

**Deal in Brief**

**Merck, Vertex to Develop Cancer Drug**

Merck & Co. and Vertex Pharmaceuticals Inc. agreed to develop and commercialize VX-680, Vertex's Aurora kinase inhibitor that is expected to enter clinical development this year for the treatment of cancer.

The companies also agreed to conduct a joint research program funded by Merck to characterize VX-680's activity across a broad range of cancer types and to identify follow-on drug candidates for Aurora kinases, using molecular profiling approaches and microarray technologies pioneered by Merck.

NOTE: In 2005, Merck also selected VX-667, an Aurora kinase inhibitor, for preclinical development. Merck holds worldwide development and commercialization rights to VX-680 and VX-667.

**Total Deal Size (in \$ millions):**384

**Area of Interest:**  
Cancer

**Company(s) Involved**

- Source: Vertex Pharmaceuticals Inc (US Public)
- Partner: Merck & Co Inc (US Public)

**Deal Type(s):** Commercialization, Development

**Product Details**

Updated on **January 01, 2005**

**Product:** VX-667  
**Clinical Trial Phase:** Preclinical  
**Diseasehub:** Cancer  
**Mechanism of Action:** Aurora Kinase Inhibitor  
**Indication:** Cancer  
**Description:** VX-667 is an Aurora kinase inhibitor, being developed for the treatment of Cancer. Aurora kinases are enzymes thought to play multiple roles in the development and progression of cancer, acting as regulators of cell proliferation, transforming normal cells into cancer cells and downregulating p53, one of the body's natural tumor suppressors.

Company Name	Territory Included	Territory Excluded
Merck & Co Inc	Worldwide	--

Updated on **December 07, 2005**

**Product:** VX-680 / MK-0457  
**Clinical Trial Phase:** Clinical Phase II  
**Diseasehub:** Cancer  
**Mechanism of Action:** Aurora Kinase Inhibitor  
**Indication:** Solid Tumors  
**Description:** VX-680 is a novel, small molecule inhibitor of Aurora kinases that play an important role in regulating the process by which cells grow and proliferate. Aurora kinases are overexpressed in numerous types of cancer, including colon and breast tumors, as well as leukemia. Inhibition of Aurora kinase activity with a small molecule inhibitor may provide a means to slow or reverse uncontrolled cell growth seen in a variety of cancers.

VX-680 is being developed for the treatment of Solid tumors.

Company Name	Territory Included	Territory Excluded
Merck & Co Inc	Worldwide	--

Updated on **April 05, 2006**

**Product:** VX-680 / MK-0457  
**Clinical Trial Phase:** Clinical Phase II  
**Diseasehub:** Cancer  
**Mechanism of Action:** Aurora Kinase Inhibitor  
**Indication:** Colorectal Cancer  
**Description:** VX-680 is a novel, small molecule inhibitor of Aurora kinases that play an important role in regulating the process by which cells grow and proliferate. Aurora kinases are overexpressed in numerous types of cancer, including colon and breast tumors, as well as leukemia. Inhibition of Aurora kinase activity with a small molecule inhibitor may provide a means to slow or reverse uncontrolled cell growth seen in a variety of cancers.

Company Name	Territory Included	Territory Excluded
Merck & Co Inc	Worldwide	--

Updated on **February 01, 2007**

**Product:** VX-680 / MK-0457  
**Clinical Trial Phase:** Clinical Phase II  
**Diseasehub:** Cancer  
**Mechanism of Action:** Aurora Kinase Inhibitor  
**Indication:** Chronic Myelogenous Leukemia  
**Description:** VX-680 is a novel, small molecule aurora kinase inhibitor. Aurora kinases play an important role in regulating the process by which cells grow and proliferate. Aurora kinases are known to be overexpressed in numerous types of cancer, including colon and breast tumors, as well as leukemia. Inhibition of aurora kinase activity with a small molecule inhibitor may provide a means to slow or reverse uncontrolled cell growth seen in a variety of cancers. VX-680 is being developed for the treatment of Hematological Cancers.

Company Name	Territory Included	Territory Excluded
Merck & Co Inc	Worldwide	--

Updated on **February 08, 2007**

**Product:** MK-6592  
**Clinical Trial Phase:** Clinical Phase I  
**Diseasehub:** Cancer  
**Indication:** Solid Tumors  
**Description:** MK-6592 is a novel aurora kinase inhibitor being developed for the treatment of advanced solid tumors.

