



Bulletin 221 | 10 August 2009

From K&S

From 27 July - 10 August we will deliver the summer editions of MalariaWorld. These issues will not include the News items, but mainly focus on publications and announcements. We will capture the main news items on our website at <http://www.malariaworld.org/> under the section Newsflash.

Kindly notice that the MalariaWorld office will be closed from 15 August until 7 September. During this period we will not be able to answer your e-mails and we will not deliver the MalariaWorld Newsletter. We will make any effort to capture all malaria related articles that appear during this time and send them to you as soon as possible after 7 September.

Kind regards,
Inga

Publications

Open access

Research article: Gene copy number variation throughout the Plasmodium falciparum genome

Cheeseman IH, Gomez-Escobar N, Carret CK, Ivens A, Stewart LB, Tetteh KK, Conway DJ

BMC Genomics 2009, 10:353 (4 August 2009)

Gene copy number variation (CNV) is responsible for several important phenotypes of the malaria parasite Plasmodium falciparum, including drug resistance, loss of infected erythrocyte cytoadherence and alteration of receptor usage for erythrocyte invasion. Despite the known effects of CNV, little is known about its extent throughout the genome. We performed a whole-genome survey of CNV genes in P. falciparum using comparative genome hybridisation of a diverse set of 16 laboratory culture-adapted isolates to a custom designed high density Affymetrix GeneChip array. <http://tinyurl.com/m22f9r>

Open access



Research article: Mosquito immune responses and compatibility between Plasmodium parasites and anopheline mosquitoes

Jaramillo-Gutierrez G, Rodrigues J, Ndikuyeze G, Povelones M, Molina-Cruz A, Barillas-Mury C

BMC Microbiology 2009, 9:154 (30 July 2009)

There is a broad spectrum of compatibility, the extent to which the mosquito immune system limits infection, between different Plasmodium strains and particular mosquito strains that is mediated by TEP1/LRIM1 activation. The interactions between highly compatible animal models of malaria, such as *P. yoelii* (17XNL)-*An. stephensi* (Nijmegen Sda500), is more similar to that of *P. falciparum* (3D7)-*An. gambiae* (G3). <http://tinyurl.com/nbs8bs>

Open access

Review: Suicide for Survival - Death of Infected Erythrocytes as a Host Mechanism to Survive Malaria

Michael Föller, Diwakar Bobbala, Saisudha Koka, Stephan M. Huber, Erich Gulbins, Florian Lang

Cell Physiol Biochem 2009;24:133-140 (DOI: 10.1159/000233238)

The pathogen of malaria, Plasmodium, enters erythrocytes and thus escapes recognition by the immune system. The pathogen induces oxidative stress to the host erythrocyte, which triggers eryptosis, the suicidal death of erythrocytes. <http://tinyurl.com/kof9x9>

Open access

Sequestration of extracellular hemoglobin within a haptoglobin complex decreases its hypertensive and oxidative effects in dogs and guinea pigs

Felicitas S. Boretti et al.

J. Clin. Invest. 119(8): 2271-2280 (2009). doi:10.1172/JCI39115

Release of hemoglobin (Hb) into the circulation is a central pathophysiologic event that contributes to morbidity and mortality in chronic hemolytic anemias and severe malaria. These toxicities arise from Hb-mediated vasoactivity, possibly due to NO scavenging and localized tissue oxidative processes. Currently, there is no established treatment that targets circulating extracellular Hb. Here, we assessed the role of haptoglobin (Hp), the primary scavenger of Hb in the circulation, in limiting the toxicity of cell-free Hb infusion.

