

6 Anhang

6.1 Literaturverzeichnis

- Abdalla S, Weatherall DJ. The direct antiglobulin test in *P. falciparum* malaria. Br J Haematol 1982; 51 (3): 415-25.
- Abdalla SH. Hematopoiesis in human malaria. Blood Cells 1990; 16 (2-3): 401-16; discussion 417-9.
- Abdulhadi NH. Protection against severe clinical manifestations of *Plasmodium falciparum* malaria among sickle cell trait subjects is due to modification of the release of cytokines and/or cytoadherence of infected erythrocytes to the host vascular beds. Med Hypotheses 2003; 60 (6): 912-4.
- Abu-Zeid YA, Abdulhadi NH, Theander TG, et al. Seasonal changes in cell mediated immune responses to soluble *Plasmodium falciparum* antigens in children with haemoglobin AA and haemoglobin AS. Trans R Soc Trop Med Hyg 1992; 86 (1): 20-2.
- Agarwal A, Guindo A, Cissoko Y, et al. Hemoglobin C associated with protection from severe malaria in the Dogon of Mali, a West African population with a low prevalence of hemoglobin S. Blood 2000; 96 (7): 2358-63.
- Aidoo M, McElroy PD, Kolczak MS, et al. Tumor necrosis factor-alpha promoter variant 2 (TNF2) is associated with pre-term delivery, infant mortality, and malaria morbidity in western Kenya: Asembo Bay Cohort Project IX. Genet Epidemiol 2001; 21 (3): 201-11.
- Aidoo M, Terlouw DJ, Kolczak MS, et al. Protective effects of the sickle cell gene against malaria morbidity and mortality. Lancet 2002; 359 (9314): 1311-2.
- Aikawa M, Iseki M, Barnwell JW, et al. The pathology of human cerebral malaria. Am J Trop Med Hyg 1990; 43 (2 Pt 2): 30-7.
- Allen SJ, Bennett S, Riley EM, et al. Morbidity from malaria and immune responses to defined *Plasmodium falciparum* antigens in children with sickle cell trait in The Gambia. Trans R Soc Trop Med Hyg 1992; 86 (5): 494-8.
- Allen SJ, O'Donnell A, Alexander ND, et al. alpha+-Thalassemia protects children against disease caused by other infections as well as malaria. Proc Natl Acad Sci U S A 1997; 94 (26): 14736-41.
- Allison AC. Polymorphism and Natural Selection in Human Populations. Cold Spring Harb Symp Quant Biol 1964; 29: 137-49.
- Allison AC. Protection afforded by sickle-cell trait against subtropical malareal infection. Br Med J 1954; 4857: 290-4.
- Altman DG. Practical statistics for medical research. 6th ed. London, England: Chapman & Hall/CRC, 1999.
- Aluoch JR. Higher resistance to *Plasmodium falciparum* infection in patients with homozygous sickle cell disease in western Kenya. Trop Med Int Health 1997; 2 (6): 568-71.
- al-Yaman FM, Genton B, Clark IA. The ratio of reactive nitrogen intermediates to tumour necrosis factor and clinical outcome of falciparum malaria disease. Trans R Soc Trop Med Hyg 1998; 92 (4): 417-20.

- Angus BJ, Chotivanich K, Udomsangpetch R, et al. In vivo removal of malaria parasites from red blood cells without their destruction in acute falciparum malaria. *Blood* 1997; 90 (5): 2037-40.
- Anstey NM, Granger DL, Hassanali MY, et al. Nitric oxide, malaria, and anemia: inverse relationship between nitric oxide production and hemoglobin concentration in asymptomatic, malaria-exposed children. *Am J Trop Med Hyg* 1999; 61 (2): 249-52.
- Anstey NM, Weinberg JB, Hassanali MY, et al. Nitric oxide in Tanzanian children with malaria: inverse relationship between malaria severity and nitric oxide production/nitric oxide synthase type 2 expression. *J Exp Med* 1996; 184 (2): 557-67.
- Arie T, Fairhurst RM, Brittain NJ, et al. Hemoglobin C modulates the surface topography of Plasmodium falciparum-infected erythrocytes. *J Struct Biol* 2005; 150 (2): 163-9.
- Ayi K, Turrini F, Piga A, et al. Enhanced phagocytosis of ring-parasitized mutant erythrocytes: a common mechanism that may explain protection against falciparum malaria in sickle trait and beta-thalassemia trait. *Blood* 2004; 104 (10): 3364-71.
- Baird JK, Owusu Agyei S, Utz GC, et al. Seasonal malaria attack rates in infants and young children in northern Ghana. *Am J Trop Med Hyg* 2002; 66 (3): 280-6.
- Barham D, Trinder P. An improved colour reagent for the determination of blood glucose by the oxidase system. *Analyst* 1972; 97 (151): 142-5.
- Bayoumi RA, Abu-Zeid YA, Abdulhadi NH, et al. Cell-mediated immune responses to Plasmodium falciparum purified soluble antigens in sickle-cell trait subjects. *Immunol Lett* 1990; 25 (1-3): 243-9.
- Beppu M, Mizukami A, Nagoya M, et al. Binding of anti-band 3 autoantibody to oxidatively damaged erythrocytes. Formation of senescent antigen on erythrocyte surface by an oxidative mechanism. *J Biol Chem* 1990; 265 (6): 3226-33.
- Berkley J, Mwarumba S, Bramham K, et al. Bacteraemia complicating severe malaria in children. *Trans R Soc Trop Med Hyg* 1999; 93 (3): 283-6.
- Biemba G, Dolmans D, Thuma PE, et al. Severe anaemia in Zambian children with Plasmodium falciparum malaria. *Trop Med Int Health* 2000; 5 (1): 9-16.
- Bienzle U, Ayeni O, Lucas AO, et al. Glucose-6-phosphate dehydrogenase and malaria. Greater resistance of females heterozygous for enzyme deficiency and of males with non-deficient variant. *Lancet* 1972; 1 (7742): 107-10.
- Bienzle U, Harms G. Anämien in den Tropen. In: Lang W & Löscher T (Hrsg.): *Tropenmedizin in Klinik und Praxis*. Stuttgart-New York: Georg Thieme Verlag, 2000: 545.
- Binka FN, Morris SS, Ross DA, et al. Patterns of malaria morbidity and mortality in children in northern Ghana. *Trans R Soc Trop Med Hyg* 1994; 88 (4): 381-5.
- Black J, Hommel M, Snounou G, et al. Mixed infections with Plasmodium falciparum and P malariae and fever in malaria. *Lancet* 1994; 343 (8905): 1095.
- Bojang KA, Palmer A, Boele van Hensbroek M, et al. Management of severe malarial anaemia in Gambian children. *Trans R Soc Trop Med Hyg* 1997; 91 (5): 557-61.
- Booth F, Mead SV. Resistance to lysis of erythrocytes containing haemoglobin C--detected in a differential white cell counting system. *J Clin Pathol* 1983; 36 (7): 816-8.

