

Regulation of the vaginal microbiome reduces rate of HIV infection

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Technology description

Summary

This technology is a combination of vaccines, probiotics, and antibiotics that regulate the vaginal microbiome to reduce the infection rate of human immunodeficiency virus (HIV) and other sexually transmitted infections (STIs).

Unmet Need: Method for reducing HIV infection rate in high risk populations

Two million people became infected with HIV in 2014, contributing to the total 36.9 million people worldwide living with HIV/AIDS. The prevalence of HIV infection is especially high in low-income countries, with 70% of all infected individuals located in Sub-Saharan Africa. Despite advances in slowing the global HIV epidemic, such as the advent of pre-exposure prophylaxis medication and increased use of condoms by infected individuals, a high infection rate persists, particularly amongst young African women. Therefore, there is a need for methods that reduce the HIV infection rate in this population.

The Technology: Combination of vaccines, probiotics, and antibiotics controls the vaginal microbiome to reduce HIV infection rate

This technology is a method of controlling the vaginal bacterial microbiome to reduce the risk of infection with HIV and other STIs. This technology is based on the finding that an unbalanced vaginal bacterial microbiome may contribute to contraction of HIV and other STIs. This technology employs a suite of vaccines, probiotics, and antibiotics to remove harmful bacteria that increase infection risk and replace them with beneficial bacteria demonstrated to reduce risk. Compared with expensive pre-exposure prophylaxis medication, this technology could provide a more cost-effective method of decreasing the infection rate of HIV and other STIs in high risk populations.

Publications

Masson L, Passmore JA, Liebenberg LJ, Werner L, Baxter C, Arnold KB, Williamson C, Little F, Mansoor LE, Naranbhai V, Lauffenburger DA, Ronacher K, Walzl G, Garrett NJ, Williams BL, Couto-Rodriguez M, Hornig M, Lipkin WI, Grobler A, Abdool Karim Q, Abdool Karim SS. "Genital inflammation and the risk of HIV acquisition in women." Clin Infect Dis. 2015 Jul 15;61(2):260-9.

Application area

Preventative vaccine to reduce HIV infection risk

Antibiotics for prevention of HIV and STIs

Vaginal probiotics to maintain a healthy bacterial microbiome

Advantages

Cost-effective prevention of HIV infection

Also reduces risk of infection with other STIs

Institution

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