MalariaWorld Nr. 133 (8 October 2007)

▪▪▪ Publications ▪▪▪

The Recognition, Physiology, and Treatment of Medication-Induced Methemoglobinemia: A Case Report (Subscription)
MD Turner, V Karlis, RS Glickman
Anesth Prog (2007) 54: 115-7
We report a case of dapsone-induced methemoglobinemia which was observed during general anesthesia for the management of a fractured mandible. The pathophysiology, diagnosis, and management of dapsone-induced methemoglobinemia will be discussed.

Dispatch: Prevalence of Plasmodium falciparum Infection in Rainy Season, Artibonite Valley, Haiti, 2006 (Open access)
T.P. Eisele *et al.*
EID, Volume 13, Number 10–October 2007
We conducted a population-based survey to estimate the prevalence of *Plasmodium falciparum* infection among persons older than 1 month in the Artibonite Valley of Haiti during the high malaria transmission season in 2006. Results from PCR for 714 persons showed a prevalence of 3.1% for *P. falciparum* infection.

Dispatch: Malaria Diagnosis and Hospitalization Trends, Brazil (Open access)
P.D. Santos-Ciminera *et al.*
EID, Volume 13, Number 10–October 2007
We focused on rates of malaria in the state of Amazonas and city of Manaus, Brazil. *Plasmodium vivax* accounted for an increased number and rate of hospital admissions, while *P. falciparum* cases decreased. Our observations on malaria epidemiology suggest that the increased hospitalization rate could be due to increased severity of *P. vivax* infections.

Malaria circumsporozoite protein inhibits the respiratory burst in Kupffer cells (Subscription)
Ivan Usynin, Christian Klotz and Ute Frevert
Cellular Microbiology, Volume 9 Issue 11 Page 2610-2628, November 2007
Here we show that *Plasmodium* sporozoites and recombinant circumsporozoite protein (CSP) suppress the respiratory burst in Kupffer cells.

Hematin Promotes Complement Alternative Pathway-Mediated Deposition of C3 Activation Fragments on Human Erythrocytes: Potential Implications for the Pathogenesis of Anemia in Malaria (Subscription)
Andrew W. Pawluczkowycz, Margaret A. Lindorfer, John N. Waitumbi, and Ronald P. Taylor
J Immunol 2007;179 5543-5552
In the present article, we demonstrate that in serum and in anticoagulated whole blood, moderate concentrations of hematin activate the alternative pathway of complement and promote deposition of C3 activation and breakdown products on erythrocytes.

Bipolar, Dual Plasmodium falciparum Helicase 45 Expressed in the Intraerythrocytic Developmental Cycle Is Required for Parasite Growth (Subscription)
Arun Pradhan and Renu Tuteja

J Mol Biol, Volume 373, Issue 2, 19 October 2007, Pages 268-281
These studies indicate that PfH45 is an indispensable enzyme that is essential for growth, and probably survival, of *P. falciparum*.

Crystal Structure of Plasmodium falciparum Spermidine Synthase in Complex with the Substrate Decarboxylated S-adenosylmethionine and the Potent Inhibitors 4MCHA and AdoDATO (Subscription)
Veronica Tamu Dufe, Wei Qiu, Ingrid B. Müller, Raymond Hui, Rolf D. Walter and Salam Al-Karadaghi
J Mol Biol, Volume 373, Issue 1, 12 October 2007, Pages 167-177
The results show that binding of dcAdoMet to pfSPDS stabilizes the conformation of the flexible gatekeeper loop of the enzyme and affects the conformation of the active-site amino acid residues, preparing the protein for binding of the second substrate. The complexes of AdoDATO and 4MCHA with pfSPDS reveal the mode of interactions of these compounds with the enzyme. While AdoDATO essentially fills the entire active-site pocket, 4MCHA only occupies part of it, which suggests that simple modifications of this compound may yield more potent inhibitors of pfSPDS.

