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71209. *VIVO and VITRO HSV<sub>1</sub> infections, Latency-Reactivation by Systems Theory Approach.*

A nonlinear mathematical model for HSV1 viral infections will be produced from its background. Differential cell are the host of this virus. Once infected, this differential cell would survive as long as it host this virus. It is assumed that both HSV1's DNA and Nuclear DNA in the differential cell depend on Thyroid Hormone liganded with its receptore. Numerical simulation proving the biological relevance will be shown. In addition, future research direction for this model will be discussed. (Received September 01, 2009)