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The effect of parasitic co-infections on immune responses in Gabon : particular emphasis on malaria and helminths

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List of publications

1. Ateba Ngoa U, Jones S, Zinsou J, Honkpehedji YJ, Adegnika AA, Dejon Agobe JC, et al. Associations between helminth infections, *Plasmodium falciparum* parasite carriage and antibody responses to sexual and asexual stage malaria antigens. *Am. J. Trop. Med. and Hyg.* 2016 in press
2. Ateba-Ngoa U, Adegnika AA, Zinsou JF, Kassa Kassa RF, Smits H, Massinga-Loembe M, et al. Cytokine and chemokine profile of the innate and adaptive immune response of *schistosoma haematobium* and *plasmodium falciparum* single and co-infected school-aged children from an endemic area of Lambaréné, Gabon. *Malar J.* 2015;14:94.
3. Ateba-Ngoa U, Mombo-Ngoma G, Zettlmeissl E, van der Vlugt LEPM, de Jong SE, de Jong S, et al. CD4+CD25hiFOXP3+ cells in cord blood of neonates born from filaria infected mother are negatively associated with CD4+Tbet+ and CD4+ROR γ t+ T cells. *PloS One.* 2014;9(12):e114630.
4. Ateba Ngoa U, Zinsou JF, Kassa RFK, Ngoune Feugap E, Honkpehedji YJ, Massinga-Loembe M, et al. Assessment of the effect of *Schistosoma haematobium* co infection on malaria parasites and immune responses in rural populations in Gabon: study protocol. *SpringerPlus.* 2014;3:388.
5. Kenguele HM, Adegnika AA, Nkoma A-M, Ateba-Ngoa U, Mbong M, Zinsou J, et al. Impact of short-time urine freezing on the sensitivity of an established *Schistosoma* real-time PCR assay. *Am J Trop Med Hyg.* 2014 Jun;90(6):1153.
6. Adegnika AA, Zinsou JF, Issifou S, Ateba-Ngoa U, Kassa RF, Feugap EN, et al. Randomized, controlled, assessor-blind clinical trial to assess the efficacy of single- versus repeated-dose albendazole to treat *ascaris lumbricoides*, *trichuris*

trichiura, and hookworm infection. *Antimicrob Agents Chemother.* 2014 May;58(5):2535.

7. Labuda LA, de Jong SE, Meurs L, Amoah AS, Mbow M, Ateba-Ngoa U, et al. Differences in innate cytokine responses between European and African children. *PloS One.* 2014;9(4):e95241.
8. Scherbaum M, Kösters K, Mürbeth RE, Ngoa UA, Kremsner PG, Lell B, et al. Incidence, pathogens and resistance patterns of nosocomial infections at a rural hospital in Gabon. *BMC Infect Dis.* 2014;14(1):1.
9. Jepsen MPG, Jogdand PS, Singh SK, Esen M, Christiansen M, Issifou S, et al. The malaria vaccine candidate GMZ2 elicits functional antibodies in individuals from malaria endemic and non-endemic areas. *J Infect Dis.* 2013 Aug 1;208(3):479.
10. Labuda LA, Ateba-Ngoa U, Feugap EN, Heeringa JJ, van der Vlugt LEPM, Pires RBA, et al. Alterations in Peripheral Blood B Cell Subsets and Dynamics of B Cell Responses during Human Schistosomiasis. *PLoS Negl Trop Dis.* 2013 Mar 7;7(3):e2094.
11. Esen M, Mordmüller B, de Salazar PM, Adegnika AA, Agnandji ST, Schaumburg F, et al. Reduced antibody responses against Plasmodium falciparum vaccine candidate antigens in the presence of *Trichuris trichiura*. *Vaccine.* 2012 Dec 14;30(52):7621.
12. Ateba Ngoa U, Schaumburg F, Adegnika AA, Kösters K, Möller T, Fernandes JF, et al. Epidemiology and population structure of *Staphylococcus aureus* in various population groups from a rural and semi urban area in Gabon, Central Africa. *Acta Trop.* 2012 Oct;124(1):42.

