



**For Immediate Release**

**CHIMERIX ANTIVIRAL CMX001 INHIBITS JC VIRUS REPLICATION IN PRECLINICAL STUDY;  
LATE-BREAKER PRESENTED AT ANTIVIRAL CONGRESS 2010**

*Additional Evidence of CMX001's Broad-Spectrum Activity Against Double-Stranded DNA Viruses*

*CMX001 and CMX157 Highlighted in Closing Plenary Session*

**AMSTERDAM, THE NETHERLANDS AND RESEARCH TRIANGLE PARK, NC, NOVEMBER 9, 2010** - Chimerix, Inc., a pharmaceutical company developing orally-available antiviral therapeutics, announced that data supportive of the company's lead Phase 2 antiviral compound CMX001 were presented today during a late-breaker session by Hans H. Hirsch, MD, MSc, Professor of Clinical Virology, Division of Infectious Diseases, University of Basel, Switzerland, at the Antiviral Congress 2010 being held in Amsterdam, The Netherlands. Data from *in vitro* studies demonstrated that CMX001 selectively inhibited the replication of human polyomavirus JC (JCV), the cause of potentially fatal progressive multifocal leukoencephalopathy (PML) in immunocompromised or immunosuppressed patients.

"JC virus data being presented by Dr. Hirsch provide further evidence that CMX001 is broadly active against double-stranded DNA (dsDNA) viruses," commented Wendy M. Painter, MD, MPH, Chief Medical Officer. "With cases of PML on the rise due to increased use of immunosuppressive drugs to address autoimmune diseases, we are particularly pleased by the noteworthy *in vitro* activity observed against JC virus. These data reinforce clinical experience from investigator-held Emergency-INDs (EINDs) among immunocompromised patients and suggest another potential application for CMX001."

A double-stranded DNA virus, JCV infects about two-thirds of the world's population without producing clinically obvious signs or symptoms, but can be life-threatening in patients who are immunosuppressed, either associated with transplantation and immunosuppressive drugs or due to infections such as HIV. A research team led by Dr. Hirsch investigated the effect of CMX001 on JCV replication using human glia-derived cells and COS-7 cells infected with JCV. As Dr. Hirsch explained, extracellular JCV was reduced by 50 percent by CMX001 at an effective concentration (EC-50) of 5.5 nM using human glia-derived cells providing a selectivity index (SI-50) of 33.3. A 90-percent inhibition was seen with EC-90 of 19.7 nM (SI-90 256). Using monkey cell lines COS-7 cells, where JCV is significantly facilitated due to the expression of SV40 gene product large T-antigen, the CMX001 EC-50 and EC-90 were higher, but with 100 nM and 740 nM, respectively, still in a clinically relevant range. Viral inhibition appeared to occur during DNA replication. The research team concluded that CMX001 selectively inhibits JCV replication at concentrations that are not toxic to primary (human glia) or transformed (COS-7) cell types and that these results support further exploration of the potential use of CMX001 against JCV in clinical studies.

CMX001 is an orally-administered, broad-spectrum antiviral agent with demonstrated *in vitro* activity against multiple double-stranded DNA viruses, including cytomegalovirus, adenovirus, JC virus, and variola. Chimerix is currently conducting a Phase 2 clinical study of CMX001 for the prophylaxis of cytomegalovirus in patients with cancer and other life-threatening conditions who have received a stem cell transplant and are, as a result, immunocompromised. Over 300 people have received CMX001 to date in Chimerix's ongoing clinical programs. CMX001 has been well tolerated in all studies, with a growing body of evidence of the compound's antiviral activity in humans. CMX001 has been administered to more than 200 people, including healthy volunteers and patients, in placebo-controlled studies. In addition, at the request of leading physicians at over 45 medical centers throughout the United States, Canada, Europe and Israel, CMX001 has been administered to more than 100 patients under investigator-held Emergency Investigational New Drug applications (EINDs) for the treatment of a wide range of life-threatening infections caused by dsDNA viruses for which there are either no approved treatments or where patients have failed the available treatment. To date, CMX001 has been used to treat patients with 12 different dsDNA viral infections across all five families of dsDNA viruses that affect humans. Recent data from a series of EIND patients demonstrated that treatment with CMX001 in immunocompromised patients infected with adenovirus was associated with a significant drop in viral load in many patients compared to baseline.<sup>1</sup>

Dr. Hirsch presented research of CMX001's activity against JC virus during the *Late Breaker Abstracts* (oral/poster) session, "1-O-hexadecyloxypropyl lipid conjugate of cidofovir (CMX001) inhibits polyomavirus JC (JCV) replication in cell culture." For Dr. Hirsch's complete abstract, please see [https://elsevier.conference-services.net/resources/247/2020/pdf/ANTI2010\\_0206.pdf](https://elsevier.conference-services.net/resources/247/2020/pdf/ANTI2010_0206.pdf).