<http://tinyurl.com/l2kdrq>

Open access



Research: Spatial malaria epidemiology in Bangladeshi highlands

Ubydul Haque, Mamun Huda, Awlad Hossain, Syed Masud Ahmed, Mohammad Moniruzzaman, Rashidul Haque

Malaria Journal 2009, 8:185 (5 August 2009)

This paper is the first step to understanding malaria in south-eastern Bangladesh from a micro-geographic perspective and suggests that there are 'malaria hot-spots' in the area. <http://tinyurl.com/ln9hcr>

Open access

Research: Sequence variation of PfEMP1-DBLalpha in association with rosette formation in Plasmodium falciparum isolates causing severe and uncomplicated malaria

Natharinee Horata, Thareerat Kalambaheti, Alister Craig, Srisin Khusmith

Malaria Journal 2009, 8:184 (4 August 2009)

An analysis of DBL alpha sequence variation and binding properties of Thai isolates, in relation to disease severity. <http://tinyurl.com/nkrn5b>

Open access

Research: MSP-1p42-specific antibodies impact growth and development of intra-erythrocytic parasites of Plasmodium falciparum

Elke S Bergmann-Leitner, Elizabeth H Duncan, Evelina Angov

Malaria Journal 2009, 8:183 (3 August 2009)

This is an important paper in its field, addressing the mechanisms whereby parasite multiplication is inhibited by antibodies. <http://tinyurl.com/kl5c9a>

Open access

Methodology: Implementation of a novel PCR based method for detecting malaria parasites from naturally infected mosquitoes in Papua New Guinea

Arif U Hasan, Setsuo Suguri, Jetsumon Sattabongkot, Chigusa Fujimoto, Masao Amakawa, Masakazu Harada, Hiroshi Ohmae

Malaria Journal 2009, 8:182 (1 August 2009)

This paper describes the development of a new PCR-RFLP assay to detect and discriminate Plasmodium falciparum from P. vivax based on species-specific variation in the cytochrome b gene. <http://tinyurl.com/mx6kvu>



Open access

Research: Redefining the expressed prototype SICAvAr gene involved in Plasmodium knowlesi antigenic variation

Stacey A Lapp, Cindy C Korir, Mary R Galinski

Malaria Journal 2009, 8:181 (31 July 2009)

The prototypical 205 SICAvAr gene has been redefined to have a 12-exon structure. These data are important because they 1) address questions raised in the P. knowlesi genome database regarding SICAvAr gene fragments, numbers and structures, 2) show that this prototype gene encodes a PEXEL motif, 3) emphasize the need for further refinement of the P. knowlesi genome data, and 4) retrospectively, provide evidence for recombination within centrally located SICAvAr sequences.

<http://tinyurl.com/n7o8wf>

Open access

Research: Space-time variation of malaria incidence in Yunnan province, China

Archie CA Clements, Adrian G Barnett, Zhang Wei Cheng, Robert W Snow, Hom Ning Zhou

Malaria Journal 2009, 8:180 (31 July 2009)

This study presents a space-time analysis of county-level malaria incidence for a large Province in China, a country that has traditionally been under-represented in the malaria epidemiology literature. A number of findings are likely to be of wide interest amongst the malaria epidemiology community, not least the simple presentation of robust maps of the contemporary spatial distribution of malaria risk. <http://tinyurl.com/kn7pyy>

Open access

Research: Plasmodium falciparum enolase: stage-specific expression and sub-cellular localization

Ipsita Pal Bhowmick, Nirbhay Kumar, Shobhona Sharma, Isabelle Coppens, Gotam K Jarori

Malaria Journal 2009, 8:179 (30 July 2009)

In an earlier study, it was observed that the vaccination with Plasmodium falciparum enolase can confer partial protection against malaria in mice. Evidence has also build up to indicate that enolases may perform several non-glycolytic functions in pathogens. Investigating the stage-specific expression and sub-cellular localization of a protein may provide insights into its moonlighting functions. <http://tinyurl.com/mke3yh>



Open access

Methodology: Discovery: an interactive resource for the rational selection and comparison of putative drug target proteins in malaria

Fourie Joubert, Claudia M Harrison, Riaan J Koegelenberg, Christiaan J Odendaal, Tjaart AP de Beer

Malaria Journal 2009, 8:178 (30 July 2009)

Due to the over-and misuse of anti-malarials, widespread resistance to all the known drugs is increasing at an alarming rate. Rational methods to select new drug target proteins and lead compounds are urgently needed. The Discovery system provides data mining functionality on extensive annotations of ve malaria species together with the human and mosquito hosts, enabling the selection of new targets based on multiple protein and ligand properties.