PCR-based karyotyping of Anopheles gambiae inversion 2Rj identifies the BAMAKO chromosomal form (Open access)
Mamadou B Coulibaly, Marco Pombi, Beniamino Caputo, Davis Nwakanma, Musa Jawara, Lassana Konate, Ibrahima Dia, Abdrahamane Fofana, Marcia Kern, Frederic Simard, David J Conway, Vincenzo Petrarca, Alessandra della Torre, Sekou Traore, Nora J Besansky
Malaria Journal 2007, 6:133 (1 October 2007)
PCR assay for molecular karyotyping was developed based on sequences at the breakpoint junctions. This rapid tool for identifying the BAMAKO form across developmental stages and sexes and opens new perspectives for the study of mosquito ecology and behaviour.

Varying efficacy of intermittent preventive treatment for malaria in infants in two similar trials: public health implications (Open access)
Clara Menendez, David Schellenberg, Eusebio Macete, Pedro Aide, Elizeus Kahigwa, Sergi Sanz, John J Aponte, Jahit Sacarlal, Hassan Mshinda, Marcel Tanner, Pedro L Alonso
Malaria Journal 2007, 6:132 (26 September 2007)
The high ITN coverage in Ifakara is the most likely explanation for the difference in IPTi efficacy on clinical malaria. Combination of IPTi and ITNs may be the most cost-effective tool for malaria control currently available, and needs to be explored in current and future studies.

Molecular genetic studies of Anopheles stephensi in Pakistan (Subscription)
N. Ali, J.C.C. Hume, S.K. Dadzie M.J. Donnelly
Med Vet Entomol 21 (3), 265–269
No genetic differentiation was observed between populations and average pairwise F_{ST} values did not differ significantly from zero for any population pair or either marker system. Tests of population expansion for both mitochondrial and microsatellite loci were inconclusive.

Flavonoid inhibitors as novel antimycobacterial agents targeting Rv0636, a putative dehydratase enzyme involved in Mycobacterium tuberculosis fatty acid synthase II (Subscription)
AK Brown, A Papaemmanouil, V Bhowruth, A Bhatt, LG Dover, GS Besra
Microbiology (2007) 153: 3314-22
Overall, the data suggest that these flavonoids are inhibitors of mycobacterial FAS-II and in particular Rv0636, which represents a strong candidate for the β-hydroxyacyl-ACP dehydratase enzyme of *M. tuberculosis* FAS-II.

Prevention of recurrent fetal growth restriction (Subscription)

V Berghella
Obstet Gynecol (2007) 110: 904-12
In women living in areas endemic for malaria, antimalarial prophylaxis diminishes risk of recurrent fetal growth restriction.

Haemoglobin C and S Role in Acquired Immunity against Plasmodium falciparum Malaria (Open access)
Federica Verra, Jacques Simpore, George M. Warimwe, Kevin K. Tetteh, Tevis Howard, Faith H. A. Osier, Germana Bancone, Pamela Avellino, Isa Blot, Greg Fegan, Peter C. Bull, Thomas N. Williams, David J. Conway, Kevin Marsh, David Modiano
PLoS ONE 2(10): e978
These findings suggest that both HbC and HbS affect the early development of naturally acquired immunity against malaria. The enhanced immune reactivity in both HbC and HbS carriers supports the hypothesis that the protection against malaria of these adaptive genotypes might be at least partially mediated by acquired immunity against malaria.

Plasmodium falciparum Uses gC1qR/HABP1/p32 as a Receptor to Bind to Vascular Endothelium and for Platelet-Mediated Clumping (Open access)
Anup Kumar Biswas, Abdul Hafiz, Bhaswati Banerjee, Kwang Sik Kim, Kasturi Datta, and Chetan E. Chitnis
PLoS Pathog 3(9): e130
Given the association of adhesion to vascular endothelium and plateletmediated clumping with severe disease, adhesion to gC1qR/HABP1/p32 by P. falciparum IRBCs may play an important role in malaria pathogenesis

Structure of the Malaria Antigen AMA1 in Complex with a Growth-Inhibitory Antibody (Open access)
Andrew M. Coley, Aditi Gupta, Vince J. Murphy, Tao Bai, Hanna Kim, Robin F. Anders, Michael Foley, and Adrian H. Batchelor
PLoS Pathog 3(9): e138
Mutations of polymorphic AMA1 residues within the 1F9 epitope disrupt 1F9 binding and dramatically reduce the binding of affinity-purified human antibodies. Moreover, 1F9 binding to AMA1 is competed by naturally acquired human antibodies, confirming that the 1F9 epitope is a frequent target of immunological attack.