13. Ngoa UA, Adzoda GK, Louis BM, Adegnika AA, Lell B. Buruli ulcer in Gabon, 2001-2010. *Emerg Infect Dis.* 2012 Jul;18(7):1206.
14. van der Vlugt LEPM, Labuda LA, Ozir-Fazalalikhan A, Lievers E, Gloudemans AK, Liu K-Y, et al. Schistosomes induce regulatory features in human and mouse CD1d(hi) B cells: inhibition of allergic inflammation by IL-10 and regulatory T cells. *PloS One.* 2012;7(2):e30883.
15. Bélard S, Issifou S, Hounkpatin AB, Schaumburg F, Ngoa UA, Esen M, et al. A randomized controlled phase Ib trial of the malaria vaccine candidate GMZ2 in African children. *PloS One.* 2011;6(7):e22525.
16. Schaumburg F, Ngoa UA, Kösters K, Köck R, Adegnika AA, Kremsner PG, et al. Virulence factors and genotypes of *Staphylococcus aureus* from infection and carriage in Gabon. *Clin Microbiol Infect Dis.* 2011 Oct;17(10):1507.
17. Meurs L, Labuda L, Amoah AS, Mbow M, Ngoa UA, Boakye DA, et al. Enhanced pro-inflammatory cytokine responses following Toll-like-receptor ligation in *Schistosoma haematobium*-infected schoolchildren from rural Gabon. *PloS One.* 2011;6(9):e24393.
18. Schaumburg F, Köck R, Friedrich AW, Soulanoudjingar S, Ngoa UA, von Eiff C, et al. Population structure of *Staphylococcus aureus* from remote African Babongo Pygmies. *PLoS Negl Trop Dis.* 2011;5(5):e1150.
19. Adegnika AA, Ramharter M, Agnandji ST, Ateba Ngoa U, Issifou S, Yazdanbakhsh M, et al. Epidemiology of parasitic co-infections during pregnancy in Lambaréné, Gabon. *Trop Med Int Health TM IH.* 2010 Oct;15(10):1204.

20. Koko J, Ategbo S, Ateba Ngoa U, Moussavou A. Étude épidémiologique de la carie dentaire en milieu scolaire à Libreville, Gabon. Clin Mother Child Health 2009; 6: 1065.

Curriculum vitae

Ulysse Ateba Ngoa was born in Cameroon in March 1980. After his primary and secondary school in Senegal, Cameroon and Gabon he was admitted to the Faculty of Medicine of Libreville (Gabon) in 1998. He obtained his medical degree in 2008 and joined the Centre de Recherches Médicales de Lambaréne at the Albert Schweitzer Hospital. There he started working as a clinical investigator and was first involved in projects aiming at dissecting the effect of helminths and particularly schistosomiasis on the immune responses of infected individuals living in rural and semi-urban areas of Lambaréne. His research interest extended to the epidemiology of *Staphylococcus aureus* carriage, Buruli ulcer in Gabon as well as to vaccine trials on malaria. In 2011 he was enrolled in a PhD program at the Leiden University under the supervision of Professor Maria Yazdanbakhsh. His PhD work focused on host parasite interaction particularly assessing the effect of helminths on *Plasmodium falciparum* induced immune responses in co-infected individuals living in an endemic area in Gabon. In 2015 while finalizing his thesis, Ulysse Ateba Ngoa resumed his work at the CERMEL where he was appointed as a principal investigator in a phase I/IIa trial to study the efficacy of GMZ2-CAF01, a blood stage malaria vaccine candidate. To assess this he conducted a controlled human malaria infection model in Gabonese adults. He has been awarded a three year funding from the DFG, as a co-applicant, to assess the effect of helminths on malaria transmission.

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