Reproductive Tract Infections during Pregnancy Prevented with DNAase

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Bacterial Vaginosis (BV), a Vaginal Infection Resistant to Antibiotics, Risks Preterm Labor and HIV Bacterial vaginosis (BV) is the most common form of vaginal infection worldwide and is associated with a number of adverse consequences including preterm labor and an increased risk of HIV acquisition. BV is particularly common in Africa, where prevalence rates surpass 50%, but also affects roughly one-third of American women at some point in their lives. BV is caused by a profound imbalance in vaginal flora, where hydrogen-peroxide-producing Lactobacillus bacterial populations are reduced relative to other invading species. One species closely-linked to BV is Gardnerella vaginalis. During BV, the epithelial surface is often covered with a dense biofilm of Gardnerella vaginalis that is often resistant to standard antibiotic treatments. In fact, using metronidazole or clindamycin alone does not stop BV from recurring in less than 6 months in 50% of cases. A way of effectively treating BV is therefore in great need.

DNAase Combined with Conventional Antibiotics can Help Treat and Prevent BV This invention details a treatment for BV that combines conventional antibiotics with DNAase that targets Gardnerella vaginalis biofilms. Extracellular DNA is essential to the formation and maintenance of Gardnerella vaginalis biofilms. Targeting DNAase to biofilm extracellular DNA likewise significantly disrupts biofilms. This invention proposes that BV be treated with a combination of DNAase and conventional antibiotics, which may work either additively or synergistically at combatting BV.

Applications:
- Treating and preventing bacterial vaginosis
- Reducing vaginosis-related HIV infection and transmission, as well as birth complications
- Treating other biofilm-related conditions, including catheter-associated infections, wound infections, endocarditis, and tooth decay

Advantages:
- Improved efficacy
- DNAase may be delivered locally
- Uses already-approved antibiotics


Licensing Status: Available for Licensing and Sponsored Research Support
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