

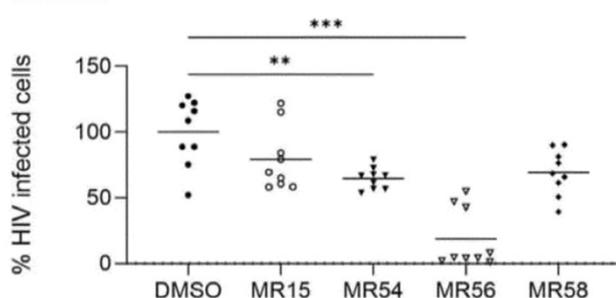
Broad-Spectrum Microbicide Candidates for the Prevention of Viral and Bacterial STIs

Sexually transmitted infections (STIs) continue to rise globally, highlighting an urgent need for prevention tools that go beyond pathogen-specific antivirals and vaccines. Current strategies of public health and healthcare is to prevent and treat infections before they develop into disease (STDs) by either using condoms which do not offer complete protection for STIs that cause extra-genital ulcers (i.e., syphilis or genital herpes) or vaccines which is an effective solution. However up to now, only 2 vaccines for hepatitis B and HPV are available. Another approach is the use of conventional antivirals, as a pre-exposure prophylaxis, which are instead targeting specifically one virus at the time. However, these compounds do not show broad-spectrum activity. There is thus a need for a class of compounds which is efficacious against various STIs or STDs.

TECHNOLOGY OVERVIEW

Our researchers have developed a family of molecules known as substituted 3-cyanoquinolines—previously studied only in oncology and kidney disease—that exhibit unexpected broad-spectrum antiviral and antibacterial activity against key sexually transmitted pathogens.

These novel microbicide compounds display demonstrate potent, broad-spectrum activity across major viral and bacterial STIs, including HIV, HSV-1/2, MPXV, and Chlamydia. Our compounds have shown remarkably low EC50 values and good selectivity indices.



APPLICATIONS

- Topical microbicides for prevention of acquisition and transmission of STIs
- Co-formulated products combining broad-spectrum activity with existing antiviral agents
- Sexual health consumer products (e.g., lubricants with intrinsic protective activity)
- Multipurpose prevention technologies (MPTs) addressing STI prevention alongside contraception

COMPETITIVE ADVANTAGES

- Confirmed efficacy against:
 - Viruses: HIV, HSV-1, HSV-2, Monkeypox virus (MPXV), Vaccinia virus (model), HCV
 - Bacteria: Chlamydia trachomatis
 - Potent activity against HSV-1, HSV-2, HIV, MPXV
- Microbicide-ready chemistry
 - Compatible with gels, creams, films, sponges, lubricants, and slow-release inserts
 - Suitable for vaginal, rectal, or penile application
- Activity confirmed in human vaginal tissue

STAGE OF DEVELOPMENT:

Technology Readiness Level : 4-5

Related Publication

Martina et al., Identification of 3-cyanoquinolines as broad-spectrum inhibitors of Monkeypox virus and other sexually transmitted pathogens, Biomedicine & Pharmacotherapy Volume 196, March 2026, 119080

INTELLECTUAL PROPERTY

PCT patent application: WO 2026/017799

The KT is looking for development partners and offers to grant exclusive or non-exclusive license.

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