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Yanyu Xiao* (yanyu.xiao@uc.edu), PBOX210025, Cincinnati, OH 45221. *Dynamics of an HIV-1 virus model with both virus-to-cell and cell-to-cell transmissions.*

In this paper, we incorporate both virus-to-cell and cell-to-cell transmissions into an HIV-1 virus model with nonlinear general incidence rate, intracellular delay, and cytotoxic T lymphocyte (CTL) immune responses. By Lyapunov functionals and LaSalle invariance principle, it is verified that global threshold dynamics of three equilibria, infection-free, CTL-inactivated and CTL-activated, can be explicitly described by the basic reproduction numbers. (Received January 21, 2020)