- Bottius E, Guanzirolli A, Trape JF, et al. Malaria: even more chronic in nature than previously thought; evidence for subpatent parasitaemia detectable by the polymerase chain reaction. *Trans R Soc Trop Med Hyg* 1996; 90 (1): 15-9.
- Bouvier P, Rougemont A, Breslow N, et al. Seasonality and malaria in a west African village: does high parasite density predict fever incidence? *Am J Epidemiol* 1997; 145 (9): 850-7.
- Brabin BJ, Prinsen-Geerligs PD, Verhoeff FH, et al. Haematological profiles of the people of rural southern Malawi: an overview. *Ann Trop Med Parasitol* 2004; 98 (1): 71-83.
- Brabin L, Burkot TR, Brabin BJ, et al. The relationship between splenomegaly and antibody to the circumsporozoite protein of *Plasmodium falciparum* in two groups of women with high and low enlarged spleen rates in Madang, Papua New Guinea. *Trans R Soc Trop Med Hyg* 1990; 84 (1): 40-5.
- Bradley-Moore AM, Greenwood BM, Bradley AK, et al. Malaria chemoprophylaxis with chloroquine in young Nigerian children. IV. Its effect on haematological measurements. *Ann Trop Med Parasitol* 1985; 79 (6): 585-95.
- Bray RS, Garnham PC. The life-cycle of primate malaria parasites. *Br Med Bull* 1982; 38 (2): 117-22.
- Browne EN, Frimpong E, Sievertsen J, et al. Malariaometric update for the rainforest and savanna of Ashanti region, Ghana. *Ann Trop Med Parasitol* 2000; 94 (1): 15-22.
- Buch P, Prichep R, Rosner F. Sickle cell trait with splenic infarcts. *N Y State J Med* 1982; 82 (7): 1087-8.
- Bunyaratvej A, Butthep P, Kaewkettong P, et al. Malaria protection in hereditary ovalocytosis: relation to red cell deformability, red cell parameters and degree of ovalocytosis. *Southeast Asian J Trop Med Public Health* 1997; 28 Suppl 3: 38-42.
- Burchard GD, Browne EN, Sievertsen J, et al. Spleen size determined by ultrasound in patients with sickle cell trait, HbAC trait and glucose-6-phosphate-dehydrogenase deficiency in a malaria hyperendemic area (Ashanti Region, Ghana). *Acta Trop* 2001; 80 (2): 103-9.
- Butcher GA, Clark IA. The inhibition of *Plasmodium falciparum* growth in vitro by sera from mice infected with malaria or treated with TNF. *Parasitology* 1990; 101 Pt 3: 321-6.
- Cappadoro M, Giribaldi G, O'Brien E, et al. Early phagocytosis of glucose-6-phosphate dehydrogenase (G6PD)-deficient erythrocytes parasitized by *Plasmodium falciparum* may explain malaria protection in G6PD deficiency. *Blood* 1998; 92 (7): 2527-34.
- Carlson J. Erythrocyte rosetting in *Plasmodium falciparum* malaria--with special reference to the pathogenesis of cerebral malaria. *Scand J Infect Dis Suppl* 1993; 86: 1-79.
- Carlson J. Inborn Resistance to Malaria. In: Wahlgren M & Perlmann P (Hrsg.): *Malaria-Molecular and Clinical Aspects*. Stockholm: harwood academic publishers, 1999: 363-372.
- Carlson J, Helmby H, Hill AV, et al. Human cerebral malaria: association with erythrocyte rosetting and lack of anti-rosetting antibodies. *Lancet* 1990; 336 (8729): 1457-60.
- Carlson J, Nash GB, Gabutti V, et al. Natural protection against severe *Plasmodium falciparum* malaria due to impaired rosette formation. *Blood* 1994; 84 (11): 3909-14.
- Carme B, Rogier C, Trape JF. Risk factors for severe malaria: importance of careful study design: a reply. *Trans R Soc Trop Med Hyg* 2000; 94 (1): 89.

