



Bulletin 215 | 29 June 2009

Publications

Open access | Book review: War and Disease: Biomedical Research on Malaria in the Twentieth Century

E. Tognotti

EID, Volume 15, Number 7–July 2009

Leo B. Slater Rutgers University Press, Piscataway, NJ, USA, 2009. ISBN: 978-0-8135-4438-0. Pages: 272, Price US \$45.95

War and Disease is a fascinating historical account of the discovery of drugs effective against malaria, one of the great scourges of humankind. The author, Leo B. Slater, makes good use of his expertise as a historian of biomedical science and technology. <http://tinyurl.com/km75am>

Open access | Rapid Diagnosis of Malaria

Clinton K. Murray and Jason W. Bennett

Interdiscip Perspect Infect Dis. 2009; 2009: 415953, doi: 10.1155/2009/415953

Hand held immunochromatographic rapid diagnostic tests (RDTs) have been recognized as an ideal alternative method for diagnosing malaria. Numerous malaria RDTs have been developed and are widely available; however, an assortment of issues related to these products have become apparent. This review provides a summary of RDT including effectiveness and strategies to select the ideal RDT in varying healthcare settings. <http://tinyurl.com/langfy>

Open access | Glucose-6-phosphate Dehydrogenase Deficiency and Malaria: Cytochemical Detection of Heterozygous G6PD Deficiency in Women

Anna L. Peters, Cornelis J.F. Van Noorden

JHC exPRESS: First Published June 22, 2009. doi:10.1369/jhc.2009.953828

In this review it is concluded that the use of two different tests for diagnosing men and women is the ideal approach to detect G6PD deficiency. The fluorescent spot test is cheap and easy to perform but only reliable for discriminating hemizygous-G6PD deficient men from non-deficient men. For women the cytochemical assay is recommended. However, this assay is more expensive and difficult to perform and should be simplified into a kit for its use in developing countries. <http://tinyurl.com/nqylsj>

Open access | Awareness and use of Insecticide Treated Nets among women attending ante-natal clinic in a Northern state of Nigeria

Omotosho Ibrahim Musa, Ganiyu Adekumle Salaudeen, Rabiu Olusegun Jimoh

J Pak Med Assoc Jun 2009;59(6):354-8

Awareness and utilization of ITN among pregnant women and their household members is still low despite Government policy of free ITN for vulnerable groups and subsidized nets for other people. There is need to focus on creating demand for ITNs through all available health information channels including social marketing. (JPMA 59:354; 2009). <http://tinyurl.com/nrt4qd>

Open access | Improving Community Health Workers` knowledge and behaviour about proper content in malaria education

Fatemeh Rakhshani, Mahdi Mohammadi

J Pak Med Assoc Jun 2009;59(6):395-8

Objective: To enhance knowledge and behaviour of Community Health Workers (CHWs) regarding adequate educational content of malaria. <http://tinyurl.com/lrj7sk>

Open access | Research: Highly focused anopheline breeding sites and malaria transmission in Dakar

Vanessa Machault, Libasse Gadiaga, Cecile Vignolles, Fanny Jarjaval, Samia Bouzid, Cheikh Sokhna, Jean-Pierre Lacaux, Jean-Francois Trape, Christophe Rogier, Frederic Pages

Malaria Journal 2009, 8:138 (24 June 2009)

According to the authors, it is not relevant to study malaria throughout an entire city because averages hide significant heterogeneity. It becomes necessary to work on a local scale to better assess the transmission of vector-borne diseases in the city that far from disappearing, adapt to new conditions. This point of view is particularly important as the urban population continues to increase. <http://>

tinyurl.com/ktqfmm

Open access | Research: Analysis of von Willebrand factor A domain-related protein (WARP) polymorphism in temperate and tropical Plasmodium vivax field isolates

Saber Gholizadeh, Navid Dinparast Djadid, Hamid Reza Basseri, Sedigheh Zakeri, Hossein Ladoni

Malaria Journal 2009, 8:137 (23 June 2009)

A large-scale survey on pvwarp polymorphism in isolates from temperate and tropical endemic areas of Iran. <http://tinyurl.com/kud2kh>

Open access | Research: Marked differences in CRP genotype frequencies between the Fulani and sympatric ethnic groups in Africa

Elisabeth Israelsson et al.

