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# Development of a live topical microbicide for women

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## Background

Osel is developing a live microbicide, employing H2O2-producing Lactobacillus jensenii 1153, a natural component of human vaginal microflora, as a delivery vehicle.

## Materials and methods

An expression cassette harboring native regulatory elements was optimized to secrete high levels of modified cyanovirin-N (P51G) (CV-N). The expression cassette was stably integrated into the bacterial chromosome.

## Results

The CV-N-producing L. jensenii retained important characteristics of the native bacterial phenotype and secreted high levels of full-length CV-N that completely inhibited the infectivity of CCR5-tropic HIVBaL in vitro, with an IC50 near 1 nM. We further demonstrated that this strain was capable of association with epithelial cells in the vaginal lumen of CD-1 mice, and expressed CV-N in vivo in this model and when cultured in cervicovaginal lavage fluid of pigtailed macaques. We are evaluating potential regulatory issues, bacterial formulations, vaginal colonization, in situ CV-N expression, and host immunological responses in non-human primate models.

## Conclusion

This work represents a major step towards the development of a simple, cost-effective, female-controlled preventative against heterosexual transmission of HIV.

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