

3rd International Conference and Exhibition on Clinical & Cellular Immunology

September 29-October 01, 2014 DoubleTree by Hilton Baltimore-BWI Airport, USA

High levels of IgG3 against N-terminal Pv-MSP1 and a broad panel of proteins of polymorphic block 2 region in symptomless *Plasmodium vivax*-infected individuals

Paulo A Nogueira^{1,2}, Maria Edilene M Almeida¹, Fernanda Versiani², Leidiane A Soares¹, Patrícia P Orlandi¹, Luciana P Sousa¹, Antonio A Balieiro¹, Juliane Correa¹, Lucas Barbosa¹, Yury Chaves¹, Marcus V G Lacerda³, Fabio T M Costa⁴ and Luis Andre Mariuba¹

¹Instituto Leônidas e Maria Deane, Brazil

²Universidade Federal do Amazonas, Brazil

³Tropical Heitor Vieira Dourado, Brazil

⁴Universidade de Campinas (UNICAMP), Brazil

Plasmodium vivax has the potential to infect 2.85 billion individuals worldwide. Nevertheless, the limited number of studies investigating the immune status of individuals living in malaria-endemic areas, as well as the lack of reports investigating serological markers associated with clinical protection, has hampered development of vaccines for *P. vivax*. The humoral immune response against the N-terminus of *P. vivax* merozoite surface protein 1 (Pv-MSP1) of symptomless *Plasmodium vivax*-infected individuals from two different endemic areas was associated with reduced risk of malarial infection. The last study, a cross-sectional and longitudinal follow up was performed with 313 residents of the Rio Pardo rural settlement (Amazonas State, Brazil). Symptomless *Plasmodium vivax*-infected individuals were identified after follow up over two months using thick blood smear and rRNA gene-based nested real-time PCR to diagnose malaria infection. The majority of *P. vivax*-infected individuals (52-67%) showed immune recognition of the N-terminus of Pv-MSP1. Interesting data on infected individuals who have not developed symptoms, total IgG levels against the N-terminus Pv-MSP1 were age-dependent and the IgG3 levels were significantly higher than levels of subjects had acute malaria or those uninfected ones. The total IgG anti ICB2-5 was detected to be an important factor of protection against new malaria vivax attacks in survival analysis in a prospective survey ($p=0.029$). Our preliminary data has illustrated the importance of IgG3 associated to symptomless in *P. vivax* infected individuals and open perspectives for the rationale of malaria vaccine designs capable to sustain high levels of IgG3 against polymorphic malaria antigens. Nonetheless one of the major difficulties in developing a malaria vaccine is the genetic diversity of highly polymorphic surface antigens of *Plasmodium* sp. and this problem tends to be more important for blood stage targets of naturally-acquired immunity. A panel of proteins of major polymorphic domain of Pv-MSP1 (Block-2) was produced to assess the influence of genetic diversity in modulating the prevalence of repertoire of IgG responses. Individuals with clinical immunity to malaria had higher levels of IgG3 antibodies to panel proteins than symptomatic individuals and the frequency of IgG3 responders was increased when the panel of proteins was joined. The profit with malaria protective antibodies observed here using a panel of allelic types of Pv-MSP1 should contribute to reduce effect of polymorphism in the humoral response and encourages further development of malaria vaccine designs.

paulonogueira@amazonia.fiocruz.br

Immunomodulant activity of medicinal plants: A review

Muhammad Akram

The University of Poonch, Pakistan

Since ancient times, plants have been an exemplary source of medicine. Researchers have discovered some important compounds from plants. The present work constitutes a review of the medicinal plants whose immunomodulant activity has been proven. PUBMED, EMBASE, Google scholars and CENTRAL searches for research papers of medicinal plants having immunomodulant activity were performed. Medicinal plants used by traditional physician or reported as having immunomodulant activity includes; *Acacia concocinna*, *Camellia sinensis*, *Lawsonia inermis* Linn, *Piper longum* Linn, *Gelidium amansii*, *Larrea divaricata*, *Petroselinum crispum*, *Plantago major* and *Allium sativum*. Present review indicates that various plants have immunomodulant activity. Medicinal plants documented have immunomodulant activity and will be further investigated via clinical trial

makram_0451@yahoo.com, makram_0451@hotmail.com