- Castro O, Winter WP. Sickle cell trait and nonhypoxic splenic infarction. *Jama* 1978; 240 (14): 1484.
- Chen Q, Schlichtherle M, Wahlgren M. Molecular aspects of severe malaria. *Clin Microbiol Rev* 2000; 13 (3): 439-50.
- Chiwakata CB, Hemmer CJ, Dietrich M. High levels of inducible nitric oxide synthase mRNA are associated with increased monocyte counts in blood and have a beneficial role in Plasmodium falciparum malaria. *Infect Immun* 2000; 68 (1): 394-9.
- Clark IA, Chaudhri G. Tumour necrosis factor may contribute to the anaemia of malaria by causing dyserythropoiesis and erythrophagocytosis. *Br J Haematol* 1988; 70 (1): 99-103.
- Clasing D. Stellenwert der Laktatbestimmung in der Leistungsdiagnostik. Stuttgart: Gustav Fischer, 1994: 275.
- Clendennen TE, 3rd, Long GW, Baird JK. QBC and Giemsa-stained thick blood films: diagnostic performance of laboratory technologists. *Trans R Soc Trop Med Hyg* 1995; 89 (2): 183-4.
- Coene J. Malaria in urban and rural Kinshasa: the entomological input. *Med Vet Entomol* 1993; 7 (2): 127-37.
- Colbourne MJ, Edington GM. Sickling and malaria in the Gold Coast. *Br Med J* 1956; (4970): 784-6.
- Contamin H, Fandeur T, Bonnefoy S, et al. PCR typing of field isolates of Plasmodium falciparum. *J Clin Microbiol* 1995; 33 (4): 944-51.
- Cooke GS, Hill AV. Genetics of susceptibility to human infectious disease. *Nat Rev Genet* 2001; 2 (12): 967-77.
- Cramer JP, Mockenhaupt FP, Ehrhardt S, et al. iNOS promoter variants and severe malaria in Ghanaian children. *Trop Med Int Health* 2004; 9 (10): 1074-80.
- Dallman PR, Barr GD, Allen CM, et al. Hemoglobin concentration in white, black, and Oriental children: is there a need for separate criteria in screening for anemia? *Am J Clin Nutr* 1978; 31 (3): 377-80.
- Dekker E, Hellerstein MK, Romijn JA, et al. Glucose homeostasis in children with falciparum malaria: precursor supply limits gluconeogenesis and glucose production. *J Clin Endocrinol Metab* 1997; 82 (8): 2514-21.
- Delley V, Bouvier P, Breslow N, et al. What does a single determination of malaria parasite density mean? A longitudinal survey in Mali. *Trop Med Int Health* 2000; 5 (6): 404-12.
- Diallo D, Traore AK, Baby M, et al. Haemoglobinopathies C and S in the Dogons. *Nouv Rev Fr Hematol* 1994; 35 (6): 551-4.
- Diallo DA, Doumbo OK, Dicko A, et al. A comparison of anemia in hemoglobin C and normal hemoglobin A children with Plasmodium falciparum malaria. *Acta Trop* 2004; 90 (3): 295-9.
- Dolo A, Modiano D, Maiga B, et al. Difference in susceptibility to malaria between two sympatric ethnic groups in Mali. *Am J Trop Med Hyg* 2005; 72 (3): 243-8.
- Dondorp AM, Kager PA, Vreeken J, et al. Abnormal blood flow and red blood cell deformability in severe malaria. *Parasitol Today* 2000; 16 (6): 228-32.

- Ducrocq R, Bennani M, Bellis G, et al. Hemoglobinopathies in the Dogon Country: presence of beta S, beta C, and delta A' genes. *Am J Hematol* 1994; 46 (3): 245-7.
- Edington GM, Lehmann H. A case of sickle cell; haemoglobin C disease and a survey of haemoglobin C incidence in West Africa. *Trans R Soc Trop Med Hyg* 1954; 48 (4): 332-6.
- Edington GM, Lehmann H. Sickle-cell trait and malaria in Africa. *Bull World Health Organ* 1956; 15 (3-5): 837-42.
- Ehrhardt S, Mockenhaupt FP, Agana-Nsiire P, et al. Efficacy of chloroquine in the treatment of uncomplicated, *Plasmodium falciparum* malaria in northern Ghana. *Ann Trop Med Parasitol* 2002; 96 (3): 239-47.
- el Samani FZ, Willett WC, Ware JH. Nutritional and socio-demographic risk indicators of malaria in children under five: a cross-sectional study in a Sudanese rural community. *J Trop Med Hyg* 1987; 90 (2): 69-78.
- Elhassan IM, Hviid L, Jakobsen PH, et al. High proportion of subclinical *Plasmodium falciparum* infections in an area of seasonal and unstable malaria in Sudan. *Am J Trop Med Hyg* 1995; 53 (1): 78-83.
- Engelke DR, Hoener PA, Collins FS. Direct sequencing of enzymatically amplified human genomic DNA. *Proc Natl Acad Sci U S A* 1988; 85 (2): 544-8.
- Facer CA. Direct antiglobulin reactions in Gambian children with *P. falciparum* malaria. III. Expression of IgG subclass determinants and genetic markers and association with anaemia. *Clin Exp Immunol* 1980; 41 (1): 81-90.
- Facer CA. Direct Coombs antiglobulin reactions in Gambian children with *Plasmodium falciparum* malaria. II. Specificity of erythrocyte-bound IgG. *Clin Exp Immunol* 1980; 39 (2): 279-88.
- Facer CA, Bray RS, Brown J. Direct Coombs antiglobulin reactions in Gambian children with *Plasmodium falciparum* malaria. I. Incidence and class specificity. *Clin Exp Immunol* 1979; 35 (1): 119-27.
- Fairhurst RM, Baruch DI, Brittain NJ, et al. Abnormal display of PfEMP-1 on erythrocytes carrying haemoglobin C may protect against malaria. *Nature* 2005; 435 (7045): 1117-21.
- Fairhurst RM, Fujioka H, Hayton K, et al. Aberrant development of *Plasmodium falciparum* in hemoglobin CC red cells: implications for the malaria protective effect of the homozygous state. *Blood* 2003; 101 (8): 3309-15.
- Farnert A, Rooth I, Svensson, et al. Complexity of *Plasmodium falciparum* infections is consistent over time and protects against clinical disease in Tanzanian children. *J Infect Dis* 1999; 179 (4): 989-95.
- Farnert A, Snounou G, Rooth I, et al. Daily dynamics of *Plasmodium falciparum* subpopulations in asymptomatic children in a holoendemic area. *Am J Trop Med Hyg* 1997; 56 (5): 538-47.
- Faye FB, Spiegel A, Tall A, et al. Diagnostic criteria and risk factors for *Plasmodium ovale* malaria. *J Infect Dis* 2002; 186 (5): 690-5.
- Fleming AF, Storey J, Molineaux L, et al. Abnormal haemoglobins in the Sudan savanna of Nigeria. I. Prevalence of haemoglobins and relationships between sickle cell trait, malaria and survival. *Ann Trop Med Parasitol* 1979; 73 (2): 161-72.

