

MEDLARS BIBLIOGRAPHY

PUBLICATIONS OF RELEVANCE TO PAPUA NEW GUINEA AND MELANESIA

Bibliographic Citation List generated from MEDLARS

- 1 **Aswani S.**
Assessing the effects of changing demographic and consumption patterns on sea tenure regimes in the Roviana Lagoon, Solomon Islands.
Ambio 2002 Jun;31(4):272-284.
This paper investigates how sea tenure institutions in the Roviana Lagoon, Solomon Islands, mediate among population, consumption, and the environment. The focus is on explaining how growth in population and consumption alter sea tenure regimes, and the factors that shape either their institutional robustness or vulnerability. The paper also addresses the regional differences among sea tenure institutional arrangements, the processes that are producing them, and the social and environmental outcomes of these institutions as they engage external forces and internal changes. A major question is how existing forms of sea tenure respond comparatively when faced with parallel demographic and economic transformations. Two villages representing different sea tenure arrangements within the Roviana Lagoon are compared. Results show that inhabitants in these villages perceive their systems of sea tenure governance similarly; yet their managerial responses to changes brought about by growth in population and consumption differ, and the responses produce contrasting environmental effects.
- 2 **Baird JK, Wiady I, Sutanihardja A, Suradi, Purnomo, Basri H, Sekartuti, Ayomi E, Fryauff DJ, Hoffman SL.**
Short report: therapeutic efficacy of chloroquine combined with primaquine against *Plasmodium falciparum* in northeastern Papua, Indonesia.
Am J Trop Med Hyg 2002 Jun;66(6):659-660.
Chloroquine combined with primaquine was evaluated for therapy of uncomplicated malaria caused by *Plasmodium falciparum* in nonimmune Javanese migrants to northeastern Papua, Indonesia. Subjects were randomized to treatment with standard chloroquine therapy (25 mg/kg in 3 doses over the course of 48 hours) with 30 mg primaquine administered daily for 28 days (n=25) or a placebo of primaquine (n=28). The 14-day cumulative incidence of therapeutic failure was 56% with primaquine and 79% with placebo (odds ratio [OR], 0.35; 95% confidence interval [CI], 0.1-1.3; p=0.08). Primaquine administered daily created a marginally significant improvement in therapeutic efficacy at day 14, but not at day 7 (20% versus 36%; OR, 0.2; 95% CI, 0.1-1.8; p=0.2) or day 28 (82% versus 93%; OR, 0.31; 95% CI, 0.04-2.1; p=0.23). This report corroborates studies suggesting that therapeutic doses of primaquine exert no discernible effect on parasitemia by *P. falciparum*.
- 3 **Barsby T, Kelly MT, Andersen RJ.**
Tupuseleiamides and basiliskamides, new acyl dipeptides and antifungal polyketides produced in culture by a *Bacillus laterosporus* isolate obtained from a tropical marine habitat.
J Nat Prod 2002 Oct;65(10):1447-1451.
Laboratory cultures of PNG 276, a *Bacillus laterosporus* isolate obtained from coastal waters off Papua New Guinea, have been shown to produce the novel metabolites basiliskamide A (1), basiliskamide B (2), tupuseleiamide A (3), and tupuseleiamide B (4). The structures of 1 to 4 were elucidated by analysis of spectroscopic data and chemical degradation. Basiliskamides A (1) and B (2) show potent in vitro anti-*Candida* activity.
- 4 **Becker AE, Burwell RA, Gilman SE, Herzog DB, Hamburg P.**
Eating behaviours and attitudes following prolonged exposure to television among ethnic Fijian adolescent girls.
Br J Psychiatry 2002 Jun;180:509-514.
BACKGROUND: There are no published studies evaluating the impact of introduction of television on disordered eating in media-naive populations. AIMS: To assess the impact of novel, prolonged exposure to television on disordered eating attitudes and behaviours among ethnic Fijian adolescent girls. METHOD: A prospective, multi-wave cross-sectional design was used to compare two samples of Fijian schoolgirls before and after prolonged regional television exposure with a modified 26-item eating attitudes test, supplemented with a semi-structured interview to confirm self-reported symptoms. Narrative data from a subset of respondents from the exposed sample were analysed for content relating television exposure to body image concerns. RESULTS: Key indicators of disordered eating were significantly more prevalent following exposure. Narrative data revealed subjects' interest in weight loss as a means of modelling themselves after television characters. CONCLUSIONS: This naturalistic experiment suggests a negative impact of television upon disordered eating attitudes and behaviours in a media-naive population.
- 5 **Berlioz-Arthaud A, Baumann F.**
[The seroprevalence of HIV in pregnant women in New Caledonia: an assessment of 1 year of surveillance.][Fr]
Bull Soc Pathol Exot 2002 Jun;95(2):109-114.
OBJECTIVES: To evaluate the HIV prevalence among pregnant women in New Caledonia and to analyse the uptake of testing among the patients according to their demographic data. METHOD: The study was based on statistical exploitation of anonymously recorded HIV test results during the follow-up of pregnant women. The first 12-month assessment of this monitoring (April 1999-March 2000) is reported. RESULTS: 88.6% of the 3380

