Drug to Fight Virus in Transplant Patients Begins Phase 3 Trials

A drug that has been jointly developed by U-M School of Dentistry and College of Pharmacy professors and scientists from pharmaceutical companies is now undergoing Phase 3 testing at several sites across the nation, including the U-M Medical Center.

Following more than 20 years of research by School of Dentistry Professor John Drach and College of Pharmacy Professor Leroy Townsend, the antiviral drug maribavir recently moved to Phase 3 clinical trials in transplant patients after it was found to be safe and effective against cytomegalovirus (CMV) infection in Phase 2 studies. The drug has been designed and developed to prevent CMV infections in patients who undergo bone marrow and liver transplants. Maribavir is being produced by ViroPharma, Inc. under the name Camvvia™, a combination of “CMV” and “via,” for life.

“This is an exciting development,” said Drach, a biochemist and virologist at the dental school, “but there’s still a way to go before maribavir can be marketed. It’s amazing to see a compound that came from studies Leroy and I did for more than two decades has made it to this point in human testing. Equally exciting is that the development of the drug, which started in our labs, is being completed at the U-M Medical Center.”

Townsend, a professor of medicinal chemistry and professor of chemistry at the College of Pharmacy, said, “this is an excellent illustration of how interdisciplinary research enhances the drug design and development process. Our initial discovery that a specific class of compounds possessed unique antiviral properties was followed by ten more years of collaborative research in our laboratories here at the University of Michigan.”

But for the drug’s development and design to continue “we needed to involve others in important collaborations, including several pharmaceutical companies, which ultimately led to maribavir moving to the final phase of testing,” he added.

Importance of University-Industry Collaboration Noted

“The development of Camvvia underscores the global importance of collaboration between universities and industry in drug development, said Will Roberts, director of communications for ViroPharma, a Pennsylvania-based company that commercializes
and develops products that address serious diseases treated by physician specialists and in hospital settings. “Camvia is one of the most important transplant drugs in development today. We hope to file for approval in both the U.S. and Europe in 2009,” he said.

“Generally, about 45,000 patients in the U.S., and a similar number of patients in Europe undergo bone marrow or solid organ transplants each year. Those numbers have been growing about two to three percent annually in recent years. All of these patients are at increased risk for CMV disease,” Roberts added.

**CMV’s Effects**

CMV is part of the herpes virus family, which also includes the viruses that cause chicken pox, mononucleosis, cold sores, and genital lesions.

In most people with intact immune systems, CMV causes little or no apparent illness.

However, in those with weakened immune systems, such as individuals who have received organ transplants, AIDS patients, and newborn babies, CMV can lead to serious complications or death.

The Phase 3 studies involve two groups of patients in a double-blind study. The first group includes approximately 600 patients who have received bone marrow transplants; the second, about 300 who received liver transplants. “These 900 patients are a significant number because this will allow us to develop a sizable safety database that will reveal the efficacy of the drug in this important population,” Roberts said.

Study Results Later

It may not be until later this year that the results of the Phase 3 studies are known. How soon it would become publicly available would be determined by reviews by the U.S. Food and Drug Administration and European regulatory agencies.

Results of Phase 2 tests that were conducted last year were positive. They showed that the drug was well tolerated and that none of the 111 patients who were randomly selected to receive maribavir developed CMV disease while 11 percent of patients receiving a placebo developed the disease. In addition, all patients receiving maribavir had clinically relevant reductions in CMV reactivation compared to the placebo. In most cases, the reductions were statistically significant.

“That was very good news, because transplant patients and physicians need a new and improved way to prevent this insidious disease,” Roberts said.

An exclusive license for U-M technology underlying maribavir was originally granted to Glaxo Wellcome, which then licensed the rights to ViroPharma, said Mark Maynard, marketing manager of the Office of Technology Transfer.

If commercialization efforts are successful and drugs for fighting cytomegalovirus become available, U-M, in accordance with the licensing agreement, will stand to receive royalty payments, a portion of which will go to Profs. Drach and Townsend and their co-inventors, Maynard added.