<http://tinyurl.com/l64w2c>

Open access

Research: Chloroquine-resistant Plasmodium vivax malaria in Serbo town, Jimma zone, south-west Ethiopia

Tsige Ketema, Ketema Bacha, Tarekegn Birhanu, Beyene Petros

Malaria Journal 2009, 8:177 (30 July 2009)

Ethiopia has the highest proportion of vivax malaria, approximately 40% of all malaria infections, in contrast to African countries.

Chloroquine (CQ) is the drug of choice for the treatment of Plasmodium vivax infection in the country, although CQ resistant P. vivax (CRPv) has started to challenge the efficacy of the drug. The present study was conducted to assess the current status of CRPv at Serbo, Jimma zone, south-west Ethiopia. <http://tinyurl.com/kt82qo>

Open access

Research: Treatment of malaria from monotherapy to artemisinin-based combination therapy. 1: A cross-sectional survey among health professionals in urban health facilities in Yaounde, central province, Cameroon

Collins Sayang, Mathieu Gausseres, Nicole Vernazza, Denis Malvy, Daniel Bley, Pascal Millet

Malaria Journal 2009, 8:176 (29 July 2009)

After adoption of artesunate-amodiaquine (AS/AQ) as first-line therapy for the treatment of uncomplicated malaria by the malaria control programme, this study was designed to assess the availability of anti-malarial drugs, treatment practices and acceptability of the new protocol by health professionals, in the



urban health facilities and drugstores of Yaounde city, Cameroon.
<http://tinyurl.com/mgztg8>

Open access

Research: Decreased motivation in the use of insecticide-treated nets in a malaria endemic area in Burkina Faso

Lea Pare Toe et al.

Malaria Journal 2009, 8:175 (29 July 2009)

In order to bridge the gap between possession and use of bed nets, concerted efforts are required to change behaviour by providing accurate information, most particularly by convincing people that mosquitoes are the only source of malaria, whilst recognising that there are other diseases with similar symptoms, caused in other ways. The medical message must underline the seriousness of malaria and the presence of the malaria vector in the dry season as well as the wet, in order to encourage the use of bed nets whenever transmission can occur. Communities would benefit from impregnated bed nets and other vector control measures being better adapted to their homes, thus reducing the inconvenience of their use. <http://tinyurl.com/lommmu>

Open access

Research: Treatment of malaria from monotherapy to artemisinin-based combination therapy. 2: A cross-sectional survey among health professionals in rural health facilities in southern Cameroon

Collins Sayang, Mathieu Gausseres, Nicole Vernazza-Licht, Denis Malvy, Daniel Bley, Pascal Millet

Malaria Journal 2009, 8:174 (29 July 2009)

One year after the adoption of artesunate-amodiaquine (AS/AQ) as first-line therapy for the treatment of uncomplicated malaria, this study was designed to assess the availability of anti-malarial drugs at health facilities in four rural areas in southern Cameroon.

<http://tinyurl.com/nfojhb>

Open access

Research: Knowledge on the transmission, prevention and treatment of malaria among two endemic population of Bangladesh and their health-seeking behaviour

Syed Masud Ahmed, Rashidul Haque, Ubydul Haque, Awlad Hossain

Malaria Journal 2009, 8:173 (29 July 2009)

Data on sociological and behavioural aspects of malaria, which is essential for an evidence-based design of prevention and control



programmes, is lacking in Bangladesh. This paper attempts to fill this knowledge gap by using data from a population-based prevalence survey conducted during July to November 2007, in 13 endemic districts of Bangladesh. <http://tinyurl.com/I46zvt>

[Open access](#)