PfEMP1-DBL1α amino acid motifs in severe disease states of Plasmodium falciparum malaria (Open access)
Johan Normark, Daniel Nilsson, Ulf Ribacke, Gerhard Winter, Kirsten Moll, Craig E. Wheelock, Justus Bayarugaba, Fred Kironde, Thomas G. Egwang, Qijun Chen, Björn Andersson, and Mats Wahlgren
PNAS 2007 104: 15835-15840
The results suggest that certain PfEMP1 sequences are predisposed to inducing severe malaria.

Plasmodium falciparum ookinetes require mosquito midgut chondroitin sulfate proteoglycans for cell invasion (Subscription)
Rhoel R. Dinglasan, Aditi Alaganan, Anil K. Ghosh, Akio Saito, Toin H. van Kuppevelt, and Marcelo Jacobs-Lorena
PNAS 2007 104: 15882-1588
We provide evidence for the *in vivo* role of chondroitin sulfate proteoglycans in *Plasmodium falciparum* invasion of the midgut and insight into the molecular mechanisms mediating parasite–mosquito interactions.

Structural RNAs of known and unknown function identified in malaria parasites by comparative genomics and RNA analysis (Subscription)
K Chakrabarti, M Pearson, L Grate, T Sterne-Weiler, J Deans, JP Donohue, M Ares
RNA, DOI: 10.1261/rna.751807 (E-Pub ahead of printing)

These findings should allow detailed structural comparisons between the RNA components of the gene expression machinery of the parasite and its vertebrate hosts.

Mini-Review: Larvivorous fish against malaria vectors: a new outlook (Subscription)
S.K. Ghosh and A.P. Dash
T Roy Soc of Trop Med H, Volume 101, Issue 11, November 2007, Pages 1063-1064
The use of larvivorous fish in malaria control is not new but a half-forgotten strategy. It has been shown to be effective and sustainable in many circumstances. A strategic action plan targeting relevant sibling species of the vectors as well as application of global positioning system technology to facilitate rapid re-checking of sites for the continuing presence of fish are important new features of this strategy.

Smoke and malaria: are interventions to reduce exposure to indoor air pollution likely to increase exposure to mosquitoes? (Subscription)
Adam Biran, Lucy Smith, Jo Lines, Jeroen Ensink and Mary Cameron
T Roy Soc of Trop Med H, Volume 101, Issue 11, November 2007, Pages 1065-1071
Efforts to reduce indoor air pollution remain desirable even in areas of malaria transmission.

Sulfadoxine–pyrimethamine plus artesunate compared with chloroquine for the treatment of vivax malaria in areas co-endemic for Plasmodium falciparum and P. vivax: a randomised non-inferiority trial in eastern Afghanistan (Subscription)
Kate Kolaczinski, Naeem Durrani, Sayed Rahim and Mark Rowland
T Roy Soc of Trop Med H, Volume 101, Issue 11, November 2007, Pages 1081-1087
In areas where vivax infections might be misdiagnosed as falciparum infections and treated with SP+AS, patient management would be as good, or better than, with the standard CQ treatment [ClinicalTrials.gov Registration No. NCT00486694].

A community-based delivery system of intermittent preventive treatment of malaria in pregnancy and its effect on use of essential maternity care at health units in Uganda (Subscription)
Anthony K. Mbonye, I.C. Bygbjerg and Pascal Magnussen
T Roy Soc of Trop Med H, Volume 101, Issue 11, November 2007, Pages 1088-1095
In conclusion, the community-based system was effective in delivering IPTp, whilst women still accessed and benefited from essential care at health units.

