



Figure S1 | Dynamics of SHIV-KS661 and -#64 infection in HSC-F cells using nonlinear least-squares regression. We simultaneously fit Eqs. (5-8) to the concentrations of Nef-negative and Nef-positive HSC-F cells and the viral loads consisting of the RNA copies/ml and TCID50/ml for both MOIs of SHIV-KS661 and -#64, respectively, in **A** and **B** using nonlinear least-squares regression that minimizes the sum of squared residuals (SSR). Experimental measurements below the detection limit were excluded when

computing the SSR. The solid curves give the best-fit solution for Eqs.(5-8) and the dots are corresponding to the time-course dataset (log scale): blue, red, green, and yellow represent Nef-negative and Nef-positive HSC-F cells and the viral loads consisting of the RNA copies/ml and TCID50/ml, respectively. The estimated parameters of the model and derived quantities are given in **Table S1**, and the estimated initial values are summarized in **Table S2**.