March 6, 2012

Data from Phase 2 Study of an INCIVEK® Combination Regimen Showed 74% of People Co-Infected with Hepatitis C and HIV Had Undetectable Hepatitis C Virus 12 Weeks After Treatment Ended (SVR12)

- INCIVEK was well tolerated with commonly used Atripla- and Reyataz-based HIV treatment regimens, and no patients experienced HIV breakthrough -

- Enrollment is ongoing in Phase 3 study evaluating 24- and 48-week treatment durations in people who are co-infected -

SEATTLE--(BUSINESS WIRE)-- Vertex Pharmaceuticals Incorporated (Nasdaq: VRTX) today announced interim results from an ongoing Phase 2 study designed to evaluate the safety and tolerability of INCIVEK® (telaprevir) tablets in combination with pegylated-interferon and ribavirin in people who are co-infected with genotype 1 hepatitis C virus and human immunodeficiency virus (HIV). Data showed 74 percent (28/38) of patients who were treated with INCIVEK (in-SEE-veck) combination therapy had undetectable hepatitis C virus (HCV RNA) 12 weeks after the end of all study treatment (SVR12) compared to 45 percent (10/22) who were treated with pegylated-interferon and ribavirin alone. INCIVEK was well tolerated with commonly used Atripla®- and Reyataz®-based HIV treatment regimens. Changes in CD4 counts were similar between the treatment groups and no HIV viral load breakthroughs were observed in either treatment group during the study. The most common adverse events in the INCIVEK arms of the study were fatigue, pruritis (itching), headache, nausea and rash. No cases of severe rash were reported and there were no discontinuations due to rash. Interim results from this study are being presented at the Conference on Retroviruses and Opportunistic Infections (CROI), March 5 to 8, 2012 in Seattle.

"Hepatitis C generally progresses faster, leads to more long-term liver complications and has been harder to cure among people who also have HIV," said Robert Kauffman, M.D., Ph.D., Senior Vice President and Chief Medical Officer at Vertex. "These new INCIVEK data are important as we work toward our goal of helping cure more people with hepatitis C. We're actively enrolling co-infected patients in a Phase 3 study and expect that data from this study will be included in a submission for a supplemental approval of INCIVEK."

The Phase 2 study includes two parts: Part A is evaluating people who are not currently being treated with antiretroviral therapy (ART) for HIV infection and Part B is evaluating those who are taking an Atripla- or Reyataz-based regimen for HIV. This study enrolled patients who were new to hepatitis C treatment (treatment naïve). Patients who were randomized to receive INCIVEK were treated with 12 weeks of INCIVEK, pegylated-interferon and ribavirin, followed by 36 weeks of pegylated-interferon and ribavirin alone. Interim data also showed that 68 percent (26/38) of patients treated with INCIVEK combination therapy in this study had a rapid viral response (RVR, undetectable hepatitis C virus at week 4 of treatment) compared to none (0/22) of the patients who received pegylated-interferon and ribavirin alone.

"There is a great need for treatments that are well tolerated and offer co-infected patients a better chance at a cure for hepatitis C while maintaining suppression of their HIV," said Douglas Dieterich, M.D., Professor of Medicine in the Division of Liver Diseases, Mount Sinai School of Medicine, New York City. "It's very encouraging that nearly three out of four people had undetectable hepatitis C virus 12 weeks after stopping INCIVEK combination therapy and that their HIV medicines continued to work during treatment."

Interim Study Results

Sixty-two people 18 and older were enrolled in this Phase 2 study and 60 received at least one dose of study drug. This analysis was conducted 12 weeks after patients completed all treatment. The ART regimens evaluated in this study were selected based on current HIV treatment guidelines from the U.S. Department of Health and Human Services, International AIDS Society and drug-drug interaction studies of INCIVEK with commonly used ART medicines.

