



Correction

Article title: The effectiveness of malaria camps as part of the Durgama Anchalare Malaria Nirakaran (DAMaN) program in Odisha, India: Study protocol for a cluster-assigned quasi-experimental study

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After publication, the authors of this article notified the Publisher that two authors were omitted in error from the original manuscript, Catriona L.E.B. Patterson and Kevin K.A. Tetteh developed the protocols for the "*Plasmodium antibody quantification by Luminex MAGPIX*" section so they have now been recognised as co-authors in the republished article.

The additional authors identified several corrections that needed to be made in Table 1.

The addition of an Acknowledgments section will enable acknowledgment of James Beeson and Simon Draper for provision of antigens used in the "*Plasmodium antibody quantification by Luminex MAGPIX*" section.

The revised Table 1 is as follows:

Classification	Antigen	Location	Protein function	Antibody function	Source and reference
<i>P. falciparum</i> [63-65]	EBA140 RIII-V	Micronemes	Erythrocyte invasion	Variable marker of exposure (mid time predictor)	J. Beeson [66]
	EBA175 RIII-V	Micronemes	Erythrocyte invasion	Variable marker of exposure (mid time predictor)	J. Beeson [66]
	EBA180 RIII-V	Micronemes	Erythrocyte invasion	Variable marker of exposure (mid time predictor)	J. Beeson [66]
	Etramp 5.Ag1	Parasitophorous membrane	Unknown	Short-term marker of exposure	K. Tetteh [67]
	HSP40.Ag1	Infected erythrocyte	Protein refolding	Short-term marker of exposure	K. Tetteh [68]
	MSP2_CH150/9	Merozoite surface	Erythrocyte invasion	Markers of exposure	Cavanagh [69]
	MSP2_Dd2	Merozoite surface	Erythrocyte invasion	Markers of exposure	Cavanagh [69]
	AMA1	Micronemes	Erythrocyte invasion	Long-term marker of exposure	Blackman/Crick [70]
	GLURP.R2	Multiple stages	Erythrocyte invasion	Long-term marker of exposure	Theisen [71]
	MSP1 ₁₉	Merozoite surface	Erythrocyte invasion	Long-term marker of exposure	Holder/NIMR/Crick [72]
<i>P. vivax</i>	Rh2_2030	Micronemes	Erythrocyte invasion	Variable marker of exposure (mid time predictor)	J. Beeson [73]
	Rh4.2	Micronemes	Erythrocyte invasion	Variable marker of exposure (mid time predictor)	J. Beeson [74]
	Rh5.1	Micronemes	Erythrocyte invasion	Variable marker of exposure (mid time predictor)	Draper/Jenner [75]
	AMA1	Micronemes	Erythrocyte invasion	Long-term marker of exposure	C.H. Kocken [76]
Controls	MSP1 ₁₉	Merozoite surface	Erythrocyte invasion	Long-term marker of exposure	T. Holder [77]
	MSP8	Merozoite surface	Non-essential	Unknown	K. Tetteh; unpublished
	MSP10	Merozoite surface	Unknown	Unknown	K. Tetteh; unpublished
GST		Affinity tag/background control			GE Healthcare
Tetanus toxoid (TT)		Internal assay control			NIBSC

The additional references as a result of the corrections to Table 1 are as follows:

[63] Wu L, Mwesigwa J, Affara M, Bah M, Correa S, Hall T, Singh SK, Beeson JG, Tetteh KKA, Kleinschmidt I, D'Alessandro U, Drakeley C. Sero-epidemiological evaluation of malaria transmission in The Gambia before and after mass drug administration. *BMC Med.* 2020 Nov 13;18(1):331. PMID: 33183292; PMCID: PMC7664049.

[64] Wu L, Mwesigwa J, Affara M, Bah M, Correa S, Hall T, Singh SK, Beeson JG, Tetteh KKA, Kleinschmidt I, D'Alessandro U, Drakeley C. Antibody responses to a suite of novel serological markers for malaria surveillance demonstrate strong correlation with clinical and parasitological infection across seasons and transmission settings in The Gambia. *BMC Med.* 2020 Sep 25;18(1):304. PMID: 32972398; PMCID: PMC7517687.

[65] Achan J, Reuling IJ, Yap XZ, Dabira E, Ahmad A, Cox M, Nwakanma D, Tetteh K, Wu L, Bastiaens GJH, Abebe Y, Manoj A, Kaur H, Miura K, Long C, Billingsley PF, Sim BKL, Hoffman SL, Drakeley C, Bousema T, D'Alessandro U. Serologic Markers of Previous Malaria Exposure and Functional Antibodies Inhibiting Parasite Growth Are Associated With Parasite Kinetics Following a Plasmodium falciparum Controlled Human Infection. *Clin Infect Dis.* 2020 Jun 10;70(12):2544-2552. PMID: 31402382; PMCID: PMC7286377.

