Therapeutic Vaccine Achieves “Functional Cure” in Monkeys

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The monkey version of a therapeutic vaccine by VIRxSYS Corporation achieved a “functional cure”—fully controlling simian immunodeficiency virus (SIV) production and halting disease progression in a subset of vaccinated monkeys.

VIRxSYS has been pursuing gene therapy against HIV for several years, but it has been exploring a therapeutic vaccine as well. Its technology involves packaging HIV’s genetic material within a molecular delivery vehicle, commonly known as a vector. The company is using a lentivirus as the vector for its current vaccine, dubbed VRX1273.

As a step before human testing, VIRxSYS scientists gave a simian version of its VRX1273 vaccine or a placebo to several monkeys in their laboratory. After the monkeys were vaccinated, they were infected with a virulent strain of SIV. Gary McGarrity, PhD, executive vice president of scientific and clinical affairs at VIRxSYS, in Gaithersberg, Maryland, reported the results of this experiment at the AIDS Vaccine 2010 conference, which was held September 28 to October 1 in Atlanta.

Two of the five monkeys that received VRX1273 were able to maintain full control of SIV. In the placebo group, several of the monkeys died, providing evidence that VRX1273 both controls SIV reproduction in infected monkeys and provides a survival benefit.

“We and HIV key opinion leaders are very optimistic about these long-term results showing viral suppression, protection of the immune system and survival in this prophylactic study,” McGarrity said. “In addition, the full control of SIV replication following infection of two of our monkeys is a significant milestone in our research to develop effective therapeutic and prophylactic vaccines for HIV.”

McGarrity did not report on plans for testing in HIV-positive people, but it is likely that the company will continue to refine and increase the potency of its vaccine candidates before moving into human testing.