Interim Intent To Treat Analysis of Study #110

Part A (No ART)	Part B Atripla®-based regimen	Part B Reyataz®-based regimen	Total

	INCIVEK-based Arm[+]	Control Arm[++]	INCIVEK-based Arm[+]	Control Arm[++]	INCIVEK-based Arm[+]	Control Arm[++]	INCIVEK-based Arm[+]	Control Arm[++]
RVR[*]	71% (5/7)	0% (0/6)	75% (12/16)	0% (0/8)	60% (9/15)	0% (0/8)	68% (26/38)	0% (0/22)
eRVR[**]	57% (4/7)	0% (0/6)	75% (12/16)	0% (0/8)	47% (7/15)	0% (0/8)	61% (23/38)	0% (0/22)
SVR12	71% (5/7)	33% (2/6)	69% (11/16)	50% (4/8)	80% (12/15)	50% (4/8)	74% (28/38)	45% (10/22)

Atripla-based regimen (efavirenz, tenofovir disoproxil fumarate and emtricitabine): INCIVEK was dosed at 1,125 mg, every 8 hours (q8h).

Reyataz-based regimen (ritonavir-boosted atazanavir, tenofovir disoproxil fumarate and emtricitabine or lamivudine): INCIVEK was dosed at 750 mg, every 8 hours (q8h).

[*]*RVR: Rapid Viral Response; undetectable HCV RNA at week 4.*

[**]*eRVR: extended Rapid Viral Response; undetectable HCV RNA at weeks 4 and 12.*

[+]*12 weeks of INCIVEK, Pegasys® (PEG, pegylated-interferon alfa-2a) and Copegus® (RBV, ribavirin) followed by 36 weeks of only PEG and RBV.*

[++]*48 weeks of PEG and RBV only for hepatitis C treatment.*

The majority of adverse events in this study were mild or moderate. Adverse events that occurred more frequently in the INCIVEK arms compared to placebo (≥10 percent difference) were pruritis (itching), headache, nausea, rash, fever, and depression. Three patients, all in Arm B, discontinued all study treatment due to adverse events (one each due to gall stones, hemolytic anemia and nausea/vomiting).

About this Phase 2 Study

Vertex and its collaborator Janssen conducted extensive drug-drug interaction studies with INCIVEK and commonly used HIV medicines prior to initiating a development program in people co-infected with hepatitis C (HCV) and HIV. This Phase 2 study is a two-part (A and B), randomized, double-blind, placebo-controlled, parallel group, multi-center study in people chronically infected with both HCV and HIV who were new to HCV treatment. The primary endpoint of the study is to evaluate the safety and tolerability of INCIVEK combination therapy in people co-infected with HCV and HIV. A secondary endpoint is to evaluate rates of sustained viral response (SVR) 12 and 24 weeks after the end of treatment. The study is being conducted by Vertex in collaboration with Janssen.

Phase 3 Study Actively Enrolling

Enrollment is ongoing in a Phase 3 study evaluating 24- and 48-week response-guided regimens of INCIVEK combination therapy in people co-infected with HCV and HIV. Patients who are either new to treatment for HCV, or who had relapsed after at least one prior course of therapy with pegylated-interferon and ribavirin alone, will receive 24 or 48 weeks of INCIVEK combination treatment, based on their antiviral response. Patients who had not responded to a prior course of treatment (partial responders and nulls) will receive 48 weeks of INCIVEK combination treatment. A similar study is also being initiated by Janssen in its territories.

Data from *In Vitro* Evaluation of INCIVEK and HIV Protease Inhibitors

Also being presented at CROI this week are data from an *in vitro* evaluation of the anti-HIV activity of four HIV protease inhibitors (amprenavir, darunavir, lopinavir and atazanavir) in combination with INCIVEK. In the study, no antagonistic effects on the antiviral activity were observed when INCIVEK was used in combination with amprenavir, darunavir, and lopinavir, and slight antagonistic effects were observed on the antiviral activity of atazanavir.

About INCIVEK

INCIVEK® (telaprevir) tablets is an oral medicine that acts directly on the hepatitis C virus protease, an enzyme essential for viral replication. INCIVEK is the most prescribed direct-acting antiviral for the treatment of adults with genotype 1 chronic hepatitis C and has been used to treat more than 30,000 people in the United States.