#### Financial Terms

Payment Type	Value	Date	Notes
Milestone	10	4/5/2006	Vertex earned a \$10 million milestone

			payment from Merck.
Milestone	369.5	12/7/2005	Vertex could receive as much as \$350 million in milestone payments, including \$130 million for the successful development of VX-680 in the first oncology indication and additional milestone payments for development of VX-680 and follow-on compounds in subsequent major oncology indications.  Vertex will receive two milestone payments from Merck totaling \$19.5 million.
Funding	14	--	--
Upfront cash	20	--	Vertex will receive a \$20 million upfront payment and an additional \$14 million in research funding over the next two years.
Royalty	Not Disclosed	--	Merck will be responsible for clinical development and global marketing and will pay Vertex royalties on product sales.
Milestone	25	12/22/2006	Vertex earned a \$25 million milestone payment from Merck.

\* Payment Value in \$ millions

#### Related News Updates

##### **December 21, 2006 -- MK-0457 (VX-680)**

*Merck and Vertex Announce Start of Pivotal Phase II Clinical Trial for Investigational Aurora Kinase Inhibitor MK-0457 (VX-680)*

Merck and Vertex Pharmaceuticals announced the start of an international clinical trial of MK-0457 (also known as VX-680), an investigational small molecule inhibitor of Aurora, FLT-3, JAK-2 and BCR-ABL kinases. The study will be conducted in patients with treatment-resistant chronic myelogenous leukemia and Philadelphia chromosome-positive acute lymphocytic leukemia containing the T315I BCR-ABL mutation. In connection with the start of dosing in the trial, which is designed to support registration of MK-0457 in the United States and other countries, Vertex earned a \$25 million milestone payment from Merck.

##### **December 11, 2006 -- MK-0457 (VX-680)**

*Merck and Vertex Announce Phase I Results for Investigational Aurora Kinase Inhibitor MK-0457 (VX-680)*

Merck and Vertex Pharmaceuticals announced results of a Phase I clinical trial for MK-0457 (also known as VX-680), an investigational small molecule inhibitor of Aurora, FLT-3, JAK-2 and BCR-ABL kinases. The study, conducted at The University of Texas M. D. Anderson Cancer Center and Duke University Medical Center,

showed that MK-0457 demonstrated clinical activity in select patients with chronic myelogenous leukemia and Philadelphia chromosome-positive acute lymphocytic leukemia with the T315I BCR-ABL mutation and also in patients with refractory JAK-2 positive myeloproliferative diseases.

**April 05, 2006 -- VX-680**

*Vertex Earns \$10M Milestone Payment*

Vertex Pharmaceuticals announced the initiation of a Phase II clinical development program for VX-680, an investigational drug candidate targeting Aurora kinase. In connection with the initiation of Phase II development, Vertex earned a \$10 million milestone payment in March 2006 from Merck. Vertex and Merck have a global collaboration to develop and commercialize VX-680.

The initiation of Phase II development for VX-680 is based on the enrollment of patients with advanced colorectal cancer in a Phase II extension of a previous Phase I clinical study. In addition, Merck expects to initiate a Phase II clinical study for VX-680 in patients with advanced lung cancer this year.

**December 07, 2005 -- VX-680**

*Vertex Pharmaceuticals Announces that VX-680 Demonstrates Effect on Clinically Relevant Biomarker in Phase I Cancer Study*

Vertex Pharmaceuticals Incorporated announced clinical and research progress in its worldwide collaboration with Merck to develop Aurora kinase inhibitors for the treatment of cancer. In a Phase I clinical study in patients with solid tumor cancers, dosing with VX-680 (MK-0457) demonstrated activity on a clinically relevant biomarker, triggering achievement of a milestone under the contract. VX-680 is a small molecule inhibitor of Aurora kinases and the lead development compound in the collaboration. In addition, Merck has selected a follow-on compound for development from a joint Aurora kinase research program that is part of the collaboration.

**January 06, 2005 -- VX-680**

*Vertex Pharmaceuticals And Merck Announce First Clinical Study For Aurora Kinase Inhibitor, VX-680*

Merck and Vertex Pharmaceuticals Incorporated announced that they have begun a Phase I clinical study for VX-680, a small molecule inhibitor of Aurora kinases, in patients with solid tumor cancers. The open-label, dose-escalation study conducted at two major cancer treatment centers is designed to evaluate the safety and tolerability of VX-680 when administered in multiple cycles to patients with solid tumors refractory to prior chemotherapy treatment. The initiation of this clinical study is supported by VX-680's activity in both in vitro and in vivo cancer models. Merck and Vertex plan to initiate additional Phase I studies of VX-680 this year.

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