Malaria Journal 2009, 8:136 (22 June 2009)

The frequency of the CRP-286A allele, which correlates with high levels of serum CRP, is lower in Fulani, an ethnic group with low susceptibility to malaria. This could be a selective advantage in fighting malaria infection. <http://tinyurl.com/m37o6s>

Open access | Research: Plasmodium falciparum genotypes diversity in symptomatic malaria of children living in an urban and a rural setting in Burkina Faso

Issiaka Soulama, Issa Nebie, Alphonse Ouedraogo, Adama Gansane, Amidou Diarra, Alfred B Tiono, Edith C Bougouma, Amadou T Konate, Gustave B Kabre, Walter RJ Taylor, Sodiomon B Sirima

Malaria Journal 2009, 8:135 (20 June 2009)

The analysis of the genetic diversity of parasites taken from children with uncomplicated malaria, living in two different areas of the country, may help to understand the effect of urbanization on the distribution different genotypes. <http://tinyurl.com/ndmznn>

Open access | Antimalarial effect of N-acetyl-L-Leucyl-L-leucyl-L-norleucinal by the inhibition of Plasmodium falciparum calpain

Suk-Yul Jung, Bing Zheng, Yun-Young Choi, Byoung Yul Soh, Sung Yeon Kim, Kie-In Park and Hyun Park

Pharmaceutical Society of Korea, Issue Volume 32, Number 6 / June, 2009

The biological understanding of malaria parasites has increased considerably over the past two decades with the discovery of many

potential targets for the development of new antimalarial drugs. Calpain, a cysteine protease of *Plasmodium falciparum*, is believed to be a central mediator essential for parasitic activity. However, the utility of calpain as a potential anti-malarial target in *P. falciparum* has not been fully determined. In the present study, we determined the effect of N-acetyl-L-Leucyl-L-leucyl-L-norleucinal (ALLN)-treatment on the expression of calpain in erythrocytic stages of *P. falciparum* and its usefulness as an antimalarial chemotherapeutic agent. <http://tinyurl.com/nw44tq>

Open access | MIRO and IRbase: IT Tools for the Epidemiological Monitoring of Insecticide Resistance in Mosquito Disease Vectors

Emmanuel Dialynas, Pantelis Topalis, John Vontas, Christos Louis
PLoS Negl Trop Dis 3(6): e465. doi:10.1371/journal.pntd.0000465
e make use here of a specially built ontology, MIRO, to drive a new database, IRbase, dedicated to storing data on the occurrence of insecticide resistance in mosquito populations worldwide. The ontological approach to the design of databases offers the great advantage that these can be searched in an efficient way. <http://tinyurl.com/kt9p9q>

Letter to the editor: Screening for malaria

David Mitchell

American Journal of Obstetrics and Gynecology, In Press, Corrected Proof, Available online 18 June 2009

Refers to: The clinical content of preconception care: infectious diseases in preconception care. American Journal of Obstetrics and Gynecology, In Press, Corrected Proof, Available online 18 June 2009, Begoña Martinez de Tejada, Marie-Louise Newell <http://tinyurl.com/m6v6vm>

Experimental Therapeutics: Piperaquine Pharmacodynamics and Parasite Viability in a Murine Malaria Model

Brioni R. Moore, Kenneth F. Ilett, Madhu Page-Sharp, Jeffrey D. Jago, and Kevin T. Batty

Antimicrob. Agents Chemother. 2009 53: 2707-2713, doi:10.1128/AAC.00056-09

Piperaquine (PQ) is an important partner drug in antimalarial combination treatments, but the long half-life of PQ raises concerns about drug resistance. Our aim was to investigate the extended antimalarial effect of PQ in a study of drug efficacy, reinoculation outcomes, and parasite viability after the administration of a single

dose of PQ in the murine malaria model. <http://tinyurl.com/mzkbzt>

Susceptibility: In Vitro Chemosensitization of Plasmodium falciparum to Antimalarials by Verapamil and Probenecid

Victor Masseno, Steven Muriithi, and Alexis Nzila

Antimicrob. Agents Chemother. 2009 53: 3131-3134, doi:10.1128/AAC.01689-08

We tested the effect of probenecid and verapamil in chemosensitizing Plasmodium falciparum to 14 antimalarials using the multidrug-resistant strain V1S and the drug-sensitive 3D7. Verapamil chemosensitizes V1S to quinine and chloroquine. Interestingly, probenecid profoundly chemosensitizes V1S to piperazine. Thus, probenecid could be used to increase piperazine efficacy in vivo. <http://tinyurl.com/m8jbtt>

Malaria as a Cause of Morbidity and Mortality in Children with Homozygous Sickle Cell Disease on the Coast of Kenya

Albert N. Komba, Julie Makani, Manish Sadarangani, Tolu Ajala-Agbo, James A. Berkley, Charles R. J. C. Newton, Kevin Marsh, and Thomas N. Williams

Clinical Infectious Diseases 2009;49:216-222, DOI: 10.1086/599834

To date, it has been widely assumed that malaria is a common cause of morbidity and mortality in children with sickle cell disease (SCD) in malaria-endemic countries, and as a result, malarial prophylaxis is commonly recommended. Nevertheless, few data are available that support this practice.