- Fleming AF, Werblinska B. Anaemia in childhood in the guinea savanna of Nigeria. *Ann Trop Paediatr* 1982; 2 (4): 161-73.
- Flint J, Harding RM, Boyce AJ, et al. The population genetics of the haemoglobinopathies. *Baillieres Clin Haematol* 1993; 6 (1): 215-62.
- Flint J, Harding RM, Boyce AJ, et al. The population genetics of the haemoglobinopathies. *Baillieres Clin Haematol* 1998; 11 (1): 1-51.
- Fortin A, Stevenson MM, Gros P. Susceptibility to malaria as a complex trait: big pressure from a tiny creature. *Hum Mol Genet* 2002; 11 (20): 2469-78.
- Friedman MJ. Erythrocytic mechanism of sickle cell resistance to malaria. *Proc Natl Acad Sci U S A* 1978; 75 (4): 1994-7.
- Friedman MJ. Ultrastructural damage to the malaria parasite in the sickled cell. *J Protozool* 1979; 26 (2): 195-9.
- Friedman MJ, Roth EF, Nagel RL, et al. Plasmodium falciparum: physiological interactions with the human sickle cell. *Exp Parasitol* 1979; 47 (1): 73-80.
- Friedman MJ, Roth EF, Nagel RL, et al. The role of hemoglobins C, S, and Nbalt in the inhibition of malaria parasite development in vitro. *Am J Trop Med Hyg* 1979; 28 (5): 777-80.
- Gbadegesin RA, Sodeinde O, Adeyemo AA, et al. Body temperature is a poor predictor of malaria parasitaemia in children with acute diarrhoea. *Ann Trop Paediatr* 1997; 17 (1): 89-94.
- Gilles HM, Fletcher KA, Hendrickse RG, et al. Glucose-6-phosphate-dehydrogenase deficiency, sickling, and malaria in African children in South Western Nigeria. *Lancet* 1967; 1 (7482): 138-40.
- Gilles HM, Warrell DA. Bruce-Chwatts's essential malariology. 3rd ed. London [u. a.]: Arnold, 1993: 132 - 135.
- Gillespie DA, Hardman N. Microbubbles in replicating nuclear deoxyribonucleic acid from *Physarum polycephalum*. *Biochem J* 1979; 183 (2): 477-80.
- Glenister FK, Coppel RL, Cowman AF, et al. Contribution of parasite proteins to altered mechanical properties of malaria-infected red blood cells. *Blood* 2002; 99 (3): 1060-3.
- Greenwood B, Marsh K, Snow R. Why do some African children develop severe malaria? *Parasitol Today* 1991; 7 (10): 277-81.
- Greenwood BM. The epidemiology of malaria. *Ann Trop Med Parasitol* 1997; 91 (7): 763-9.
- Guggenmoos-Holzmann I, Wernecke K. Medizinische Statistik. Berlin [u.a.]: Blackwell, 1995.
- Guinet F, Diallo DA, Minta D, et al. A comparison of the incidence of severe malaria in Malian children with normal and C-trait hemoglobin profiles. *Acta Trop* 1997; 68 (2): 175-82.
- Haldane JBS. Disease and evolution. *La Ricerca Scientifica* 1949; Suppl. A 19: : 68-76.
- Haqqi TM, Sarkar G, David CS, et al. Specific amplification with PCR of a refractory segment of genomic DNA. *Nucleic Acids Res* 1988; 16 (24): 11844.
- Hebbel RP. The sickle erythrocyte in double jeopardy: autoxidation and iron decompartmentalization. *Semin Hematol* 1990; 27 (1): 51-69.
- Heinze G, Ploner M. Fixing the nonconvergence bug in logistic regression with SPLUS and SAS. *Comput Methods Programs Biomed* 2003; 71 (2): 181-7.