patients were tested for HIV, significantly less in Wallisian and Melanesian groups of women. Two results were positive, which corresponds to a prevalence of 0.66 ± 0.45 per thousand (0.21-1.11 per 1000) within the studied group. Although our study is not representative of this situation, lack of testing for women undergoing an abortion was frequent. CONCLUSION: This study indicates that offering HIV testing in pregnancy follow-up is fairly systematic and most often accepted. Evidently, there is a need for adjusting of pre-test counselling to the cultural and ethnic characteristics of the woman, to the preparedness of medical staff as well as to the problem of HIV screening in abortion management. Our prevalence data also show that New Caledonia ranks among countries of low endemicity for HIV where pregnant women are concerned.

6 **Boutlis CS, Gowda DC, Naik RS, Maguire GP, Mgone CS, Bockarie MJ, Lagog M, Ibam E, Lorry K, Anstey NM.**

Antibodies to *Plasmodium falciparum* glycosylphosphatidylinositols: inverse association with tolerance of parasitemia in Papua New Guinean children and adults.
Infect Immun 2002 Sep;70(9):5052-5057.

Individuals living in regions of intense malaria transmission exhibit natural immunity that facilitates persistence of parasitemia at controlled densities for much of the time without symptoms. This aspect of immunity has been referred to as malarial "tolerance" and is thought to partly involve inhibition of the chain of events initiated by a parasite toxin(s) that may otherwise result in cytokine release and symptoms such as fever. Antibodies to the candidate *Plasmodium falciparum* glycosylphosphatidylinositol (GPI) toxin have been viewed as likely mediators of such tolerance. In this study, the relationship between antibodies to *P. falciparum* GPIs, age, and parasitemia was determined in asymptomatic children and adults living in Madang, Papua New Guinea. The prevalence and intensity of antibody responses increased with age and were lowest in children 1 to 4 years old with the highest-density parasitemias. In children of this age group who were tolerant of parasitemia during the study, only 8.3% had detectable immunoglobulin G (IgG) and none had IgM antibodies to GPI. This suggests that anti-GPI antibodies are unlikely to be the sole mediator of malarial tolerance, especially in children younger than 5 years. Following antimalarial treatment, clearance of parasitemia led to a fall in anti-GPI IgG response in children and adolescents within 6 weeks. As anti-GPI antibodies potentially play a role in protecting against disease progression, our results caution against the treatment of asymptomatic parasitemia and suggest that generation of a sustained antibody response in children poses a challenge to novel antitoxic vaccination strategies.

7 **Brooks PA, Grace RF.**

Ivermectin is better than benzyl benzoate for childhood scabies in developing countries.
J Paediatr Child Health 2002 Aug;38(4):401-404.

OBJECTIVE: To compare single-dose oral ivermectin with topical benzyl benzoate for the treatment of paediatric scabies. METHODS: An

observer-blinded randomized controlled trial was undertaken at Vila Central Hospital, Vanuatu. One hundred and ten children aged from 6 months to 14 years were randomized to receive either ivermectin 200 micro g/kg orally or 10% benzyl benzoate topically. Follow-up was at 3 weeks post-treatment. Primary outcome measures were the number of scabies lesions, the itch visual analogue score and nocturnal itch. Secondary outcome measures were the skin's reaction to treatment, the passage of worms in stool and other side-effects. RESULTS: Eighty patients completed the study protocol. There was no significant difference between the two treatments; both produced a significant decrease in the number of scabies lesions seen at follow-up. Ivermectin cured 24 out of 43 patients (56%), and benzyl benzoate 19 out of 37 patients (51%) at 3 weeks post-treatment. No serious side-effects were noted with either treatment, but benzyl benzoate was more likely to produce local skin reactions ($p=0.004$, OR 6.4, 95% CI 1.6-25.0). CONCLUSIONS: Ivermectin is cheap and effective in the treatment of paediatric scabies. Ivermectin has minimal observed toxicity and has the additional beneficial effects of antiparasitic action in onchocerciasis, filariasis and strongyloidiasis. Ivermectin is better than benzyl benzoate for the treatment of paediatric scabies in developing countries.

