

Infectious and Parasitic Diseases

Department of Medicine
Clinical Science
Division

Dr Rupert Kaul's research group continued several Kenya-based research projects in local collaboration with the University of Nairobi and the Kenya Medical Research Institute, as well as the University of Manitoba, UCSF, the Karolinska Institute and other partners. The broad theme of this research is understanding how the mucosal immunology of the genital tract contributes to HIV susceptibility and secondary transmission.

1. Genital herpes (herpes simplex type 2) increases susceptibility to HIV by up to six-fold, and people infected by herpes as well as HIV are four-fold more likely to transmit HIV to their sex partner(s). Since over half of sexually adults in Kenya are infected by genital herpes (mostly without any symptoms at all), this may be a major driver of HIV transmission in the region. Early in the year a CIHR-funded project led by Dr. Anu Rebbapragada, a post-doctoral fellow in the lab, identified that the numbers of several HIV "target cells" are much higher in the genital tract of herpes-infected women, and that HIV-infected women have much higher levels of HIV in the genital tract during herpes reactivation. This work suggests that herpes suppressive treatment, which is safe and reasonably affordable, may be an important strategy to prevent HIV transmission in high risk groups.
2. Some high-risk sex workers in Kenya are exposed to HIV, but are relatively resistant to infection. Duncan Chege and Dr. Anu Rebbapragada from the Kaul lab have developed new assays to measure HIV immune responses in the genital tract of these women, where HIV exposure occurs. They traveled to Kenya from October-December 2006, and recruited over 200 participants into their Gates Foundation-funded studies. We hope that identifying protective immune responses in the genital mucosa of these women will aid in the development of HIV vaccines.
3. A microbicide is a female-controlled method of HIV prevention consisting of a gel, cream or medication-impregnated plastic ring that would, when placed in the vagina before sex, reduce or prevent HIV acquisition. Sanja Huibner and Anu Rebbapragada from the Kaul lab are coordinating the mucosal immunology studies in an NIH-funded phase 1 (safety) study of a novel microbicide (Vivagel™?) in Kisumu, Kenya. Enrollment started in December 2006, and the study is expected to be completed in approximately a year. Depending on the results, the hope is to then take this microbicide forward into efficacy studies.



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