### **Chimerix Compounds CMX001 and CMX157 Highlighted in Closing Plenary Session**

In the closing plenary session, "Responses to Future Challenges", Karl Y. Hostetler, MD, Professor of Medicine, University of California, San Diego, discussed the disadvantages of the three acyclic nucleoside phosphonates (cidofovir, adefovir, tenofovir) which are currently marketed for treatment of cytomegalovirus (CMV), hepatitis B virus (HBV) and human immunodeficiency virus (HIV). These disadvantages include poor cell penetration, low oral bioavailability, and nephrotoxicity. In the abstract, "Improving the performance of acyclic nucleoside phosphonate antivirals," Dr. Hostetler cited the potential of CMX001 and CMX157 as examples of compounds utilizing a novel approach to address the limitations and liabilities of current treatments. These molecules mimic lysophospholipids, which are readily absorbed in the gastrointestinal tract and have a prolonged circulation time in plasma. Compounds such as CMX001 and CMX157 appear to avoid first-pass metabolism and also have a reduced potential for nephrotoxicity while demonstrating improved medicinal properties.

Chimerix is evaluating CMX001 and CMX157 in clinical trials. CMX001, which is being developed for the prophylaxis, preemption and treatment of multiple dsDNA viruses, applies Chimerix's PIM (Phospholipid Intramembrane Microfluidization) Conjugate Technology to the antiviral agent cidofovir to create a well-tolerated oral antiviral drug with potent, broad-spectrum activity. CMX157 leverages Chimerix's PIM Conjugate Technology with tenofovir, an antiviral agent approved for the treatment of human immunodeficiency virus (HIV) and chronic hepatitis B. Chimerix is developing CMX157 for the treatment of HIV infection. Dr. Hostetler's complete abstract can be viewed at [https://elsevier.conference-services.net/resources/247/2020/pdf/ANTI2010\\_0226.pdf](https://elsevier.conference-services.net/resources/247/2020/pdf/ANTI2010_0226.pdf).

## **About Chimerix**

Chimerix is developing novel antiviral therapeutics with the potential to transform patient care in multiple settings, including transplant, oncology, acute care and global health.

The company's lead candidate, CMX001, is in Phase 2 clinical studies in immunocompromised transplant and cancer patients for the treatment of life-threatening viruses, including cytomegalovirus and adenovirus. Over 300 people have received CMX001 to date in Chimerix's ongoing clinical programs. CMX001 has been well tolerated in all studies, with a growing body of evidence of the compound's antiviral activity in humans. CMX001 has been administered to more than 200 people, including healthy volunteers and patients, in placebo-controlled studies. In addition, at the request of leading physicians at over 45 medical centers throughout the United States, Canada, Europe and Israel, CMX001 has been administered to more than 100 patients under investigator-held Emergency Investigational New Drug applications (EINDs) for the treatment of a wide range of life-threatening infections caused by dsDNA viruses for which there are either no approved treatments or where patients have failed the available treatment. To date, CMX001 has been used to treat patients with 12 different dsDNA viral infections across all five families of dsDNA viruses that affect humans. CMX001 is also being developed as a medical countermeasure in the event of a smallpox release. Chimerix has received significant funding from the National Institutes of Allergy and Infectious Disease to develop CMX001 for smallpox.

Chimerix's second clinical-stage antiviral compound, CMX157, has completed Phase 1 clinical studies. CMX157 is in development as a potent nucleoside analogue against multi-drug resistant HIV infections.

Led by a world-class antiviral drug development team, Chimerix is also leveraging the company's extensive chemical library to pursue new treatments for hepatitis C virus, malaria and other global public health needs. For additional information on Chimerix, please visit <http://www.chimerix.com>.

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<sup>1</sup>"Experience with CMX001, A Novel Antiviral Drug, for Adenovirus Infections in Immunocompromised Patients" (Abstract # LB-44), 48th Annual IDSA Annual Meeting, late-breaking abstracts poster session, October 23, 2010.

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