8 **Brownson D, Mabry T, Leslie S.**

The cycad neurotoxic amino acid, ss-N-methylamino-L-alanine (BMAA), elevates intracellular calcium levels in dissociated rat brain cells.
J Ethnopharmacol 2002 Oct;82(2-3):159.

Seeds of the Guam cycad *Cycas micronesica* K.D. Hill (Cycadaceae), which contain ss-methylamino-L-alanine (BMAA), have been implicated in the etiology of the devastating neurodegenerative ALS-PDC that is found among the native Chamorros on Guam. The disease also occurs in the native populations in Irian Jaya and the Kii Peninsula of Japan, and in all three areas the cycad seeds are used either dietarily or medically. ALS-PDC is a complex of amyotrophic lateral sclerosis and parkinsonism dementia complex with additional symptoms of Alzheimer's. It is well known that $Ca(2+)$ elevations in brain cells can lead to cell death and neurodegeneration. Therefore, we evaluated the ability of the cycad toxin BMAA to elevate the intracellular calcium concentration ($[Ca(2+)](i)$) in dissociated newborn rat brain cells loaded with fura-2 dye. BMAA produced an increase in intracellular calcium levels in a concentration-dependent manner. The increases were dependent not only on extracellular calcium concentrations, but also significantly on the presence of bicarbonate ion. Increasing concentrations of sodium bicarbonate resulted in a potentiation of the BMAA-induced $[Ca(2+)](i)$ elevation. The bicarbonate dependence did not result from the increased sodium concentration or alkalization of the buffer. Our results support the hypothesis that the neurotoxicity of BMAA is due to an excitotoxic mechanism, involving elevated intracellular calcium levels and bicarbonate. Furthermore, since BMAA alone produced no increase in $Ca(2+)$ levels, these results suggest the involvement of a product of BMAA and CO_2 , namely a beta-carbamate, which has a

structure similar to other excitatory amino acids (EAA) such as glutamate; thus, the causative agent for ALS-PDC on Guam and elsewhere may be the beta-carbamate of BMAA. These findings support the theory that some forms of other neurodegenerative diseases may also involve environmental toxins.

9 **Bruce MC, Day KP.**

Cross-species regulation of malaria parasitaemia in the human host.

Curr Opin Microbiol 2002 Aug;5(4):431-437.

Longitudinal genetic analysis of the composition of malaria parasites infecting humans has demonstrated that individuals living in endemic areas are chronically infected with multiple genotypes and species of *Plasmodium*. The accumulation of infections is a consequence of superinfection from the bites of many infected anopheline mosquitoes. The clinical outcome of infection is determined by the host's ability to regulate the density of malaria parasites in the blood. Interestingly, most infections do not cause symptoms of malarial disease after a degree of immunity is acquired. Here, we review data from the first genetic study of the longitudinal dynamics of multiple *Plasmodium* species and genotypes in humans. The data show that the total parasite density of *Plasmodium* species oscillates around a threshold and that peaks of infection with each species do not coincide. We propose that malaria parasitaemia is controlled in a density-dependent manner in these semi-immune children. This implies that a cross-species mechanism of parasite regulation exists. A model of how multiple immune responses could act in concert to explain these within-host dynamics is discussed in relation to known regulatory mechanisms.

10 **Burnett JW, Pfau R.**

Aquatic antagonists: *Catalaphyllia jardinei* sting. *Cutis* 2002 Jul;70(1):27-28.

Catalaphyllia jardinei is a blue-green soft coral whose red-violet tipped tentacles have made it a very colorful, popular animal prized by amateur aquarists. Its normal habitat is the Indo-Pacific area from Seychelles through Vanuatu and from Northern Australia to Southern Japan. It is regarded as mildly venomous. However, to our knowledge, no reports exist on its sting's effects on man.

11 **Caldwell JC, Isaac-Toua G.**

AIDS in Papua New Guinea: situation in the Pacific. *J Health Popul Nutr* 2002 Jun;20(2):104-111.