Letter to the editor: Transfusion-transmitted malaria: how vital is the need to screen in non-endemic countries? (Subscription)
N Maalouf, M Naja, AR El Kinge, S Zein-El-Dine, A Taher
Transfus Med (2007) 17: 415-6
No abstract available

Update Research Focus: Prevention of malaria in long-term travelers (Subscription)
Anna M Checkley and David R Hill
Trends in Parasitol, Volume 23, Issue 10, October 2007, Pages 462-465
The essential elements of malaria prevention are discussed: awareness of risk, bite avoidance, chemoprophylaxis, rapid diagnosis, stand-by emergency treatment, and the importance of tailoring recommendations to the individual.

Update Research Focus: Malaria and HIV: a silent alliance (Subscription)
Jean-Pierre Van geertruyden and Umberto D'Alessandro
Trends in Parasitol, Volume 23, Issue 10, October 2007, Pages 465-467
For the first time, it is shown that, according to the model, transient but repeatedly elevated HIV viral loads due to recurrent co-infections, such as malaria, can also influence and increase HIV prevalence. Probably, these results are conservative and the true impact of the interaction could be even more important.

Update Letters: McArthur revisited: fluorescence microscopes for field diagnostics (Subscription)
David Jones, Julius Nyalwidhe, Laurence Tetley and Michael P. Barrett
Trends in Parasitol, Volume 23, Issue 10, October 2007, Pages 468-469
Few scientific instruments become eponymous with their inventors. Among those that have is the 'McArthur'.

Opinion: Is invasion efficiency in malaria controlled by pre-invasion events? (Subscription)
Virgilio L. Lew and Teresa Tiffert
Trends in Parasitol, Volume 23, Issue 10, October 2007, Pages 481-484
We suggest that the role of the pre-invasion stage is to induce the apical alignment of the merozoite, and propose a working hypothesis on its mechanism, with a crucial role for elevated intracellular Ca^{2+}.

Review: Modeling the molecular basis of atovaquone resistance in parasites and pathogenic fungi (Subscription)
Jacques J. Kessl, Steven R. Meshnick and Bernard L. Trumpower
Trends in Parasitol, Volume 23, Issue 10, October 2007, Pages 494-501
To better understand the molecular basis of drug resistance, we have developed the yeast and bovine bc_1 complexes as surrogates to model the molecular interaction of atovaquone with human and resistant pathogen enzymes.

Review: The complex morphology of Maurer's clefts: from discovery to three-dimensional reconstructions (Subscription)
Hannes Wickert and Georg Krohne
Trends in Parasitol, Volume 23, Issue 10, October 2007, Pages 502-509
This review will focus on the description of the morphology of these clefts, from the first light-microscopic report up to recent three-dimensional reconstructions. Detailed knowledge of these structures should further our understanding of their functions.

▪▪▪ Jobs ▪▪▪

The Malaria Consortium is looking for a Health Systems Programme Coordinator, Zambia
Application deadline: 15th October 2007
The ideal candidate should have a masters or doctoral qualification in international public health medicine, parasitology, laboratory sciences, health systems and policy, or another relevant area. They should have at least 8 years experience in developing country health systems with a thorough understanding of health systems issues in relation to malaria and other communicable disease control. They should also have 5 years project management experience and at least 3 years exp erience of working closely with Ministries of Health at programme level and above, as well as with other national level partners.
More information

Clinical Trials Co-ordinator, Thailand, Nuffield Department Of Clinical Medicine
Closing date for applications: Friday 26 October 2007
Applicants must have at least the equivalent of three years' experience working on clinical trials and a degree, or equivalent, in a field related to health. Experience of working in Asia would be an advantage. Excellent organisational skills and a strong sense of diplomacy are essential.
More information

Biomedical Scientist, Department of Infectious and Tropical Diseases,Diagnostic Parasitology Laboratory, The London School of Hygiene & Tropical Medicine
Closing date for applications: Thursday 15 November 2007

Applications are invited from HPC registered biomedical scientists with a background of working in microbiology and a keen interest in parasitology.
More information

▪▪▪ News ▪▪▪

5 October 2007, New Vision
Uganda: Rural Areas to Get Anti-Malaria Drugs
The Ministry of Health is designing a programme to ensure that effective and affordable anti-malarial drugs are available in rural areas.

