ABSTRACT

The Potential of *Outer Membrane* Protein 36 kDa *Brucella abortus* Local Isolate as Brucellosis Vaccine Candidates through the Activity of Cellular and Humoral Immune Responses

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The using of local isolate *Brucella abortus* often get an attention because have several advantages at antigenicity and specificity. Brucella is a facultative, intracellular pathogen that causes severe disease in animal and human. Immunity against Brucellosis both humoral and cellular responses. OMP 36 kDa of local isolate *Brucella abortus* has been known to have antigenic so it was developed as a vaccine candidate against Brucellosis disease.

This research was conducted in three phases , the first phase of exploratory laboratory aims to isolate outer membrane protein (OMP) 36 kDa that are antigenic , the second phase is experimental research aims to determine the cellular and humoral immune response resulting in strain Wistar rats were treated vaccination with OMP 36 kDa of local isolate *Brucella abortus* and *Brucella abortus* S19 and third sphase all of rats was challenge test with local isolate *Brucella abortus*. TCD4+ cells and TCD8+ cells amount in the blood were measured by Flow cytometry and Brucella specific IgG respon in the sera of rats were detected by ELISA.

The results indicate vaccination using OMP 36 kDa of local isolate *Brucella abortus* produce an immune response in the form of TCD4+ cell, TCD8+ cells count and IgG were higher ($p < 0.05$) , as well challenged with local isolate *Brucella abortus* results showed an immune response in the form of TCD4+ cell, cell TCD8+ and IgG were higher than *Brucella abortus* S19 ($p < 0.05$) .The Results of sequensing *omp2* genes can be predicted epitope with the amino acid sequence of *Brucella abortus* S19 are AYGAGYFYIP the amino acids 13 to 22 and TETCLRVHGYVRYD the amino acids 24 to 37 , and on local isolate *Brucella abortus* are MSRVCDAYGAGYFYIP the amino acid of 8 to 23 and TETCLRVHGYVRYD the amino acid of 25 to 38.

The conclusions of this study are: (1) there are genotypic character differences between *Brucella abortus* S19 with local isolates *Brucella abortus,* (2) there are antigenic epitopes predictions in OMP 36 kDa local isolates *Brucella abortus,* and (3) the cellular and humoral immune responses OMP 36 kDa local isolates *Brucella abortus* are better than the OMP 36 kDa *Brucella abortus* S19 ($p < 0.05$).

Key Words: OMP 36 kDa, *Brucella abortus*, Immune Respons