Correspondence: Artemisinin-Resistant Malaria in Asia

Noedl H, Socheat D, Satimai W

N Engl J Med 361:540, July 30, 2009

To the Editor: Artemisinin-based combination therapies have recently been introduced in virtually all countries in which malaria is endemic, thereby making such drugs the most essential class of antimalarial agents. The spread of artemisinin resistance could have a devastating effect on global malaria-control efforts. An important assumption in the use of such therapies is that the combination-drug partner will protect artemisinin from the development of resistance. However, recent data indicating that artemisinin resistance has already emerged along the border between Cambodia and Thailand suggest that this view may have been overly optimistic. <http://tinyurl.com/I9v7av>

[Open access](#)

Original Article: Artemisinin Resistance in Plasmodium falciparum Malaria

Dondorp AM et al.

N Engl J Med 361:455, July 30, 2009

Artemisinin-based combination therapies are the recommended first-line treatments of falciparum malaria in all countries with endemic disease. There are recent concerns that the efficacy of such therapies has declined on the Thai-Cambodian border, historically a site of emerging antimalarial-drug resistance. In two open-label, randomized trials, we compared the efficacies of two treatments for uncomplicated falciparum malaria in Pailin, western Cambodia, and Wang Pha, northwestern Thailand: oral artesunate given at a dose of 2 mg per kilogram of body weight per day, for 7 days, and artesunate given at a dose of 4 mg per kilogram per day, for 3 days, followed by mefloquine at two doses totaling 25 mg per kilogram. <http://tinyurl.com/ksgqa9>

[Open access](#)

Original Article: Protection against a Malaria Challenge by Sporozoite Inoculation

Roestenberg M et al.



N Engl J Med 361:468, July 30, 2009

An effective vaccine for malaria is urgently needed. Naturally acquired immunity to malaria develops slowly, and induction of protection in humans can be achieved artificially by the inoculation of radiation-attenuated sporozoites by means of more than 1000 infective mosquito bites. We exposed 15 healthy volunteers — with 10 assigned to a vaccine group and 5 assigned to a control group — to bites of mosquitoes once a month for 3 months while they were receiving a prophylactic regimen of chloroquine.

Conclusions: Protection against a homologous malaria challenge can be induced by the inoculation of intact sporozoites. (ClinicalTrials.gov number, NCT00442377.)

<http://tinyurl.com/kpn7uc>

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Editorial: Malaria Control — Addressing Challenges to Ambitious Goals

Campbell CC

N Engl J Med 361:522, July 30, 2009

Over the past 5 years, we have witnessed remarkable progress in malaria control. In Africa, the approach has been to "scale up for impact"¹ by rapidly deploying insecticide-treated nets and providing artemisinin-based combination therapy. Programs in Equatorial Guinea, Ethiopia, Rwanda, Zambia, and Zanzibar have shown that when coverage of these interventions exceeds 50 to 60% of the population, the prevalence of infection with malaria parasites and mortality among children from such infection falls by 20 to 25% within 12 to 36 months. <http://tinyurl.com/mz788e>

Open access

Safety and Efficacy of Dihydroartemisinin-Piperaquine in Falciparum Malaria: A Prospective Multi-Centre Individual Patient Data Analysis

Zwang J, Ashley EA, Karema C, D'Alessandro U, Smithuis F, et al.

PLoS ONE 4(7): e6358. doi:10.1371/journal.pone.0006358

The fixed dose antimalarial combination of dihydroartemisinin-piperaquine (DP) is a promising new artemisinin-based combination therapy (ACT). We present an individual patient data analysis of efficacy and tolerability in acute uncomplicated falciparum malaria, from seven published randomized clinical trials conducted in Africa and South East Asia using a predefined in-vivo protocol. <http://tinyurl.com/nwkjye>



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Preerythrocytic, live-attenuated Plasmodium falciparum vaccine candidates by design

Kelley M. VanBuskirk et al.

