UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of The Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): September 11, 2006

VERTEX PHARMACEUTICALS INCORPORATED

(Exact name of registrant as specified in its charter)

000-19319

(Commission File Number)

04-3039129 (IRS Employer Identification No.)

MASSACHUSETTS (State or other jurisdiction of incorporation)

> 130 Waverly Street Cambridge, Massachusetts 02139 (Address of principal executive offices) (Zip Code)

> > (617) 444-6100

Registrant's telephone number, including area code:

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

0 Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

0 Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

0 Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Item 8.01. Other Events.

On September 11, 2006, Vertex ("Vertex," the "Company," "we," "us" and "our") issued a press release entitled "Vertex Pharmaceuticals Announces Proposed Public Offering of Common Stock," announcing a proposed public offering of 8,000,000 shares of the Company's common stock (and up to an additional 1,200,000 shares issuable upon exercise of the underwriters' over-allotment option) pursuant to an effective automatic registration statement. A copy of that press release is attached hereto as Exhibit 99.1 and is incorporated by reference herein.

In connection with the proposed offering described above, the Company is providing the following updated disclosure.

Recent Developments

Telaprevir (VX-950)

Telaprevir (VX-950) is our lead oral hepatitis C protease inhibitor, and one of the most advanced of a new class of antiviral treatments in development targeting hepatitis C virus, or HCV, infection. Telaprevir (VX-950) is designed to inhibit NS3-4A serine protease, an enzyme believed to be necessary for HCV replication. The U.S. Food and Drug Administration, or FDA, has granted "Fast-Track" designation to telaprevir (VX-950).

We currently are conducting two major Phase 2b clinical trials of telaprevir (VX-950), PROVE 1 in the United States and PROVE 2 in Europe, as part of a global Phase 2b development program for that compound. The expected total number of patients, and description of each of the clinical trial arms, is set forth in the following table:

PROVE 1 and PROVE 2 Clinical Trials telaprevir (VX-950)

Treatment Regimen	Number of Patients in PROVE 1	Number of Patients in PROVE 2	TOTAL
12-week regimens of telaprevir (VX-950) in combination with peg-IFN and RBV	20	80	100
12-week regimens of telaprevir (VX-950) in combination with only peg-IFN	0	80	80
12-week regimens of telaprevir (VX-950) in combination with peg-IFN and RBV, followed by 12 weeks			
of therapy with peg-IFN and RBV	80	80	160
12-week regimens of telaprevir (VX-950) in combination with peg-IFN and RBV, followed by 36 weeks			
of therapy with peg-IFN and RBV	80	0	80
Standard of Care HCV Treatment	80	80	160
Total	260	320	580

In both clinical trials, patients in the 12 and 24-week treatment arms who achieve a rapid viral response, or RVR, defined as undetectable (less than 10 IU/mL) viral levels by the end of week 4, and who maintain this status through to either week 10 or 20 respectively, will stop all treatment at the 12 or 24-week time point, respectively, and will be followed post-treatment to evaluate whether they achieve sustained viral response, or SVR. Patients in these treatment arms who do not meet the RVR criterion will continue on pegylated interferon, or peg-IFN, and ribavirin, or RBV, for a total duration of 48 weeks. The 24-week treatment arm will evaluate whether 12 weeks of additional treatment with

peg-IFN and RBV adds substantially to the SVR rate compared to 12 weeks of telaprevir (VX-950) in combination with peg-IFN and RBV.

We expect that together, the two clinical trials will evaluate SVR rates in 580 treatment-naïve patients infected with genotype 1 HCV, the most prevalent form of HCV. Our global Phase 2b development program in treatment-naïve patients has three objectives: (i) to evaluate the optimal SVR rate that can be achieved with telaprevir (VX-950) therapy in combination with the current standard of care; (ii) to evaluate the optimal treatment duration for telaprevir (VX-950) combination therapy; and (iii) to evaluate the role of RBV in telaprevir (VX-950)-based therapy.

