Tulane primate center part of new AIDS drug discovery

March 06, 2014 2:00 AM Arthur Nead
anead@tulane.edu
504-247-1443

A new study shows that injections of a novel long-acting AIDS drug protected monkeys against infection with a virus similar to HIV. The study was conducted by researchers at the Aaron Diamond AIDS Research Center, an affiliate of Rockefeller University; GlaxoSmithKline; ViiV Healthcare and the Tulane National Primate Research Center. It appears in the journal *Science* online.

Researchers at the Tulane National Primate Research Center exposed 16 rhesus macaque monkeys to human-simian immunodeficiency virus. Half the monkeys received monthly injections of the new drug, GSK744, and the other half were untreated. The results were striking: all the monkeys injected with the drug were protected, but those that did not receive the drug became infected.

GSK744 is an integrase inhibitor, which inhibits a viral enzyme from inserting viral DNA into chromosomes, thereby blocking replication of the virus. Tested following viral exposures, all the monkeys receiving the drug showed an absence of detectable virus in blood and tissues as well as the absence of an antibody response to the virus.

A second experiment showed 100 percent protection against viral infection when blood levels of GSK744 were at a level that is sustainable for at least 12 to 16 weeks with an 800 mg dose given by injection in humans.

Recent advances in HIV treatment have dramatically reduced HIV-related morbidity and mortality worldwide. One approach to HIV prevention has been the use of HIV treatment medications to prevent infection by providing pre-exposure prophylaxis, or PrEP. However, sustained protection is possible only if the patient takes the drugs as prescribed, usually a daily dose of oral medication. Patients frequently fail to follow through and new infections are the result.

GZK744 shows promise to improve upon current PrEP medications by providing longer-term protection from a single dose administered monthly and possibly only every three months. These pre-clinical animal studies give strong support to advancing to clinical testing of GSK744 in humans as a next-generation HIV prevention drug.