We conducted a retrospective analysis of the data collected prospectively from children aged 0-13 years who were admitted to Kilifi District Hospital during the period from July 1998 through June 2005. We studied the prevalence, clinical features, and outcome of malarial infections in these children, stratified by SCD status. <http://tinyurl.com/nka9ea>

Editorial Commentary: Are Children with Homozygous Sickle Cell Disease Really at a Disadvantage in the Face of Malaria? The Malaria Hypothesis Revisited

Geoffrey Pasvol

Clinical Infectious Diseases 2009;49:223-224, DOI: 10.1086/599835

No abstract available <http://tinyurl.com/lgk7e8>

Book Reviews: Emerging Infections 8

Edited by W. Michael Scheld, Scott M. Hammer, and James M. Hughes,
Reviewed by Raymond A. Smego, Jr.

Clinical Infectious Diseases. Volume 49, Issue 2, Page 323, Jul 2009,
DOI: 10.1086/599606
No abstract available <http://tinyurl.com/knj9lq>

Case report: Childhood Plasmodium falciparum malaria complicated by splenic abscess

Rajoo Thapa, Apurba Ghosh and Tapanjyoti Banerjee

Emergency Medicine Australasia 2009 Jun;21(3):237-9

We report on an 8-year-old girl with Plasmodium falciparum malaria complicated by splenic abscess during the course of her infection. The diagnosis of malaria was based upon the demonstration of trophozoites of P. falciparum in the peripheral blood smear. To our knowledge, this is the first report of splenic abscess complicating the course of childhood P. falciparum malaria in the English literature. <http://tinyurl.com/koe9ov>

Inhibition of Hypoxanthine-Guanine Phosphoribosyltransferase by Acyclic Nucleoside Phosphonates: A New Class of Antimalarial Therapeutics

Dianne T. Keough[‡], Dana Hockov[§], Antonn Hol[§], Lieve M. J. Naesens, Tina S. Skinner-Adams, John de Jersey[‡] and Luke W. Guddat

Emergency Medicine Australasia, Volume 21 Issue 3, Pages 237 - 239

The purine salvage enzyme hypoxanthine-guanine-xanthine phosphoribosyltransferase (HGXPRT) is essential for purine nucleotide and hence nucleic acid synthesis in the malaria parasite, Plasmodium falciparum. Acyclic nucleoside phosphonates (ANPs) are analogues of the nucleotide product of the reaction, comprising a purine base joined by a linker to a phosphonate moiety. Ki values for 19 ANPs were determined for Pf HGXPRT and the corresponding human enzyme, HGPRT. <http://tinyurl.com/n2s3gz>

Clinical Study: The effects of hypoxia on the ERG in paediatric cerebral malaria

J Lochhead, A Movaffaghy, B Falsini, S Harding, C Riva and M Molyneux
Eye, advance online publication 26 June 2009; doi: 10.1038/eye.2009.162

Cerebral malaria (CM) is a disease of high mortality worldwide. It can be associated with malarial retinopathy (MR) resulting from impaired perfusion within the retinal microvasculature. Areas of capillary non-perfusion (CNP) appear white (retinal whitening) on ophthalmoscopy. In this study, electrophysiological investigations were performed to investigate the physiological consequences of these hypoxic and ischaemic changes. <http://tinyurl.com/m7u7jy>

Platelet microparticles: a new player in malaria parasite cytoadherence to human brain endothelium

Dorothee Faille, Valéry Combes, Andrew J. Mitchell, Albin Fontaine, Irène Juhan-Vague, Marie-Christine Alessi, Giovanna Chimini, Thierry Fusaï, and Georges E. Grau

The FASEB Journal, Published online before print June 17, 2009 as doi: 10.1096/fj.09-135822

Cerebral malaria (CM) is characterized by accumulation of circulating cells within brain microvessels, among which platelets play an important role. In vitro, platelets modulate the cytoadherence of Plasmodium falciparum-parasitized red blood cells (PRBCs) to brain endothelial cells. Here we show for the first time that platelet microparticles (PMPs) are able to bind to PRBCs, thereby transferring platelet antigens to the PRBC surface. <http://tinyurl.com/nk6e8j>

Biochemistry: The ferredoxin-NADP+ reductase/ferredoxin electron transfer system of Plasmodium falciparum

