action to be appropriate under the circumstances.

Previously, we were not in compliance with certain NYSE Amex stockholders equity continued listing standards. Specifically, we were not in compliance with (1) Section 1003(a)(ii) of the NYSE Amex Company Guide, or the Company Guide, because we reported stockholders equity of less than $4,000,000 and losses from continuing operations and net losses in three of our four most recent fiscal years, or (2) Section 1003(a)(iii) of the Company Guide, because we reported stockholders equity of less than $6,000,000 and losses from continuing operations and net losses in our five most recent fiscal years. In addition, we were notified, in accordance with Section 1003(f)(v) of the Company Guide, that the NYSE Amex determined it was appropriate for us to effect a reverse stock split of our common stock to address our low selling price per share.

In April 2010, we announced that we had resolved the stockholders equity continued listing deficiencies and we implemented a 1-for-25 reverse split of our common stock, in part to address the NYSE Amex s requirement that we address our low stock price. However, there is no assurance that we will continue to maintain compliance with such standards. For example, we may determine to grow our organization or product pipeline or pursue development or other activities at levels or on timelines that reduces our stockholders equity below the level required to maintain compliance with NYSE Amex continued listing standards. In addition, the market price for our common stock historically has been highly volatile, as more fully described below under the risk titled The market price of our common stock historically has been and likely will continue to be highly volatile, and recently has traded at under $1.00 per share. The NYSE Amex may again determine that the selling price per share of our common stock is low and require that we effect a reverse stock split of our common stock, which would require stockholder approval that we may be unable to obtain. Our failure to maintain compliance with NYSE Amex continued listing standards could result in the delisting of our common stock from the NYSE Amex.

The delisting of our common stock from the NYSE Amex likely would reduce the trading volume and liquidity in our common stock and may lead to decreases in the trading price of our common stock. The delisting of our common stock may also materially impair our stockholders ability to buy and sell shares of our common stock. In addition, the delisting of our common stock could significantly impair our ability to raise capital, which is critical to the execution of our current business strategy.

If our common stock were delisted and determined to be a penny stock, a broker-dealer may find it more difficult to trade our common stock and an investor may find it more difficult to acquire or dispose of our common stock in the secondary market.

If our common stock were removed from listing with the NYSE Amex, it may be subject to the so-called penny stock rules. The SEC has adopted regulations that define a penny stock to be any equity security that has a market price per share of less than $5.00, subject to certain exceptions, such as any securities listed on a national securities exchange. For any transaction involving a penny stock, unless exempt, the rules impose additional sales practice requirements on broker-dealers, subject to certain exceptions. If our common stock were delisted and determined to be a penny stock, a broker-dealer may find it more difficult to trade our common stock and an investor may find it more difficult to acquire or dispose of our common stock on the secondary market.

The market price of our common stock historically has been and likely will continue to be highly volatile.

The market price for our common stock historically has been highly volatile, and the market for our common stock has from time to time experienced significant price and volume fluctuations, based both on our operating performance and for reasons that appear to us unrelated to our operating performance. For instance, on August 10, 2011, the market price for our common stock

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dropped almost 60% following our announcement of our receipt of the complete response letter for our Exelbine NDA, which stated that the FDA could not approve it in its present form. Conversely, the market price for our common stock increased over 66% in a 30-day period in June and July 2011 and more than doubled over two trading days in late December 2009. The market price of our common stock may fluctuate significantly in response to a number of factors, including:

- the level of our financial resources;
- announcements of entry into or consummation of a financing or strategic transaction;
- changes in the regulatory status of our product candidates, including results of any clinical trials and other research and development programs;
- FDA or international regulatory actions and regulatory developments in the U.S. and foreign countries;
- announcements of new products or technologies, commercial relationships or other events (including clinical trial results and regulatory events and actions) by us or our competitors;
- market conditions in the pharmaceutical, biopharmaceutical, specialty pharmaceutical and biotechnology sectors;
- developments concerning intellectual property rights generally or those of us or our competitors;
- changes in securities analysts estimates of our financial performance or deviations in our business and the trading price of our common stock from the estimates of securities analysts;
- events affecting any future collaborations, commercial agreements and grants;
- fluctuations in stock market prices and trading volumes of similar companies;
- sales of large blocks of our common stock, including sales by our executive officers, directors and significant stockholders or pursuant to shelf or resale registration statements that register shares of our common stock that may be sold by us or certain of our current or future stockholders;
- discussion of us or our stock price by the financial and scientific press and in online investor communities;
- commencement of delisting proceedings by the NYSE Amex;
- additions or departures of key personnel; and
- changes in third-party payor reimbursement policies.

As evidenced by the August 10, 2011 decline, the realization of any of the foregoing could have a dramatic and adverse impact on the market price of our common stock. In addition, class action litigation has often been instituted against companies whose securities have experienced substantial decline in market price. Moreover, regulatory entities often undertake investigations of investor transactions in securities that experience volatility following an announcement of a significant event or condition. Any such litigation brought against us or any such investigation involving our investors could result in substantial costs and a diversion of management s attention and resources, which could hurt our business, operating results and financial condition.

Sales of substantial amounts of our common stock or the perception that such sales may occur could cause the market price of our common stock to drop significantly, even if our business is performing well.

The market price of our common stock could decline as a result of sales by, or the perceived possibility of sales by, us or our existing stockholders of shares of our common stock. These sales by our existing stockholders might also make it more difficult for us to sell equity securities at a time and price that we deem appropriate. Currently, we have an effective primary registration statement on Form S-3 under which we may sell and issue more than $85 million of securities, before taking into account the securities being offered by this prospectus supplement. We also have effective resale registration statements on Form S-3 and an effective registration statement on Form S-1 that register a significant number of shares of our common stock and securities convertible into our common stock that may be sold by us or certain of our stockholders, including an effective resale registration statement for up to 16,278,901 shares of our common stock that were issued or may be issued in the future to the selling stockholders named therein in connection with our merger agreement with SynthRx. Collectively, these registration statements may increase the likelihood of sales by, or the perception of an increased likelihood of sales by, us or our existing stockholders of shares of our common stock.

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We currently have voting control with respect to more than 10% of our outstanding common stock and we may obtain voting control over a significant additional amount of our outstanding common stock if we issue the milestone-related shares to the former SynthRx stockholders, and we may determine to cause those shares to be voted in such a manner that does not necessarily coincide with the interests of individual stockholders or particular groups of stockholders.

Pursuant to the voting and transfer restriction agreement between us and each of the former principal stockholders of SynthRx, each stockholder party has agreed to vote all shares of our common stock beneficially owned by that party with respect to every action or approval by written consent of our stockholders in such manner as directed by us, except in limited circumstances, and has executed an irrevocable proxy appointing and authorizing us to vote such shares in such manner. If the development of ANX-188 achieves all of the milestones set forth in our merger agreement with SynthRx without reduction, we will issue an additional 13,478,050 shares of our common stock, representing, in the aggregate (and including the shares issued in connection with the closing of our acquisition of SynthRx) an approximately 41% ownership stake in our company (based on our currently outstanding shares plus shares issued in connection with the acquisition). As a result of such issuances and the voting and transfer restriction agreement, we currently have, and in the future may have even more, significant control over substantially all matters requiring approval by our stockholders, including the election of directors and the approval of certain mergers and other business combination transactions. Even if less than all potential milestone-related shares are issued, our ability to control a potentially significant block of stockholder votes pursuant to the voting and transfer restriction agreement may enable us to substantially affect the outcome of proposals brought before our stockholders. Although our board of directors acts in a manner it believes is in the best interest of our stockholders as a whole, the interests of our stockholders as a whole may not always coincide with the interests of individual stockholders or particular groups of stockholders.

Anti-takeover provisions in our charter documents and under Delaware law may make an acquisition of us, which may be beneficial to our stockholders, more difficult, which could depress our stock price. Alternatively, prohibitions on anti-takeover provisions in our charter documents may restrict us from acting in the best interests of our stockholders.

We are incorporated in Delaware. Certain anti-takeover provisions of Delaware law and our charter documents as currently in effect may make a change in control of our company more difficult, even if a change in control would be beneficial to our stockholders. Our bylaws limit who may call a special meeting of stockholders and establish advance notice requirements for nomination of individuals for election to our board of directors or for proposing matters that can be acted upon at stockholders meetings. Delaware law also prohibits corporations from engaging in a business combination with any holders of 15% or more of their capital stock until the holder has held the stock for three years unless, among other possibilities, the board of directors approves the transaction. Our board of directors may use these provisions to prevent changes in the management and control of our company. Also, under applicable Delaware law, our board of directors may adopt additional anti-takeover measures in the future. In addition, provisions of certain compensatory contracts with our management, such as equity award agreements, may have an anti-takeover effect by resulting in accelerated vesting of outstanding equity securities held by our executive officers. In particular, in the event of a change in control, the vesting of options we granted since July 2009 to certain key executives will accelerate with respect to fifty percent of the then unvested shares on the day prior to the date of the change in control and, subject to the respective executive s continuous service, with respect to the remaining fifty percent of the then unvested shares on the one year anniversary of the date of the change in control, and could accelerate in full at the time of the change in control if the acquirer does not assume or substitute for the options. As a result, if an acquirer desired to retain the services of one or both of those executives following an acquisition, it may be required to provide additional incentive to them, which could increase the cost of the acquisition to the acquirer and may deter or affect the terms of the potential acquisition.

In connection with a July 2005 private placement, we agreed with the investors in that transaction that we would not implement certain additional measures that would have an anti-takeover effect. As a result, under our amended and restated certificate of incorporation, we are prohibited from dividing our board of directors into classes and adopting or approving any rights plan, poison pill or other similar plan or device. A classified board of directors could

serve to protect our stockholders against unfair treatment in takeover situations, by making it more difficult and time-consuming for a potential acquirer to take control of our board of directors. A company may also adopt a classified board of directors to ensure stability in the board of directors and thereby improve long-term planning, which may benefit stockholders. A poison pill or similar plan or device may encourage potential acquirers to discuss their intentions with the board of directors of a company and avoid the time, expense and distraction of a hostile take-over. Any benefit to us and our stockholders from instituting a classified board or adopting or approving a poison pill or similar plan or device in these and other circumstances is unavailable.

Because we do not expect to pay dividends with respect to our common stock in the foreseeable future, you must rely on stock appreciation for any return on your investment.

We have paid no cash dividends on any of our common stock to date, and we currently intend to retain our future earnings, if any, to fund the development and growth of our business. As a result, with respect to our common stock, we do not expect to pay any cash dividends in the foreseeable future, and payment of cash dividends, if any, will also depend on our financial condition, results of operations, capital requirements and other factors and will be at the discretion of our board of directors. Furthermore, we are subject to various laws and regulations that may restrict our ability to pay dividends and we may in the future become subject to contractual restrictions on, or prohibitions against, the payment of dividends. Due to our intent to retain any future earnings rather than pay cash

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dividends on our common stock and applicable laws, regulations and contractual obligations that may restrict our ability to pay dividends on our common stock, the success of your investment in our common stock will likely depend entirely upon any future appreciation and there is no guarantee that our common stock will appreciate in value.

RISKS RELATED TO THIS OFFERING

Since we have broad discretion in how we use the proceeds from this offering, we may use the proceeds in ways with which you disagree.

Although we describe under the heading Use of Proceeds in this prospectus supplement our currently intended use of the net proceeds from this offering, we cannot estimate the allocation of the net proceeds from this offering among those uses and we reserve the right to change the use of proceeds as a result of certain contingencies, including any future partnering or strategic transaction opportunity with respect to our current product candidates and any future product pipeline expansion opportunity. Accordingly, our management will have significant flexibility in applying the net proceeds from this offering. You will be relying on the judgment of our management and our board of directors with regard to the use of these net proceeds, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. It is possible that the net proceeds will be used in a way that does not improve our operating results or enhance the value of our common stock.

Investors in this offering will pay a much higher price than the book value of our stock.

The public offering price of the securities offered hereby is likely to be substantially higher than the book value per share of our common stock. Investors purchasing securities in this offering may, therefore, incur immediate dilution in net tangible book value per share of the common stock issued, and issuable upon exercise of securities purchased, in this offering. See Dilution below for a more detailed discussion of the dilution you will incur in this offering.

There is no public market for the warrants being offered by this prospectus supplement.

There is no established trading market for the warrants being offered by this prospectus supplement and we do not expect a market to develop. In addition, we do not intend to apply to list the warrants on any securities exchange or automated quotation system. Without an active market, the liquidity of the warrants will be limited.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement and the other materials we have filed or will file with the SEC contain forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Securities Exchange Act of 1934, as amended. All statements, other than statements of historical fact, are statements that could be deemed forward-looking statements, including, but not limited to, statements regarding our business strategy, expectations and plans regarding our product candidates, our objectives for future operations and our future financial position. When used in this prospectus supplement or in the other materials we have filed or will file with the SEC, the words believe, may, could, will, estimate, continue, anticipate, intend, expect, indicate, seek, should or woul are intended to identify forward-looking statements. Examples of forward-looking statements include, but are not limited to, statements we make regarding activities, timing and costs related to developing and seeking regulatory approval for our product candidates, estimated peak annual sales for our product candidates, seeking to partner or collaborate with third parties with respect to the development and commercialization of our product candidates, seeking to partner or find an outside investor for our Exelbine program, the sale or exclusive license of one or more of our product candidate programs, raising additional capital, expanding our product pipeline and our belief that we have sufficient liquidity to fund our currently planned level of operations for at least the next 12 months. The foregoing is not an exclusive list of all forward-looking statements we make.

