UNIVERSITI TEKNOLOGI MARA

IDENTIFICATION AND IMMUNOGENICITY STUDY OF SOLUBLE PROTEIN DERIVED FROM *PASTEURELLA MULTOCIDA* SEROTYPE B

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Thesis submitted in fulfilment
of the requirements for the degree of
Master of Science

Faculty of Medicine

August 2015

AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as reference work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Pasteurella multocida (*P. multocida*) serotype B is associated with hemorrhagic septicaemia (HS) disease endemic in Africa, India and Asian countries. It is causative agent of thriftily significant disease in livestock. Hence, this study purposed and aimed to identify and express an immunogenic soluble protein of *P. multocida* in efforts toward development of HS vaccine. Immunogenic soluble protein was identified as lipoprotein B (plpB) using electrospray mass spectrometry. The size of expressed purified recombinant protein was approximately 39kDa. Immunogenicity study of the recombinant protein plpB was carried out using 6 groups of BALB/c mice. The groups were immunized with recombinant protein (Group 1), soluble recombinant protein (Group 2), insoluble recombinant protein (Group 3), vector (Group 4), soluble protein of *P. multocida* (Group 5) and PBS (Group 6) respectively. Mice in group 4 and 6 showed signs and symptom of HS after challenge with the parental strain (p-value < 0.05). However, immunised mice with purified recombinant protein did not show signs and symptoms of HS. Based on immunoblotting analysis, purified recombinant protein was significantly immunogenic (p-value < 0.05). Additionally, no inflammation was seen in the tissues of organs from mice immunized with purified recombinant protein, which indicates that recombinant protein was 100% protective towards *P. multocida* infection and eventually towards HS disease. Thus, this study shows that the recombinant protein lipoprotein B (plpB) is significantly immunogenic and could be a potential candidate in developing vaccine against HS.

ACKNOWLEDGEMENT

Assalamualaikum w.b.t

First and foremost, I would like to say Alhamdulillah and utmost grateful to Allah S.W.T for giving me the opportunity to embark on my MSc and for completing this project and also the completion of this thesis.

I am sincerely thanked to my main supervisor, Dr. Jamal Houssaini, for always being supportive and helpful with good guidance and valuable sights. I would like also to express an appreciation towards my co-supervisor, Associate Prof. Dr. Zaini Mohd Zain and also Prof. Dr. Methil Kannan Kutty for his guidance and helps in validating histopathology part. Acknowledgement must also go towards Ministry of Education (MOE) for funding this project through Exploratory Research Grant Scheme (ERGS).

I would like also to take this opportunity to thank both of my parents, Mr Jumahat Kampong and Mrs Maznah Ismail and also my siblings for having faith in me and being amazingly supportive towards me.

I would like to express gratitude to Institute of Medical Molecular and Biotechnology (IMMB), Faculty of Medicine, UiTM Sungai Buloh for allowing me to use all the facilities in doing this project. Thanks to all IMMB and LACU staff as well for being helpful whenever needed in the laboratory.

Last but not least, I would like to thank all my lab mates for being supportive and helpful throughout my study. Thank you very much everyone.

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