Towards a blood stage malaria vaccine, dealing with allelic polymorphism in the vaccine candidate apical membrane antihen 1

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LIST OF PUBLICATIONS

Kusi KA, Dodoo D, Bosomprah S, van der Eijk M, Faber BW, Kocken CHM and Remarque EJ. Measurement of the plasma levels of antibodies against the polymorphic vaccine candidate apical membrane antigen 1 in a malaria-exposed population. *In press.*

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CURRICULUM VITAE

Kwadwo Asamoah Kusi was born in Accra, Ghana on 18th April 1977. He completed his secondary education at West Africa Secondary School, Accra in 1994 and proceeded to the University of Ghana, Legon, where he obtained a Bachelor's degree in Biochemistry in the year 2000. He undertook a mandatory one year national service after graduation and later worked as a research assistant in the Biochemistry Department of the University of Ghana till 2002 before starting post-graduate studies in the same Department. He graduated in June 2005 with a Master of Philosophy degree in Biochemistry, and his post-graduate research work was on markers of malaria immunity in paediatric patients. This was conducted at the Immunology Department of the Noguchi Memorial Institute for Medical Research (NMIMR), a biomedical research institute under the College of Health Sciences of the University of Ghana. After graduation in 2005, he worked as a senior research assistant on various projects in the Immunology Department of NMIMR for two years. In April 2007, he proceeded to undertake PhD studies at the Biomedical Primate Research Centre (BPRC) in Rijswijk, the Netherlands. His work at BPRC, which is the focus of this dissertation, has been on malaria vaccine formulation strategies based on the polymorphic candidate *Plasmodium falciparum* apical membrane antigen 1 (*Pf*AMA1). He has now returned to his home institution (NMIMR) and is currently in the process of taking up the position of research fellow in the Immunology Department. He is also a part-time lecturer in the Biochemistry Department of the University of Ghana, Legon.

SUPPLEMENTARY FIGURES

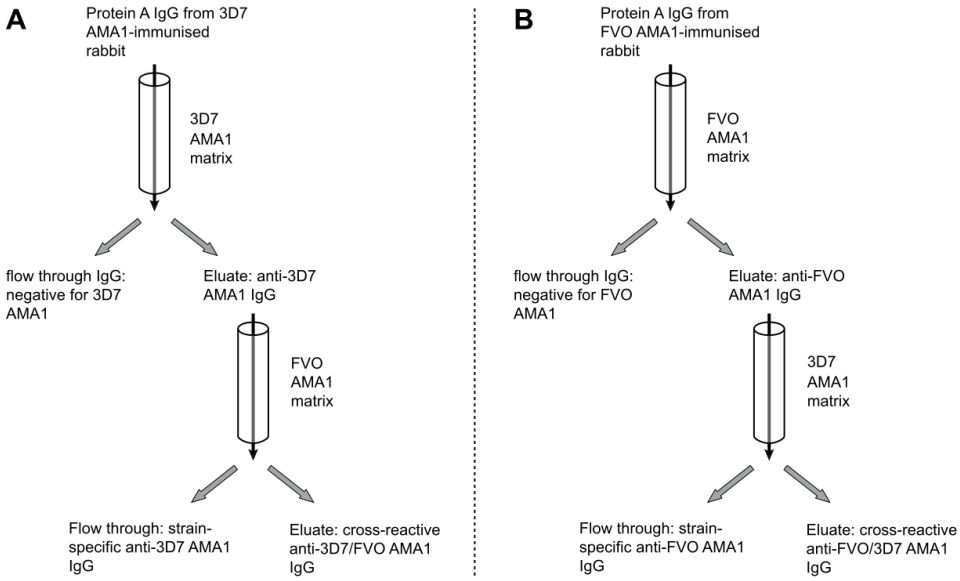

Figure S1 of Chapter 2. Schematic presentation of strain specific and cross-reactive anti-AMA1 antibody purification. Cross-reactive and strain-specific IgG fractions of anti-3D7 AMA1 IgGs (A) and anti-FVO AMA1 IgGs (B) were isolated from the sera of the respective mono-specific AMA1-immunised rabbits. Serum IgGs were first purified over protein A sepharose columns before affinity fractionation.

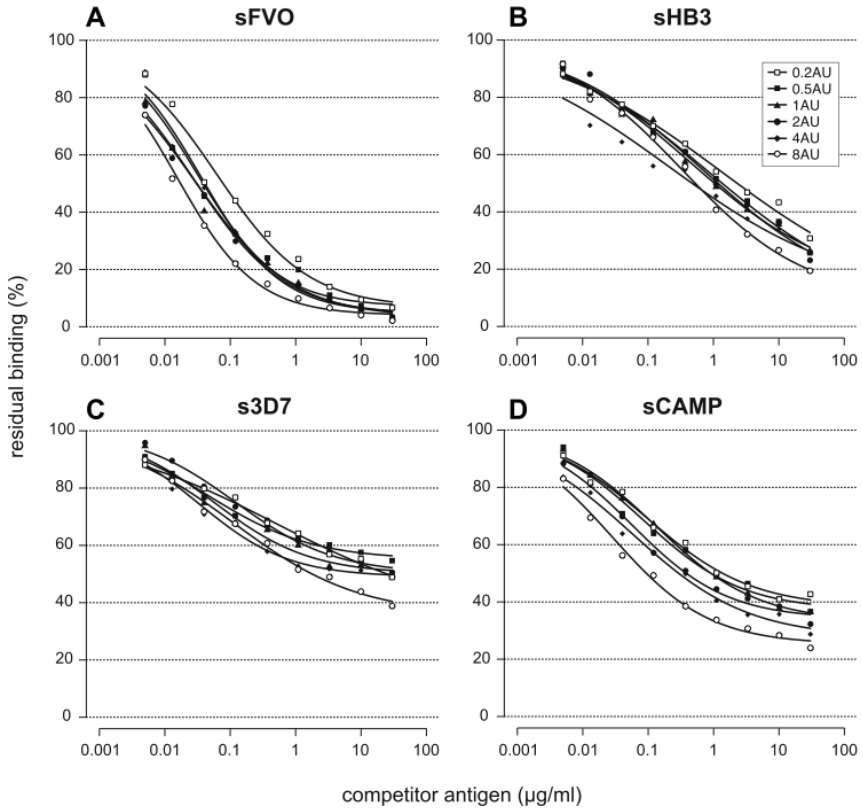

Figure S2 of chapter 2. Competition ELISA using different dilutions of anti-FVO AMA1 antibodies with FVO AMA1-coated plates. The assay involves co-incubation of a soluble/competitor antigen with antibodies in an antigen-coated plate such that there is competition between the coated and soluble/competitor antigens for binding to test antibodies. Protein A-purified anti-FVO AMA1 antibodies were used at dilutions equivalent to 0.2, 0.5, 1, 2, 4 and 8 times the antibody titre (1AU, the IgG dilution that yields an OD_{405} of 1.0). Each dilution of antibody was added to FVO AMA1-coated plates with soluble/competitor AMA1 antigens from the 3D7, HB3, FVO and CAMP parasite strains, each titrated from 30 – 0.005 µg/ml in duplicate wells. Antibodies that were not depleted by the soluble/competitor antigens bound to the coated antigen (residual binding), and the resulting optical densities (OD) were expressed as percentages of ODs from reagent wells with antibody but no competitor antigens. Competitor antigen concentrations (log transformed) were then plotted against the percent residual binding for all competitor antigens. Depletion patterns for competitor/soluble FVO or sFVO (A), sHB3 (B), s3D7 (C) and sCAMP (D) AMA1 antigens at the different antibody dilutions are shown.