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Commitment of *Plasmodium falciparum* to gametocytogenesis in samples from Ghanaian malaria patients and the identification of antigen(s) on the surface of gametocyte-infected erythrocytes

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The asexual blood stages of the human malaria parasite *Plasmodium falciparum* produce highly immunogenic polymorphic antigens that are expressed on the surface of the host cell. Saeed et al., (2008), provided evidence that gametocyte surface antigens (GSA) are distinct from antigens detected on the surface of asexual 3D7 parasites. With preliminary data showing successful *in vitro* growth of field strain *Plasmodium falciparum* to gametocytes stage from blood samples of clinically diagnosed malaria patient from Ghana, my work involves identifying GSA on the gametocyte-infected erythrocyte of field strain *Plasmodium falciparum*. It involves using flow cytometry to detect antibodies recognising the surface of live cultured erythrocytes infected with gametocytes of *P. falciparum* field strain in the plasma of 100 Ghanaian children. Included in this work is enzyme-linked immunosorbent assay (ELISA) to identify the type and level of antibody response to matured stage gametocytes and growth inhibition assay to determine antibody inhibition response which may suggest possible transmission blocking activity. Plasma antibodies with the ability to recognise gametocyte surface antigens (GSA) will be associated with the presence of surface antigens such as Pfs 48/45, Pfs 230 with focus on a novel antigen discovery which will then result in identification and sequencing of this antigen/protein using western blotting, edman degradation and mass spectrometry. The findings from this work may provide evidence that GSA is distinct from antigens detected on the surface of asexual of field isolates. Also, it would suggest a novel strategy for the development of transmission-blocking vaccines.

Biography

Andrea Twumwaa Arku completed 1st degree in biochemistry at the University of Ghana in 2008. She has been working at the Noguchi Memorial Institute for Medical Research as a research assistant and conducting research in malaria, with focus on the drugs effect on *plasmodium falciparum* and also looking for antigens on the surface of gametocyte infected erythrocytes. She is currently working on a project with interest in the development of a possible transmission blocking vaccine. She went for a 2 months training program in the application of laboratory techniques at Loyola University, Chicago, USA, for the purpose of this Project.

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