Emanuela Balconi, Andrea Pennati, Danila Crobu, Vittorio Pandini, Raffaele Cerutti, Giuliana Zanetti, Alessandro Aliverti

FEBS Journal, Volume 276, Issue 14, Date: July 2009, Pages: 4249-4260, DOI 10.1111/j.1742-4658.2009.07100.x

In the apicoplast of apicomplexan parasites, plastidic-type ferredoxin and ferredoxin-NADP+ reductase (FNR) form a short electron transport chain that provides reducing power for the synthesis of isoprenoid precursors. These proteins are attractive targets for the development of novel drugs against diseases such as malaria, toxoplasmosis, and coccidiosis. We have obtained ferredoxin and FNR of both Toxoplasma gondii and Plasmodium falciparum in recombinant form, and recently we solved the crystal structure of the P. falciparum reductase. Here we report on the functional properties of the latter enzyme, which differ markedly from those of homologous FNRs. <http://tinyurl.com/m2ffwx>

In vitro antileishmanial, antiplasmodial and cytotoxic activities of phenolics and triterpenoids from Baccharis dracunculifolia DC (Asteraceae)

A.A. da Silva Filho, D.O. Resende, M.J. Fukui, F.F. Santos, P.M. Pauletti, W.R. Cunha, M.L.A. Silva, L.E. Gregório, J.K. Bastos, N.P.D. Nanayakkara

Fitoterapia, In Press, Accepted Manuscript, Available online 18 June 2009

Baccharis dracunculifolia (Asteraceae), the most important plant source of the Brazilian green propolis (GPE), displayed in vitro activity against Leishmania donovani, with an IC50 value of 45 µg/mL, while GPE presented an IC50 value of 49 µg/mL. Regarding the antiplasmodial assay against Plasmodium falciparum, BdE and GPE gave similar IC50 values (about 20 µg/mL), while Hautriwaic acid lactone led to an IC50 value of 0.8 µg/mL (D6 clone). <http://tinyurl.com/nkj83d>

Endothelial Nitric Oxide Synthase Gene Polymorphisms and Plasmodium falciparum Infection in Indian Adults

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

Infect. Immun. 2009;77 2943-2947

To explore the hypothesis that susceptibility to cerebral malaria is influenced by genetic variation in endothelial nitric oxide synthase (eNOS), we genotyped three commonly defined polymorphic loci of eNOS, Glu298Asp, intron 4 variable number of tandem repeat region, and T-786C, in 244 patients (mean age, 36.2 years) with mild malaria and 194 patients (mean age, 35.6 years) with severe malaria belonging to same ethnic group in Orissa, an eastern Indian state. <http://tinyurl.com/ko5yco>

Cellular Tumor Necrosis Factor, Gamma Interferon, and Interleukin-6 Responses as Correlates of Immunity and Risk of Clinical Plasmodium

falciparum Malaria in Children from Papua New Guinea

Leanne J. Robinson, Marthe C. D'Ombrian, Danielle I. Stanistic, Jack Taraika, Nicholas Bernard, Jack S. Richards, James G. Beeson, Livingstone Tavul, Pascal Michon, Ivo Mueller, and Louis Schofield

Infect. Immun. 2009;77 3033-3043

The role of early to intermediate Plasmodium falciparum-induced cellular responses in the development of clinical immunity to malaria is not well understood, and such responses have been proposed to contribute to both immunity and risk of clinical malaria episodes. To investigate whether P. falciparum-induced cellular responses are able to function as predictive correlates of parasitological and clinical outcomes, we conducted a prospective cohort study of children (5 to 14 years of age) residing in a region of Papua New Guinea where malaria is endemic. Live, intact P. falciparum-infected red blood cells were applied to isolated peripheral blood mononuclear cells obtained at baseline. <http://tinyurl.com/lfdsav>

Comparison of National Malaria Surveillance System With the National Notifiable Diseases Surveillance System in the United States

Hwang, Jimee; McClintock, Shannon; Kachur, S. Patrick; Slutsker, Laurence; Arguin, Paul

Journal of Public Health Management and Practice: July/August 2009 - Volume 15 - Issue 4 - p 345-351, doi:10.1097/PHH.

