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Size-fitting of Intravaginal Rings for Macaques and in vitro Release Kinetics of Zinc Finger Inhibitors

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Abstract

Table 3 Design study for intravaginal ring size-fitting in pig-tailed and Chinese rhesus macaques

Introduction

The HIV pandemic can arguably be seen as both slow and eventually stopped by an effective vaccine. Although great strides have been made towards that end, an effective vaccine is not available eight years away, providing a compelling argument for the exploration of other effective means of HIV prevention. Currently, there is a handful of effective microbicides that are designed to prevent HIV transmission by targeting specific virion proteins and inhibiting viral replication. Many of these compounds can potentially inhibit replication of HIV at the site of exposure and are, therefore, especially important for female-to-male workers and women in heterosexual relationships.

In vitro Release Kinetics of Zinc Finger Inhibitors

Table 4 In vitro inhibition of replication against SIV and HIV-1 with ZFI compounds (Adapted from: Srivastava, P. et al. Am J Drug Deliv 2006; 4 (1)

Conclusion

In several independent studies, the utility and acceptance of intravaginal rings as a delivery device for hormones and contraception has been well documented. The controlled sustained release of inhibitors from IIIs for pre-exposure prophylaxis has many of the desired characteristics of an ideal vaginal microbicide. This study was launched to adapt and expand this versatile delivery device to the non-human primate model of HIV prevention. The fact that the zinc finger inhibitor was successfully released makes this combination, as well as other classes of HIV inhibitors, an excellent candidate for preclinical evaluation in the non-human primate repeat challenge model.