INCIVEK was approved by the U.S. Food and Drug Administration (FDA) in May 2011 and by Health Canada in August 2011 for use in combination with pegylated-interferon and ribavirin for people with genotype 1 chronic hepatitis C with compensated liver

disease (some level of damage to the liver but the liver still functions), including cirrhosis (scarring of the liver). INCIVEK is approved for people who are new to treatment, and for people who were treated previously with interferon-based treatment but who did not achieve a sustained viral response, or viral cure (relapsers, partial responders and null responders).

Vertex developed telaprevir in collaboration with Janssen and Mitsubishi Tanabe Pharma. Vertex has rights to commercialize telaprevir in North America where it is being marketed under the brand name INCIVEK (in-SEE-veck). Janssen has rights to commercialize telaprevir in Europe, South America, Australia, the Middle East and certain other countries. In September 2011, telaprevir was approved in the European Union and Switzerland. Telaprevir is known as INCIVO® in Europe. Mitsubishi Tanabe Pharma has rights to commercialize telaprevir in Japan and certain Far East countries. In September 2011, telaprevir was approved in Japan and is known as Telavic®.

INCIVEK® is a registered trademark of Vertex Pharmaceuticals Incorporated.

PEGASYS® and COPEGUS® are registered trademarks of Hoffmann-La Roche.

Reyataz® is a registered trademark of Bristol-Myers Squibb.

Atripla® is a registered trademark of Bristol-Myers Squibb and Gilead Sciences, LLC.

About Hepatitis C

Hepatitis C is a serious liver disease caused by the hepatitis C virus, which is spread through direct contact with the blood of infected people and ultimately affects the liver.[1] Chronic hepatitis C can lead to serious and life-threatening liver problems, including liver damage, cirrhosis, liver failure or liver cancer.[1] Though many people with hepatitis C may not experience symptoms, others may have symptoms such as fatigue, fever, jaundice and abdominal pain.[1]

Unlike HIV and hepatitis B virus, chronic hepatitis C can be cured.[2] However, approximately 60 percent of people do not achieve SVR,[3,4,5] or viral cure,[6] after treatment with 48 weeks of pegylated-interferon and ribavirin alone. If treatment is not successful and a person does not achieve a viral cure, they remain at an increased risk for progressive liver disease.[7,8]

More than 170 million people worldwide are chronically infected with hepatitis C.[6] In the United States, nearly 4 million people have chronic hepatitis C and 75 percent of them are unaware of their infection.[9] Hepatitis C is four times more prevalent in the United States compared to HIV.[9] The majority of people with hepatitis C in the United States were born between 1946 and 1964, accounting for two of every three people with chronic hepatitis C.[10] Hepatitis C is the leading cause of liver transplantations in the United States and is reported to contribute to 4,600 to 12,000 deaths annually.[11,12] By 2029, total annual medical costs in the United States for people with hepatitis C are expected to more than double, from $30 billion in 2009 to approximately $85 billion.[9]

About Hepatitis C and HIV Co-Infection

There are 1 million people living with HIV in the United States, and an estimated 300,000 people living with HIV/AIDS in the United States are also infected with hepatitis C. [13] There have been dramatic improvements in the treatment of HIV and the prognosis for people living with HIV. However, liver disease progresses more rapidly in people co-infected with hepatitis C and HIV, with an increased rate of progression to cirrhosis, decompensated liver disease, hepatocellular carcinoma and death. [14, 15, 16, 17] The hepatitis C cure rate with a 48-week treatment of pegylated-interferon and ribavirin, the current standard of care for people with co-infection, is approximately 29 percent.[18]

About Vertex

Vertex creates new possibilities in medicine. Our team discovers, develops and commercializes innovative therapies so people with serious diseases can lead better lives.

