

IDA Highlight: Not all levels of malaria exposure induce the same anti-malarial immunity



In 2017 an estimated 200 million individuals had malaria, making Malaria a major global health problem. Though the IDA Symposium largely focuses on HIV (and TB) research, they have incorporated Malaria into their program, because many African countries are still burdened with high malaria morbidity.

In this article we highlight Dr Yaw Bediako's (faculty) presentation on **"Performing immunological studies in human cohorts – Systems approaches to studying immunity to malaria"**. Dr Bediako, former Francis Crick Institute Post-Doc and IDA-Scholar, is currently based at the [WACCBIP, University of Ghana](#). His research focuses *on understanding the variation of anti-malaria immunological responses in individuals from high and low malaria [episodes] endemic regions in Ghana*.

Since not all IDA scholars are familiar with the Malaria infection cycle and anti-malarial immunity, he began his talk with a refresher on the Malaria cycle in humans. In his talks he also highlighted that asymptomatic infection is associated with high levels of anti-inflammatory cytokines, and exposure to malaria affects the steady state of immune responses. As a result people who have had repeated exposure are less likely to develop malaria, while re-immigration from a low endemic

region into the high endemic region increases probability of malaria acquisition in spite of being previously infected. He also explained that one of the major challenges of studying anti-malaria immunity is the lack of ***correlates of immunity***!!!.

He presented some of the findings he recently published in [*BMC Medicine, that aimed at identifying blood transcriptomic markers that could differentiate children who have had high \(8\) and low \(<5\) malaria episodes.*](#) In this study he showed that individuals that had 8 malaria episodes had upregulation of IFN-inducible genes, increased levels of inflammation - CD11c+ (high expressing) cells and plasma IL-10 – and parasitaemia but reduced immune-regulation than individuals with low malaria episodes. Potential limitations of the study, is upregulation of IL-10 and IFN-inducible genes are also non-specific indicators of infection and could be indicative of some underlying infection.

Overall, Dr Bediako's presentation gave a comprehensive overview of Malaria and anti-malaria immunity, which was very valuable for students who were not familiar with the disease. Additionally, he also demonstrated some novel findings that contribute to improved understanding of anti-malarial responses.

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