We have based the forward-looking statements we make on our expectations and projections about future events and trends at the time we make such statements that we believe may affect our financial condition, results of operations, business strategy, short-term and long-term business operations and objectives, and financial needs. The forward-looking statements we make are subject to risks and uncertainties that could cause our actual results to differ materially from those reflected in such forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to the following:

- delays in the commencement or completion of nonclinical testing and/or clinical trials of or manufacturing activities related to our product candidates;
- our ability to establish and maintain relationships with third-party manufacturers and component suppliers for our product candidates, and the ability of such manufacturers and suppliers, which may be single source manufacturers and suppliers, to successfully manufacture and supply clinical trial material;
- the success of future clinical trials;
- undesirable side effects that our product candidates may cause, including as a result of eliminating corticosteroid premedication with ANX-514;
- the satisfactory performance of third parties on whom we rely significantly to conduct our nonclinical testing and clinical trials and other aspects of our development programs;
- our ability to obtain additional funding to develop our current product candidates and any product candidates or products we may acquire in the future, on a timely basis or on acceptable terms, or at all;
- healthcare reform measures and reimbursement policies that, if not favorable to our product candidates, could hinder or prevent our ability to raise capital and, ultimately, the commercial success of our products;
- our ability, or that of a future partner, to successfully develop and obtain regulatory approval for our product candidates and, if approved, to successfully commercialize them in the U.S. and/or elsewhere;
- the extent to which we acquire new technologies, product candidates, products or businesses and our ability to integrate them, including the assets we acquired from SynthRx, Inc., successfully into our operations;

the potential that we may enter into one or more commercial partnerships or other strategic transactions relating to our product candidates, and the terms of any such transactions;

whether any of our product candidates for which we receive regulatory approval, if any, achieve broad market acceptance;

our ability to maintain compliance with NYSE Amex continued listing standards and maintain the listing of our common stock on the NYSE Amex equities market or another national securities exchange;

the extent to which we rebuild our workforce and our ability to attract and retain qualified personnel and manage growth;

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our ability to protect our intellectual rights with respect to our product candidates and proprietary technology; and

claims against us for infringing the proprietary rights of third parties.

Additional factors that could cause or contribute to such differences include, but are not limited to, those discussed in this prospectus supplement and, in particular, the risks discussed under the heading Risk Factors, and those discussed in other documents we file with the SEC and incorporate herein. Any forward-looking statement speaks only as of the date on which it is made and, except as required by law, we do not intend to update any forward-looking statements publicly to reflect events or circumstances after the date on which such statement is made or to update the reasons actual results could differ materially from those anticipated in the forward-looking statements, even if new information becomes available in the future. In light of these risks and uncertainties and our assumptions, the forward-looking events and circumstances discussed in the prospectus and this prospectus supplement and in the documents incorporated by reference may not occur and actual results could differ materially and adversely from those anticipated or implied in such forward-looking statements. Accordingly, you are cautioned not to place undue reliance on such forward-looking statements.

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USE OF PROCEEDS

We estimate that the net proceeds to us from the sale of the securities offered under this prospectus supplement, after deducting the underwriting discounts and commissions and our estimated offering expenses, and excluding the proceeds, if any, from exercise of the warrants issued in this offering, will be approximately $[ ] million, or approximately $[ ] million if the underwriters exercise in full the over-allotment option granted by us.

We currently intend to use the net proceeds from this offering to fund continued development of our current lead product candidates, including activities necessary to initiate and conduct our planned phase 3 clinical studies of ANX-188 and ANX-514, and for general corporate purposes. We may also use a portion of the net proceeds to acquire or invest in technologies, product candidates, products and/or businesses that we believe will enhance the value of our company, although we have no current commitments or agreements with respect to any such transactions as of the date of this prospectus supplement. At this time, we cannot estimate the allocation of the net proceeds of this offering among our anticipated uses. The amounts and timing of expenditures may vary significantly depending on numerous factors, including delays in the commencement or completion of activities necessary to initiate and/or conduct our planned clinical trials, future opportunities to evaluate, negotiate and complete one or more strategic or partnering transactions with respect to our current product candidates and future pipeline expansion opportunities. We reserve the right to change the use of proceeds as a result of certain contingencies, such as those discussed above. Accordingly, our management will have broad discretion in the application of the net proceeds of this offering. Pending use of the net proceeds, we intend to invest the net proceeds in short-term, interest-bearing, investment-grade securities.

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PRICE RANGE OF COMMON STOCK

Our common stock trades under the symbol ANX on NYSE Amex Equities. The following table sets forth the high and low sales prices of our common stock for the fiscal periods indicated. The prices in the table below for periods before April 23, 2010 have been adjusted to reflect retrospective application of the 1-for-25 reverse split of our common stock effected on April 23, 2010.

	Sales Prices					
	2011		2010		2009	
	High	Low	High	Low	High	Low
First Quarter	$3.45	$1.85	$13.00	$4.00	$ 6.00	$1.75
Second Quarter	3.25	2.08	7.25	1.60	6.25	2.50
Third Quarter	4.21	0.81	2.35	1.50	5.00	2.75
Fourth Quarter	1.16*	0.81*	3.20	1.91	12.50	2.25

* Through November 9, 2011

As of September 30, 2011, we had approximately 69 record holders of our common stock. We believe that the number of beneficial holders is substantially greater than the number of record holders because a large portion of our common stock is held of record through brokerage firms in street name.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our common stock and do not anticipate declaring or paying any cash dividends on our common stock in the foreseeable future. In addition, in connection with previous preferred stock financings, we have agreed to charter restrictions on our ability to pay cash dividends or distributions on our common stock for so long as any shares of such preferred stock are outstanding, unless we obtain prior written consent from the holders of such preferred stock. Although currently there are no such restrictions on our ability to pay dividends on our common stock, we may agree to similar restrictions in the future.

We expect to retain all available funds and any future earnings to support operations and fund the development and growth of our business. Our board of directors will determine whether we pay and the amount of future dividends (including cash dividends), if any.

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DILUTION

If you invest in the securities being offered by this prospectus supplement, you will suffer immediate and substantial dilution in the net tangible book value per share of common stock. Net tangible book value per share is determined by dividing our net tangible book value, which consists of our total tangible assets less our total tangible liabilities, by the number of shares of our common stock outstanding on that date. Our net tangible book value (unaudited) as of September 30, 2011 was approximately $36.7 million, or approximately $1.39 per share of common stock, based on 26,465,709 shares outstanding.

Dilution in net tangible book value per share represents the difference between the price per fixed combination of shares and warrants paid by investors 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 in this offering of [ ] shares of common stock and warrants to purchase up to an additional [ ] shares of our common stock at the purchase price of $[ ] per fixed combination, less the underwriting discounts and commissions and estimated offering expenses we expect to pay, but excluding any effects of exercises of the warrants issued in this offering, our pro forma net tangible book value (unaudited) as of September 30, 2011, would have been approximately $[ ] million, or approximately $[ ] per share. This represents an immediate increase of approximately $[ ] in net tangible book value per share to our existing stockholders and an immediate dilution of approximately $[ ] per share to investors in this offering. The following table illustrates this per share dilution.

Public offering price per fixed combination of securities (consisting of one share and a warrant to purchase up to [ ] of a share)		$ [ ]
Net tangible book value per share as of September 30, 2011	$1.39	
Increase in net tangible book value per share attributable to this offering	$ [ ]	
Pro forma net tangible book value per share as of September 30, 2011, after giving effect to this offering		$ [ ]
Dilution in net tangible book value per share to investors in this offering		$ ([ ])

The above is based on 26,465,709 shares of our common stock outstanding as of September 30, 2011 (as adjusted for [ ] shares of common stock to be issued in this offering), and excludes, as of that date:

- 1,553,692 shares of common stock issuable upon the exercise of outstanding stock options issued under our equity incentive plans prior to this offering, at a weighted average exercise price of $4.75 per share;
- 3,256,014 shares of common stock available for future issuance under our Amended and Restated 2008 Omnibus Incentive Plan;
- 7,777,988 shares of common stock issuable upon the exercise of outstanding warrants, at a weighted average exercise price of approximately $6.58 per share;
- 13,478,050 shares of common stock that may be issued to the former stockholders of SynthRx, subject to the achievement of performance milestones, pursuant to the terms of our merger agreement with SynthRx dated February 12, 2011;
- [ ] shares of common stock issuable upon the exercise of the warrants to be issued to the investors in this offering, at an exercise price of $[ ] per share; and
- [ ] shares of common stock issuable upon exercise of warrants to be issued to the representative of the underwriters for this offering and/or its designees, which are not covered by this prospectus supplement, at an exercise price of $[ ] per share.

To the extent that any options or warrants are exercised, new options or other equity awards are issued under our Amended and Restated 2008 Omnibus Incentive Plan, or we otherwise issue additional shares of common stock in the future, there will be further dilution to new investors.

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DESCRIPTION OF SECURITIES BEING OFFERED

Common Stock

Below is a summary description of our common stock. This description is not complete. You should carefully read the full text of our amended and restated certificate of incorporation, as amended, and our bylaws, as well as the description of our common stock contained in our registration statement on Form 8-A filed with the SEC on April 27, 2004, which is incorporated by reference herein.

We are authorized to issue 500,000,000 shares of common stock, par value $0.001 per share, of which 26,465,709 shares were issued and outstanding as of September 30, 2011. Additional shares of authorized common stock may be issued, as authorized by our board of directors from time to time, without stockholder approval, except as may be required by applicable securities exchange requirements. The holders of common stock possess exclusive voting rights in us, except to the extent our board of directors specifies voting power with respect to any other class of securities issued in the future. Each holder of our common stock is entitled to one vote for each share held of record on each matter submitted to a vote of stockholders, including the election of directors. Stockholders do not have any right to cumulate votes in the election of directors.

Subject to preferences that may be granted to the holders of preferred stock, each holder of our common stock is entitled to share ratably in distributions to stockholders and to receive ratably such dividends as may be declared by our board of directors out of funds legally available therefor. In the event of our liquidation, dissolution or winding up, the holders of our common stock will be entitled to receive, after payment of all of our debts and liabilities and of all sums to which holders of any preferred stock may be entitled, the distribution of any of our remaining assets. Holders of our common stock have no conversion, exchange, sinking fund, redemption or appraisal rights (other than such as may be determined by our board of directors in its sole discretion) and have no preemptive rights to subscribe for any of our securities.

Warrants

Below is a brief summary of the material terms and provisions of the warrants being offered in this offering. This description is not complete. We urge you to review the warrant agency agreement, which we will file as an exhibit to a Current Report on Form 8-K with the SEC in connection with this offering, for the complete terms and conditions applicable to the warrants. The following summary description of the warrants is subject to, and qualified in its entirety by, the complete terms and conditions set forth warrant agency agreement. The warrants we are issuing to the representative of the underwriters and/or its designee in connection with this offering are not covered by this prospectus supplement.

The common stock warrants will provide for an exercise price of $[ ] per share and will be exercisable at the option of the holder at any time on or after their date of issuance, which will be the closing date of this offering, through and including the date that is the [ ] anniversary of their date of issuance.

The warrants will be issued pursuant to the terms of the warrant agency agreement between American Stock Transfer & Trust Company, as warrant agent, and us. You should review a copy of the warrant agency agreement, which we have included as an exhibit to our Current Report on Form 8-K filed with the SEC in connection with this offering, for a complete description of the terms and conditions applicable to the warrants. We will initially issue the warrants in the form of global securities held in book-entry form. The Depository Trust Company (DTC) or its nominee will be the sole registered holder of the warrants. Owners of beneficial interests in the warrants represented by the global securities will hold their interests pursuant to the procedures and practices of DTC. As a result, beneficial interests in any such securities will be shown on, and transfers will be effected only through, records maintained by DTC and its direct and indirect participants and any such interest may not be exchanged for certificated securities, except in limited circumstances. Owners of beneficial interests must exercise any rights in respect of their interests in accordance with the procedures and practices of DTC. Beneficial owners will not be holders and will not be entitled to any rights provided to the holders of the warrants under the global securities or the global warrant. Our company and any of our agents may treat DTC as the sole holder and registered owner of the global securities.