Vertex scientists and our collaborators are working on new medicines to cure or significantly advance the treatment of hepatitis C, cystic fibrosis, rheumatoid arthritis, epilepsy and other life-threatening diseases.

Founded more than 20 years ago in Cambridge, MA, we now have ongoing worldwide research programs and sites in the U.S.,

U.K. and Canada. Today, Vertex has more than 2,000 employees around the world, and *Science* magazine named Vertex number one on its 2011 list of Top Employers in the life sciences.

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

Special Note Regarding Forward-Looking Statements

This press release contains forward-looking statements as defined in the Private Securities Litigation Reform Act of 1995, including Dr. Kauffman's statements in the second paragraph of this press release and statements regarding ongoing and planned Phase 3 studies of INCIVEK combination therapy in people co-infected with HCV and HIV. While the company believes the forward-looking statements contained in this press release are accurate, there are a number of factors that could cause actual events or results to differ materially from those indicated by such forward-looking statements. Those risks and uncertainties include, among other things, that the outcomes from future clinical trials of INCIVEK combination therapy in co-infected patients may not be favorable and the other risks listed under Risk Factors in Vertex's annual report and quarterly reports filed with the Securities and Exchange Commission and available through Vertex's website at www.vrtx.com. Vertex disclaims any obligation to update the information contained in this press release as new information becomes available.

IMPORTANT SAFETY INFORMATION

Indication

INCIVEK® (telaprevir) is a prescription medicine used with the medicines peginterferon alfa and ribavirin to treat chronic (lasting a long time) hepatitis C genotype 1 infection in adults with stable liver problems, who have not been treated before or who have failed previous treatment. It is not known if INCIVEK is safe and effective in children under 18 years of age.

Important Safety Information

INCIVEK should always be taken in combination with peginterferon alfa and ribavirin. Ribavirin may cause birth defects or death of an unborn baby. Therefore, a patient should not take INCIVEK combination treatment if she is pregnant or may become pregnant, or if he is a man with a sexual partner who is pregnant. Patients must use two forms of effective birth control during treatment and for the 6 months after treatment with these medicines. Hormonal forms of birth control, including birth control pills, vaginal rings, implants or injections, may not work during treatment with INCIVEK.

INCIVEK and other medicines can affect each other and can also cause side effects that can be serious or life threatening. There are certain medicines patients cannot take with INCIVEK combination treatment. Patients should tell their healthcare providers about all the medicines they take, including prescription and non-prescription medicines, vitamins and herbal supplements.

INCIVEK can cause serious side effects including skin reactions, rash and anemia that can be severe. The most common side effects of INCIVEK include itching, nausea, diarrhea, vomiting, anal or rectal problems, taste changes and tiredness. There are other possible side effects of INCIVEK, and side effects associated with peginterferon alfa and ribavirin also apply to INCIVEK combination treatment. Patients should tell their healthcare providers about any side effect that bothers them or doesn't go away.

Please see full Prescribing Information for INCIVEK including the Medication Guide, available at **www.INCIVEK.com**.

(VRTX-GEN)

References:

[1] Centers for Disease Control and Prevention. Hepatitis C Fact Sheet: CDC Viral Hepatitis. Available at: **http://www.cdc.gov/hepatitis/HCV/PDFs/HepCGeneralFactSheet.pdf**. Accessed February 22, 2012.

[2] Pearlman BL and Traub N. Sustained Virologic Response to Antiviral Therapy for Chronic Hepatitis C Virus Infection: A Cure and So Much More. Clin Infect Dis. 2011 Apr;52(7):889-900.

[3] Manns MP, McHutchison JG, Gordon SC, et al. Peginterferon alfa-2b plus ribavirin compared with interferon alfa-2b plus ribavirin for initial treatment of chronic hepatitis C: a randomised trial. *Lancet.* 2001;358:958-965.

[4] Fried MW, Shiffman ML, Reddy KR, et al. Peginterferon alfa-2a plus ribavirin for chronic hepatitis C virus infection. *N Engl J Med.* 2002;347:975-982.

