ImQuest BioSciences’ PrevSENS platform assesses the activity of agents against HIV, HSV and other sexually transmitted organisms, defines the mechanism of action of potential microbicides, and quantifies the toxicity of a potential microbicide against cells, tissues and organisms relevant to microbicide product use. All of our efficacy and toxicity defining assays are performed under conditions that closely mimic the microbicide environment, including the use of vaginal and seminal fluids, and changes in pH. This biologic testing is done in the context of the timing of product application and infection during sexual transmission.

Quantification of Anti-Viral Activity and Cellular Toxicity
- Evaluation of antiviral activity using well-characterized laboratory strains of virus
- Evaluation against geographically diverse clinical strains of HIV, including multiple isolates representing each of the HIV-1 subtypes/clades, CCR5 – and dual CCR5/CXCR4 co-receptor topic strains, and HIV-2
- Evaluation of antiviral activity in relevant primary cells and tissues

In addition to the primary antiviral and cytotoxicity evaluations, other variables associated with transmission that may affect activity or change the toxicity profile are also performed:
- Antiviral activity across a range of viral multiplicities of infection
- Antiviral activity following pH transition from pH 4 to pH 7
- Protection against infection by cell-free and cell-associated HIV-1 virus
- Antiviral activity in the presence of whole semen, seminal plasma, cervicovaginal lavage fluid and mucin
- Virucidal activity evaluations for agents which inactivate infectious virus
- Evaluation of virus sterilization using the Microbicide Transmission and Sterilization Assay (MTSA)

Determination of Mechanism of Action
ImQuest BioSciences has the ability to evaluate and confirm the mechanism of action of a microbicide at any point in the virus life cycle utilizing both cell-based and biochemical methodologies, including:
- Inhibition of virus entry to include attachment, fusion and entry through co-receptors
- Direct virus inactivation (virucidal activity)
- Inhibition of reverse transcriptase
- Inhibition of integrase
- Inhibition of protease

Selection and Characterization of Resistant Virus
The use of a microbicide product should take into account the potential presence of pre-existing resistant viruses in the biological inoculum, and the product should be known to demonstrate antiviral activity against these viruses. As part of the continued development of a microbicide, ImQuest BioSciences will:
- Assess the susceptibility of approved drugs to microbicide-resistant HIV variants
- Assess the susceptibility of the microbicide to variants resistant to approved antiretroviral drugs
- Perform resistant virus selection on microbicide candidates to assess the relative ease of resistant virus selection, as well as the genotype and fitness of resistant viruses that emerge during selection

Toxicity to Normal Human Vaginal Microflora and Other Relevant Cell Types
Toxic effects of a microbicide to the normal vaginal flora as well as to the cells that comprise the vagina or rectum may promote virus transmission or reduce the natural capacity of the tissue to prevent infection. For this reason, ImQuest BioSciences will evaluate the toxicity of microbicide products and can evaluate the induction of proinflammatory cytokine expression in cervical, vaginal and rectal specific cell lines, epivaginal tissue, and normal vaginal flora, Lactobacillus.

ImQuest BioSciences also performs evaluation of activity against other STI relevant organisms, such as Neisseria gonorrhoeae, Chlamydia trachomatis, HSV-1 and HSV-2, Trichomonas vaginalis, and HPV.