



Molecular cloning of HSP70 in *Mycoplasma ovipneumoniae* and comparison with that of other mycoplasmas

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ABSTRACT. *Mycoplasma ovipneumoniae*, a bacterial species that specifically affects ovine and goat, is the cause of ovine infectious pleuropneumonia. We cloned, sequenced and analyzed heat shock protein 70 (HSP70) (*dnaK*) gene of *M. ovipneumoniae*. The full length open reading frame of the *M. ovipneumoniae* HSP70 gene consists of 1812 nucleotides, with a G+C content of 34.16%, encoding 604 amino acids. Comparative analysis with the HSP70 sequences of 15 *Mycoplasma* species revealed 59 to 87% DNA sequence identity, with an amino acid sequence identity range of 58 to 94%. *M. ovipneumoniae* and *M. hyopneumoniae* shared the highest DNA and amino acid sequence identity (87 and 94%, respectively). Based on phylogenetic analysis, both the DNA and amino acid identities of *M. ovipneumoniae* with other mycoplasmal HSP70 were correlated with the degree of relationship between the species.

The C-terminus of the HSP70 was cloned into a bacterial expression vector and expressed in *Escherichia coli* cells. The recombinant C-terminal portion of HSP70 protein strongly reacted with convalescent sera from *M. ovipneumoniae*-infected sheep, based on an immunoblotting assay. This indicates that HSP70 is immunogenic in a natural *M. ovipneumoniae* infection and may be a relevant antigen for vaccine development.

Key words: *Mycoplasma ovipneumoniae*; Heat shock protein 70; HSP70; Immune response; Recombinant protein; Bioinformatic analysis