Subject to limited exceptions, a warrant holder will not have the right to exercise any portion of the warrant if the holder, together with its affiliates, would beneficially own in excess of 4.99% of the number of shares of our common stock outstanding immediately after the exercise. The exercise price of the warrants, and in some cases the number of

shares issuable upon exercise of the warrants, will be subject to adjustment in the event of stock splits, stock dividends, combinations, rights offerings and similar events affecting our common stock. In addition, in the event we consummate a merger or consolidation with or into another person or other reorganization event in which our common stock is converted or exchanged for securities, cash or other property, or we sell, lease, license or otherwise dispose of all or substantially all of our assets or we or another person acquire 50% or more of our outstanding common stock, then following such event, the holders of the warrants will be entitled to receive upon exercise of the warrants the same kind and amount of securities, cash or property which the holders would have received had they exercised the warrants immediately prior to such fundamental transaction. Any successor to us or surviving entity shall assume the obligations under the warrants.

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The warrant holders must surrender payment in cash of the aggregate exercise price of the shares being acquired upon exercise of the warrants. If, however, we are unable to offer and sell the shares underlying these warrants pursuant to this prospectus supplement due to the ineffectiveness of the registration statement of which this prospectus supplement is a part, then the warrants may only be exercised on a net or cashless basis. No fractional shares of common stock will be issued in connection with the exercise of a warrant. In lieu of fractional shares, we will pay the holder an amount in cash equal to the fractional amount multiplied by the exercise price.

We do not intend to list the warrants on any securities exchange or automated quotation system.

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UNDERWRITING

Rodman & Renshaw, LLC is acting as the representative of each of the underwriters named below. Subject to the terms and conditions set forth in an underwriting agreement dated the date of this prospectus supplement, we have agreed to sell to the underwriters, and each of the underwriters has agreed, severally and not jointly, to purchase from us, the number of shares of our common stock and warrants to purchase up to the number of shares of our common stock set forth opposite its name below.

Underwriter	Number of Shares	Number of Warrant Shares
Rodman & Renshaw, LLC	[ ]	[ ]
Maxim Group LLC	[ ]	[ ]
Total	[ ]	[ ]

Subject to the terms and conditions set forth in the underwriting agreement, if an underwriter defaults, the underwriting agreement provides that the purchase commitments of the nondefaulting underwriters may be increased or the underwriting agreement may be terminated.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act, or to contribute to payments the underwriters may be required to make in respect of those liabilities.

A copy of the underwriting agreement is included as an exhibit to our Current Report on Form 8-K filed with the SEC in connection with this offering.

Nature of Underwriting Commitment

The underwriters are offering the shares of common stock and warrants to purchase shares of common stock in multiples of the fixed combination of one share and a warrant to purchase up to [ ] of a share, subject to its acceptance of these securities from us and subject to prior sale. The underwriting agreement provides that the obligations of the underwriters to pay for and accept delivery of the securities offered by this prospectus supplement are subject to the approval of certain legal matters by their counsel and to other conditions. The underwriters are obligated to take and pay for all of the securities offered by this prospectus supplement if any such securities are taken. However, the underwriters are not required to take or pay for the securities covered by the over-allotment option described below. The underwriters initially propose to offer the securities offered by this prospectus supplement directly to the public at the public offering price listed on the cover page of this prospectus supplement. After the initial offering of these securities, the offering price and other selling terms may from time to time be varied by the underwriters.

Option to Purchase Additional Securities

We have granted to the underwriters an option, exercisable for 45 days from the date of this prospectus supplement, to purchase up to an aggregate of [ ] additional shares of common stock and warrants to purchase up to [ ] additional shares of common stock in multiples of the fixed combination of one share and a warrant to purchase up to [ ] of a share at the public offering price, less underwriting discounts and commissions. The underwriters may exercise this option, in whole or in part, solely for the purpose of covering over-allotments, if any, made in connection with the offering of the securities offered by this prospectus supplement. If the over-allotment option is exercised in full, the total offering price to the public would be $[ ], the total underwriter discounts and commissions would be $[ ] and the total proceeds to us, before expenses, would be $[ ].

Discounts and/or Commissions

The following table shows the public offering price per fixed combination of one share and a warrant to purchase up to [ ] of a share, the total public offering price and the total underwriting discounts and/or commissions that we are to pay to the underwriters in connection with this offering. These amounts are shown assuming either no exercise or full exercise of the over-allotment option. These amounts exclude potential proceeds from the exercise of the warrants offered in combination with the shares of our common stock.

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	Per Fixed Combination of One Share and a Warrant to Purchase up to [ ] of a Share	No Exercise	Full Exercise
Public offering price	$ [ ]	$ [ ]	$ [ ]
Underwriting discounts and/or commissions	$ [ ]	$ [ ]	$ [ ]
Proceeds, before expenses, to us	$ [ ]	$ [ ]	$ [ ]

In addition, we estimate that the expenses of this offering other than underwriting discounts and/or commissions payable by us will be approximately $[ ].

Other Compensation to the Underwriters

Pursuant to an engagement letter agreement, dated May 17, 2011, we also have agreed to grant compensation warrants to Rodman & Renshaw, LLC and/or its designees to purchase that number of our shares of common stock equal to 5.0% of the number of shares of common stock sold by us in this offering (excluding the shares issuable upon exercise of the warrants sold by us in this offering), or up to an aggregate of [ ] shares, at an exercise price of $[ ] per share, which warrants shall be in certificated form. We also have agreed to reimburse Rodman & Renshaw, LLC for actual expenses incurred in connection with the public offering in an amount up to 0.5% of the gross proceeds from the securities sold hereunder, subject to compliance with FINRA Rule 5110(f)(2)(D). In compliance with the guidelines of FINRA, under no circumstances will the fee, commission or discount received by the underwriters for this offering or any other FINRA member or independent broker-dealer exceed 8.0% of the gross proceeds to us in this offering or any other offering in the U.S. pursuant to the this prospectus supplement and the accompanying prospectus.

The compensation warrants otherwise will be substantially on the same terms as the warrants offered by this prospectus supplement, except that the exercise price will be 125% of the public offering price per share, the exercise period will expire five years from the effective date of the shelf registration statement on Form S-3 of which this prospectus supplement and the accompanying prospectus form a part, or April 1, 2015, and they will comply with FINRA Rule 5110(g) in that for a period of six months after their date of issuance (which shall not be earlier than the closing date of this offering), neither the compensation warrants nor any shares issued upon exercise of the compensation warrants shall be sold, transferred, assigned, pledged, or hypothecated, or be the subject of any hedging, short sale, derivative, put, or call transaction that would result in the effective economic disposition of the securities by any person, except the transfer of any security:

- by operation of law or by reason of reorganization of us;
- to any FINRA member firm participating in this offering and the officers or partners thereof, if all securities so transferred remain subject to the lock-up restriction described above for the remainder of the time period;
- if the aggregate amount of our securities held by Rodman & Renshaw or related persons do not exceed 1% of the securities being offered;
- that is beneficially owned on a pro-rata basis by all equity owners of an investment fund, provided that no participating member manages or otherwise directs investments by the fund, and participating members in the aggregate do not own more than 10% of the equity in the fund; or
- the exercise or conversion of any security, if all securities received remain subject to the lock-up restriction set forth above for the remainder of the time period.

Lock-ups

ADVENTRX. We have agreed that, subject to specified exceptions, without the prior written consent of Rodman & Renshaw, LLC, we will not:

during the period beginning on the date of the pricing of this offering and ending 90 days thereafter, issue, enter into any agreement to issue or announce the issuance or proposed issuance by us or any of our subsidiaries of shares of our common stock or any securities convertible into or exercisable or exchangeable for our common stock; or

during the period beginning on the date of the pricing of this offering and ending 12 months thereafter, effect or enter into an agreement to effect any issuance by us or any of our subsidiaries of shares of our common stock or any securities

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convertible into or exercisable or exchangeable for our common stock for cash consideration that includes a transaction in which we (i) issue or sell any debt or equity securities that are convertible into, exchangeable or exercisable for, or include the right to receive, additional shares of our common stock either (A) at a conversion price, exercise price or exchange rate or other price that is based upon, and/or varies with, the trading prices of or quotations for the shares of our common stock at any time after the initial issuance of such debt or equity securities or (B) with a conversion, exercise or exchange price that is subject to being reset at some future date after the initial issuance of such debt or equity security or upon the occurrence of specified or contingent events directly or indirectly related to our business or the market for the our common stock or (ii) enter into any agreement, including, but not limited to, an equity line of credit, whereby we may sell securities at a future determined price.

The restrictions described in the preceding paragraph regarding the 90-day lock-up period do not apply to the issuance of:

shares of our common stock upon the exercise of any the warrants issued to the underwriters in connection with this offering;

shares of our common stock or options to our employees, officers, directors or consultants pursuant to any equity incentive plan adopted for such purpose, by our board of directors;

securities upon the exercise or exchange of or conversion of any securities issued and outstanding on the date of the underwriting agreement; and

securities issued pursuant to acquisitions or strategic transactions approved by a our board of directors.

Officers and Directors. In addition, our directors and executive officers have agreed that, subject to specified exceptions, without the prior written consent of Rodman & Renshaw, LLC, they will not, during the period beginning on the date of the pricing of this offering and ending 90 days thereafter:

offer, sell, contract to sell, hypothecate, pledge or otherwise dispose of (or enter into any transaction which is designed to, or might reasonably be expected to, result in the disposition (whether by actual disposition or effective economic disposition due to cash settlement or otherwise)), directly or indirectly, any shares of our common stock or securities convertible, exchangeable or exercisable into shares of our common stock; or

establish or increase a put equivalent position or liquidate or decrease a call equivalent position with respect to any shares of our common stock or securities convertible, exchangeable or exercisable into share of our common stock.

The 90-day restricted period described in the preceding paragraph will be extended if:

during the last 17 days of the 90-day restricted period we issue an earnings release or material news or a material event relating to us occurs; or

prior to the expiration of the 90-day restricted period, we announce that we will release earnings results during the 16-day period beginning on the last day of the 90-day restricted period;

in which case the restrictions described in the preceding paragraph will continue to apply until the expiration of the 18-day period beginning on the issuance of the earnings release or the occurrence of the material news or material event.

The restrictions described in the preceding paragraphs do not apply to the entry into a so-called 10b5-1 plan by one of our executive officers or the sale or transfer of approximately 41,000 shares of our common stock by the officer pursuant to such a plan.

Stabilization

In order to facilitate this offering of common stock, the underwriters may engage in transactions that stabilize, maintain or otherwise affect the price of the common stock. Specifically, the underwriters may sell more shares than they are obligated to purchase under the underwriting agreement, creating a short position. A short sale is covered if

the short position is no greater than the number of shares available for purchase by the underwriters under the over-allotment option. The underwriters can close out a covered short sale by exercising the over-allotment option or by purchasing shares in the open market. In determining the source of shares to close out a covered short sale, the underwriters will consider, among other things, the open market price of shares compared to the price available under the over-allotment option. The underwriters may also sell shares in excess of the over-allotment option, creating a naked short position. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if an underwriter is concerned that there may be downward pressure on the price of the common stock in the open market after pricing that could adversely affect investors who purchase in this offering. In addition, to stabilize the price of the common stock, the underwriters may bid for and purchase shares of common stock in the open market. These

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activities may raise or maintain the market price of the common stock above independent market levels or prevent or retard a decline in the market price of the common stock. The underwriters are not required to engage in these activities and may end any of these activities at any time.

In connection with this offering, the underwriters may engage in passive market making transactions in our common stock on the NYSE Amex in accordance with Rule 103 of Regulation M under the Exchange Act during a period before the commencement of offers or sales of common stock and extending through the completion of distribution. A passive market maker must display its bid at a price not in excess of the highest independent bid of that security. However, if all independent bids are lowered below the passive market maker s bid, that bid must then be lowered when specified purchase limits are exceeded.

Common Stock Listing and Transfer Agent

Our common stock is traded on the NYSE Amex equities market under the symbol ANX. We do not intend to list the warrants being offered by this prospectus supplement on any national securities exchange.

The transfer agent for our common stock is American Stock Transfer & Trust Company. American Stock Transfer & Trust Company will also act as transfer agent for the warrants being offered by this prospectus supplement.

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LEGAL MATTERS

The validity of the issuance of the securities being offered hereby will be passed upon for us by DLA Piper LLP (US), San Diego, California.

EXPERTS

The consolidated financial statements of ADVENTRX Pharmaceuticals, Inc. as of December 31, 2010 and 2009, and the related consolidated statements of operations, stockholders equity (deficit) and comprehensive loss and cash flows for the years then ended and for the period from January 1, 2002 through December 31, 2010 are incorporated by reference herein and in the registration statement in reliance upon the report of J.H. Cohn LLP, an independent registered public accounting firm, given on the authority of said firm as experts in accounting and auditing.

No expert or counsel named in this prospectus as having prepared or certified any part of this prospectus or having given an opinion upon the validity of the securities being registered or upon other legal matters in connection with the registration or offering of the securities was employed on a contingency basis, or had, or is to receive, in connection with the offering, a substantial interest, direct or indirect, in the registrant or any of its parents or subsidiaries. Nor was any such person connected with the registrant or any of its parents or subsidiaries as a promoter, managing or principal underwriter, voting trustee, director, officer, or employee.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We file annual, quarterly and current reports, proxy statements and other information electronically with the SEC. You may read and copy these reports, proxy statements and other information at the SEC s public reference room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for more information about the operation of the public reference room. You can request copies of these documents by writing to the SEC and paying a fee for the copying costs. The SEC also maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, including us. The SEC s Internet site can be found at http://www.sec.gov. In addition, we make available on or through our Internet site copies of these reports as soon as reasonably practicable after we electronically file them with or furnish them to the SEC. Our corporate Internet site can be found at http://www.adventrx.com. Our website and the information contained on that site, or connected to that site, are not incorporated into and are not a part of this prospectus.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference the information contained in documents that we file with it. This means that we can disclose important information to you by referring you to those documents and that the information in this prospectus supplement and the accompanying prospectus is not complete. You should read the information incorporated by reference for more detail. We incorporate by reference in two ways. First, we list below certain documents that we have already filed with the SEC. The information in these documents is considered part of this prospectus supplement. Second, the information in documents that we file with the SEC after the date of this prospectus supplement will automatically update and, as applicable, supersede the information contained, or incorporated by reference, in this prospectus supplement. Any information so updated or superseded will not be deemed to constitute part of this prospectus supplement and the accompanying prospectus, except as so updated or superseded.

We incorporate by reference the documents listed below and any filings we make with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus supplement until the termination of this offering (in each case, except for the information furnished under Item 2.02 or Item 7.01 in any current report on Form 8-K and Form 8-K/A):

- our annual report on Form 10-K for the year ended December 31, 2010 filed with the SEC March 10, 2011 (File No. 001-32157-11679095);
- our quarterly report on Form 10-Q for the quarterly period ended March 31, 2011 filed with the SEC on May 9, 2011 (File No. 001-32157-11823538);
- Our quarterly report on Form 10-Q for the quarterly period ended June 30, 2011 filed with the SEC on August 8, 2011 (File No. 001-32157-111017315);

Our quarterly report on Form 10-Q for the quarterly period ended September 30, 2011 filed with the SEC on November 8, 2011 (File No. 001-32157-111186142);

Our current reports on Form 8-K filed with the SEC on January 6, 2011 (File No. 001-32157-11512917), January 7, 2011 (File No. 001-32157-11515655), January 7, 2011 (File No. 001-32157-11515695), January 19, 2011 (File No. 001-32157-11536324), February 14, 2011 (File No. 001-32157-11604349), February 15, 2011 (File No. 001-32157-11613491), March 22, 2011 (File No. 001-32157-11704394), April 11, 2011 (File No. 001-32157-11752769); May 9,

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2011 (File No. 001-32157-11823649); May 13, 2011 (File No. 001-32157-11837895); June 3, 2011 (File No. 001-32157-11892227); June 16, 2011 (File No. 001-32157-11915265); June 23, 2011 (File No. 001-32157-11928162); June 29, 2011 (File No. 001-32157-11939023); July 8, 2011 (File No. 001-32157-11959481); August 10, 2011 (File No. 001-32157-111022618); September 30, 2011 (File No. 001-32157-111117627); October 25, 2011 (File No. 001-32157-111157223; October 26, 2011 (File No. 001-32157-111158031); and November 9, 2011 (File No. 001-32157-111191884); and

the description of our common stock contained in our registration statement on Form 8-A filed with the SEC on April 27, 2004.

We will provide each person, including any beneficial owner, to whom this prospectus supplement and the accompanying prospectus is delivered, a copy of any or all of the documents incorporated by reference in this prospectus supplement and the accompanying prospectus but not delivered with this prospectus supplement and the accompanying prospectus upon written or oral request at no cost to the requester. Requests should be directed to: ADVENTRX Pharmaceuticals, Inc., 12390 El Camino Real, Suite 150, San Diego, California 92130, Attn: Investor Relations, telephone: (858) 552-0866. Copies of any of these documents may also be obtained at no cost through our Internet site, which can be found at http://www.adventrx.com.

This prospectus supplement is part of a registration statement on Form S-3 that we have filed with the SEC. That registration statement contains more information than this prospectus supplement regarding us and our common stock, including certain exhibits and schedules. You can obtain a copy of the registration statement from the SEC at the address listed above or from the SEC s Internet site.

You should rely only on the information in and incorporated by reference into this prospectus supplement and the accompanying prospectus. We have not authorized anyone else to provide you with different information. You should not assume that the information in this prospectus supplement or the accompanying prospectus is accurate as of any date other than the date on the front cover of these documents.

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PROSPECTUS
$150,000,000
Common Stock
Preferred Stock
Debt Securities
Warrants
Units
ADVENTRX PHARMACEUTICALS, INC.

We may, from time to time in one or more offerings, offer and sell up to $150,000,000 in the aggregate of common stock, preferred stock, debt securities, warrants to purchase common stock, preferred stock or debt securities, or any combination of the foregoing, either individually or as units comprised of one or more of the other securities.

This prospectus provides a general description of the securities we may offer. 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. You should read carefully this prospectus, the applicable prospectus supplement and any related free writing prospectus, as well as any documents incorporated by reference before you invest in any of our securities. **This prospectus may not be used to offer or sell any securities unless accompanied by the applicable prospectus supplement.**

Our common stock is listed on the NYSE Amex equities market under the symbol ANX.

As of March 25, 2010, the aggregate market value of our outstanding common stock held by non-affiliates was approximately $78.4 million, based on 257,250,690 shares of outstanding common stock as of March 22, 2010, of which 34,000 shares are held by affiliates, and a price of $0.3049 per share, which was the last reported sale price of our common stock on the NYSE Amex on February 24, 2010.

Investing in our securities involves risk. See Risk Factors on page 5 of this prospectus. You should also carefully review the risks and uncertainties described in any applicable prospectus supplement and any related free writing prospectus.

We will sell these securities directly to investors, through agents designated from time to time or to or through underwriters or dealers. For additional information on the methods of sale, you should refer to the section entitled Plan of Distribution in this prospectus. If any underwriters are involved in the sale of any securities with respect to which this prospectus is being delivered, the names of such underwriters and any applicable commissions or discounts will be set forth in a 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.

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 April 1, 2010.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC, using a shelf registration process. Under this shelf registration process, we may from time to time sell common stock, preferred stock, debt securities or warrants to purchase common stock, preferred stock or debt securities, or any combination of the foregoing, either individually or as units comprised of one or more of the other securities, in one or more offerings up to a total dollar amount of $150,000,000. We have provided to you in this prospectus a general description of the securities we may offer. Each time we sell securities under this shelf registration, we will, to the extent required by law, provide a prospectus supplement that will contain specific information about the terms of that 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. 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 any documents that we have incorporated by reference into this prospectus. To the extent there is a conflict between the information contained in this prospectus and the prospectus supplement or any related free writing prospectus, you should rely on the information in the prospectus supplement or the related free writing prospectus; provided that 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 in this prospectus or any prospectus supplement or any related free writing prospectus the statement in the document having the later date modifies or supersedes the earlier statement.

We have not authorized any dealer, agent or other person to give any information or to make any representation other than those contained or incorporated by reference in this prospectus and any accompanying prospectus supplement. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus or an accompanying prospectus supplement. This prospectus and the accompanying prospectus supplement, if any, do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the registered securities to which they relate, nor do this prospectus and the accompanying prospectus supplement constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. You should not assume that the information contained in this prospectus, any applicable prospectus supplement or any related free writing prospectus is accurate on any date subsequent to the date set forth on the front of the document or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference (as our business, financial condition, results of operations and prospects may have changed since that date), even though this prospectus, any applicable prospectus supplement or any related free writing prospectus is delivered or securities are sold on a later date.

As permitted by the rules and regulations of the SEC, the registration statement, of which this prospectus forms a part, includes additional information not contained in this prospectus. You may read the registration statement and the other reports we file with the SEC at the SEC s web site or at the SEC s offices described below under the heading Where You Can Find Additional Information.

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SUMMARY

This summary highlights selected information from 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, including the section entitled Risk Factors on page 5, the information incorporated herein by reference, including our financial statements, and the exhibits to the registration statement of which this prospectus is a part. When used in this prospectus, the terms ADVENTRX , we , our , us or the Company refer to ADVENTRX Pharmaceuticals, Inc. and its consolidated subsidiaries, unless otherwise indicated or as the context otherwise requires.

About ADVENTRX Pharmaceuticals, Inc.

We are a development-stage specialty pharmaceutical company focused on in-licensing, developing and commercializing proprietary product candidates for the treatment of cancer. We seek to improve the performance of existing drugs by addressing limitations associated principally with their safety and use. We have not yet marketed or sold any products or generated any significant revenue.

Our lead product candidates, ANX-530 (vinorelbine injectable emulsion) and ANX-514 (docetaxel injectable emulsion), are novel emulsion formulations of currently marketed chemotherapy drugs. We believe ANX-530 and ANX-514 may improve the safety of and have greater commercial potential than the currently marketed reference products, Navelbine® (vinorelbine tartrate) Injection and Taxotere® (docetaxel) Injection Concentrate, respectively, by:

reducing the incidence and severity of adverse effects; and

improving their pharmacoeconomics and convenience to healthcare practitioners and patients.

In December 2009, we submitted a new drug application, or NDA, for ANX-530 to the U.S. Food and Drug Administration, or FDA. In March 2010, we announced that we had received a refusal-to-file letter from the FDA regarding our ANX-530 NDA submission. In the letter, the FDA indicated that the data included in our December 2009 NDA submission from the intended commercial manufacturing site was insufficient to support a commercially-viable expiration dating period. The FDA identified only this one chemistry, manufacturing and controls, or CMC, reason for the refusal to file. We have requested a face-to-face meeting with the FDA to understand its requirements and define the path to a successful filing of the ANX-530 NDA at the earliest possible time. In addition, we expect to meet with the FDA in the summer of 2010 to discuss the results of our bioequivalence study of ANX-514, following which we will provide an update on planned activities with respect to, or a potential NDA submission timeline for, ANX-514.

Our company was incorporated in Delaware in December 1995. In October 2000, we merged our wholly-owned subsidiary, Biokeys Acquisition Corp., with and into Biokeys, Inc. and changed our name to Biokeys Pharmaceuticals, Inc. In May 2003, we merged Biokeys, Inc., our wholly-owned subsidiary, with and into us and changed our name to ADVENTRX Pharmaceuticals, Inc. In April 2006, we acquired SD Pharmaceuticals, Inc., a Delaware corporation, as a wholly-owned subsidiary.

Our executive offices are located at 6725 Mesa Ridge Road, Suite 100, San Diego, California 92121, and our telephone number is (858) 552-0866. Our corporate website is located at www.adventrx.com. We make available free of charge through our Internet website our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. Information on our website does not constitute part of this prospectus or any prospectus supplement.

We have applied for trademark registration for the trademark EXELBINE in the United States for pharmaceutical preparations for use in chemotherapy. We are developing commercial names for our other product candidates. All other trademarks, service marks or trade names appearing or incorporated by reference in this prospectus and any applicable prospectus supplement, including but not limited to Navelbine® and Taxotere®, are the property of their respective owners. Use or display by us of other parties trademarks, service marks, trade names, trade dress or products is not intended to and does not imply a relationship with, or endorsements or sponsorship of, us by the

trademark, service mark, trade name, trade dress or product owners.

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The Securities We May Offer

We may offer shares of our common stock and preferred stock, various series of debt securities and warrants to purchase any of such securities, either individually or in units, with a total value of up to $150,000,000 from time to time under this prospectus, together with any applicable prospectus supplement and related free writing prospectus, at prices and on terms to be determined by market conditions at the time of offering. If we issue any debt securities at a discount from their original stated principal amount, then, for purposes of calculating the total dollar amount of all securities issued under this prospectus, we will treat the initial offering price of the debt securities as the total original principal amount of the debt securities. Each time we offer securities under this prospectus, we will provide offerees with a prospectus supplement that will describe the specific amounts, prices and other important terms of the securities being offered, including, to the extent applicable:

- designation or classification;
- aggregate principal amount or aggregate offering price;
- maturity, if applicable;
- original issue discount, if any;
- rates and times of payment of interest or dividends, if any;
- redemption, conversion, exchange or sinking fund terms, if any;
- conversion or exchange prices or rates, if any, and, if applicable, any provisions for changes to or adjustments in the conversion or exchange prices or rates and in the securities or other property receivable upon conversion or exchange;
- ranking;
- restrictive covenants, if any;
- voting or other rights, if any; and
- important United States federal income tax considerations.

A 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.

