Bovine herpesvirus 5 (BHV-5) is a neurovirulent alphaherpesvirus that causes fatal encephalitis in calves. BHV-1 is associated with abortions, respiratory infections (subtype 1.1), and genital infections (subtype 1.2) in cattle but does not frequently cause encephalitis. BHV-1 and BHV-5 share 85% DNA homology but differ in their ability to cause neurological disease in calves. Only BHV-5 invades the central nervous system (CNS) via the olfactory pathway (3). The envelope protein Us9 is required for anterograde spread of bovine herpesvirus 5 (BHV-5) infection from the olfactory receptor neurons to the brain (1). The authors further show that mature BHV-1 Us9 is a 30- to 32-kDa protein, whereas mature BHV-5 Us9 is an 18- to 20-kDa protein. In vitro, BHV-1 Us9 is expressed at 3 h postinfection (hpi), whereas BHV-5 Us9 is expressed at 6 hpi. Despite these differences, BHV-1 Us9 not only complemented for BHV-5 Us9 and rescued the anterograde-spread defect of the BHV-5 Us9-deleted virus but conferred increased neurovirulence and neuroinvasiveness in the rabbit seizure model (2). The data underscore the importance of both Us9 genes for virion anterograde transport and neuroinvasiveness. However, Us9 is not the determinant of the differential neuropathogenesis of BHV-1 and BHV-5.

References: