Bovine herpesvirus type 5 infection regulates Bax/BCL-2 ratio

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ABSTRACT. Bovine herpesvirus 5 (BoHV-5) is an α-herpesvirus that causes neurological disease in young cattle and is also occasionally involved in reproductive disorders. Although there have been many studies of the apoptotic pathways induced by viruses belonging to the family Herpesviridae, there is little information about the intrinsic programmed cell death pathway in host-BoHV-5 interactions. We found that BoHV-5 is able to replicate in both mesenchymal and epithelial cell lines, provoking cytopathology that is characterized by cellular swelling and cell fusion. Viral antigens were detected in infected cells by immunofluorescence assay at 48 to 96 h post-infection (p.i.). At 48 to 72 h p.i., anti-apoptotic BCL-2 antigens were found at higher levels than Bax antigens; the latter is considered a pro-apoptotic protein. Infected cells had increased BCL-2 phenotype cells from 48 to 96 h p.i., based on flow cytometric analysis. At 48 to 96 h p.i., Bax mRNA was not expressed in any of the infected cell monolayers. In contrast, BCL-2 mRNA was found at high levels at all
p.i. in both types of cells. BoHV-5 replication apparently modulates BCL-2 expression and gene transcription, enhancing production of virus progeny.

**Key words:** BoHV-5; *In vitro* propagation; Programmed cell death; Mitochondrion