We may sell the securities to or through underwriters, dealers or agents or directly to purchasers. We, as well as any agents acting on our behalf, reserve the sole right to accept and to reject in whole or in part any proposed purchase of securities. Each prospectus supplement will set forth the names of any underwriters, dealers or agents involved in the sale of securities described in that prospectus supplement and any applicable fee, commission or discount arrangements with them, details regarding any over-allotment option granted to them, and net proceeds to us. The following is a summary of the securities we may offer with this prospectus.

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Common Stock

We currently have authorized 500,000,000 shares of common stock, par value $0.001 per share. We may offer shares of our common stock either alone or underlying other registered securities convertible into or exercisable for our common stock. Holders of our common stock are entitled to such dividends as our board of directors may declare from time to time out of legally available funds, subject to the preferential rights of the holders of any shares of our preferred stock that are outstanding or that we may issue in the future. Currently, we do not pay any dividends on our common stock. Each holder of our common stock is entitled to one vote per share. In this prospectus, we provide a general description of, among other things, the rights and restrictions that apply to holders of our common stock.

Preferred Stock

We currently have authorized 1,000,000 shares of preferred stock, par value $0.001 per share, none of which are outstanding. Pursuant to the certificates of designation for our previously issued 0% Series A, 5% Series B, 5% Series C, 4.25660% Series D and 3.73344597664961% Series E convertible preferred stock, such shares of preferred stock resumed the status of authorized but unissued and undesignated shares of preferred stock when they were converted to common stock.

Any authorized and undesignated shares of preferred stock may be issued with such rights and powers as the board of directors may designate. Under our certificate of incorporation, our board of directors has the authority to issue shares of our preferred stock in one or more series and to fix or alter the rights, preferences, privileges and restrictions granted to or imposed upon any series of preferred stock. The particular terms of each class or series of preferred stock, including redemption privileges, liquidation preferences, voting rights, dividend rights and/or conversion rights, will be more fully described in the applicable prospectus supplement relating to the preferred stock offered thereby.

The rights, preferences, privileges and restrictions granted to or imposed upon any series of preferred stock that we offer and sell under this prospectus and applicable prospectus supplements will be set forth in a certificate of designation relating to the series. We will incorporate by reference into the registration statement of which this prospectus is a part the form of any certificate of designation that describes the terms of the series of preferred stock we are offering before the issuance of shares of that series of preferred stock. You should read any prospectus supplement and any free writing prospectus that we may authorize to be provided to you related to the series of preferred stock being offered, as well as the complete certificate of designation that contains the terms of the applicable series of preferred stock.

Debt Securities

We may offer general debt obligations, which may be secured or unsecured, senior or subordinated and convertible into shares of our common stock. In this prospectus, we refer to the senior debt securities and the subordinated debt securities together as the debt securities. We may issue debt securities under a note purchase agreement or under an indenture to be entered between us and a trustee; a form of the indenture is included as an exhibit to the registration statement of which this prospectus is a part. The indenture does not limit the amount of securities that may be issued under it and provides that debt securities may be issued in one or more series. The senior debt securities will have the same rank as all of our other indebtedness that is not subordinated. The subordinated debt securities will be subordinated to our senior debt on terms set forth in the applicable prospectus supplement. In addition, the subordinated debt securities will be effectively subordinated to creditors and preferred stockholders of our subsidiaries. Our board of directors will determine the terms of each series of debt securities being offered. This prospectus contains only general terms and provisions of the debt securities. The applicable prospectus supplement will describe the particular terms of the debt securities offered thereby. You should read any prospectus supplement and any free writing prospectus that we may authorize to be provided to you related to the series of debt securities being offered, as well as the complete note agreements and/or indentures that contain the terms of the debt securities. Forms of indentures have been filed as exhibits to the registration statement of which this prospectus is a part, and supplemental indentures and forms of debt securities containing the terms of debt securities being offered will be incorporated by reference into the registration statement of which this prospectus is a part from reports we file with the SEC.

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Warrants

We may offer warrants for the purchase of shares of our common stock or preferred stock or of debt securities. We may issue the warrants by themselves or together with preferred stock, common stock or debt securities, and the warrants may be attached to or separate from any offered securities. Each series of warrants will be issued under a separate warrant agreement to be entered into between us and the investors or a warrant agent. Our board of directors will determine the terms of the warrants. This prospectus contains only general terms and provisions of the warrants. The applicable prospectus supplement will describe the particular terms of the warrants being offered thereby. You should read any prospectus supplement and any free writing prospectus that we may authorize to be provided to you related to the series of warrants being offered, as well as the complete warrant agreements that contain the terms of the warrants. Specific warrant agreements will contain additional important terms and provisions and will be incorporated by reference into the registration statement of which this prospectus is a part from reports we file with the SEC.

Units

We may offer units consisting of our common stock or preferred stock, debt securities and/or warrants to purchase any of these securities in one or more series. We may evidence each series of units by unit certificates that we will issue under a separate agreement. We may enter into unit agreements with a unit agent. Each unit agent will be a bank or trust company that we select. We will indicate the name and address of the unit agent in the applicable prospectus supplement relating to a particular series of units. This prospectus contains only a summary of certain general features of the units. The applicable prospectus supplement will describe the particular features of the units being offered thereby. You should read any 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 agreements that contain the terms of the units. Specific unit agreements will contain additional important terms and provisions and will be incorporated by reference into the registration statement of which this prospectus is a part from reports we file with the SEC.

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RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully consider the risk factors set forth under Risk Factors in Item 1A of our annual report on Form 10-K for the year ended December 31, 2009, which is incorporated by reference in this prospectus, together with all other information contained or incorporated by reference in this prospectus, as may be updated by our subsequent filings under the Securities Exchange Act of 1934, as amended, or the Exchange Act, and the risk factors and other information contained in any applicable prospectus supplement and in any related free writing prospectus in connection with a specific offering, before deciding whether to purchase any of the securities being registered pursuant to the registration statement of which this prospectus is a part. Each of the risk factors could adversely affect our business, operating results and financial condition, as well as adversely affect the value of an investment in our securities, and the occurrence of any of these risks might cause you to lose all or part of your investment.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, including the documents that we incorporate herein by reference, includes forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. All statements, other than statements of historical fact, are statements that could be deemed forward-looking statements, including, but not limited to, statements regarding business strategy, expectations and plans, our objectives for future operations, including product development and acquisition, and our future financial position. When used in this report, the words believe, may, could, will, estimate, conti anticipate, intend, expect, indicate and similar expressions are intended to identify forward-looking statements.

We base these forward-looking statements on our current expectations and projections about future events and trends that we believe may affect our financial condition, results of operations, business strategy, short-term and long-term business operations and objectives, and financial needs. These forward-looking statements are subject to risks and uncertainties that could cause our actual results to differ materially from those reflected in the forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those described under Risk Factors in Item 1A of our annual report on Form 10-K for the year ended December 31, 2009, which is incorporated by reference in this prospectus, as may be supplemented or updated by any applicable prospectus supplement, and those described in other reports and documents we file with the SEC.

Any forward-looking statement speaks only as of the date on which it is made and, except as required by law, we do not intend to update any forward-looking statements publicly to reflect events or circumstances after the date on which such statement is made or to update the reasons actual results could differ materially from those anticipated in the forward-looking statements, even if new information becomes available in the future. You should not place undue reliance on any forward-looking statement.

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USE OF PROCEEDS

Except as described in any prospectus supplement and any free writing prospectus in connection with a specific offering, we currently intend to use the net proceeds from the sale of the securities offered under this prospectus to pursue regulatory approval, including required development activities, for our lead product candidates, ANX-530 and ANX-514, in the U.S., establish capability to support marketing, distributing and selling ANX-530 and ANX-514 in the U.S., should they be approved, and for general corporate purposes, including working capital. We may also use the net proceeds to repay any debts and/or invest in or acquire complementary businesses, products or technologies, although we have no current commitments or agreements with respect to any such investments or acquisitions as of the date of this prospectus. We have not determined the amount of net proceeds to be used specifically for the foregoing purposes. As a result, our management will have broad discretion in the allocation of the net proceeds and investors will be relying on the judgment of our management regarding the application of the proceeds of any sale of the securities. Pending use of the net proceeds, we intend to invest the proceeds in short-term, investment-grade, interest-bearing instruments.

Each time we offer securities under this prospectus, we will describe the intended use of the net proceeds from that offering in the applicable prospectus supplement. The actual amount of net proceeds we spend on a particular use will depend on many factors, including, our future capital expenditures, the amount of cash required by our operations, and our future revenue growth, if any. Therefore, we will retain broad discretion in the use of the net proceeds.

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DESCRIPTION OF COMMON STOCK AND PREFERRED STOCK

The following description of our common stock and preferred stock, together with any additional information we include in any applicable prospectus supplement or any related free writing prospectus, summarizes the material terms and provisions of our common stock and the preferred stock that we may offer under this prospectus. While the terms we have summarized below will apply generally to any future common stock or preferred stock that we may offer, we will describe the particular terms of any class or series of these securities in more detail in the applicable prospectus supplement. For the complete terms of our common stock and preferred stock, please refer to our amended and restated certificate of incorporation and our amended and restated bylaws that are incorporated by reference into the registration statement of which this prospectus is a part or may be incorporated by reference in this prospectus or any applicable prospectus supplement. The terms of these securities may also be affected by Delaware General Corporation Law. The summary below and that contained in any applicable prospectus supplement or any related free writing prospectus are qualified in their entirety by reference to our amended and restated certificate of incorporation and our amended and restated bylaws.

Common Stock

We are authorized to issue 500,000,000 shares of common stock, par value $0.001 per share, of which 257,250,690 shares were issued and outstanding as of March 22, 2010. Additional shares of authorized common stock may be issued, as authorized by our board of directors from time to time, without stockholder approval, except as may be required by applicable securities exchange requirements. The holders of common stock possess exclusive voting rights in us, except to the extent our board of directors specifies voting power with respect to any other class of securities issued in the future. Each holder of our common stock is entitled to one vote for each share held of record on each matter submitted to a vote of stockholders, including the election of directors. Stockholders do not have any right to cumulate votes in the election of directors.

Subject to preferences that may be granted to the holders of preferred stock, each holder of our common stock is entitled to share ratably in distributions to stockholders and to receive ratably such dividends as may be declared by our board of directors out of funds legally available therefor. In the event of our liquidation, dissolution or winding up, the holders of our common stock will be entitled to receive, after payment of all of our debts and liabilities and of all sums to which holders of any preferred stock may be entitled, the distribution of any of our remaining assets. Holders of our common stock have no conversion, exchange, sinking fund, redemption or appraisal rights (other than such as may be determined by our board of directors in its sole discretion) and have no preemptive rights to subscribe for any of our securities.

All of the outstanding shares of our common stock are fully paid and non-assessable. The shares of common stock offered by this prospectus or upon the conversion of any preferred stock or debt securities or exercise of any warrants offered pursuant to this prospectus, when issued and paid for, will also be, fully paid and non-assessable.

Securities Exchange Listing

Our common stock is listed on the NYSE Amex under the symbol ANX.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company.

Preferred Stock

We currently have authorized 1,000,000 shares of preferred stock, par value $0.001 per share, none of which are outstanding as of the date hereof. Pursuant to the certificates of designation for our previously issued 0% Series A, 5% Series B, 5% Series C, 4.25660% Series D and 3.73344597664961% Series E convertible preferred stock, such shares of preferred stock resumed the status of authorized but unissued and undesignated shares of preferred stock when they were converted to common stock.

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Pursuant to our amended and restated certificate of incorporation, our board of directors has the authority to provide for the issuance, in one or more series, of our authorized preferred stock and to fix or alter the rights, preferences, privileges and restrictions granted to or imposed upon any series of our preferred stock. The rights, privileges, preferences and restrictions of any such series of our preferred stock may be subordinated to, pari passu with (including, without limitation, inclusion in provisions with respect to liquidation and acquisition preferences, redemption or approval of matters by vote or written consent), or senior to any of those of any present or future class or series of preferred stock or common stock. Our board of directors is also expressly authorized to increase or decrease the number of shares of any series prior or subsequent to the issue of that series, but not below the number of shares of such series then outstanding. The issuance of preferred stock may have the effect of decreasing the market price of our common stock and may adversely affect the voting power of holders of our common stock and reduce the likelihood that holders of our common stock will receive dividend payments and payments upon liquidation.

The particular terms of each class or series of preferred stock that we may offer under this prospectus, including redemption privileges, liquidation preferences, voting rights, dividend rights and/or conversion rights, will be more fully described in the applicable prospectus supplement relating to the preferred stock offered thereby. The rights, preferences, privileges and restrictions of the preferred stock of each series will be fixed by the certificate of designation relating to each series. We will incorporate by reference into the registration statement of which this prospectus is a part the form of any certificate of designation that describes the terms of the series of preferred stock we are offering before the issuance of the related series of preferred stock. The applicable prospectus supplement will specify the terms of the series of preferred stock we may offer, including, but not limited to:

- the distinctive designation and the maximum number of shares in the series;
- the number of shares we are offering and purchase price per share;
- the liquidation preference, if any;
- the terms on which dividends, if any, will be paid;
- the voting rights, if any, on the shares of the series;
- the terms and conditions, if any, on which the shares of the series shall be convertible into, or exchangeable for, shares of any other class or classes of capital stock;
- the terms on which the shares may be redeemed, if at all;
- any listing of the preferred stock on any securities exchange or market;
- a discussion of any material or special United States federal income tax considerations applicable to the preferred stock; and
- any or all other preferences, rights, restrictions, including restrictions on transferability, and qualifications of shares of the series.