There has long been reason to anticipate a major heterosexual epidemic of acquired immunodeficiency syndrome (AIDS) in Papua New Guinea (PNG) and probably in the rest of Melanesia. From the social and behavioural perspectives, Melanesia is strikingly similar to other areas of the world with serious epidemics of AIDS. High levels of other sexually transmitted infections indicate behaviour patterns that would also facilitate transmission of human immunodeficiency virus (HIV) and presence of cofactors for HIV infection. Low levels of male circumcision parallel the situation in other epidemic areas. Near-parity by sex in cases reported so far in PNG is evidence that primary infection is largely heterosexual. The late start of a major epidemic in

PNG can probably be attributed to: (a) the relatively small aggregation of people in urban centres (even Port Moresby has only one-quarter of a million people); (b) a highway system that does not network across the whole country; (c) limited size of the organized commercial sex sector; and (d) possibly low level of chancroid to act as a cofactor. The situation is now changing. Over the last seven years, HIV infection, probably the highest in Port Moresby and mostly measured there, has been rising by about 60% per annum. This rise is genuine and, if sustained, would infect 10% of the adult population of PNG in little more than 12 years. Some countries of sub-Saharan Africa have witnessed such exponential rises.

12 **Carreel F, Gonzalez de Leon D, Lagoda P, Lanaud C, Jenny C, Horry JP, Tezenas du Montcel H.**

Ascertaining maternal and paternal lineage within *Musa* by chloroplast and mitochondrial DNA RFLP analyses.

Genome 2002 Aug;45(4):679-692.

In banana, the maternal transmission of chloroplast DNA and paternal transmission of the mitochondrial DNA provides an exceptional opportunity for studying the maternal and paternal lineage of clones. In the present study, RFLP combined with hybridization of heterologous mitochondrial and chloroplast probes have been used to characterize 71 wild accessions and 131 diploid and 103 triploid cultivated clones. In addition to *Musa acuminata* and *Musa balbisiana*, other species from the four *Musa* sections were studied to investigate their contribution to the origin of cultivated bananas. These molecular analyses enable the classification of the *Musa* complex to be discussed. Results ascertain relationships among and between the wild accessions and the mono- and interspecific diploid and triploid bananas, particularly for the acuminata genome. Parthenocarpic varieties are shown to be linked to *M. acuminata banksii* and *M. acuminata errans*, thus suggesting that the first center of domestication was in the Philippines-New Guinea area.

13 **Chen N, Baker J, Ezard N, Burns M, Edstein MD, Cheng Q.**

Short report: Molecular evaluation of the efficacy of chloroquine treatment of uncomplicated *Plasmodium falciparum* malaria in East Timor.

Am J Trop Med Hyg 2002 Jul;67(1):64-66.

The efficacy of chloroquine treatment of uncomplicated *Plasmodium falciparum* malaria in East Timor was investigated via molecular tools. Genotyping of the polymorphic markers msp1 and msp2 was performed to investigate the number and type of parasite alleles in pre- and post-treatment blood samples collected from 48 patients. Patients were infected with a minimum of 8 msp1 and 14 msp2 allelic types of parasite, and 43% of the patients had more than one allelic type before treatment. The genotyping also revealed that 66.7% of the patients were infected with at least one identical allelic type of parasite before and after treatment and therefore were likely to have experienced recrudescence. All parasites in pre- and post-treatment blood samples carried the K76T mutation in pfcr, regardless of the clinical response to chloroquine. The sequence

polymorphism patterns in *pfcr* in the majority of parasites examined were identical to those observed in Bougainville, Papua New Guinea.

14 **Ciasullo L, Cutignano A, Casapullo A, Puliti R, Mattia CA, Debitus C, Riccio R, Gomez-Paloma L.**

A new cycloamphilectene metabolite from the Vanuatu sponge *Axinella* sp.

J Nat Prod 2002 Aug;65(8):1210-1212.

A new diterpene, N-formyl-7-amino-11-cycloamphilectene (1), was isolated from the apolar extract of the Vanuatu sponge *Axinella* sp. The structure and relative stereochemistry were established by spectroscopic and single-crystal X-ray studies.

15 **Cole-Tobian JL, Cortes A, Baisor M, Kastens W, Xainli J, Bockarie M, Adams JH, King CL.**

Age-acquired immunity to a *Plasmodium vivax* invasion ligand, the Duffy binding protein.

J Infect Dis 2002 Aug 15;186(4):531-539.

The interaction between the *Plasmodium vivax* merozoite Duffy binding protein region II (DBPII) and the human erythrocyte Duffy antigen leads to infection. Highly polymorphic regions of this protein may have arisen as a mechanism to avoid host immunity. To examine whether immunity to *P. vivax* is directed against these polymorphic regions of DBPII, age-associated changes in the frequency of specific DBPII alleles among 358 *P. vivax*-positive Papua New Guineans were examined. Although the overall number and diversity of DBPII haplotypes simultaneously infecting an individual decreased with increasing age, only certain alleles at particular loci declined in frequency, indicating preferential immune selection against these alleles. One such polymorphic locus formed part of a B cell epitope, and antibodies from exposed individuals differentially recognized alleles at this locus. Therefore, acquisition of strain-specific age-acquired immunity is partially directed against polymorphic motifs within *P. vivax* DBPII, suggesting that these polymorphisms are maintained and likely arose under immune pressure in the host.