0b013e31819d816a

Both existing systems have reasonably high ascertainment of cases. A fully integrated system with malaria-specific data fields would improve upon existing systems if it proved to be stable. <http://tinyurl.com/kn497r>

Comparing Water, Bovine Milk, and Indoor Residual Spraying as Possible Sources of DDT and Pyrethroid Residues in Breast Milk

Barbara Sereda; Henk Bouwman; Henrik Kylin

Journal of Toxicology and Environmental Health, Part A, Volume 72, Issue 14 January 2009 , pages 897 - 908

The presence of pollutants in human breast milk is of major concern, especially in malaria control areas where 1,1,1-trichloro-2, 2-bis(4-chlorophenyl) ethane (DDT) is currently used as indoor residual spray (IRS). The levels of DDT and pyrethroids (PYR) were determined in breast milk, bovine milk, and drinking water from northern KwaZulu-Natal, South Africa. <http://tinyurl.com/mdbtnk>

Falciain-2 inhibitors

Roberta Ettari, Floriana Bova, Maria Zappalà, Silvana Grasso, Nicola Micale

Medicinal Research Reviews, Published Online: 12 Jun 2009

The main reasons for the persistence of malaria are the emergence of resistance to common antimalarial drugs, inadequate control of mosquito vectors, and the lack of effective vaccines. Therefore, the identification and characterization of new targets for antimalarial chemotherapy are of urgent priority. This review is focused on inhibitors of falciain-2, a cysteine protease from *P. falciparum*, which represents one of the most promising targets for antimalarial drug design. <http://tinyurl.com/n46yf9>

Letters: Evolution of a malaria resistance gene in wild primates

Jenny Tung, Alexander Primus, Andrew J. Bouley, Tonya F. Severson, Susan C. Alberts, Gregory A. Wray

Nature (24 June 2009) doi:10.1038/nature08149

The ecology, behaviour and genetics of our closest living relatives, the nonhuman primates, should help us to understand the evolution of our own lineage. Although a large amount of data has been amassed on primate ecology and behaviour, much less is known about the functional and evolutionary genetic aspects of primate biology, especially in wild primates. As a result, even in well-studied populations in which nongenetic factors that influence adaptively important characteristics have been identified, we have almost no understanding of the underlying genetic basis for such traits. Here, we report on the functional consequences of genetic variation at the malaria-related FY (DARC) gene in a well-studied population of yellow baboons (*Papio cynocephalus*) living in Amboseli National Park in Kenya. <http://tinyurl.com/mhrb8y>

Commentary: NIAID workshop on immunity to malaria: addressing immunological challenges

Alison Deckhut Augustine, B Fenton Hall, Wolfgang W Leitner, Annie X Mo, Tonu M Wali, Anthony S Fauci

Nature Immunology 10, 673-678 (30 June 2009) doi:10.1038/ni0709-673

The US National Institute of Allergy and Infectious Diseases convened a workshop of malaria investigators and immunologists to foster collaborations and attract more immunologists into malaria research. Discussions highlighted research gaps and underscored the incomplete understanding of basic immune mechanisms that contribute to the pathogenesis of or protection against malaria. <http://tinyurl.com/kvomc9>

Research Highlights: Human disease: Malaria GWA study brings progress for infectious disease genetics

Orli G. Bahcall

Nature Reviews Genetics 10, 428-429 (30 June 2009) doi:10.1038/nrg2627

No abstract available <http://tinyurl.com/nmeanq>

Pediatric and Adolescent Imported Malaria in Cape Town

Gray, Taryn C.; Cooke, Melissa L.; Rabie, Helena; Kidd, Martin; Cotton, Mark F.

The Pediatric Infectious Disease Journal. 28(7):644-646, July 2009. doi: 10.1097/INF.0b013e318197c3e5

We reviewed 42 cases of pediatric and adolescent imported malaria in Cape Town. Patients were predominantly new and returned immigrants

from other African countries. Rapid diagnosis occurred in most cases. Eleven of 42 (26%) had severe malaria. Management issues included delay to and inappropriate treatment, inadequate monitoring for hypoglycemia, and under notification to health authorities. <http://tinyurl.com/lbeeag>

Secondary Metabolic Profiling and Artemisinin Biosynthesis of Two Genotypes of *Artemisia annua*

Huahong Wang, Chenfei Ma, Lanqing Ma, Zhigao Du, Hong Wang, Hechun Ye, Guofeng Li, Benye Liu, Guowang Xu

Planta Med : DOI: [10.1055/s-0029-1185814](https://doi.org/10.1055/s-0029-1185814)

In order to get new clues about artemisinin biosynthesis, metabolic profiling by gas chromatography (GC) and gas chromatography-mass spectrometry (GC-MS) was applied to compare the secondary metabolites of two *Artemisia annua* L., genotype SP18 and 001, for some phenotypic and agricultural trait differences, including artemisinin content, existed between the two genotypes. <http://tinyurl.com/n86d6u>

Overexpression of the HMG-CoA Reductase Gene Leads to Enhanced Artemisinin Biosynthesis in Transgenic *Artemisia annua* Plants