- Heinze G, Schemper M. A solution to the problem of separation in logistic regression. *Stat Med* 2002; 21 (16): 2409-19.
- Helmby H, Cavelier L, Pettersson U, et al. Rosetting Plasmodium falciparum-infected erythrocytes express unique strain-specific antigens on their surface. *Infect Immun* 1993; 61 (1): 284-8.
- Hill AV. Malaria resistance genes: a natural selection. *Trans R Soc Trop Med Hyg* 1992; 86 (3): 225-6, 232.
- Hill AV, Allsopp CE, Kwiatkowski D, et al. Common west African HLA antigens are associated with protection from severe malaria. *Nature* 1991; 352 (6336): 595-600.
- Hobbs MR, Udhayakumar V, Levesque MC, et al. A new NOS2 promoter polymorphism associated with increased nitric oxide production and protection from severe malaria in Tanzanian and Kenyan children. *Lancet* 2002; 360 (9344): 1468-75.
- Hogh B. Clinical and parasitological studies on immunity to Plasmodium falciparum malaria in children. *Scand J Infect Dis Suppl* 1996; 102: 1-53.
- Hogh B, Marbiah NT, Burghaus PA, et al. Relationship between maternally derived anti-Plasmodium falciparum antibodies and risk of infection and disease in infants living in an area of Liberia, west Africa, in which malaria is highly endemic. *Infect Immun* 1995; 63 (10): 4034-8.
- Hogh B, Marbiah NT, Petersen E, et al. A longitudinal study of seroreactivities to Plasmodium falciparum antigens in infants and children living in a holoendemic area of Liberia. *Am J Trop Med Hyg* 1991; 44 (2): 191-200.
- Hommel M. [Physiopathology of symptoms of malaria. Role of cytokines, cytoadherence and premunition]. *Presse Med* 1996; 25 (2): 70-6.
- Jakobsen PH, Bate CA, Taverne J, et al. Malaria: toxins, cytokines and disease. *Parasite Immunol* 1995; 17 (5): 223-31.
- Jarra W, Snounou G. Only viable parasites are detected by PCR following clearance of rodent malarial infections by drug treatment or immune responses. *Infect Immun* 1998; 66 (8): 3783-7.
- Kahigwa E, Schellenberg D, Sanz S, et al. Risk factors for presentation to hospital with severe anaemia in Tanzanian children: a case-control study. *Trop Med Int Health* 2002; 7 (10): 823-30.
- Kennedy JR. Malaria: a vaccine concept based on sickle haemoglobin's augmentation of an innate autoimmune process to band 3. *Int J Parasitol* 2001; 31 (11): 1275-7.
- Kleihauer E, Kohne E, Kulozik A. Bedeutung der β (S)-Globingenhaplotypen, Hämoglobin C-Anomalie und HbC-Krankheit. In: Kleihauer E (Hrsg.): Anomale Hämoglobine und Thalassämiesyndrome: Grundlagen und Klinik. Landsberg: ecomed, 1996: 112-114,153-156.
- Koch O, Awomoyi A, Usen S, et al. IFN γ R1 gene promoter polymorphisms and susceptibility to cerebral malaria. *J Infect Dis* 2002; 185 (11): 1684-7.
- Kofoed PE, Rodrigues A, Co F, et al. Which children come to the health centre for treatment of malaria? *Acta Trop* 2004; 90 (1): 17-22.
- Koram KA, Bennett S, Adiamah JH, et al. Socio-economic risk factors for malaria in a peri-urban area of The Gambia. *Trans R Soc Trop Med Hyg* 1995; 89 (2): 146-50.

- Koram KA, Owusu-Agyei S, Fryauff DJ, et al. Seasonal profiles of malaria infection, anaemia, and bednet use among age groups and communities in northern Ghana. *Trop Med Int Health* 2003; 8 (9): 793-802.
- Koram KA, Owusu-Agyei S, Utz G, et al. Severe anemia in young children after high and low malaria transmission seasons in the Kassena-Nankana district of northern Ghana. *Am J Trop Med Hyg* 2000; 62 (6): 670-4.
- Kreienbrock L, Schach S. Epidemiologische Methoden. 3. Aufl. Heidelberg [u.a.]: Spektrum, Akad. Verl., 2000.
- Kremsner PG, Winkler S, Wildling E, et al. High plasma levels of nitrogen oxides are associated with severe disease and correlate with rapid parasitological and clinical cure in *Plasmodium falciparum* malaria. *Trans R Soc Trop Med Hyg* 1996; 90 (1): 44-7.
- Kun JF, Mordmuller B, Perkins DJ, et al. Nitric oxide synthase 2(Lambarene) (G-954C), increased nitric oxide production, and protection against malaria. *J Infect Dis* 2001; 184 (3): 330-6.
- Kurtzhals JA, Helleberg M, Goka BQ, et al. Severe malaria in west African children. *Lancet* 2003; 361 (9366): 1393.
- Labie D, Richin C, Pagnier J, et al. Hemoglobins S and C in Upper Volta. *Hum Genet* 1984; 65 (3): 300-2.
- Lell B, May J, Schmidt-Ott RJ, et al. The role of red blood cell polymorphisms in resistance and susceptibility to malaria. *Clin Infect Dis* 1999; 28 (4): 794-9.
- Livingstone FB. Hemoglobin history in West Africa. *Hum Biol* 1976; 48 (3): 487-500.
- Low PS. Role of hemoglobin denaturation and band 3 clustering in initiating red cell removal. *Adv Exp Med Biol* 1991; 307: 173-83.
- Lukens J. The Abnormal Hemoglobins: General Principles. In: Lee GR (Hrsg.): *Wintrobe's clinical hematology*. Philadelphia: Lippincott Williams and Wilkins, 1999: 1: 1329-1397.
- Luty AJ, Kun JF, Kremsner PG. Mannose-binding lectin plasma levels and gene polymorphisms in *Plasmodium falciparum* malaria. *J Infect Dis* 1998; 178 (4): 1221-4.
- Lutz HU, Gianora O, Nater M, et al. Naturally occurring anti-band 3 antibodies bind to protein rather than to carbohydrate on band 3. *J Biol Chem* 1993; 268 (31): 23562-6.
- Luzzatto L. Genetics of red cells and susceptibility to malaria. *Blood* 1979; 54 (5): 961-76.
- Luzzatto L, Bienzle U. The malaria/G.-6-P.D. hypothesis. *Lancet* 1979; 1 (8127): 1183-4.
- Luzzatto L, Nwachukwu-Jarrett ES, Reddy S. Increased sickling of parasitised erythrocytes as mechanism of resistance against malaria in the sickle-cell trait. *Lancet* 1970; 1 (7642): 319-21.
- Luzzi GA, Merry AH, Newbold CI, et al. Surface antigen expression on *Plasmodium falciparum*-infected erythrocytes is modified in alpha- and beta-thalassemia. *J Exp Med* 1991; 173 (4): 785-91.
- Maitland K, Williams TN, Bennett S, et al. The interaction between *Plasmodium falciparum* and *P. vivax* in children on Espiritu Santo island, Vanuatu. *Trans R Soc Trop Med Hyg* 1996; 90 (6): 614-20.
- MARA/ARMA (2002). LITE for Africa (Low-end Information Tool - Malaria), MARA/ARMA.
- Marsh K. Malaria--a neglected disease? *Parasitology* 1992; 104 Suppl: S53-69.

