Identification of Antigenic Extracellular *Burkholderia pseudomallei* Proteins with a Potential Role as Diagnostic Tools or Vaccines Using Two-Dimensional Gel Electrophoresis and Mass Spectrometry

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Melioidosis is an uncommon infectious disease caused by Gram-negative bacterium, *Burkholderia pseudomallei*. World-wide mortality rate as high as 80% still prevail in severe sepsis cases due to difficult to reliably identify and validate in diagnostic for treatment. Therefore, a method which can precisely identify the disease is urgently needed in viewing that this pathogen is being classified as a potential agent to be developed as biological weapon. Thus, the aim of this study was to identify the excreted or secreted proteins of *B. pseudomallei* that are highly antigenic and specific. In the present study, a number of *B. pseudomallei* extracellular proteins were found to be highly antigenic against antibody from patient sera confirmed with melioidosis. These proteins were obtained from culture filtrate of *B. pseudomallei* and resolved by two-dimensional gel electrophoresis. All patient sera positive for melioidosis were reactive to these proteins and none of the healthy individuals were reactive to these proteins. No cross-reactivity of these proteins was observed with sera from patients infected with other bacteria including *Leptospira* spp., *Legionella* spp. and *Salmonella* spp. This indicates that the proteins were highly specific against *B. pseudomallei*. Identification of at least six of these proteins using MALDI TOF-TOF mass spectrometry were found matched to the *Burkholderia* spp. hypothetical putative lipoprotein, exported proteins and serine-type carboxypeptidase family protein. These proteins are very useful as candidate proteins and have potential to be developed as vaccines and detection markers for diagnosis against melioidosis or other related diseases caused by *B. pseudomallei* infections.