Immunogenicity and therapeutic effects of Rv1419 DNA vaccine from *Mycobacterium tuberculosis*

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The situation of tuberculosis (TB) is very severe in China. New therapeutic agents and regimens to treat tuberculosis are urgently needed. In this study, a DNA vaccine expressing *Mycobacterium tuberculosis* (MTB) Rv1419 antigen was constructed and evaluated. The mice were immunized intramuscularly three times at two-week intervals with saline, plasmid vector pVAX1, *M. vaccae*, Ag85A DNA or Rv1419 DNA. Three weeks after the last immunization, higher levels of IFN-γ were observed in the mice in the Rv1419 DNA group in stimulated spleen lymphocyte cultured supernatant, and a higher ratio of Th1/Th2 cells in whole blood was observed, suggesting a predominant Th1 immune response. Compared with saline group, injection of MTB-infected mice with Rv1419 DNA reduced live bacterial loads found in lungs and livers all by 0.41 log₁₀. The pathological changes in the lungs of DNA vaccine treated mice were less, with more limited lesions. These results suggest that Rv1419 DNA was effective for the treatment of TB, significantly increasing the Th1 cellular immune response, and inhibiting the growth of MTB. Rv1419 DNA can be used as a new candidate DNA vaccine against TB.

Biography

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