The additional references resulted in references 63-74 being renumbered to 66-77. Please see the updated list below:

[66] Richards JS, Stanisic DI, Fowkes FJ, et al. Association between naturally acquired antibodies to erythrocyte-binding antigens of Plasmodium falciparum and protection from malaria and high-density parasitemia. *Clin Infect Dis.* 2010;51:e50-e60. Epub 2010/09/17. PubMed PMID: 20843207.

[67] Spielmann T, Fergusen DJ, Beck HP. Etramps, a new Plasmodium falciparum gene family coding for developmentally regulated and highly charged membrane proteins located at the parasite-host cell interface. *Mol Biol Cell* Epub 2003/04/11. PubMed PMID: 12686607; PubMed Central PMCID: PMCPMC C153120. 2003;14:1529-1544.

[68] Helb DA, Tetteh KK, Felgner PL, et al. Novel serologic biomarkers provide accurate estimates of recent Plasmodium falciparum exposure for individuals and communities. *Proc Natl Acad Sci USA.* 2015;112: E4438-E4447. Epub 2015/07/29. PubMed PMID: 26216993; PubMed Central PMCID: PMCPMC 4538641.

[69] Polley SD, Conway DJ, Cavanagh DR, et al. High levels of serum antibodies to merozoite surface protein 2 of Plasmodium falciparum are associated with reduced risk of clinical malaria in coastal Kenya. *Vaccine.* 2006;24:4233-4246. Epub 2005/08/23. PubMed PMID: 16111789.

[70] Collins CR, Withers-Martinez C, Bentley GA, et al. Fine mapping of an epitope recognized by an invasion-inhibitory monoclonal antibody on the malaria vaccine candidate apical membrane antigen 1. *J Biol Chem* Epub 2006/12/29. PubMed PMID: 17192270. 2007;282:7431-7441.

[71] Theisen M, Vuust J, Gottschau A, et al. Antigenicity and immunogenicity of recombinant glutamate-rich protein of Plasmodium falciparum expressed in Escherichia coli. *Clin Diagn Lab Immunol* Epub 1995/01/01. PubMed PMID: 7719909; PubMed Central PMCID: PMCPMC170096. 1995;2:30-34.

[72] Burghaus PA, Holder AA. Expression of the 19-kilodalton carboxy-terminal fragment of the Plasmodium falciparum merozoite surface protein-1 in Escherichia coli as a correctly folded protein. *Mol Biochem Parasitol* Epub 1994/03/01. PubMed PMID: 8078519. 1994;64:165-169.

[73] Triglia T, Thompson J, Caruana SR, et al. Identification of proteins from Plasmodium falciparum that are homologous to reticulocyte binding proteins in Plasmodium vivax. *Infect Immun* Epub 2001/02/13. PubMed PMID: 11160005; PubMed Central PMCID: PMCPMC97989. 2001;69:1084-1092.

[74] Reiling L, Richards JS, Fowkes FJ, et al. The Plasmodium falciparum erythrocyte invasion ligand Pfrh4 as a target of functional and protective human antibodies against malaria. *PLoS One.* 2012;7:e45253. Epub 2012/10/03. PubMed PMID: 23028883; PubMed Central PMCID: PMCPMC3447948.

[75] Crosnier C, Bustamante LY, Bartholdson SJ, et al. Basigin is a receptor essential for erythrocyte invasion by Plasmodium falciparum. *Nature.* 2011;480:534-537. Epub 2011/11/15. PubMed PMID: 22080952; PubMed Central PMCID: PMCPMC3245779.

[76] Kocken CH, Dubbeld MA, Van Der Wel A, Pronk JT, Waters AP, Langermans JA, Thomas AW.

Highlevelexpression of Plasmodium vivax apical membrane antigen1 (AMA-1) in Pichia pastoris: strong immunogenicity in Macacaculatta immunized with P. vivax AMA-1 and adjuvant SBAS2. *Infect Immun.* 1999 Jan;67 (1):43-9. doi: 10.1128/IAI.67.1.43-49.1999. PMID: 9864194; PMCID: PMC96275.

[77] Babon JJ, Morgan WD, Kelly G, Eccleston JF, Feeney J, Holder AA. Structural studies on Plasmodiumvivax merozoite surface protein-1. *Mol Biochem Parasitol.* 2007 May;153(1):31-40. doi: 10.1016/j.molbiopara.2007.01.015. Epub 2007 Jan 30. PMID: 17343930.