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Antibody against synthetic peptide of prolactin-inducible protein homologue precursor (PIP-HP) of Bali cattle (Bos javanicus) saliva: A potential biomarker for immunoassay development

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Background: We have successfully identified sequence of a Prolactin-Inducible Protein Homologue Precursor (PIP-HP) in Bali cattle (*Bos javanicus*) saliva by matrix-assisted laser desorption ionization-time-of-flight-mass spectrometry (MALDI-TOF-MS). PIP-HP as one of salivary proteins that might potentially altered in disease and could serve as novel diagnostic biomarkers. Antibody against PIP-HP hence needs to be produced.

Methods: A synthetic amino acid sequence of the PIP-HP was developed and then conjugated to bovine serum albumin and was used to immunize Indonesian local rabbits. Serum antibody that specific to the PIP-HP was purified sequentially by ammonium sulfate precipitation and protein A affinity methods. Purified antibody was then used to analyze the presence of PIP-HP in the ruminants' saliva by means of dot blot and western blot. A preliminary study on the development of immuno lateral assay using the purified anti-PIP.HP antibody as the biomarker has also been carried out.

Results: Specific antibody was successfully produced against a synthetic amino acid sequence fragment of PIP-HP of Bali cattle saliva. The antibody can be used to analyze the presence of PIP-HP not only in the saliva but also in other fluids including semen fluids of large ruminants (cattle and buffalo). The antibody was also able to be used to develop immuno lateral assay kits. In addition, we also found that the antibody was able to inhibit the growth of E. coli culture, but did not to *S. aureus*. The findings in this study need to be explored further especially in the relationship with the potential of anti-PIP-HP as biomarker for animal diseases biomarker.

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