PROVE 1 is fully enrolled and we expect that PROVE 2 enrollment will be complete in the fourth quarter of 2006. In addition to PROVE 1 and PROVE 2, we expect to begin additional clinical trials of telaprevir (VX-950) in the second half of 2006, including a Phase 2b clinical trial, or the "PROVE 3" trial, in patients who have failed prior standard of care treatment. We anticipate that PROVE 3 will enroll approximately 400 patients. By the end of the first quarter of 2007, we expect to have enrolled an aggregate of approximately 1,000 patients in clinical trials of telaprevir (VX-950).

In data presented at two different scientific meetings in April and May 2006, researchers reported that 19 out of 20 patients who received 2 or 4 weeks of telaprevir (VX-950) in our earlier clinical trials, and who then received peg-IFN and RBV as follow-on therapy, demonstrated plasma HCV RNA levels that were undetectable (less than 10 IU/mL) after 12 weeks of follow-on therapy. While we believe this provides some information regarding the likelihood of continued viral suppression during 12 weeks of follow-on therapy, on-treatment results such as these are not necessarily predictive of whether or not a patient will achieve SVR. Researchers have subsequently continued to follow some of these patients during continued therapy with peg-IFN and RBV and we expect that they will update the initial data in October 2006. However, we expect that the data from the PROVE clinical trials, in which all patients in treatment arms of the trials will receive at least 12 weeks of telaprevir (VX-950) dosing, will comprise more complete and meaningful information about viral breakthrough rates, and ultimately SVR rates, in patients treated with 12 weeks or more of telaprevir (VX-950) in combination therapy. We do not expect that the follow up research conducted with the patients who received 28 or fewer days of telaprevir (VX-950) dosing to be predictive of viral breakthrough or SVR rates for telaprevir (VX-950) in combination therapy for 12 weeks or longer.

On June 30, 2006, we entered into a License, Development, Manufacturing and Commercialization Agreement with Janssen Pharmaceutica, N.V., an affiliate of the Johnson & Johnson company, for the development, manufacture and commercialization of telaprevir (VX-950). Under our agreement with Janssen, we will collaborate with Janssen to develop telaprevir (VX-950) worldwide except for the Far East, and Janssen will be responsible for commercializing the compound worldwide except for North America and the Far East. Tibotec Pharmaceuticals, Ltd., another Johnson & Johnson company, will lead the development and commercialization of telaprevir (VX-950) for Janssen. We believe that our collaboration with Janssen will accelerate our pathway to market in Europe and other markets while enabling us to invest fully in the development and commercialization of telaprevir (VX-950) with Mitsubishi Pharma Corporation, which began the first Phase 1 clinical trial of telaprevir (VX-950) in the Far East in the third quarter of 2006.

Under our agreement with Janssen, we have retained exclusive commercial rights to telaprevir (VX-950) in North America and will lead the global clinical development program. We received an upfront payment of \$165 million in July 2006. In addition, the agreement provides for up to \$380 million in milestone payments, contingent upon the successful development and commercialization of telaprevir (VX-950). Janssen will fund 50% of costs for the telaprevir (VX-950) development program for North America and the Janssen territories beginning on the date of the agreement. Janssen is responsible for commercialization of telaprevir (VX-950) in Janssen's territories and will pay

us tiered royalties on any product sales, averaging in the mid-20% range, contingent upon successful development and commercialization, and will be responsible for paying certain third- party royalties related to sales in the Janssen territories. We and Janssen are each responsible for drug supply in our respective territories. In addition, in connection with the development and commercialization of telaprevir (VX-950), we will work with Tibotec to establish a global health initiative to increase the prevention, diagnosis, treatment and cure of HCV infection, to be principally directed toward developing countries.