- Marsh K, Otoo L, Hayes RJ, et al. Antibodies to blood stage antigens of Plasmodium falciparum in rural Gambians and their relation to protection against infection. *Trans R Soc Trop Med Hyg* 1989; 83 (3): 293-303.
- Marsh K, Snow RW. Malaria transmission and morbidity. *Parassitologia* 1999; 41 (1-3): 241-6.
- Mason DP, McKenzie FE, Bossert WH. The blood-stage dynamics of mixed Plasmodium malariae-Plasmodium falciparum infections. *J Theor Biol* 1999; 198 (4): 549-66.
- May J, Falusi AG, Mockenhaupt FP, et al. Impact of subpatent multi-species and multi-clonal plasmodial infections on anaemia in children from Nigeria. *Trans R Soc Trop Med Hyg* 2000; 94 (4): 399-403.
- May J, Mockenhaupt FP, Ademowo OG, et al. High rate of mixed and subpatent malarial infections in southwest Nigeria. *Am J Trop Med Hyg* 1999; 61 (2): 339-43.
- McGuinness D, Koram K, Bennett S, et al. Clinical case definitions for malaria: clinical malaria associated with very low parasite densities in African infants. *Trans R Soc Trop Med Hyg* 1998; 92 (5): 527-31.
- McGuire W, Hill AV, Allsopp CE, et al. Variation in the TNF-alpha promoter region associated with susceptibility to cerebral malaria. *Nature* 1994; 371 (6497): 508-10.
- McGuire W, Knight JC, Hill AV, et al. Severe malarial anemia and cerebral malaria are associated with different tumor necrosis factor promoter alleles. *J Infect Dis* 1999; 179 (1): 287-90.
- Mehta CR, Patel NR. Exact Inference for Categorical Data. In: Armitage P & Colton T (Hrsg.): *Encyclopedia of Biostatistics*. New York: John Wiley and Sons LTD, 1998: 6: 1411-1422.
- Menendez C, Fleming AF, Alonso PL. Malaria-related anaemia. *Parasitol Today* 2000; 16 (11): 469-76.
- Mensah OA, Kumaranayake L. Malaria incidence in rural Benin: does economics matter in endemic area? *Health Policy* 2004; 68 (1): 93-102.
- Miller LH, Baruch DI, Marsh K, et al. The pathogenic basis of malaria. *Nature* 2002; 415 (6872): 673-9.
- Miller LH, Good MF, Milon G. Malaria pathogenesis. *Science* 1994; 264 (5167): 1878-83.
- Miller LH, Mason SJ, Clyde DF, et al. The resistance factor to Plasmodium vivax in blacks. The Duffy-blood-group genotype, FyFy. *N Engl J Med* 1976; 295 (6): 302-4.
- Mockenhaupt FP, Bienzle U, May J, et al. Plasmodium falciparum infection: influence on hemoglobin levels in alpha-thalassemia and microcytosis. *J Infect Dis* 1999; 180 (3): 925-8.
- Mockenhaupt FP, Ehrhardt S, Burkhardt J, et al. Manifestation and outcome of severe malaria in children in northern Ghana. *Am J Trop Med Hyg* 2004; 71 (2): 167-72.
- Mockenhaupt FP, Ehrhardt S, Gellert S, et al. Alpha(+)-thalassemia protects African children from severe malaria. *Blood* 2004; 104 (7): 2003-6.
- Mockenhaupt FP, Ehrhardt S, Otchwemah R, et al. Limited influence of haemoglobin variants on Plasmodium falciparum msp1 and msp2 alleles in symptomatic malaria. *Trans R Soc Trop Med Hyg* 2004; 98 (5): 302-10.

- Mockenhaupt FP, May J, Bergqvist Y, et al. Evidence for a reduced effect of chloroquine against Plasmodium falciparum in alpha-thalassaemic children. *Trop Med Int Health* 2001; 6 (2): 102-7.
- Mockenhaupt FP, Rong B, Gunther M, et al. Anaemia in pregnant Ghanaian women: importance of malaria, iron deficiency, and haemoglobinopathies. *Trans R Soc Trop Med Hyg* 2000; 94 (5): 477-83.
- Mockenhaupt FP, Rong B, Till H, et al. Short report: increased susceptibility to Plasmodium malariae in pregnant alpha(+)thalassemic women. *Am J Trop Med Hyg* 2001; 64 (1-2): 6-8.
- Modiano D, Luoni G, Sirima BS, et al. Haemoglobin C protects against clinical Plasmodium falciparum malaria. *Nature* 2001; 414 (6861): 305-8.
- Modiano D, Petrarca V, Sirima BS, et al. Different response to Plasmodium falciparum in west African sympatric ethnic groups: possible implications for malaria control strategies. *Parassitologia* 1999; 41 (1-3): 193-7.
- Mohandas N, Lie-Injo LE, Friedman M, et al. Rigid membranes of Malayan ovalocytes: a likely genetic barrier against malaria. *Blood* 1984; 63 (6): 1385-92.
- Molineaux L, Storey J, Cohen JE, et al. A longitudinal study of human malaria in the West African Savanna in the absence of control measures: relationships between different Plasmodium species, in particular P. falciparum and P. malariae. *Am J Trop Med Hyg* 1980; 29 (5): 725-37.
- Molyneux ME, Taylor TE, Wirima JJ, et al. Clinical features and prognostic indicators in paediatric cerebral malaria: a study of 131 comatose Malawian children. *Q J Med* 1989; 71 (265): 441-59.
- Mota MM, Pradel G, Vanderberg JP, et al. Migration of Plasmodium sporozoites through cells before infection. *Science* 2001; 291 (5501): 141-4.
- Muller O, Traore C, Kouyate B, et al. Effects of insecticide-treated bednets during early infancy in an African area of intense malaria transmission: a randomized controlled trial. *Bull World Health Organ* 2006; 84 (2): 120-6.
- Murphy SC, Breman JG. Gaps in the childhood malaria burden in Africa: cerebral malaria, neurological sequelae, anemia, respiratory distress, hypoglycemia, and complications of pregnancy. *Am J Trop Med Hyg* 2001; 64 (1-2 Suppl): 57-67.
- Nagel RL. Innate resistance to malaria: the intraerythrocytic cycle. *Blood Cells* 1990; 16 (2-3): 321-39; discussion 340-9.
- Newbold C, Warn P, Black G, et al. Receptor-specific adhesion and clinical disease in Plasmodium falciparum. *Am J Trop Med Hyg* 1997; 57 (4): 389-98.
- Newton CR, Hien TT, White N. Cerebral malaria. *J Neurol Neurosurg Psychiatry* 2000; 69 (4): 433-41.
- Newton CR, Krishna S. Severe falciparum malaria in children: current understanding of pathophysiology and supportive treatment. *Pharmacol Ther* 1998; 79 (1): 1-53.
- Newton CR, Taylor TE, Whitten RO. Pathophysiology of fatal falciparum malaria in African children. *Am J Trop Med Hyg* 1998; 58 (5): 673-83.
- O'Brien RT, Pearson HA, Godley JA, et al. Splenic infarct and sickle-(cell) trait. *N Engl J Med* 1972; 287 (14): 720.