[5] McHutchison JG, Lawitz EJ, Shiffman ML, et al; IDEAL Study Team. Peginterferon alfa-2b or alfa-2a with ribavirin for treatment of hepatitis C infection. *N Engl J Med*. 2009;361:580-593.

[6] Ghany MG, Strader DB, Thomas DL, Seeff, LB. Diagnosis, management and treatment of hepatitis C; An update. *Hepatology*. 2009;49 (4):1-40.

[7] Morgan TR, Ghany MG, Kim HY, Snow KK, Lindsay K, Lok AS. Outcome of sustained virological responders and non-responders in the Hepatitis C Antiviral Long-Term Treatment Against Cirrhosis (HALT-C) trial. *Hepatology*. 2008;50(Suppl 4):357A (Abstract 115).

[8] Veldt BJ, Heathcote J, Wedmeyer H. Sustained virologic response and clinical outcomes in patients with chronic hepatitis C and advanced fibrosis. Annals of Internal Medicine. 2007; 147: 677-684.

[9] Institute of Medicine of the National Academies. Hepatitis and liver cancer: a national strategy for prevention and control of hepatitis B and C. Colvin HM and Mitchell AE, ed. Available at: **http://www.iom.edu/Reports/2010/Hepatitis-and-Liver-Cancer-A-National-Strategy-for-Prevention-and-Control-of-Hepatitis-B-and-C.aspx**. Updated January 11, 2010. Accessed February 22, 2012.

[10] Pyenson B, Fitch K, Iwasaki K. Consequences of hepatitis C virus (HCV): Costs of a baby boomer epidemic of liver disease. Available at: **http://www.natap.org/2009/HCV/051809_01.htm**. Updated May 2009. Accessed February 22, 2012. *This report was commissioned by Vertex Pharmaceuticals, Inc.*

[11] Volk MI, Tocco R, Saini S, Lok, ASF. Public health impact of antiviral therapy for hepatitis C in the United States. *Hepatology*. 2009;50(6):1750-1755.

[12] Davis GL, Alter MJ, El-Serag H, Poynard T, Jennings LW. Aging of hepatitis C virus (HCV)-infected persons in the United States: A multiple cohort model of HCV prevalence and disease progression. *Gastroenterology*. 2010;138:513-521.

[13] HIV Advocate. HIV/HCV Coinfection. Available at: **http://www.hcvadvocate.org/hepatitis/factsheets_pdf/HIV_HCV20coinfecton_10.pdf**. Accessed February 28, 2012.

[14] Martin-Carbonero L, Benhamou Y, Puoti M, Berenguer J, Mallolas J, Quereda C, et al. Incidence and predictors of severe liver fibrosis in human immunodeficiency virus-infected patients with chronic hepatitis C: a European collaborative study. *CID* 2004;38:128-33.

[15] Martinez-Sierra C, Arizcorreta A, Diaz F, Roldan R, Martin-Herrera M, Perez- Guzman E, et al. Progression of chronic hepatitis C to liver fibrosis and cirrhosis in patients coinfected with hepatitis C virus and human immunodeficiency virus. *CID* 2003;36:491-8.

[16] Matthews GV, Dore GJ. HIV and hepatitis C coinfection. *JGH*. 2008; 23: 1000-1008.

[17] Bruno R, Sacchi P, Puoti M, Soriano V, Filice G. HCV chronic hepatitis in patients with HIV: clinical management issues *Am J Gastroenterol* 2001; 97:1598—1606.

[18] Levin, J. Pegasys/RBV in APRICOT Study- Adherence Improves SVR 300% in genotype 1. Available at: **http://www.natap.org/2005/ICAAC/icaac_31.htm** Accessed February 28, 2012.

Vertex Pharmaceuticals Incorporated
Media:
Dawn Kalmar
Erin Emlock
Zach Barber
617-444-6992
mediainfo@vrtx.com
or
Investors:

Michael Partridge, 617-444-6108
or
Lora Pike, 617-444-6755

Source: Vertex Pharmaceuticals Incorporated