We have successfully completed the technical development work for the Phase 3 and commercial formulation of telaprevir (VX-950). With this formulation, the dosing of telaprevir (VX-950) will be comprised of two 375 mg tablets to be taken every eight hours. We have begun to manufacture telaprevir (VX-950) drug product, in advance of obtaining regulatory marketing approval, in sufficient quantities to support a timely commercial product launch if we are successful in obtaining such approval. We expect that the level of our investment in commercial supply of telaprevir (VX-950) will increase significantly in 2007, and that we will incur significant costs to manufacture and store this inventory between now and the projected product launch.

VX-702

VX-702 is our lead oral p38 mitogen-activated protein, or MAP, kinase inhibitor, which we currently are developing for the treatment of RA. We plan to initiate a 12-week, 120 patient Phase 2a clinical trial in patients with rheumatoid arthritis, or RA, in the fourth quarter of 2006 to evaluate the safety of and clinical and biomarker responses to, treatment with VX-702 on a background of methotrexate. We expect to submit an investigational new drug application with the FDA to support a Thorough QTc study of VX-702, which we expect to initiate in the fourth quarter of 2006. Pending successful outcomes of the 12-week trial and the Thorough QTc study, we plan to conduct a 6-month Phase 2b trial in approximately 400 RA patients, starting in the second half of 2007. We believe that an all oral therapeutic regimen in RA would be positioned well for those patients not ready for, or unwilling to undergo, injectable anti-cytokine therapy.

VX-770

VX-770 is an oral small molecule compound designed to potentiate the gating activity of the cystic fibrosis transmembrane regulator, or CFTR, protein, a chloride ion transporter on the cell surface that is functionally defective in patients with CF. We recently completed the dosing portion of our Phase 1 clinical trial of VX-770 in healthy volunteers and patients with CF. We currently are evaluating the full pharmacokinetic results of that trial, in which we achieved targeted blood levels of the drug candidate. We are currently evaluating the full safety results of the trial. In the multidose arms of the trial, rash was identified in some subjects. Data from the Phase 1 clinical trial will be used to select the appropriate dose of VX-770 for a Phase 2 proof of concept clinical trial of VX-770, which we expect to initiate in early 2007.

VX-883

We have elected to further invest in the preclinical and clinical development of our novel, Vertex-discovered antibiotic, VX-883, and expect to initiate a Phase 1 clinical trial of this molecule in 2008. VX-883 targets both DNA gyrase and topoisomerase IV, which are enzymes that are essential to bacteria during the replication process. VX-883 is active against Gram-positive and Gram-negative bacterial pathogens prevalent in both community and hospital settings, including certain pathogens that are less susceptible to other classes of antibiotics. VX-883 may be useful in treating infections caused by drug resistant bacteria, including methicillin resistant Staphylococcus aureus, commonly referred to as MRSA, a major and growing problem with marketed antibiotics. We hold worldwide development and commercial rights to VX-883.

VX-680

In the clinical development program being conducted by our collaborator Merck & Co., Inc. for VX-680, an investigational drug candidate targeting Aurora kinase, Merck is conducting a Phase 2 clinical trial of VX-680 in patients with advanced lung cancer. Merck is also conducting a Phase 2 clinical trial of VX-680 in patients with advanced colorectal cancer and an extended Phase 1 clinical trial of patients with hematologic cancers. Clinical results for VX-680 are emerging in blood cancers and we expect data will be communicated when it is available. We believe that there is a potential for advancement of VX-680 into late stage clinical development.

2006 Financial Guidance

This section contains forward-looking guidance about the financial outlook for Vertex. Today, we have reiterated our 2006 financial guidance, which was initially provided in our February 7, 2006 press release, reiterated in our Form 10-Q filed with the Securities and Exchange Commission (SEC) on May 10, 2006, and updated in our July 26, 2006 press release.

The key financial measures for which we have provided guidance are as follows:

Net Loss: The Company expects that its 2006 net loss will be \$222 to \$237 million. The 2006 net loss includes an estimate of stock-based compensation expense of approximately \$38 million, and restructuring expense of approximately \$4 million as a result of imputed interest charges relating to the restructuring accrual.