- Olson JA, Nagel RL. Synchronized cultures of *P falciparum* in abnormal red cells: the mechanism of the inhibition of growth in HbCC cells. *Blood* 1986; 67 (4): 997-1001.
- Olumese PE, Adeyemo AA, Ademowo OG, et al. The clinical manifestations of cerebral malaria among Nigerian children with the sickle cell trait. *Ann Trop Paediatr* 1997; 17 (2): 141-5.
- Oski FA, Brugnara C, Nathan DG. A diagnostic approach to the anemic patient. In: Nathan DG & Orkin SH (Hrsg.): *Nathan and Oski's hematology of infancy and childhood*. Philadelphia: W.B. Saunders, 1998: 1: 375-384.
- Pasvol G. Cell-cell interaction in the pathogenesis of severe falciparum malaria. *Clin Med* 2001; 1 (6): 495-500.
- Pasvol G, Weatherall DJ, Wilson RJ. Cellular mechanism for the protective effect of haemoglobin S against *P. falciparum* malaria. *Nature* 1978; 274 (5672): 701-3.
- Pasvol G, Weatherall DJ, Wilson RJ. Effects of foetal haemoglobin on susceptibility of red cells to *Plasmodium falciparum*. *Nature* 1977; 270 (5633): 171-3.
- Pasvol G, Weatherall DJ, Wilson RJ, et al. Fetal haemoglobin and malaria. *Lancet* 1976; 1 (7972): 1269-72.
- Phillips RE, Looareesuwan S, Warrell DA, et al. The importance of anaemia in cerebral and uncomplicated falciparum malaria: role of complications, dyserythropoiesis and iron sequestration. *Q J Med* 1986; 58 (227): 305-23.
- Phillips RE, Pasvol G. Anaemia of *Plasmodium falciparum* malaria. *Baillieres Clin Haematol* 1992; 5 (2): 315-30.
- Power HW. A model of how the sickle-cell gene produces malaria resistance. *J Theor Biol* 1975; 50 (1): 121-7.
- Premji Z, Hamisi Y, Shiff C, et al. Anaemia and *Plasmodium falciparum* infections among young children in an holoendemic area, Bagamoyo, Tanzania. *Acta Trop* 1995; 59 (1): 55-64.
- Richie TL. Interactions between malaria parasites infecting the same vertebrate host. *Parasitology* 1988; 96 (Pt 3): 607-39.
- Rihet P, Flori L, Tall F, et al. Hemoglobin C is associated with reduced *Plasmodium falciparum* parasitemia and low risk of mild malaria attack. *Hum Mol Genet* 2004; 13 (1): 1-6.
- Ringelmann B, Hathorn MK, Jilly P, et al. A new look at the protection of hemoglobin AS and AC genotypes against plasmodium falciparum infection: a census tract approach. *Am J Hum Genet* 1976; 28 (3): 270-9.
- Roberts DJ, Williams TN. Haemoglobinopathies and resistance to malaria. *Redox Rep* 2003; 8 (5): 304-10.
- Rogier C, Commenges D, Trape JF. Evidence for an age-dependent pyrogenic threshold of *Plasmodium falciparum* parasitemia in highly endemic populations. *Am J Trop Med Hyg* 1996; 54 (6): 613-9.
- Roper C, Elhassan IM, Hviid L, et al. Detection of very low level *Plasmodium falciparum* infections using the nested polymerase chain reaction and a reassessment of the epidemiology of unstable malaria in Sudan. *Am J Trop Med Hyg* 1996; 54 (4): 325-31.
- Roth EF, Jr., Friedman M, Ueda Y, et al. Sickling rates of human AS red cells infected in vitro with *Plasmodium falciparum* malaria. *Science* 1978; 202 (4368): 650-2.