The issuance of preferred stock may delay, deter or prevent a change in control.

The description of preferred stock above and the description of the terms of a particular series of preferred stock in any applicable prospectus supplement are not complete. You should refer to the applicable certificate of designation for complete information.

The General Corporate Law of the State of Delaware, the state of our incorporation, provides that the holders of preferred stock will have the right to vote separately as a class on any proposal involving fundamental changes in the rights of holders of that preferred stock. This right is in addition to any voting rights that may be provided for in the applicable certificate of designation.

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Anti-Takeover Effects of Provisions of our Charter Documents and Delaware Law

The following is a summary of certain provisions of Delaware law, our amended and restated certificate of incorporation and our amended and restated bylaws. This summary does not purport to be complete and is qualified in its entirety by reference to the corporate law of Delaware and our amended and restated certificate of incorporation and amended and restated bylaws.

Certificate of Incorporation and Bylaws

Preferred Stock. Under our amended and restated certificate of incorporation, our board of directors has the power to authorize the issuance of up to 1,000,000 shares of preferred stock, all of which are currently undesignated, and to determine the price, rights, preferences, privileges and restrictions, including voting rights, of those shares without further vote or action by our stockholders. The issuance of preferred stock may:

delay, defer or prevent a change in control;

discourage bids for our common stock at a premium over the market price of our common stock;

adversely affect the voting and other rights of the holders of our common stock; and

discourage acquisition proposals or tender offers for our shares and, as a consequence, inhibit fluctuations in the market price of our shares that could result from actual or rumored takeover attempts.

Advance Notice Requirement. Stockholder nominations of individuals for election to our board of directors and stockholder proposals of other matters to be brought before an annual meeting of our stockholders must comply with the advance notice procedures set forth in our amended and restated bylaws. Generally, to be timely, such notice must be received at our principal executive offices no later than the date specified in our proxy statement released to stockholders in connection with the preceding year s annual meeting of stockholders, which date shall be not earlier than the 120th day, nor later than the close of business on the 90th day, prior to the first anniversary of the date of the preceding year s annual meeting of stockholders.

Special Meeting Requirements. Our amended and restated bylaws provide that special meetings of our stockholders may only be called at the request of our board of directors, president (unless there is a chief executive officer who is not the president, in which case a special meeting may be called at any time by the chief executive officer and not the president) or chair of the board of directors. Only such business shall be considered at a special meeting as shall have been stated in the notice for such meeting.

No Cumulative Voting. Our amended and restated certificate of incorporation does not include a provision for cumulative voting for directors.

Indemnification. Our amended and restated certificate of incorporation and our bylaws, as amended, provide that we will indemnify our officers and directors against losses as they incur in investigations and legal proceedings resulting from their services to us, which may include service in connection with takeover defense measures.

Delaware Anti-Takeover Statute.

We are subject to Section 203 of the Delaware General Corporation Law, an anti-takeover law. In general, Section 203 prohibits, with some exceptions, a publicly held Delaware corporation from engaging in a business combination with any interested stockholder for a period of three years following the date that stockholder became an interested stockholder, unless:

prior to that date, the board of directors of the corporation approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;

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upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares of voting stock outstanding (but not the voting stock owned by the interested stockholder) those shares owned by persons who are directors and officers and by excluding employee stock plans in which employee participants do not have the right to determine whether shares held subject to the plan will be tendered in a tender or exchange offer; or

on or subsequent to that date, the business combination is approved by the board of directors of the corporation and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66-2/3% of the outstanding voting stock that is not owned by the interested stockholder.

Section 203 defines business combination to include any of the following:

any merger or consolidation involving the corporation and the interested stockholder;

any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;

subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;

any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; or

the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as any person who, together with the person s affiliates and associates, beneficially owns, or within three years prior to the determination of interested stockholder status did beneficially own, 15% or more of the outstanding voting stock of the corporation.

The above provisions may deter a hostile takeover or delay a change in control of management or us.

DESCRIPTION OF DEBT SECURITIES

General

The debt securities that we may issue may constitute debentures, notes, bonds or other evidences of indebtedness of ADVENTRX Pharmaceuticals, Inc., to be issued in one or more series, which may include senior debt securities, subordinated debt securities and senior subordinated debt securities. The particular terms of any series of debt securities we may offer, including the extent to which the general terms set forth below may be applicable to a particular series, will be described in a prospectus supplement relating to such series.

Debt securities that we may issue may be issued under a senior indenture between us and a trustee, or a subordinated indenture between us and a trustee (collectively, the indenture). We have filed forms of the indentures as exhibits to the registration statement of which this prospectus is a part. If we enter into any revised indenture or indenture supplement, we will file a copy of that supplement with the SEC.

THE FOLLOWING DESCRIPTION IS A SUMMARY OF THE MATERIAL PROVISIONS OF THE INDENTURE. IT DOES NOT RESTATE THE INDENTURE IN ITS ENTIRETY. THE INDENTURE IS GOVERNED BY THE TRUST INDENTURE ACT OF 1939. THE TERMS OF THE DEBT SECURITIES INCLUDE THOSE STATED IN THE INDENTURE AND THOSE MADE PART OF THE INDENTURE BY REFERENCE TO THE TRUST INDENTURE ACT. WE URGE YOU TO READ THE INDENTURE BECAUSE IT, AND NOT THIS DESCRIPTION, DEFINES YOUR RIGHTS AS A HOLDER OF THE DEBT SECURITIES.

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The indenture contains no covenant or provision which affords debt holders protection in the event of a highly leveraged transaction.

Information You Will Find in the Prospectus Supplement

The indenture provides that we may issue debt securities from time to time in one or more series by resolution of our board of directors or by means of a supplemental indenture, and that we may denominate the debt securities and make them payable in foreign currencies. The indenture does not limit the aggregate principal amount of debt securities that can be issued thereunder. The prospectus supplement for a series of debt securities will provide information relating to the terms of the series of debt securities being offered, which may include:

the title and denominations of the debt securities of the series;

any limit on the aggregate principal amount of the debt securities of the series;

the date or dates on which the principal and premium, if any, with respect to the debt securities of the series are payable or the method of determination thereof;

the rate or rates, which may be fixed or variable, at which the debt securities of the series shall bear interest, if any, or the method of calculating and/or resetting such rate or rates of interest;

the dates from which such interest shall accrue or the method by which such dates shall be determined and the basis upon which interest shall be calculated;

the interest payment dates for the series of debt securities or the method by which such dates will be determined, the terms of any deferral of interest and any right of ours to extend the interest payments periods;

the place or places where the principal and interest on the series of debt securities will be payable;

the terms and conditions upon which debt securities of the series may be redeemed, in whole or in part, at our option or otherwise;

our obligation, if any, to redeem, purchase, or repay debt securities of the series pursuant to any sinking fund or other specified event or at the option of the holders and the terms of any such redemption, purchase, or repayment;

the terms, if any, upon which the debt securities of the series may be convertible into or exchanged for other securities, including, among other things, the initial conversion or exchange price or rate and the conversion or exchange period;

if the amount of principal, premium, if any, or interest with respect to the debt securities of the series may be determined with reference to an index or formula, the manner in which such amounts will be determined;

if any payments on the debt securities of the series are to be made in a currency or currencies (or by reference to an index or formula) other than that in which such securities are denominated or designated to be payable, the currency or currencies (or index or formula) in which such payments are to be made and the terms and conditions of such payments;

any changes or additions to the provisions of the indenture dealing with defeasance, including any additional covenants that may be subject to our covenant defeasance option;

the currency or currencies in which payment of the principal and premium, if any, and interest with respect to debt securities of the series will be payable, or in which the debt securities of the series shall be denominated, and the particular provisions applicable thereto in accordance with the indenture;

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the portion of the principal amount of debt securities of the series which will be payable upon declaration of acceleration or provable in bankruptcy or the method by which such portion or amount shall be determined;

whether the debt securities of the series will be secured or guaranteed and, if so, on what terms;

any addition to or change in the events of default with respect to the debt securities of the series;

the identity of any trustees, authenticating or paying agents, transfer agents or registrars;

the applicability of, and any addition to or change in, the covenants currently set forth in the indenture;

the subordination, if any, of the debt securities of the series and terms of the subordination;

any other terms of the debt securities of the series; and

whether securities of the series shall be issuable as registered securities or bearer securities (with or without interest coupons), and any restrictions applicable to the offering, sale or delivery of such bearer securities and the terms upon which such bearer securities of a series may be exchanged for registered securities, and vice versa.

Holders of debt securities may present debt securities for exchange in the manner, at the places, and subject to the restrictions set forth in the debt securities, the indenture, and the prospectus supplement. We will provide these services without charge, other than any tax or other governmental charge payable in connection therewith, but subject to the limitations provided in the indenture, any board resolution establishing such debt securities and any applicable indenture supplement. Debt securities in bearer form and the coupons, if any, appertaining thereto will be transferable by delivery.

Senior Debt

We may issue senior debt securities under the indenture and any coupons that will constitute part of our senior debt. Unless otherwise set forth in the applicable indenture supplement or in any board resolution establishing such debt securities and described in a prospectus supplement, the senior debt securities will be senior unsecured obligations, ranking equally with all of our existing and future senior unsecured debt. The senior debt securities will be senior to all of our subordinated debt and junior to any secured debt we may incur as to the assets securing such debt.

Subordinated Debt

We may issue subordinated debt securities under the indenture and any coupons that will constitute part of such subordinated debt. These subordinated debt securities will be subordinate and junior in right of payment, to the extent and in the manner set forth in the indenture and any applicable indenture supplement, to all of our senior indebtedness.

If this prospectus is being delivered in connection with a series of subordinated debt securities, the accompanying prospectus supplement or the information incorporated by reference will set forth the approximate amount of senior indebtedness, if any, outstanding as of the end of our most recent fiscal quarter.

Senior Subordinated Debt

We may issue senior subordinated debt securities under the indenture and any coupons that will constitute part of our senior subordinated debt. These senior subordinated debt securities will be, to the extent and in the manner set forth in the indenture, subordinate and junior in right of payment to all of our senior indebtedness and senior to our other subordinated debt. See the discussions above under Senior Debt and Subordinated Debt for a more detailed explanation of our senior and subordinated indebtedness.

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Interest Rate

Debt securities that bear interest will do so at a fixed rate or a floating rate. We may sell, at a discount below the stated principal amount, any debt securities which bear no interest or which bear interest at a rate that at the time of issuance is below the prevailing market rate. The relevant prospectus supplement will describe the special United States federal income tax considerations applicable to:

- any discounted debt securities; and
- any debt securities issued at par which are treated as having been issued at a discount for United States federal income tax purposes.

Registered Global Securities

We may issue registered debt securities of a series in the form of one or more fully registered global securities. We will deposit the registered global security with a depositary or with a nominee for a depositary identified in the prospectus supplement relating to such series. The global security or global securities will represent and will be in a denomination or aggregate denominations equal to the portion of the aggregate principal amount of outstanding registered debt securities of the series to be represented by the registered global security or securities. Unless it is exchanged in whole or in part for debt securities in definitive registered form, a registered global security may not be transferred, except as a whole in three cases:

- by the depositary for the registered global security to a nominee of the depositary;
- by a nominee of the depositary to the depositary or another nominee of the depositary; and
- by the depositary or any nominee to a successor of the depositary or a nominee of the successor.

The prospectus supplement relating to a series of debt securities will describe the specific terms of the depositary arrangement concerning any portion of that series of debt securities to be represented by a registered global security. We anticipate that the following provisions will generally apply to all depositary arrangements.

Upon the issuance of a registered global security, the depositary will credit, on its book-entry registration and transfer system, the principal amounts of the debt securities represented by the registered global security to the accounts of persons that have accounts with the depositary. These persons are referred to as participants. Any underwriters, agents or debtors participating in the distribution of debt securities represented by the registered global security will designate the accounts to be credited. Only participants or persons that hold interests through participants will be able to beneficially own interests in a registered global security. The depositary for a global security will maintain records of beneficial ownership interests in a registered global security for participants. Participants or persons that hold through participants will maintain records of beneficial ownership interests in a global security for persons other than participants. These records will be the only means to transfer beneficial ownership in a registered global security.

The laws of some states may require that specified purchasers of securities take physical delivery of the securities in definitive form. These laws may limit the ability of those persons to own, transfer or pledge beneficial interests in global securities.