Samina Aquil, Amjad Masood Husaini, Malik Zainul Abidin, Gulam Muhammad Rather

Planta Med : DOI: [10.1055/s-0029-1185775](https://doi.org/10.1055/s-0029-1185775)

We report the production of transgenic plants of *A. annua* into which we transferred 3-hydroxy-3-methylglutaryl CoA reductase (HMGR) gene from *Catharanthus roseus* (L.) G. Don using *Agrobacterium*-mediated gene transfer technology. Transgene integration and copy number were assessed by PCR and Southern hybridization, which confirmed the stable integration of multiple copies of the transgene in 7 different transgenic lines of *A. annua*. <http://tinyurl.com/lao9pt>

Isolation and Identification of Novel Genes Involved in Artemisinin Production from Flowers of *Artemisia annua* Using Suppression Subtractive Hybridization and Metabolite Analysis

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

Planta Med : DOI: [10.1055/s-0029-1185809](https://doi.org/10.1055/s-0029-1185809)

Artemisinin is highly effective against multidrug-resistant *Plasmodium falciparum* and it has been widely used as part of the artemisinin-based combination therapies against malaria. To elucidate the biosynthetic pathway of artemisinin and to clone related genes in *Artemisia annua*, differentially expressed genes between blooming

flowers and flower buds were isolated and characterized by a combined approach of suppression subtractive hybridization (SSH) and metabolite analysis. <http://tinyurl.com/n5xe39>

Review: Embryotoxicity of the artemisinin antimalarials and potential consequences for use in women in the first trimester

Robert L. Clark

Reproductive Toxicology, Article in Press, Corrected Proof

Single oral doses of artesunate, dihydroartemisinin, arteether and artemether administered to rats during a sensitive period of organogenesis caused embryo deaths and malformations (malformed long bones and ventricular septal defects). Extended oral dosing (12 days or more) of monkeys once daily with 12 mg/kg-d artesunate also caused embryo deaths. <http://tinyurl.com/n5ekcc>

Synthesis and In Vitro Antimalarial Activity of Spiro-Analogues of Peroxyplakoric Acids

Yun Li, Qi Zhang, Sergio Wittlin, Hong-Xia Jin, Yikang Wu

Tetrahedron, In Press, Accepted Manuscript, Available online 18 June 2009

Four 1,2,7-trioxa-spiro[5.5]undecanes and two 1,6,7-trioxa-spiro[4.5]decane were synthesized using the hydrogen peroxide in UHP (urea-H₂O₂ complex) as the source of the peroxy bond. Incorporation of H₂O₂ into the organic molecular framework was facilitated by the potential to form a five- or six membered cyclic hemiketal. Saturation of the double bond in a substituted γ -keto-butenal, a step required in all the syntheses, was achieved in one case with NaI/conc. HCl at low temperature without cleaving the TBS protecting group or causing excessive side reactions as observed at ambient temperature. All these peroxides showed in vitro antimalarial activity comparable to that of natural peroxyplakoric acids and the known analogues. <http://tinyurl.com/psna8o>

Characterization of the Phospholipidogenic Potential of 4(1H)-Pyridone Antimalarial Derivatives

María Jesús Almela, Pedro Alfonso Torres, Sonia Lozano, Esperanza Herreros

Toxicology in Vitro, In Press, Accepted Manuscript, Available online 18 June 2009

Drug-induced phospholipidosis (PLD) is characterized by the excessive accumulation of phospholipids in lysosomes. It is accompanied by intracellular retention of drug that could be associated with increased cytotoxicity. Drug-induced PLD is recognized as a significant challenge

for drug development, depending on the severity of the effect it could be reversible or caused cell death. Therefore, the identification at early stages of drug discovery of the potential to induce PLD can be advantageous for selecting improved development candidates. <http://tinyurl.com/n92jcl>

The epidemiology of malaria among pregnant women attending antenatal clinics in an area with intense and highly seasonal malaria transmission in northern Ghana

Christine Alexandra Clerk, Jane Bruce, Brian Greenwood, Daniel Chandramohan

Tropical Medicine & International Health, Volume 14 Issue 6, Pages 688 - 695, DOI 10.1111/j.1365-3156.2009.02280.x

The prevalence of malaria parasitaemia and anaemia among pregnant women in Kassena-Nankana district is high with marked seasonal variation. Targeting of interventions to the high transmission season and to paucigravidae may be appropriate in this setting. <http://tinyurl.com/nt9o7a>

Video

Malaria: No Ordinary Mosquito Bite

HIV Atlas

A video showing the dangers of Malaria, how easily it can spread, and it's effects on humans. <http://tinyurl.com/nzvl2n>