4 October 2007, Roll Back Malaria Partnership (Press release)
Tanzania: Roll Back Malaria Executive Director and HRH Princess Astrid of Belgium Visit to Encourage More Action Against Malaria [press release]
The Executive Director of the Roll Back Malaria (RBM) Partnership, Dr Awa Coll-Seck, and Her Royal Highness (HRH) Princess Astrid of Belgium, in her new capacity as Roll Back Malaria (RBM) Special Representative, arrived in the United Republic of Tanzania today to increase global support for the fight against malaria.

4 October 2007, UN Integrated Regional Information Networks
Uganda: Lucia Akorio, 'We Now Sleep Under Mosquito Net And Use the Pit Latrine'
With help from the UN Children's Fund (UNICEF), Ugandan health officials in northeastern Kotido District, Karamoja region, have embarked on an ambitious hygiene and sanitation programme, aimed at increasing pit latrine coverage and use of mosquito nets across the region.

4 October 2007, Daily Champion
Nigeria: Expert Provides Antidote to "Malaria-Induced Still-Births
As effort to reduce mortality rate from malaria-induced pregnancy complications appears not to be yielding positive results, an expert has recommended that every pregnant women in malaria endemic region receives at least two doses of effective anti-malaria drugs at early gestation period to guard against still births.

4 October 2007, The Herald
Zimbabwe: Ministry in Drive to Fight Malaria
Zimbabwe is almost ready to control mosquitoes with a new insecticide, Bio-Larvicidn, with clinical trials in malaria-prone areas now complete.

4 October 2007, Kaiser GlobalHealthReporting.org
Malaria Remains Significant Health Problem in Yemen, Study Says
Malaria remains a significant health problem in Yemen, according to a study recently released by researchers at Sana'a University, the Yemen Observer reports.

3 October 2007, East African Standard
Kenya: PS Refutes Claims of Drug Crisis
The Government has dismissed as alarmist, reports of a looming crisis in the fight against malaria.

3 October 2007, Kaiser GlobalHealthReporting.org
Uganda Bans Importation of Chloroquine for Malaria Treatment
The Ugandan government by December will stop the importation of the drug chloroquine for use as a malaria treatment except with permission from the National Drug Authority, Myers Lugemwa, a senior officer for the country's malaria control program, recently said, New Vision reports.

2 October 2007, East African

Africa: Casting the Net Wide
Insecticide treated nets (ITNS) - one of the most inexpensive and efficacious means to avert childhood deaths in sub-Saharan Africa - have reached about 67.3 per cent coverage among the poorest rural sectors, a new study shows.

2 October 2007, Kaiser GlobalHealthReporting.org
Zambia To Distribute 3M ITNs by End of 2007, Deputy Health Minister Says
The Zambian government plans to distribute three million no-cost insecticide-treated nets by the end of the year, Deputy Minister of Health Lwipa Puma recently said, the Zambia Daily Mail reports.

1 October 2007, Kaiser GlobalHealthReporting.org
Women Exposed to DDT in Childhood More Likely To Develop Breast Cancer, Study Says
Women who were exposed to high levels of the pesticide DDT during childhood are five times as likely to develop breast cancer as women who were exposed as adults, according to a study published Monday in Environmental Health Perspectives, the Los Angeles Times reports.

30 September 2007, New Vision
Uganda: Rural Districts Run Out of Anti-Malarials, Antibiotics
The minimum requirement for essential medicines and health supplies per person in Uganda costs about $3.5 (about sh6,100), yet currently, the public expenditure is $0.8 (sh,1400) per capita.

28 September 2007, The Daily Observer
Gambia: FMP Donates Bednets to Lower Fulladu Communitty
Farmer Manage Project(FMP) recently distributed over two thousand treated bed nets to the community of Lower Fulladu District, Central River Region.

28 September 2007, Kaiser GlobalHealthReporting.org
Liberian Government Launches Malaria Training Program for Health Workers
The Liberian government on Tuesday at sites throughout the country launched a five-day in-service training program to teach health workers how to manage malaria cases, the Analyst reports.