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Timothy Wessler*, The Department of Mathematics, Phillips Hall, CB#3250 UNC-CH, Chapel Hill, NC 27599-3250, and **Alex Chen, Scott A McKinley, Richard Cone, M Gregory Forest and Samuel K Lai**. *Modeling HIV-Antibody-Mucin Kinetics*.

A promising strategy to reduce vaginal HIV transmission is to design antibodies (Ab) that can crosslink HIV viruses to mucins mesh comprising cervicovaginal mucus (CVM), thereby blocking viruses from reaching and infecting target cells. Here, we modeled the kinetics of HIV in semen that diffuse into a layer of CVM populated by Ab with distinct affinities to mucins. We compared a continuum approach using partial differential equations for the diffusion of Ab and virion concentrations with stochastic simulations of individual virions. Our model has generated many unexpected yet important insights into the design of antibodies that can effectively reduce the flux of HIV arriving at target cells, offering a promising approach to reducing vaginal transmission of HIV and other common sexually transmitted infections. (Received September 20, 2016)