News

Africa

24 June 2009, Daily Sun

Nigeria: Group battles malaria in Lagos community

Commenting on the outcome of the first Roll Back Malaria programme at Ira Nla Ajah, President of the IOF, Mr Ikechukwu Okogbue, said he was overwhelmed by the turnout at the event. He explained that the medical team made efforts to ensure that everybody that came to the programme got drugs and mosquito treated nets. <http://tinyurl.com/mttngf>

24 June 2009, The Monitor

Uganda: Conserving Wetlands to Eradicate Poverty

For a long time, wetlands in Uganda were condemned and seen as dangerous habitat that provide breeding ground for deadly reptiles, animals and insects such as the anopheles mosquito that causes malaria. <http://tinyurl.com/np9gdg>

23 June 2009, The Citizen Daily

United Republic of Tanzania: We shall kick malaria out, says Minister

Sustainable strategies are in place to ensure that Tanzania becomes a malaria free country, the Parliament was told in Dodoma yesterday. <http://tinyurl.com/nfgy4b>

23 June 2009, Ghana Broadcasting Corporation

Ghana: Nationwide malaria control programme launched

The programme on the theme "Getting rid of mosquitoes – Getting rid of malaria" is a collaborative effort of the Ministry of Health (MOH), Ministry of Local Government and Rural Development and Zoomlion; a Waste Management Company. <http://tinyurl.com/nysvqp>

23 June 2009, Daily Nation

Kenya: New hurdles in malaria war

Public health facilities could be contributing to drug resistance in malaria treatment. A study conducted by scientists from the Great Lakes University of Kisumu says management, administrative factors, and policy issues played an important role in anti-malarial drug resistance. <http://tinyurl.com/loeu94>

22 June 2009, AngolaPress

Angola: Over 200 cases of malaria recorded at Ondjiva Hospital

The Central Hospital of Ondjiva City's Southern Cunene Province has recorded 249 cases of malaria of children aged between zero to 13 years on April-May this year, on Monday said the head of that session, Lúcia de Fátima, Angop has learnt. <http://tinyurl.com/mx88fh>

22 June 2009, AFP

Senegal: Senegalese singer Ndour opens anti-malaria drive

Senegalese singer Youssou Ndour has used his star power to draw attention to the fight against malaria in his west African homeland, kicking off a new awareness campaign about the disease. <http://tinyurl.com/m2gx06>

21 June 2009, Africa Science News Service

Kenya: Global Fund to Fight AIDS, TB, and Malaria in Crisis

The war against Malaria, Tuberculosis and HIV and AIDS in Africa is likely to suffer a set back with the latest news that The Global Fund to Fight AIDS, Tuberculosis, and Malaria is currently facing a major financing shortfall. <http://tinyurl.com/l6v8me>

18 June 2009, New Vision

Uganda: Mosquito Net Use Should Be Monitored

The Government will start distributing mosquito nets to all Ugandans in September. In opening a new front against the disease, which is the number one killer in Uganda, the Government plans to import 17.4 million nets, enough to allow every two people in the country share a net. <http://tinyurl.com/nnxh4j>

17 June 2009, New Vision

Uganda: All Ugandans to get free mosquito nets

All Ugandans will be given free insecticide-treated mosquito nets, the health ministry has said, adding that their distribution will start in September. <http://tinyurl.com/mrzj88>

Asia

23 June 2009, Channel News Asia

Singapore: Another case of vivax malaria in Sungei Kadut area

There is now another case of vivax malaria in Sungei Kadut/Mandai Estate area. This brings the total number of cases in the cluster to 14. <http://tinyurl.com/lslhap>

23 June 2009, Times of India

India: Link workers' issues may prove fatal for anti-malaria drive

Delayed monsoon might have come as a blessing in disguise for Ahmedabad Municipal Corporation (AMC) authorities as they

have managed to buy time from the 1,000-odd striking link workers who are responsible for carrying out door-to-door disease detection activities, primarily for anti-malaria drive. <http://tinyurl.com/lgeatc>

22 June 2009, Times of India

India: Spurt in Majorda malaria cases causes concern

A sudden spurt in cases of malaria at a construction site in Majorda has become a matter of grave concern to the public and illustrates a

pressing need for careful surveillance, even as health authorities commenced measures to curb the spread of the disease. <http://tinyurl.com/mg2gb3>

21 June 2009, Kuensel, Bhutan's National Newspaper

Bhutan: Malaria early this year

With 123 malaria cases recorded early this year, which started in March, contrary to its usual beginning in April, Sarpang dzongkhag has reported the most malaria infections among the five southern malaria prone dzongkhags in the country. <http://tinyurl.com/l5n7kq>