Revenues: We expect our revenue will be in the range of \$210 to \$235 million in 2006.

Research and Development ("R&D") Expense: We expect that our R&D expense for 2006 will be in the range of \$375 to \$395 million, including approximately \$31 million of stock-based compensation expense

Sales, General and Administrative ("SG&A") Expense: We expect our SG&A expense will be in the range of \$55 to \$60 million for 2006, including approximately \$6 million of stock-based compensation expense.

Cash, Cash Equivalents and Available-for-Sale Securities: We expect 2006 year end cash and cash equivalents and available for sale securities to be in excess of \$400 million.

Special Note Regarding Forward-Looking Statements

This report contains 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. These statements relate to future events and our future financial performance. These statements include but are not limited to statements:

- that set forth the expected total number of patients, and descriptions of each of the clinical trial arms in our two major Phase 2b clinical trials of telaprevir (VX-950);
- that we expect together, PROVE 1 and PROVE 2 trials will evaluate SVR rates in 580 treatment-naïve patients infected with genotype 1 HCV;
- that we expect PROVE 2 enrollment will be complete in the fourth quarter of 2006;
- that we expect to begin additional clinical trials of telaprevir (VX-950) in the second half of 2006, including PROVE 3 in patients who have failed prior standard of care treatment;
- that we anticipate PROVE 3 will enroll approximately 400 patients;

5

- that by the end of the first quarter of 2007, we expect to have enrolled an aggregate of approximately 1,000 patients in clinical trials of telaprevir (VX-950);
- that we expect that in October 2006, researchers will update data on patients undergoing follow-on therapy after participating in earlier, shortduration (2 to 4 week) clinical trials of telaprevir (VX-950);
- that we believe our collaboration with Janssen will accelerate our pathway to market in Europe and other markets while enabling us to invest fully in the development and commercialization of telaprevir (VX-950) in North America;
- that the dosing of telaprevir (VX-950) will be comprised of two 375 mg tablets to be taken every eight hours;
- that we expect the level of our investment in commercial supply of telaprevir (VX-950) will increase significantly in 2007, and that we will incur significant costs to manufacture and store this inventory between now and the projected product launch;
- that we plan to initiate a 12-week, 120 patient Phase 2a clinical trial in patients with RA in the fourth quarter of 2006 to evaluate the safety of, and clinical and biomarker responses to, treatment with VX-702 on a background of methotrexate;
- that we expect to submit an investigational new drug application with the FDA to support a Thorough QTc study of VX-702, which we expect to initiate in the fourth quarter of 2006;
- that pending successful outcomes of the 12-week trial and the Thorough QTc study, we plan to conduct a 6-month Phase 2b trial in approximately 400 RA patients, starting in the second half of 2007;
- that we believe an all oral therapeutic regimen in RA would be positioned well for those patients not ready for, or unwilling to undergo, injectable anti-cytokine therapy;
- that we expect to initiate a Phase 2 proof of concept clinical trial of VX-770 in early 2007;
- that we have elected to further invest in the preclinical and clinical development of our novel, Vertex-discovered antibiotic, VX-883, and expect to initial a Phase 1 clinical trial of this molecule in 2008;
- that VX-883 may be useful in treating infections caused by drug resistant bacteria, including methicillin resistant Staphylococcus aureus, commonly referred to as MRSA, a major and growing problem with marketed antibiotics;
- that clinical results are emerging for VX-680 in blood cancers and we expect data will be communicated when it is available;
- that we believe there is a potential for advancement of VX-680 into late stage clinical development; and
- that relate to our expected financial performance for 2006.