PNAS August 4, 2009 vol. 106 no. 31 13004-13009

Falciparum malaria is initiated when Anopheles mosquitoes transmit the Plasmodium sporozoite stage during a blood meal. Irradiated sporozoites confer sterile protection against subsequent malaria infection in animal models and humans. This level of protection is unmatched by current recombinant malaria vaccines. However, the live-attenuated vaccine approach faces formidable obstacles, including development of accurate, reproducible attenuation techniques. We tested whether Plasmodium falciparum could be attenuated at the early liver stage by genetic engineering. The P. falciparum genetically attenuated parasites (GAPs) harbor individual deletions or simultaneous deletions of the sporozoite-expressed genes P52 and P36. <http://tinyurl.com/n9n9kp>

Research Article: Simple and rapid micro-scale quantification of artemisinin in living Artemisia annua L. by improved gas chromatography with electron-capture detection

Shuoqian Liu, Na Tian, Juan Li, Jianan Huang, Zhonghua Liu

Biomedical Chromatography, Early View, DOI: 10.1002/bmc.1230

The present work developed a simple, fast and low toxic micro-scale analysis procedure for determination of artemisinin in a single leaf or flower of living Artemisia annua using improved gas chromatography with electron-capture detection. The recovery of >95% was achieved by vortex of a piece of fresh leaf in 1 mL ethyl acetate for 2 min at room temperature. This method provides a powerful tool for biosynthesis study of artemisinin, high-throughput screening high-yield clone in an early stage, or real-time quality control of Artemisia annua crop. <http://tinyurl.com/mhedcv>

NMR assignments of oxidised thioredoxin from Plasmodium falciparum

Claudia Elisabeth Munte, Katja Becker, Rolf Heiner Schirmer and Hans Robert Kalbitze

Biomolecular NMR Assignments, Online First, DOI:10.1007/s12104-009-9163-7

During its life cycle, the malaria parasite Plasmodium falciparum is found intracellular to human erythrocytes, where its survival and ability to multiply critically depends on the control of the environment redox state. Thioredoxin is a small protein containing



104 amino acids that is part of the parasite specific redox system. During the catalytic cycle it alternates between a reduced and oxidised form. Here we report the complete resonance assignment of *Plasmodium falciparum* thioredoxin in its oxidized form by heteronuclear multidimensional spectroscopy. The obtained chemical shifts differ significantly from those reported earlier for this protein in its reduced state. <http://tinyurl.com/nsdnac>

Research Paper: Genetic variation at the TNF- α promoter and malaria susceptibility in rhesus (*Macaca mulatta*) and long-tailed (*Macaca fascicularis*) macaques

Shannon Flynn, Jessica Satkoski, Nicholas Lerche, Sreetharan Kanthaswamy, David Glenn Smith

Infection, Genetics and Evolution, Volume 9, Issue 5, September 2009, Pages 769-777, doi:10.1016/j.meegid.2009.03.011

Polymorphisms within the promoter region of the TNF- α gene have been associated with altered expression of TNF- α and susceptibility to a variety of diseases in humans. Although macaques (*Macaca* spp.) are frequently used as models to study human diseases, little is known about the extent of genetic variation at the TNF- α locus and its consequences for disease susceptibility in these species.

<http://tinyurl.com/nozb3u>

Research Paper: Distinct haplotypes of dhfr and dhps among *Plasmodium falciparum* isolates in an area of high level of sulfadoxine-pyrimethamine (SP) resistance in eastern Sudan

Salma Al-Saai, Amani Kheir, Abdel-Muhsin A. Abdel-Muhsin, Aisha Al-Ghazali, Davis Nwakanma, Göte Swedberg, Hamza A. Babiker

Infection, Genetics and Evolution, Volume 9, Issue 5, September 2009, Pages 778-783, doi:10.1016/j.meegid.2009.04.010

