

IMMUNOSTIMULATORY CPG OLIGODEOXYNUCLEOTIDE CONFERS PROTECTION IN A MURINE MODEL OF INFECTION WITH *BURKHOLDERIA PSEUDOMALLEI*

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Although CpG oligodeoxynucleotides (CpG ODNs) are known to enhance resistance against infection in a number of animal models, little is known about the CpG-induced protection against acute fatal sepsis such as that associated with the highly virulent bacterium *Burkholderia pseudomallei*. We previously demonstrated in an in vitro study that immunostimulatory CpG ODN 1826 enhances phagocytosis of *B. pseudomallei* and induces nitric oxide synthase and nitric oxide production by mouse macrophages. In the present study, CpG ODN 1826 given intramuscularly to BALB/c mice 2 to 10 days prior to *B. pseudomallei* challenge conferred better than 90% protection. CpG ODN 1826 given 2 days before the bacterial challenge rapidly enhanced the innate immunity of these animals, judging from the elevated serum levels of interleukin-12 (IL-12) p70 and gamma interferon (IFN- γ) over the baseline values. No bacteremia was detected on day 2 in 85 to 90% of the CpG-treated animals, whereas more than 80% of the untreated animals exhibited heavy bacterial loads. Although marked elevation of IFN- γ was found consistently in the infected animals 2 days after the bacterial challenge, it was ameliorated by the CpG ODN 1826 pretreatment ($P = 0.0002$). Taken together, the kinetics of bacteremia and cytokine profiles presented are compatible with the possibility that protection by CpG ODN 1826 against acute fatal septicemic melioidosis in this animal model is associated with a reduction of bacterial load and interference with the potential detrimental effect of the robust production of proinflammatory cytokines associated with *B. pseudomallei* multiplication.

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MONOCYTE ACTIVATION BY *PORPHYROMONAS GINGIVALIS* LPS IN AGGRESSIVE PERIODONTITIS WITH THE USE OF WHOLE-BLOOD CULTURES

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In this study, we re-visited the issue of hyper-responsiveness of monocytes to bacterial lipopolysaccharide (LPS) in aggressive periodontitis patients. We used whole-blood cultures to compare monocyte activation by *Porphyromonas gingivalis* LPS between Thai subjects with generalized aggressive periodontitis and those without periodontitis. Upon stimulation with *P. gingivalis* LPS, expression of co-stimulatory molecules on monocytes and expression of CD69 on NK and $\gamma\delta$ T-cells were analyzed by flow cytometry, and the production of interleukin-1 β and prostaglandin E₂ was monitored by ELISA. LPS stimulation resulted in a dose-dependent up-regulation of CD40, CD80, and CD86 on monocytes, and up-regulation of CD69 on NK cells and $\gamma\delta$ T-cells in both the periodontitis and non-periodontitis groups. The levels of activation