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Prime-boost strategy for vaccine development against both *Plasmodium vivax* and *P. falciparum* using MSP-1_{19} as antigen

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Background

Both antibodies and effector T cells appear to play important roles in the protection against *P. vivax* and *P. falciparum* infection. However, the partial protective immunity induced by vaccination with recombinant C-terminal region of merozoite surface protein (MSP-1_{19}) is mediated largely by antibodies ([1,2]). Therefore, the objective of the present study was to evaluate, when PvMSP-1_{19} and PfMSP-1_{19} antigens were administered as combination at a single site in mice by using different immunization strategies (DNA/DNA, DNA/rprotein, rprotein/rprotein). We found that mice immunized with both recombinant antigens alone and in combination using heterologous prime-boost strategies (prime with DNA 100 ng and boost with recombinant protein 35 μg) lead to induced substantial levels of MSP-1_{19} specif c IgG1, IgG2a and IgG2b (a mixed Th1/Th2 type) antibodies as measured by ELISA (Figure 1). In addition, both antigens significantly increased IFNγ responses in mice immunized with both antigens in combination using prime-boost strategy (Figure 2). rPfMSP-1_{19} when combined with rPvMSP-1_{19} was not affects antibodies or IFNγ and IL-10 responses in prime-boost strategy.

Conclusion

The present results are encouraging to develop a multi-species human malaria vaccine against asexual blood stage of *P. vivax* and *P. falciparum*. Further study is needed to evaluate the protective efficacy of this vaccine in non-human primates.

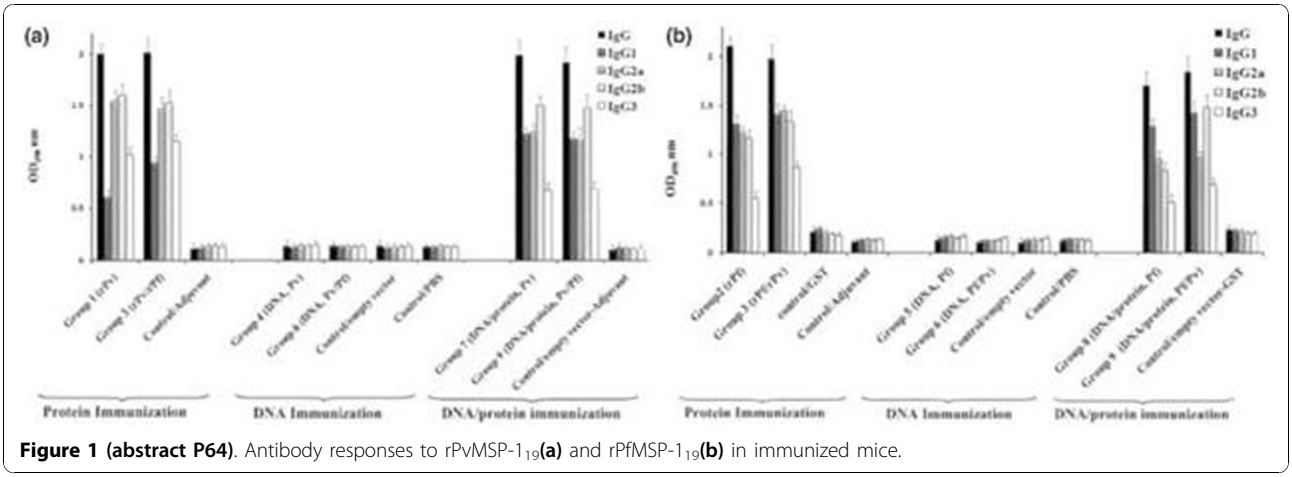

Figure 1 (abstract P64). Antibody responses to rPvMSP-1_{19}**(a)** and rPfMSP-1_{19}**(b)** in immunized mice.

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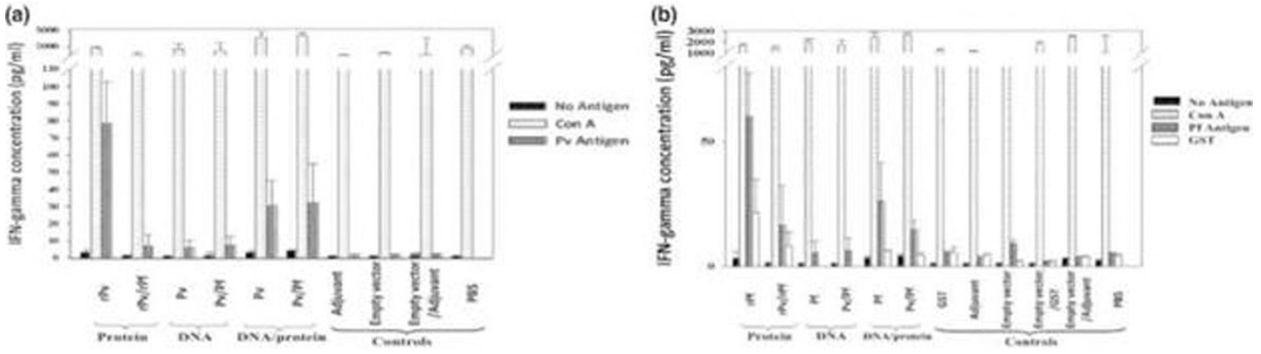

Figure 2 (abstract P64). IFNγ responses to rPvMSP-1_{19}**(a)** and rPfMSP-1_{19}**(b)** in immunized mice.

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