Typing of polymorphic microsatellites that are linked to drug resistance genes has shed light on the origin and pattern of spread of some anti-malarial drugs. Recent surveys revealed spread of a high-level pyrimethamine resistant lineage of *Plasmodium falciparum*, of Asian origin, across Africa. Here, we examined mutations in dihydrofolate reductase, dhfr [chromosome 4], the dihydropteroate synthase, dhps [chromosome 8] associated with resistance to sulfadoxine-pyrimethamine (SP), and neighboring microsatellites among *P. falciparum* isolates in Asar village, eastern Sudan. <http://tinyurl.com/mvc5at>



Research Paper: Genetic structure of Plasmodium falciparum populations between lowland and highland sites and antimalarial drug resistance in Western Kenya

Mariangela Bonizzoni, Yaw Afrane, Frederick N. Baliraine, Dolphine A. Amenyaa, Andrew K. Githeko, Guiyun Yan

Infection, Genetics and Evolution, Volume 9, Issue 5, September 2009, Pages 806-812, doi:10.1016/j.meegid.2009.04.015

Human travel to malaria endemic lowlands from epidemic highlands has been shown to increase the risk of malaria infections in the highlands. In order to gain insight on the impact of human travel, we examined prevalence, genetic variability and population genetic structure of Plasmodium falciparum in asymptomatic children from one highland site and three surrounding malaria endemic lowland sites in Western Kenya, using multilocus microsatellite genotyping.

<http://tinyurl.com/l8z9z3>

Research Paper: Limited global diversity of the Plasmodium vivax merozoite surface protein 4 gene

Chaturong Putaporntip, Somchai Jongwutiwes, Marcelo U. Ferreira, Hiroji Kanbara, Rachanee Udomsangpetch, Liwang Cui

Infection, Genetics and Evolution, Volume 9, Issue 5, September 2009, Pages 821-826, doi:10.1016/j.meegid.2009.04.017

Merozoite surface proteins (MSPs) of the malaria parasites are major candidates for vaccine development targeting asexual blood stages. However, the diverse antigenic repertoire of these antigens that induce strain-specific protective immunity in human is a major challenge for vaccine design and often determines the efficacy of a vaccine. Here we further assessed the genetic diversity of Plasmodium vivax MSP4 (PvMSP4) protein using 195 parasite samples collected mostly from Thailand, Indonesia and Brazil.

<http://tinyurl.com/kpgh8n>

Research Paper: Temporal and spatial variation in MSP1 clonal composition of Plasmodium falciparum in districts of Assam, Northeast India

Shashi Baruah, Sonia D. Lourembam, Clara E. Sawian, Indra Baruah, Diganta Goswami

Infection, Genetics and Evolution, Volume 9, Issue 5, September 2009, Pages 853-859, doi:10.1016/j.meegid.2009.05.006

Polymorphism in MSP1 gene generated by insertion/deletion of repeats causing repeat length polymorphisms is widely used as a marker for parasite genotyping. Elucidating Plasmodium falciparum clonal composition in relation to transmission intensity and other



epidemiological factors in endemic areas is crucial to understanding the dynamics of host–parasite relationship and the development of immunity in malaria. We have examined here the allelic diversity of *P. falciparum* and attempted to understand the polymorphism and distribution of alleles of MSP1 with transition in transmission season and with differences in malaria epidemiology between sites.

<http://tinyurl.com/mmwt22>

Research Paper: Genetic variation in neuronal nitric oxide synthase (nNOS) gene and susceptibility to cerebral malaria in Indian adults

Gunanidhi Dhangadamajhi, Biranchi N. Mohapatra, Shantanu K. Kar, Manoranjan Ranjit

Infection, Genetics and Evolution, Volume 9, Issue 5, September 2009, Pages 908-911, doi:10.1016/j.meegid.2009.06.010

The role of nitric oxide (NO) in the pathogenesis of cerebral malaria is controversial. Of the three isoforms of nitric oxide synthases (NOS), though iNOS expression is the major source of NO level in vivo, nNOS is the main isoform constitutively expressed in the neural tissues. However, there has been no investigation of the role of polymorphisms of the nNOS gene in the etiology of cerebral malaria. We have analyzed two single nucleotide polymorphisms (SNPs) of nNOS gene (–84G → A and 276C → T), responsible for decreased basal transcriptional activity, in 200 patients with mild *Plasmodium falciparum* malaria and 170 patients with cerebral malaria. <http://tinyurl.com/kn7ot6>