In some cases, you can identify forward-looking statements by terminology such as "may," "will," "should," "expects," "anticipates," "believes," "estimates," "predicts," "potential," or "continue" or the negative of such terms or other comparable terminology. These statements are only predictions and involve known and unknown risks, uncertainties and other factors that may cause our or our industry's actual results to differ materially from the results, levels of activity, performance or achievements expressed or implied by such forward-looking statements. While management makes its best efforts to be accurate in making forward-looking statements, those statements are subject to risks and uncertainties that could cause Vertex's actual results to vary materially. Those risks and uncertainties

include, among other things, the risk that any one or more of Vertex's internal and external drug development programs will not proceed as planned for technical, scientific or commercial reasons or due to patient enrollment issues or based on new information from non-clinical or clinical studies or from other sources, that Vertex will be unable to realize one or more of its financial objectives for 2006 as set forth above, due to any number of financial, technical or collaboration considerations, that unexpected costs associated with one of our programs will necessitate a reduction in our investment in other programs, that future competitive or other market factors may adversely impact the commercial potential for our product candidates in HCV and inflammation; that our drug discovery efforts will not ultimately result in commercial products due to scientific, medical or technical developments, that we will be unable to enter into new collaborative relationships to support our research and development programs on acceptable terms, or at all, that the key estimates and assumptions underlying our restructuring and other expense charge will turn out to be incorrect or not reflective of changing market conditions in the future, and other risks listed under Risk Factors in Vertex's prospectus supplement filed with the Securities and Exchange Commission on September 11, 2006. We disclaim any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events, or otherwise, unless required by law.

Item 9.01. Financial Statements and Exhibits.

(c) Exhibits

Exhibit

99.1

Press Release of Vertex Pharmaceuticals Incorporated, dated September 11, 2006, entitled "Vertex Pharmaceuticals Announces Proposed Public Offering of Common Stock."

Description of Document

7

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

VERTEX PHARMACEUTICALS INCORPORATED

(Registrant)

Date: September 11, 2006

/s/ KENNETH S. BOGER

Kenneth S. Boger Senior Vice President and General Counsel

8

QuickLinks

Item 8.01. Other Events. Item 9.01. Financial Statements and Exhibits.

SIGNATURES



FOR IMMEDIATE RELEASE

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News Release

Vertex Pharmaceuticals Announces Proposed Public Offering of Common Stock

Cambridge, MA, September 11, 2006—Vertex Pharmaceuticals Incorporated (Nasdaq: VRTX) today announced plans to offer 8,000,000 shares of its newly issued common stock in an underwritten public offering. Vertex also expects to grant the underwriters a 30-day option to purchase additional shares to cover over-allotments, if any.

Merrill Lynch, Pierce, Fenner & Smith Incorporated is acting as sole book-runner, with Morgan Stanley & Co. Incorporated as joint lead manager and UBS Securities LLC as co-manager in this offering.

This press release does not constitute an offer to sell or the solicitation of an offer to buy nor shall there be any sale of these securities in any state in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state. A shelf registration statement relating to the shares of common stock that the Company intends to sell has been filed with the Securities and Exchange Commission. Any offer of shares of common stock will be made only by means of a prospectus, including a prospectus supplement, forming a part of the effective registration statement. A copy of the prospectus can be obtained from Merrill Lynch's prospectus department, at 4 World Financial Center, New York, NY 10080, 212-449-1000.

About Vertex

Vertex Pharmaceuticals Incorporated is a global biotechnology company committed to the discovery and development of breakthrough small molecule drugs for serious diseases. The Company's strategy is to commercialize its products both independently and in collaboration with major pharmaceutical companies. Vertex's product pipeline is principally focused on viral diseases, inflammation, autoimmune diseases, cancer, pain and bacterial infection. Vertex co-discovered the HIV protease inhibitor, Lexiva, with GlaxoSmithKline.

Lexiva is a registered trademark of the GlaxoSmithKline group of companies.

Vertex's press releases are available at www.vrtx.com

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QuickLinks

Exhibit 99.1

Vertex Pharmaceuticals Announces Proposed Public Offering of Common Stock