21 June 2009, MorungExpress

India: Comic book on malaria awareness campaign

A Tale of Two Magic Potions aims to spread malaria awareness in India, especially in North East India, where the disease is more prevalent. The comic book is the first in a series of health comics intended to entertain, engage and educate school-going children, the pillars of tomorrow's society. <http://tinyurl.com/kruhza>

20 June 2009, Times of India

India: Malaria kills more people than Maoists in Orissa

Bhubaneswar: Killings by Maoists in Orissa attract a lot of attention, but malaria claims many more lives in the remote villages across the

state and not much note is taken of them. <http://tinyurl.com/ma3986>

20 June 2009, Times of India

India: Malaria breaks out in Bokaro villages

Bokaro: Outbreak of malaria in over half a dozen villages under the Kasmar and Jaridih blocks of the district has triggered alarm in the district

health department. As many as 115 cases of malaria have been reported in the said blocks this month. <http://tinyurl.com/kke7zn>

19 June 2009, Xinhua

China: Singapore maintains strict control over malaria

Singapore maintains strict vector controls in place over the recent discovered malaria cases here, a senior Singapore official said on Friday. <http://tinyurl.com/l3kxfv>

18 June 2009, Reuters India

India: Experts uncover how malaria gets into host cells

Parasites which cause malaria appear to be using a handful of proteins to steal into the red blood cells of their hosts, scientists have found. <http://tinyurl.com/n4tw4a>

18 June 2009, Hindu

India: Two ways to close the gates on malaria

Recall the saying "there are a thousand ways to skin a cat"? Researchers are rephrasing it in regard to the mosquito. Fifty years ago, we thought that the war against malaria was pretty much won. <http://tinyurl.com/mgwbps>

17 June 2009, Times of India

India: Major fall in number of Malarial cases

Varanasi: Believe it or not, despite facing lack of resources including manpower crunch for effective drive against malaria, the district has

managed to witness decline in the number of positive malarial cases in the region. <http://tinyurl.com/lyq49d>

Oceania

22 June 2009, The Australian

Australia: Scientists find weak link in malaria

Australian molecular scientists have made a breakthrough in the battle against malaria, identifying a weakness in the virulent mosquito-borne parasite that could lead to the development of more potent and targeted drugs. <http://tinyurl.com/puojw4>

Americas

22 June 2009, Chemical & Engineering News

USA: Shipping Malaria's Weapons

Malaria parasites living in human red blood cells hide in compartments called vacuoles, leaving researchers to wonder how the pathogen injects virulent proteins into the cell's cytosol. Now, a team based in Australia reports the discovery of a malaria protein machine that establishes itself in the vacuole membrane to do the hostile trafficking. <http://tinyurl.com/obye2z>

20 June 2009, WTOP

USA: Giant mosquito spreads malaria prevention word

Washington - Don't laugh. A giant mosquito is on the National Mall this weekend. Instead of spreading disease, this mosquito is spreading the word about preventing malaria. <http://tinyurl.com/lngg9h>

18 June 2009, EurekAlert (press release)

USA: Proceedings of NIAID workshop on immunity to malaria published

On March 16-17, 2009, the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health, convened a workshop to encourage more immunologists to enter malaria research and to foster scientific collaborations that may help lead to the development of effective malaria vaccines. The proceedings of that meeting are in the July 2009 issue of Nature Immunology, and available online June 18. <http://tinyurl.com/m3knu8>

17 June 2009, Business Wire (press release)

USA: Seattle Rotary Announces Partnership with PATH to Address Malaria in Africa

Last week, the Rotary Club of Seattle launched a malaria initiative with Seattle-based PATH to begin the club's second century of service. Seattle Rotary will provide resources to lead a pilot program in the Republic of Zambia to efficiently distribute lifesaving bednets to remote areas. <http://tinyurl.com/nr8not>

17 June 2009, PR Newswire (press release)

USA: House Subcommittee Markup Leaves Global Fund to Fight AIDS, TB, and Malaria in Crisis

The Global Fund to Fight AIDS, Tuberculosis, and Malaria is currently facing a major financing shortfall. <http://tinyurl.com/klwprd>

Europe

22 June 2009, New Scientist

UK: Why we mustn't let malaria defences crumble

Reports from Cambodia that malaria is developing resistance to artemisinin have set alarm bells ringing. Artemisinins are the best drugs we have to treat malaria, and until recently there have been no reports of resistance. <http://tinyurl.com/nz8cpg>

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