

 Immune Disease Institute	Office of Technology Development 3 Blackfan Circle, 3 rd Floor Boston, Massachusetts 02115 www.idi.harvard.edu
IDI 02-001, 05-003	TOPICAL ANTI-MICROBIAL AGENTS FOR THE PREVENTION OF STDs AND OTHER VIRAL INFECTIONS

Application: Prevention of viral disease including sexually transmitted diseases

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Invention Summary:

The present invention provides compositions and methods for prevention of sexually transmitted diseases including but not limited to HIV, hepatitis B, herpes and papilloma virus infection by modulating the expression of the corresponding genes through RNA interference or post-transcriptional gene silencing. The novel agents of this invention comprise short interference RNAs (siRNAs) that either down-regulate the viral gene to prevent viral reproduction or down-regulate the cellular receptors necessary for infection thereby preventing entry of the virus or microbe into target cells such as macrophages and T cells. The preferred method of delivery of the siRNAs into human subjects comprises applying a topical composition consisting of naked or chemically modified double-stranded siRNAs conjugated to a pharmaceutically acceptable carrier. Sequences and vectors are claimed for siRNAs that inhibit the expression of viral genes. Products could be eye drops, lip balm, lip stick, ointment, cream, paste, emulsion, foam, jelly, gels or a spray. Recent studies have shown that siRNA delivery and gene silencing can be achieved in the mouse vagina with lasting results.

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