

HIV isolate from Kenya provides clues for vaccine design

January 2 2008

Two simple changes in its outer envelope protein could render the AIDS virus vulnerable to attack by the immune system, according to research from Kenya and the Fred Hutchinson Cancer Research Center published in PLoS Medicine.

The results could provide important clues for designing an effective AIDS vaccine, which is badly needed to decrease the number of new HIV infections, now estimated at about 2.5 million per year worldwide.

Although most people infected with HIV produce antibodies against the virus within several weeks following infection, these antibodies rarely prevent the infection from progressing to symptomatic AIDS.

While studying a group of women at risk of HIV in Mombasa, Julie Overbaugh and colleagues noticed that one woman carried an AIDS virus that was easily inactivated by antibodies. They initially described this case in 2007 in the Journal AIDS.

Analyzing this woman's virus, they found that it contains mutations in four amino acids in the envelope protein, two of which, when introduced into unrelated strains of HIV in the laboratory, conferred sensitivity to inactivation by a number of antibodies produced in people infected with HIV.

The researchers propose that these mutations cause a change in the overall structure of the envelope protein that results in exposure to the

immune system of regions that are normally hidden. If further research confirms this idea, vaccines containing envelope proteins that include these mutations might be able to stimulate an antibody response that would protect against infection with HIV.

Source: Public Library of Science

Citation: HIV isolate from Kenya provides clues for vaccine design (2008, January 2) retrieved 24 April 2024 from

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