So long as the depositary, or its nominee, is the registered owner of a registered global security, the depositary or its nominee will be considered the sole owner or holder of the debt securities represented by the registered global security for all purposes under the indenture. Except as set forth below, owners of beneficial interests in a registered global security:

- may not have the debt securities represented by a registered global security registered in their names;
- will not receive or be entitled to receive physical delivery of debt securities represented by a registered global security in definitive form; and
- will not be considered the owners or holders of debt securities represented by a registered global security under the indenture.

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Accordingly, each person owning a beneficial interest in a registered global security must rely on the procedures of the depositary for the registered global security and, if the person is not a participant, on the procedures of the participant through which the person owns its interests, to exercise any rights of a holder under the indenture applicable to the registered global security.

We understand that, under existing industry practices, if we request any action of holders, or if an owner of a beneficial interest in a registered global security desires to give or take any action which a holder is entitled to give or take under the indenture, the depositary for the registered global security would authorize the participants holding the relevant beneficial interests to give or take the action, and the participants would authorize beneficial owners owning through the participants to give or take the action or would otherwise act upon the instructions of beneficial owners holding through them.

Payment of Interest on and Principal of Registered Global Securities

We will make principal, premium, if any, and interest payments on debt securities represented by a registered global security registered in the name of a depositary or its nominee to the depositary or its nominee as the registered owner of the registered global security. None of ADVENTRX, the trustee, or any paying agent for debt securities represented by a registered global security will have any responsibility or liability for:

- any aspect of the records relating to, or payments made on account of, beneficial ownership interests in such registered global security;
- maintaining, supervising, or reviewing any records relating to beneficial ownership interests;
- the payments to beneficial owners of the global security of amounts paid to the depositary or its nominee; or
- any other matter relating to the actions and practices of the depositary, its nominee or any of its participants.

We expect that the depositary, upon receipt of any payment of principal, premium or interest in respect of the global security, will immediately credit participants accounts with payments in amounts proportionate to their beneficial interests in the principal amount of a registered global security as shown on the depositary s records. We also expect that payments by participants to owners of beneficial interests in a registered global security held through participants will be governed by standing instructions and customary practices. This is currently the case with the securities held for the accounts of customers registered in street name. Such payments will be the responsibility of participants.

Exchange of Registered Global Securities

We may issue debt securities in definitive form in exchange for the registered global security if both of the following occur:

- the depositary for any debt securities represented by a registered global security is at any time unwilling or unable to continue as depositary or ceases to be a clearing agency registered under the Exchange Act; and
- we do not appoint a successor depositary within 90 days.

In addition, we may, at any time, determine not to have any of the debt securities of a series represented by one or more registered global securities. In this event, we will issue debt securities of that series in definitive form in exchange for all of the registered global security or securities representing those debt securities.

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Our Covenants

The indenture includes covenants by us, including among other things that we will make all payments of principal and interest at the times and places required. The board resolution or supplemental indenture establishing each series of debt securities may contain additional covenants, including covenants which could restrict our right to incur additional indebtedness or liens and to take certain actions with respect to our businesses and assets.

Events of Default

Unless otherwise indicated in the applicable prospectus supplement, the following will be events of default under the indenture with respect to each series of debt securities issued under the indenture:

failure to pay when due any interest on any debt security of that series that continues for 30 days;

failure to pay when due the principal of, or premium, if any, on, any debt security of that series;

default in the payment of any sinking fund installment with respect to any debt security of that series when due and payable;

failure to perform any other covenant or agreement of ours under the indenture or the supplemental indenture with respect to that series or the debt securities of that series, continued for 90 days after written notice to us by the trustee or holders of at least 25% in aggregate principal amount of the outstanding debt securities of the series to which the covenant or agreement relates;

certain events of bankruptcy, insolvency or similar proceedings affecting us and our subsidiaries; and

any other event of default specified in any supplemental indenture under which such series of debt securities is issued.

Except as to certain events of bankruptcy, insolvency or similar proceedings affecting us and except as provided in the applicable prospectus supplement, if any event of default shall occur and be continuing with respect to any series of debt securities under the indenture, either the trustee or the holders of at least 25% in aggregate principal amount of outstanding debt securities of such series may accelerate the maturity of all debt securities of such series. Upon certain events of bankruptcy, insolvency or similar proceedings affecting us, the principal, premium, if any, and interest on all debt securities of each series shall be immediately due and payable.

After any such acceleration, but before a judgment or decree based on acceleration has been obtained by the trustee, the holders of a majority in aggregate principal amount of each affected series of debt securities may waive all defaults with respect to such series and rescind and annul such acceleration if all events of default, other than the non-payment of accelerated principal, have been cured, waived or otherwise remedied.

No holder of any debt securities will have any right to institute any proceeding with respect to the indenture or for any remedy under the indenture, unless such holder shall have previously given to the trustee written notice of a continuing event of default and the holders of at least 25% in aggregate principal amount of the outstanding debt securities of the relevant series shall have made written request and offered indemnity satisfactory to the trustee to institute such proceeding as trustee, and the trustee shall not have received from the holders of a majority in aggregate principal amount of the outstanding debt securities of such series a direction inconsistent with such request and shall have failed to institute such proceeding within 60 days. However, such limitations do not apply to a suit instituted by a holder of a debt security for enforcement of payment of the principal of and premium, if any, or interest on such debt security on or after the respective due dates expressed in such debt security.

Supplemental Indentures

We and the trustee may, at any time and from time to time, without prior notice to or consent of any holders of debt securities after issuance of such debt securities, enter into one or more supplemental indentures to, among other things:

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add guarantees to or secure any series of debt securities;

add any additional Events of Default;

provide for the succession of another person pursuant to the provisions of the indenture relating to consolidations, mergers and sales of assets and the assumption by such successor of our covenants, agreements, and obligations, or to otherwise comply with the provisions of the indenture relating to consolidations, mergers, and sales of assets;

surrender any right or power conferred upon us under the indenture or to add to our covenants further covenants, restrictions, conditions or provisions for the protection of the holders of all or any series of debt securities;

cure any ambiguity or to correct or supplement any provision contained in the indenture, in any supplemental indenture or in any debt securities that may be defective or inconsistent with any other provision contained therein, , so long as any such action does not adversely affect the interests of the holders of debt securities of any series in any material respect;

add or change or eliminate any of the provisions of the indenture to extent as shall be necessary to permit or facilitate the issuance of debt securities in bear form, registrable or not registrable as to principal, and with or without interest coupons;

add to or change any of the provisions of the indenture to permit the defeasance and discharge of any series of debt securities pursuant to the indenture;

change, or eliminate any of the provisions of the indenture provided that any such change or elimination shall become effective only when there are no debt securities outstanding of any series created prior to the execution of such supplemental indenture;

evidence and provide for the acceptance of appointment by a successor or separate trustee; and

establish the form or terms of debt securities of any series and to make any change that does not adversely affect the interests of the holders of debt securities.

With the consent of the holders of at least a majority in principal amount of debt securities of each series affected by such supplemental indenture (each series voting as one class), we and the trustee may enter into one or more supplemental indentures for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of the indenture or modifying in any manner the rights of the holders of debt securities of each such series.

Notwithstanding our rights and the rights of the trustee to enter into one or more supplemental indentures with the consent of the holders of debt securities of the affected series as described above, no such supplemental indenture to be entered into after issuance of the debt securities shall, without the consent of the holder of each outstanding debt security of the affected series, among other things:

change the final maturity of the principal of, or any installment of interest on, any debt securities;

reduce the principal amount of any debt securities or the rate of interest on any debt securities;

change the currency in which any debt securities are payable;

release any security interest that may have been granted with respect to such debt securities;

impair the right of the holders to conduct a proceeding for any remedy available to the trustee;

reduce the percentage in principal amount of any series of debt securities whose holders must consent to an amendment or supplemental indenture;

modify the ranking or priority of the securities;

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reduce any premium payable upon the redemption of any debt securities or change the time at which any debt security may be redeemed; or

make any change that adversely affects the relative rights of holders of subordinated debt securities with respect to senior debt securities.

Satisfaction and Discharge of the Indenture; Defeasance

Except to the extent set forth in a supplemental indenture with respect to any series of debt securities, we, at our election, may discharge the indenture and the indenture shall generally cease to be of any further effect with respect to that series of debt securities if (a) we have delivered to the trustee for cancellation all debt securities of that series (with certain limited exceptions) or (b) all debt securities of that series not previously delivered to the trustee for cancellation shall have become due and payable, or are by their terms to become due and payable within one year or are to be called for redemption within one year, and we have deposited with the trustee the entire amount sufficient to pay at maturity or upon redemption all such debt securities.

In addition, we have a legal defeasance option (pursuant to which we may terminate, with respect to the debt securities of a particular series, all of our obligations under such debt securities and the indenture with respect to such debt securities) and a covenant defeasance option (pursuant to which we may terminate, with respect to the debt securities of a particular series, our obligations with respect to such debt securities under certain specified covenants contained in the indenture). If we exercise our legal defeasance option with respect to a series of debt securities, payment of such debt securities may not be accelerated because of an event of default. If we exercise our covenant defeasance option with respect to a series of debt securities, payment of such debt securities may not be accelerated because of an event of default related to the specified covenants.

We may exercise our legal defeasance option or our covenant defeasance option with respect to the debt securities of a series only if we irrevocably deposit in trust with the trustee cash or U.S. government obligations (as defined in the indenture) for the payment of principal, premium, if any, and interest with respect to such debt securities to maturity or redemption, as the case may be. In addition, to exercise either of our defeasance options, we must comply with certain other conditions, including the delivery to the trustee of an opinion of counsel to the effect that the holders of debt securities of such series will not recognize income, gain or loss for Federal income tax purposes as a result of such defeasance and will be subject to Federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such defeasance had not occurred (and, in the case of legal defeasance only, such opinion of counsel must be based on a ruling from the Internal Revenue Service or other change in applicable Federal income tax law).

The trustee will hold in trust the cash or U.S. government obligations deposited with it as described above and will apply the deposited cash and the proceeds from deposited U.S. government obligations to the payment of principal, premium, if any, and interest with respect to the debt securities of the defeased series. In the case of subordinated debt securities, the money and U.S. government obligations held in trust will not be subject to the subordination provisions of the indenture.

Mergers, Consolidations and Certain Sales of Assets

Under the proposed form of indenture, we may not (1) consolidate with or merge into any other person or entity or permit any other person or entity to consolidate with or merge into us in a transaction in which we are not the surviving entity, or (2) transfer, lease or dispose of all or substantially all of our assets to any other person or entity unless:

the resulting, surviving or transferee entity shall be a corporation organized and existing under the laws of the United States or any state thereof and such resulting, surviving or transferee entity shall expressly assume, by supplemental indenture, all of our obligations under the debt securities and the indenture;

immediately after giving effect to such transaction (and treating any indebtedness which becomes an obligation of the resulting, surviving or transferee entity as a result of such transaction as having been incurred by such entity at the time of such transaction), no default or event of default would occur or be continuing; and

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we shall have delivered to the trustee an officers certificate and an opinion of counsel, each stating that such consolidation, merger or transfer and such supplemental indenture (if any) comply with the indenture.

Governing Law

The indenture and the debt securities will be governed by the laws of the State of New York.

No Personal Liability of Directors, Officers, Employees and Stockholders

No director, officer, incorporator or stockholder of ADVENTRX , as such, shall have any liability for any obligations of ADVENTRX under the debt securities or the indenture or for any claim based on, in respect of, or by reason of, such obligations or their creation, solely by reason of his, her, or its status as director, officer, incorporator or stockholder of ADVENTRX. By accepting a debt security, each holder waives and releases all such liability, but only such liability. The waiver and release are part of the consideration for issuance of the debt securities. Nevertheless, such waiver may not be effective to waive liabilities under the federal securities laws and it has been the view of the SEC that such a waiver is against public policy.

Conversion or Exchange Rights

Any debt securities issued under the indenture may be convertible into or exchangeable for shares of our equity securities. The terms and conditions of such conversion or exchange will be set forth in the applicable prospectus supplement. Such terms may include, among others, the following:

the conversion or exchange price;

the conversion or exchange period;

provisions regarding our ability or that of the holder to convert or exchange the debt securities;

events requiring adjustment to the conversion or exchange price; and

provisions affecting conversion or exchange in the event of our redemption of such debt securities.

Concerning the Trustee

The indenture provides that there may be more than one trustee with respect to one or more series of debt securities. If there are different trustees for different series of debt securities, each trustee will be a trustee of a trust under a supplemental indenture separate and apart from the trust administered by any other trustee under such indenture. Except as otherwise indicated in this prospectus or any prospectus supplement, any action permitted to be taken by a trustee may be taken by the trustee only with respect to the one or more series of debt securities for which it is the trustee under an indenture. Any trustee under the indenture or a supplemental indenture may resign or be removed with respect to one or more series of debt securities. All payments of principal of, premium, if any, and interest on, and all registration, transfer, exchange, authentication and delivery of (including authentication and delivery on original issuance of the debt securities), the debt securities of a series will be effected by the trustee with respect to such series at an office designated by the trustee.