- Rowland PG, Nash GB, Cooke BM, et al. Comparative study of the adhesion of sickle cells and malarial-parasitized red cells to cultured endothelium. *J Lab Clin Med* 1993; 121 (5): 706-13.
- Ruwende C, Khoo SC, Snow RW, et al. Natural selection of hemi- and heterozygotes for G6PD deficiency in Africa by resistance to severe malaria. *Nature* 1995; 376 (6537): 246-9.
- Sachs L. *Angewandte Statistik: Anwendung statistischer Methoden*. Berlin [u.a.]: Springer, 2002.
- Said A, El-Hawary MF, Sakr R, et al. Biochemical and haematological aspects of anaemia associating protein energy malnutrition (PEM). *Gaz Egypt Paediatr Assoc* 1975; 23 (2): 139-44.
- Saiki RK, Scharf S, Faloona F, et al. Enzymatic amplification of beta-globin genomic sequences and restriction site analysis for diagnosis of sickle cell anemia. *Science* 1985; 230 (4732): 1350-4.
- Schellenberg D, Menendez C, Kahigwa E, et al. African children with malaria in an area of intense Plasmodium falciparum transmission: features on admission to the hospital and risk factors for death. *Am J Trop Med Hyg* 1999; 61 (3): 431-8.
- Sharp PA, Sugden B, Sambrook J. Detection of two restriction endonuclease activities in *Haemophilus parainfluenzae* using analytical agarose--ethidium bromide electrophoresis. *Biochemistry* 1973; 12 (16): 3055-63.
- Shear HL, Grinberg L, Gilman J, et al. Transgenic mice expressing human fetal globin are protected from malaria by a novel mechanism. *Blood* 1998; 92 (7): 2520-6.
- Slutsker L, Taylor TE, Wirima JJ, et al. In-hospital morbidity and mortality due to malaria-associated severe anaemia in two areas of Malawi with different patterns of malaria infection. *Trans R Soc Trop Med Hyg* 1994; 88 (5): 548-51.
- Snounou G, Bourne T, Jarra W, et al. Assessment of parasite population dynamics in mixed infections of rodent plasmodia. *Parasitology* 1992; 105 (Pt 3): 363-74.
- Snounou G, Viriyakosol S, Jarra W, et al. Identification of the four human malaria parasite species in field samples by the polymerase chain reaction and detection of a high prevalence of mixed infections. *Mol Biochem Parasitol* 1993; 58 (2): 283-92.
- Snounou G, Viriyakosol S, Zhu XP, et al. High sensitivity of detection of human malaria parasites by the use of nested polymerase chain reaction. *Mol Biochem Parasitol* 1993; 61 (2): 315-20.
- Sowunmi A. Body temperature and malaria parasitaemia in rural African children. *East Afr Med J* 1995; 72 (7): 427-30.
- Stoltzfus RJ. Iron-deficiency anemia: reexamining the nature and magnitude of the public health problem. Summary: implications for research and programs. *J Nutr* 2001; 131 (2S-2): 697S-700S; discussion 700S-701S.
- Stoltzfus RJ, Chwya HM, Montresor A, et al. Malaria, hookworms and recent fever are related to anemia and iron status indicators in 0- to 5-y old Zanzibari children and these relationships change with age. *J Nutr* 2000; 130 (7): 1724-33.
- Storey J, Fleming AF, Cornille-Brogger R, et al. Abnormal haemoglobins in the Sudan savanna of Nigeria. IV. Malaria, immunoglobulins and antimalarial antibodies in haemoglobin AC individuals. *Ann Trop Med Parasitol* 1979; 73 (4): 311-5.

- Sullivan S, Williams R. Reliability of clinical techniques for detecting splenic enlargement. *Br Med J* 1976; 2 (6043): 1043-4.
- Teasdale G, Jennett B. Assessment of coma and impaired consciousness. A practical scale. *Lancet* 1974; 2 (7872): 81-4.
- Thompson GR. Malaria and Stress in Relation to Haemoglobins S and C. *Br Med J* 1963; 5363: 976-8.
- Thompson GR. Significance of haemoglobins S and C in Ghana. *Br Med J* 1962; 5279: 682-5.
- Tirasophon W, Ponglikitmongkol M, Wilairat P, et al. A novel detection of a single Plasmodium falciparum in infected blood. *Biochem Biophys Res Commun* 1991; 175 (1): 179-84.
- Tirasophon W, Rajkulchai P, Ponglikitmongkol M, et al. A highly sensitive, rapid, and simple polymerase chain reaction-based method to detect human malaria (Plasmodium falciparum and Plasmodium vivax) in blood samples. *Am J Trop Med Hyg* 1994; 51 (3): 308-13.
- Tokumasu F, Fairhurst RM, Osteria GR, et al. Band 3 modifications in Plasmodium falciparum-infected AA and CC erythrocytes assayed by autocorrelation analysis using quantum dots. *J Cell Sci* 2005; 118 (Pt 5): 1091-8.
- Udomsangpetch R, Todd J, Carlson J, et al. The effects of hemoglobin genotype and ABO blood group on the formation of rosettes by Plasmodium falciparum-infected red blood cells. *Am J Trop Med Hyg* 1993; 48 (2): 149-53.
- Weatherall DJ, Miller LH, Baruch DI, et al. Malaria and the red cell. *Hematology (Am Soc Hematol Educ Program)* 2002: 35-57.
- White NJ, Ho M. The pathophysiology of malaria. *Adv Parasitol* 1992; 31: 83-173.
- WHO. Severe falciparum malaria. World Health Organization, Communicable Diseases Cluster. *Trans R Soc Trop Med Hyg* 2000; 94 Suppl 1: S1-90.
- WHO. World malaria situation in 1994. Part I. Population at risk. *Wkly Epidemiol Rec* 1997; 72 (36): 269-74.
- Willcox M, Bjorkman A, Brohult J, et al. A case-control study in northern Liberia of Plasmodium falciparum malaria in haemoglobin S and beta-thalassaemia traits. *Ann Trop Med Parasitol* 1983; 77 (3): 239-46.
- Williams TN, Maitland K, Bennett S, et al. High incidence of malaria in alpha-thalassaemic children. *Nature* 1996; 383 (6600): 522-5.
- Williams TN, Maitland K, Ganczakowski M, et al. Red blood cell phenotypes in the alpha + thalassaemias from early childhood to maturity. *Br J Haematol* 1996; 95 (2): 266-72.
- Williams TN, Wambua S, Uyoga S, et al. Both heterozygous and homozygous {alpha}+thalassemia protect against severe and fatal Plasmodium falciparum malaria on the coast of Kenya. *Blood* 2005.
- Yoeli M, Sklarsh J. The course of simultaneously inoculated, concomitant infections with Plasmodium vinckeii and Plasmodium berghei in white mice. *Trans R Soc Trop Med Hyg* 1970; 64 (2): 271-5.