Research Paper: Bioactive styryllactones and alkaloid from flowers of *Goniothalamus laoticus*

Ratsami Lekphrom, Somdej Kanokmedhakul, Kwanjai Kanokmedhakul

Journal of Ethnopharmacology, Volume 125, Issue 1, 17 August 2009, Pages 47-50, doi:10.1016/j.jep.2009.06.023

To investigate the Thai medicinal plant, *Goniothalamus laoticus*, for antiplasmodial, antimycobacterial and cytotoxicity activities. This finding showed that the styryllactone derivatives and alkaloid isolated from the flowers of *Goniothalamus laoticus* exhibited antiplasmodial activity against *Plasmodium falciparum*, antimycobacterail against *Mycobacterium tuberculosis* and cytotoxicity against four cancer cell lines. <http://tinyurl.com/n8s6ft>



Malaria in the Republic of Korea, 1993-2007. Variables Related to Re-emergence and Persistence of Plasmodium vivax Among Korean Populations and U.S. Forces in Korea

Kim, Heung-Chul; Pacha, Laura A.; Lee, Won-Ja; Lee, Jong-Koo; Gaydos, Joel C.; Sames, William J.; Lee, Hee-Choon S.; Bradley, Kent; Jeung, Gi-Gon; Tobler, Steven K.; Klein, Terry A.

Military Medicine, Volume 174, Number 7, July 2009 , pp. 762-769(8)

Malaria was eradicated and the Republic of Korea (ROK) declared "malaria free" in 1979. However, in 1993, a temperate strain of vivax malaria, expressing both latent and nonlatent disease populations, re-emerged near the demilitarized zone (DMZ), rapidly spread to civilian sectors near the DMZ, and increased exponentially in ROK military, veteran, and civilian populations through 1998.

<http://tinyurl.com/lhyrsf>

Clinical Implications of Basic Research: Platelets, Pyrexia, and Plasmodia

Greenbaum DC, FitzGerald GA

N Engl J Med 361:526, July 30, 2009

Platelets have long been known to interact cooperatively with erythrocytes in thrombogenesis, both generally and in patients with sickle cell disease.¹ Recently, the molecular mechanisms by which neutrophils can bridge their interactions with endothelial cells have begun to be elucidated.² A recent study by McMorran et al.³ raises the possibility that platelet-erythrocyte interactions might be clinically felicitous in patients with malaria. This disease is caused, in humans, by four parasites of the plasmodium genus: Plasmodium falciparum, P. vivax, P. ovale, and P. malariae. P. falciparum malaria is associated with the majority of deaths from malaria worldwide.

<http://tinyurl.com/knueca>

The prisoner as model organism: malaria research at Stateville Penitentiary

Nathaniel Comfort

Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences, In Press, Corrected Proof, Available online 4 August 2009

In a military-sponsored research project begun during the Second World War, inmates of the Stateville Penitentiary in Illinois were infected with malaria and treated with experimental drugs that sometimes had vicious side effects. They were made into reservoirs for the disease and they provided a food supply for the mosquito



cultures. They acted as secretaries and technicians, recording data on one another, administering malarious mosquito bites and experimental drugs to one another, and helping decide who was admitted to the project and who became eligible for early parole as a result of his participation. Thus, the prisoners were not simply research subjects; they were deeply constitutive of the research project. <http://tinyurl.com/mu9ln4>

Review: Plasmodium berghei HAP2 induces strong malaria transmission-blocking immunity in vivo and in vitro

Andrew M. Blagborough, Robert E. Sinden

Vaccine, Volume 27, Issue 38, 20 August 2009, Pages 5187-5194, doi:10.1016/j.vaccine.2009.06.069

