New Long-Acting Injectable HIV Drug Shows Promise in Monkey Study

The D-peptide HIV entry inhibitor CPT31 is being developed with hopes it could be injected quarterly for both treatment and prevention.

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Promising findings on a new antiretroviral (ARV) drug studied in nonhuman primates have teed up human trials to investigate Navigen's long-acting injectable D-peptide HIV entry inhibitor, known as CPT31.

The drug's developers hope it could be injected as infrequently as every three months and, as the research in rhesus macaque monkeys indicated, would work both as pre-exposure prophylaxis (PrEP) against HIV and as treatment for the virus. Human trials of the drug are set to start this year.

Publishing their findings in the Proceedings of the National Academy of Sciences, scientists studied CPT31's capacity to treat and prevent a hybrid simian-human form of HIV known as SHIV among macaques.

D-peptides tend to last for a long period in the body. Consequently, Brett Welch, PhD, a coauthor of the study and senior director of technology and strategy at the Salt Lake City–based Navigen, said in a press release, "Our hope is that CPT31 will provide extended viral suppression with a lower dose and reduced side effects."

The scientists injected SHIV-negative macaques with a single dose of CPT31, and exposed them to a very high amount of SHIV a few days later. None of the animals contracted the virus.

This part of the study helped the investigators determine the minimum dose of CPT31 apparently needed to fully protect macaques against SHIV.

The investigators found that CPT31 blocks the vast majority of HIV strains circulating around the globe.

To investigate how well the drug worked as ARV treatment, the study authors injected a single dose of CPT31 into macaques that had SHIV and had never been treated for the virus. Over the course of about 30 days, the animals' viral loads declined about 100-fold. But then, during the

subsequent two or three weeks, the animals' viral loads ultimately rebounded as SHIV developed resistance to CPT31.

Next, the investigators took macaques that were on ARV treatment and had a fully suppressed viral load. They injected these monkeys with CPT31 and discontinued their standard SHIV treatment and found that the injectable drug prevented their virus from rebounding.

"Overall, the preclinical data presented support CPT31 as a strong candidate for both PrEP and as a component of combination therapy against a wide variety of HIV isolates," the study authors concluded.

To read a press release about the study, click here.

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