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**Patrick De Leenheer** (deleenhe@math.ufl.edu), Department of Mathematics, University of Florida, Gainesville, FL 32611, and **Sergei S Pilyugin\*** (pilyugin@math.ufl.edu), Department of Mathematics, University of Florida, Gainesville, FL 32611. *Multi-strain virus dynamics with mutations: A global analysis.*

We consider within-host virus models with at least two strains and allow mutation between the strains. If there is no mutation, a Lyapunov function establishes global stability of the steady state corresponding to the fittest strain. For small perturbations, this steady state persists, perhaps with small concentrations of some or all other strains, depending on the connectivity of the graph describing all possible mutations. Moreover, using a perturbation result due to Smith and Waltman, we show that this steady state also preserves global stability. (Received August 25, 2008)