

Accepted Manuscript

Liposomes loaded with *P. falciparum* merozoite-derived proteins are highly immunogenic and produce invasion-inhibiting and anti-toxin antibodies

Wesley L. Fotoran, Rachele M. Santangelo, Márcia M. Medeiros, Marcelle Colhone, Pietro Ciancaglini, Renato Barboza, Claudio Romeiro Farias Marinho, Rodrigo Guerino Stábeli, Gerhard Wunderlich

PII: S0168-3659(15)30088-2
DOI: doi: [10.1016/j.jconrel.2015.08.045](https://doi.org/10.1016/j.jconrel.2015.08.045)
Reference: COREL 7825

To appear in: *Journal of Controlled Release*

Received date: 23 July 2015
Accepted date: 24 August 2015

Please cite this article as: Wesley L. Fotoran, Rachele M. Santangelo, Márcia M. Medeiros, Marcelle Colhone, Pietro Ciancaglini, Renato Barboza, Claudio Romeiro Farias Marinho, Rodrigo Guerino Stábeli, Gerhard Wunderlich, Liposomes loaded with *P. falciparum* merozoite-derived proteins are highly immunogenic and produce invasion-inhibiting and anti-toxin antibodies, *Journal of Controlled Release* (2015), doi: [10.1016/j.jconrel.2015.08.045](https://doi.org/10.1016/j.jconrel.2015.08.045)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Liposomes loaded with *P. falciparum* merozoite-derived proteins are highly immunogenic and produce invasion-inhibiting and anti-toxin antibodies

Wesley L. Fotoran, Rachele M. Santangelo, Márcia M. Medeiros, Marcelle Colhone, Pietro Ciancaglini, Renato Barboza, Claudio Romeiro Farias Marinho, Rodrigo Guerino Stábili and Gerhard Wunderlich*

*Corresponding author, gwunder@usp.br, phone +551130917265, fax +551130917417

Abstract

The formulation of an effective vaccine against malaria is still a significant challenge and the induction of high anti-parasite antibody titers plus a sustained T cell response is mandatory for the success of such a vaccine. We have developed a nanoliposome-based structure which contains plasma membrane-associated proteins (PfMNP) of *Plasmodium falciparum* merozoites on its surface. Incorporation of parasite-derived proteins led to a significant increase in the size and dispersity of particles. Immunization of particles in BalbC and C57BL/6 mice led to high anti-MSP1₁₉ IgG titers (10^4) after the first dose and reached a plateau ($>10^6$) after the third dose. While very high titers were observed against the C-terminal domain of the vaccine candidate MSP1, only modest titers ($\leq 10^3$) were detected against MSP2. The induced antibodies showed also a strong growth-inhibiting effect in reinvasion assays. In addition, PfMNP immunization generated antibodies which partially blocked the inflammatory response, probably by blocking TLR-induced activation of macrophages by malarial toxins such as GPI anchors. The results underline the potential of nanoliposome-based formulations as anti-malarial vaccines.

Download English Version:

<https://daneshyari.com/en/article/7862803>

Download Persian Version:

<https://daneshyari.com/article/7862803>

[Daneshyari.com](https://daneshyari.com)