The indenture contains limitations on the right of the trustee, should it become a creditor of ADVENTRX, to obtain payment of claims in certain cases or to realize on certain property received in respect of any such claim as security or otherwise. If the trustee acquires an interest that conflicts with any duties with respect to the debt securities, the trustee is required to either resign or eliminate such conflicting interest to the extent and in the manner provided by the indenture.

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Limitations on Issuance of Bearer Debt Securities

Debt securities in bearer form are subject to special U.S. tax requirements and may not be offered, sold, or delivered within the United States or its possessions or to a U.S. person, except in certain transactions permitted by U.S. tax regulations. Investors should consult the relevant prospectus supplement, in the event that bearer debt securities are issued for special procedures and restrictions that will apply to such an offering.

DESCRIPTION OF WARRANTS

We may issue warrants for the purchase of common stock, preferred stock or debt securities. Warrants may be offered independently or together with common stock, preferred stock or debt securities offered by any prospectus supplement and may be attached to or separate from those securities. While the terms we have summarized below will apply generally to any warrants that we may offer under this prospectus, we will describe in particular the terms of any series of warrants that we may offer in more detail in the applicable prospectus supplement and any applicable free writing prospectus. 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 another report that we file with the SEC, the form of warrant agreement, which may include a form of warrant certificate, that describes the terms of the of the particular series of warrants we are offering before the issuance of the related series of warrants. We may issue the warrants under a warrant agreement that we will enter into with a warrant agent to be selected by us. The warrant agent will act solely as our agent in connection with the warrants and will not assume any obligation or relationship of agency or trust for or with any registered holders of warrants or beneficial owners of warrants. The following summary of material provisions of the warrants and 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 a particular series of warrants. We urge you to read the applicable prospectus supplement and any applicable free writing prospectus related to the particular series of warrants that we sell under this prospectus, as well as the complete warrant agreements and warrant certificates that contain the terms of the warrants.

The particular terms of any issue of warrants will be described in the prospectus supplement relating to the issue. Those terms may include:

- the title of such warrants;
- the aggregate number of such warrants;
- the price or prices at which such warrants will be issued;
- the currency or currencies (including composite currencies) in which the price of such warrants may be payable;
- the terms of the securities purchasable upon exercise of such warrants and the procedures and conditions relating to the exercise of such warrants;
- the price at which the securities purchasable upon exercise of such warrants may be purchased;
- the date on which the right to exercise such warrants will commence and the date on which such right shall expire;
- any provisions for adjustment of the number or amount of securities receivable upon exercise of the warrants or the exercise price of the warrants;
- if applicable, the minimum or maximum amount of such warrants that may be exercised at any one time;

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

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

information with respect to book-entry procedures, if any;

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

United States federal income tax consequences of holding or exercising the warrants, if material; and

any other terms of such warrants, including terms, procedures and limitations relating to the exchange or exercise of such warrants.

Each warrant will entitle its holder to purchase the principal amount of debt securities or the number of shares of preferred stock or common stock at the exercise price set forth in, or calculable as set forth 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.

We will specify the place or places where, and the manner in which, warrants may be exercised in the warrant agreement or warrant certificate and applicable prospectus supplement. Upon receipt of 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, as soon as practicable, issue and deliver the purchased securities. If less than all of the warrants represented by the warrant certificate are exercised, a new warrant certificate will be issued 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.

Prior to the exercise of any warrants to purchase common stock, preferred stock or debt securities, holders of the warrants will not have any of the rights of holders of the common stock, preferred stock or debt securities purchasable upon exercise, including (i) in the case of warrants for the purchase of common stock or preferred stock, the right to vote or to receive any payments of dividends or payments upon our liquidation, dissolution or winding up on the common stock or preferred stock purchasable upon exercise, if any; or (ii) in the case of warrants for the purchase of debt securities, the right to receive payments of principal of, any premium or interest on the debt securities purchasable upon exercise or to enforce covenants in the applicable indenture.

DESCRIPTION OF UNITS

The following description, together with the additional information we may include in any applicable prospectus supplement, summarizes the material terms and provisions of the units that we may offer under this prospectus. While the terms we have summarized below will apply generally to any units that we may offer under this prospectus, 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 below. However, no prospectus supplement will fundamentally change the terms that are set forth in this prospectus or offer a security that is not registered and described in this prospectus at the time of its effectiveness.

We will file with the SEC, the form of unit agreement that describes the terms of the series of units we are offering, and any supplemental agreements, before the issuance of the related series of units. The following summaries of material terms and provisions of the units are subject to, and qualified in their entirety by reference to, all the provisions of the unit agreement and any supplemental agreements applicable to a particular series of units. We urge you to read the applicable prospectus supplements related to the particular series of units that we sell under this prospectus, as well as the complete unit agreement and any supplemental agreements that contain the terms of the units.

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General

We may issue units comprised of one or more debt securities, shares of common stock, shares of preferred stock and warrants 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 unit agreement under which a unit is issued may provide that the securities included in the unit may not be held or transferred separately, at any time or at any time before a specified date.

We will describe in the applicable prospectus supplement the terms of the series of units, including, but not limited to:

- the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;
- any provisions of the governing unit agreement that differ from those described below; and
- any provisions for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units.

The provisions described in this section, as well as those described under Description of Common Stock and Preferred Stock, Description of Debt Securities and Description of Warrants will apply to each unit and to any common stock, preferred stock, debt security or warrant included in each unit, respectively.

Issuance in Series

We may issue units in such amounts and in numerous distinct series as we determine.

Enforceability of Rights by Holders of Units

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

We, the unit agents and any of their agents may treat the registered holder of any unit certificate as an absolute owner of the units evidenced by that certificate for any purpose and as the person entitled to exercise the rights attaching to the units so requested, despite any notice to the contrary.

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PLAN OF DISTRIBUTION

We may sell the securities to or through underwriters or dealers, through agents, or directly to one or more purchasers. A prospectus supplement or supplements (and any related free writing prospectus that we may authorize to be provided to you) will describe the terms of the offering of the securities, including, to the extent applicable

the name or names of any agents or underwriters;

the purchase price of the securities being offered and the proceeds we will receive from the sale;

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

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

any public offering price;

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

any securities exchanges or markets on which such securities may be listed.

We may distribute the securities from time to time in one or more transactions at:

fixed price or prices, which may be changed from time to time;

market prices prevailing at the time of sale;

prices related to such prevailing market prices; or

negotiated prices.

Agents

We may designate agents who agree to use their reasonable efforts to solicit purchases of our securities for the period of their appointment or to sell our securities on a continuing basis. We will name any agent involved in the offering and sale of securities and we will describe any commissions we will pay the agent in the applicable prospectus supplement.

Underwriters

If we use underwriters for a sale of securities, the underwriters will acquire the securities for their own account. The underwriters may resell the securities in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. The obligations of the underwriters to purchase the securities will be subject to the conditions set forth in the applicable underwriting agreement. Subject to certain conditions, the underwriters will be obligated to purchase all the securities of the series offered if they purchase any of the securities of that series. We may change from time to time any public offering price and any discounts or concessions the underwriters allow or reallow or pay to dealers. We may use underwriters with whom we have a material relationship. We will describe the nature of any such relationship in any applicable prospectus supplement naming any such underwriter. Only underwriters we name in the prospectus supplement are underwriters of the securities offered by the prospectus supplement.

We may provide agents and underwriters with indemnification against civil liabilities related to offerings under this prospectus, including liabilities under the Securities Act, or contribution with respect to payments that the agents or underwriters may make with respect to these liabilities.

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Direct Sales

We may also sell securities directly to one or more purchasers without using underwriters or agents. Underwriters, dealers and agents that participate in the distribution of the securities may be underwriters as defined in the Securities Act, and any discounts or commissions they receive from us and any profit on their resale of the securities may be treated as underwriting discounts and commissions under the Securities Act. We will identify in the applicable prospectus supplement any underwriters, dealers or agents and will describe their compensation. We may have agreements with the underwriters, dealers and agents to indemnify them against specified civil liabilities, including liabilities under the Securities Act. Underwriters, dealers and agents may engage in transactions with or perform services for us in the ordinary course of their businesses.

Trading Markets and Listing of Securities

Unless otherwise specified in the applicable prospectus supplement, each class or series of securities will be a new issue with no established trading market, other than our common stock, which is currently listed on the NYSE Amex. We may elect to list any other class or series of securities on any exchange or market, but we are not obligated to do so. It is possible that one or more underwriters may make a market in a class or series of securities, but the underwriters will not be obligated to do so and may discontinue any market making at any time without notice. We cannot give any assurance as to the liquidity of the trading market for any of the securities.

Stabilization Activities

Any underwriter may engage in overallotment, stabilizing transactions, short covering transactions and penalty bids in accordance with Regulation M under the Exchange Act. Overallotment 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. Short covering transactions involve purchases of the securities 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 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 these activities at any time.

Passive Market Making

Any underwriters who are qualified market makers on the NYSE Amex may engage in passive market making transactions in the securities on the NYSE Amex in accordance with Rule 103 of Regulation M, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the securities. 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.

Compensation Cap

In compliance with the guidelines of the Financial Regulatory Authority, or FINRA, the maximum aggregate value of all compensation to be received by any FINRA member or independent broker-dealer will not exceed 8% of the gross proceeds from the sale of securities pursuant to this prospectus and any applicable prospectus supplement.

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LEGAL MATTERS

The validity of the securities being offered by this prospectus will be passed upon for us by DLA Piper LLP (US), San Diego, California. If the validity of any securities is also passed upon by counsel any underwriters, dealers or agents, that counsel will be named in the prospectus supplement relating to that specific offering.

EXPERTS

The consolidated financial statements of ADVENTRX Pharmaceuticals, Inc. as of December 31, 2009 and 2008, and the related consolidated statements of operations, stockholders equity (deficit) and comprehensive loss and cash flows for the years then ended and for the period from January 1, 2002 through December 31, 2009 are incorporated by reference herein and in the registration statement in reliance upon the report of J.H. Cohn LLP, an independent registered public accounting firm, given on the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information electronically with the SEC. You may read and copy these reports, proxy statements and other information at the SEC s public reference room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for more information about the operation of the public reference room. You can request copies of these documents by writing to the SEC and paying a fee for the copying costs. The SEC also maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, including us. The SEC s Internet site can be found at http://www.sec.gov. In addition, we make available on or through our Internet site copies of these reports as soon as reasonably practicable after we electronically file or furnish them to the SEC. Our Internet site can be found at http://www.adventrx.com.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

We are allowed to incorporate by reference information contained in documents that we file with the SEC. This means that we can disclose important information to you by referring you to those documents and that the information in this prospectus is not complete. You should read the information incorporated by reference for more detail. We incorporate by reference in two ways. First, we list below certain documents that we have already filed with the SEC. The information in these documents is considered part of this prospectus. Second, the information in documents that we file in the future will update and supersede the information currently in, and be incorporated by reference in, this prospectus.

We incorporate by reference into this prospectus the documents listed below, any filings we make with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of the initial registration statement of which this prospectus is a part and prior to the effectiveness of the registration statement, and any filings we make with the SEC pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act from the date of this prospectus until the termination of this offering (in each case, except for the information furnished under Item 2.02 or Item 7.01 in any current report on Form 8-K and Form 8-K/A):

- our annual report on Form 10-K for the year ended December 31, 2009 filed with the SEC on March 18, 2010 (File No. 001-32157-10692317);

- our current reports on Form 8-K filed with the SEC on January 4, 2010 (File No. 001-32157-10500041); January 4, 2010 (File No. 001-32157-10500379); January 26, 2010 (File No. 001-32157-10547818); February 3, 2010 (File No. 001-32157-10568938); February 4, 2010 (File No. 001-32157-10572556); February 4, 2010 (File No. 001-32157-10572559); and March 1, 2010 (File No. 001-32157- 10641878); and

- the description of our common stock contained in our registration statement on Form 8-A filed with the SEC on April 27, 2004 (File No. 001-32157-041020580).

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We will provide each person, including any beneficial owner, to whom a prospectus is delivered, a copy of any or all of the information that has been incorporated by reference into this prospectus but not delivered with this prospectus upon written or oral request at no cost to the requester. Requests should be directed to: ADVENTRX Pharmaceuticals, Inc., 6725 Mesa Ridge Road, Suite 100, San Diego, California 92121, Attn: Investor Relations, telephone: (858) 552-0866.

This prospectus is part of a registration statement on Form S-3 that we filed with the SEC. That registration statement contains more information than this prospectus regarding us and our common stock, including certain exhibits and schedules. You can obtain a copy of the registration statement from the SEC at the address listed above or from the SEC s Internet website.

You should rely only on the information provided in and incorporated by reference into this prospectus or any prospectus supplement. We have not authorized anyone else to provide you with different information. You should not assume that the information in this prospectus or any prospectus supplement is accurate as of any date other than the date on the front cover of these documents.

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