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Elissa J Schwartz* (ejs@wsu.edu), Department of Mathematics, P. O. Box 643113, Washington State University, Pullman, WA 99164-3113, and **Kasia A. Pawelek, Karin Harrington, Richard Cangelosi** and **Silvia Madrid**. *Immune Control of Equine Infectious Anemia Virus Infection by Cell-Mediated and Humoral Responses.*

Equine Infectious Anemia Virus (EIAV) is a retrovirus that establishes a persistent infection in horses and ponies. The virus is in the same lentivirus subgroup that includes human immunodeficiency virus (HIV). The similarities between these two viruses make the study of the immune response to EIAV relevant to research on HIV. We developed a mathematical model of within-host EIAV infection dynamics that contains both humoral and cell-mediated immune responses. Analysis of the model yields results on thresholds that would be necessary for a combined immune response to successfully control infection. Numerical simulations are presented to illustrate the results. These findings have the potential to lead to immunological control measures for lentiviral infection. (Received February 08, 2014)