We demonstrate that heterologous expression of the P. berghei HAP2 protein in Escherichia coli, and subsequent immunization of rabbits, has produced anti-sera that react specifically with recombinant HAP2, and with the native protein on the male gamete. Additionally, anti-HAP2 sera reduces in vitro formation of ookinetes by up to 81%, and, using standard membrane feeding assays, reduces oocyst burden within the mosquito host by up to 81.1%, and prevalence of in vivo infection by up to 34%. Inhibition is dose dependent. These results indicate that HAP2 should be considered as a potential target for any future anti-malarial transmission-blocking vaccine. <http://tinyurl.com/nokvkn>

Regular Paper: Plasmodium falciparum apical membrane antigen 1 vaccine elicits multifunctional CD4 cytokine-producing and memory T cells

Maria Cecilia Huaman, Gregory E.D. Mullen, Carole A. Long, Siddhartha Mahanty

Vaccine, Volume 27, Issue 38, 20 August 2009, Pages 5239-5246 doi:10.1016/j.vaccine.2009.06.066

The Plasmodium falciparum apical membrane antigen 1 (AMA1) is a leading vaccine candidate and was tested for safety and immunogenicity in human Phase I Clinical Trials. PBMC from vaccine recipients were analyzed by flow cytometric methods to determine the nature of T-cell responses and AMA1-reactive memory T cells. <http://tinyurl.com/monweq>

Jobs



Multi country Statistician – INDEPTH Effectiveness and Safety Studies (INESS)

Organisation: INDEPTH Network, Sector: Statistics

Job Level: Senior

Location: Accra Ghana

Deadline for applications: 15 August 2009

INDEPTH is an independent, non-governmental not-for-profit international organisation to provide health, social and demographic data and research to enable developing countries set health priorities and policies, based on scientific evidence. The INDEPTH Effectiveness and Safety Studies (INESS) is a project of the INDEPTH Network and comprises a number of autonomous research groups, working together to plan and execute a programme of work that will provide the needed information on effectiveness and safety of ACTs to the national malaria programme managers for policy making. The INDEPTH/INESS core management will provide the administrative support for the whole platform.

We are seeking a statistician (PhD Statistics/demographics/medicine with 3 years experience or MA/Msc with 10 yrs experience) with a strong track record in doing multi-country analysis in particularly related to DSS data. He or she will be expected to travel occasionally to the different partner institutions and DSS sites under INESS. Overall goal is to coordinate and lead all the analysis work related to the INESS study.

For more information, please contact: Dr Aziza Mwisongo, INESS Project Manager, INDEPTH Network Secretariat,
aziza.mwisongo@indepth-network.org

Female applicants are encouraged to apply.

Don't forget to mention **MalariaWorld** when replying to this advert.

Research Scientist (FAO/IAEA), at the International Atomic Energy Agency, Austria

Deadline for application: 11 September 2009

The Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture is looking for a young scientist to join the research team of the mosquito project developing the Sterile Insect Technique



(SIT) for *An. arabiensis* at the Entomology Unit of the FAO/IAEA Agriculture & Biotechnology Laboratory of the IAEA's Laboratories in Seibersdorf, Austria.

The candidate should have an advanced university degree, preferably a PhD student or postdoc in medical entomology or equivalent. The candidate will assist the research team with the development of appropriate mass-rearing technologies for mosquitoes and to conduct R&D on mosquito mating behaviour, mosquito biology, radiation, genetic sexing, sterile male quality control, etc. US citizenship is required to be eligible, the person should not be over 32 years of age, and be willing to relocate to Austria. A two-year commitment is expected. Remuneration is set at the P2 level of the UN salary scale.

Please contact Marc Vreysen (0043 1 2600 28404, m.vreysen@iaea.org) for more information.

For more info on the activities of the Insect Pest Control subprogramme, visit: <http://www-naweb.iaea.org/nafa/ipc/index.html>

Don't forget to mention **MalariaWorld** when replying to this advert.

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