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O1159 Comparative analysis of IgG responses to recombinant Q-beta phage displayed MSP3 and UB05 in dual HIV-malaria-infected adults living in areas differing in malaria transmission intensities

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Background: Immunoglobulin G (IgG) specific responses against Plasmodium falciparum merozoite antigens such as the merozoite surface protein 3 (MSP3) and UB05 are known to play critical roles in parasiteamia control and protection from symptomatic illness. However when there is intense perennial malaria transmission coupled with concurrent infection with the human immunodeficiency virus type 1 (HIV), knowledge of IgG antibody response profiles is limited.

Materials/methods: Blood samples were collected from 245 Adult volunteers at Mvogbeti and Bikop village Catholic health Centres. HIV/AIDS test and malaria rapid diagnostic test followed by microscopy analysis of thick film were performed. The levels of IgG and IgG subclasses specific to recombinant phages QβUB05 and QβMSP3 were measured by indirect ELISA. Please copy and paste the corresponding text here

Results: We observed differences in antigen specific IgG and IgG subclass responses which were dependent upon the antigen type, malaria transmission intensity, HIV infection, malaria infection and dual HIV-malaria infections. Individuals living in high malaria transmission areas irrespective of HIV or malaria status had significantly higher IgG responses to both antigens (P=0.0001 for QβMSP3, P=0.0001 for QβUB05) than their counterpart from low transmission areas. When dual HIV-Malaria infection is considered significantly higher QβMSP3 specific IgG1 (P=0.0001) and IgG3 (P=0.04) responses in double negative individuals was associated with protection against malaria in low transmission areas. Increased QβUB05 specific IgG1 responses (P=0.0001) in double negative individuals were associated with protection in high transmission areas in contrast to significantly higher IgG3 responses to QβUB05 (P=0.0001) which were more relevant to protection in low malaria transmission areas in the same population.

Conclusions: Thus QβMSP3 might not be suitable as a standalone vaccine in areas differing in transmission intensity. However, antigenicity of UB05 most likely predicts immunity in both low and high transmission areas and could be used either alone or in combination with other antigens for vaccine studies in areas differing in

transmission intensities. Understanding immune responses to QβUB05 and QβMSP3 could thus enable the development of efficacious vaccines or commensurate immunotherapeutic strategies suitable for areas differing in malaria transmission intensity