16 **Cooper RD, Frances SP.**

Malaria vectors on Buka and Bougainville islands, Papua New Guinea.

J Am Mosq Control Assoc 2002 Jun;18(2):100-106.

Anophelines were sampled from 82 locations on Buka and Bougainville islands in Papua New Guinea by larval collections, carbon dioxide-baited mosquito traps, and human biting catches. *Anopheles farauti* s.s. was collected in larval surveys but infrequently in mosquito traps on both islands; on Buka Island this species was readily collected in human biting catches. *Anopheles farauti* 2 was commonly collected in larval surveys on both islands; however, it was not collected in either mosquito traps or human biting catches. *Anopheles punctulatus* was found only on Buka Island, where it was commonly collected as larvae, but rarely in human biting catches and mosquito traps. *Anopheles lungae* was collected as larvae from only 1 site on Bougainville. *Anopheles farauti* s.s. fed consistently throughout the night (1900-0600 h); small peaks at midnight and dawn were not statistically significant. Of 1156 *An. farauti* s.s. specimens examined by enzyme-linked immunosorbent assay for

malaria sporozoites, 20 were found to be positive; 12 were positive for *Plasmodium falciparum* and 8 were positive for *P. vivax* (247 variant = 5; 210 variant = 3). *Anopheles farauti* s.s. seems to be the major malaria vector on these islands, whereas *An. punctulatus* may play a minor role on Buka Island. *Anopheles farauti* 2 is unlikely to be involved in malaria transmission on Buka or Bougainville islands.

17 **Cronin SJ, Sharp DS.**

Environmental impacts on health from continuous volcanic activity at Yasur (Tanna) and Ambrym, Vanuatu.

Int J Environ Health Res 2002 Jun;12(2):109-123.

Continuous low-level basaltic volcanic activity, from Yasur Volcano in Tanna, and Marum and Benbow vents on Ambrym, occurred for as long as records have been kept in Vanuatu. The potential chronic health implications for the inhabitants of these two areas were investigated in a preliminary environmental sampling program. The focus was particularly on fluoride and other volcanic gas-derived chemical contamination in areas surrounding the volcanic centres. Little immediate contamination of the environment was evident for areas affected by volcanic ash and gas on Tanna, with water fluoride concentrations being elevated (to 0.42 mg/l) only within a lake adjacent to the active volcanic cone. Selected re-sampling in April 2001 following the long active phase of Yasur, revealed higher F levels in surface waters (to 1.05 mg/l). Analysis of cow rib bone and teeth indicated a possible long-term accumulation of F in grazing animals, which probably consume F-bearing volcanic ash and gas hydrates on the surface of plant leaves. No human impacts (including stress and respiratory problems) were noted, probably due to the constant and familiar low-level activity, plus the coarse nature of most ash ejecta. Ambrym appears to be a more F-concentrated system than Tanna, with volcanic ash containing 281 total and 36.7-43.6 soluble mg F/kg (cf. 178 total and 7.3-9.1 soluble mg F/kg on Tanna), and water levels reaching up to 2.8 mg F/l in rainwater tanks. The drinking water F levels on Ambrym are higher than WHO recommended levels, despite being sampled during a substantial lull in eruptive activity, and signal potential for chronic dental and skeletal fluorosis.

18 **Curran SR, Agardy T.**

Common property systems, migration, and coastal ecosystems.

Ambio 2002 Jun;31(4):303-305.

Common property systems are a critical institution mediating the relationship between population change and environmental outcomes, especially in coastal and marine ecosystems. Evidence from El Salvador; Goa, India; and the Solomon Islands demonstrates how the social structures and institutions stemming from patterns of human migration variably influence environmental outcomes through their effects on common property resource institutions. In each of the case studies, the demographic phenomenon is not population growth or a change in numbers, but an underlying process that affects population size and growth rates: i.e. migration and associated social relations that result from or cause more migration.

The following 3 cases studies provide the respective historical and cultural context to show that there is a nonlinear link between population and environment, which when explored reveals the importance of understanding how individuals and communities are embedded in sets of social relations that must be considered when evaluating environmental policies or when determining the causes of environmental degradation.

19 Duke T, Mokela D, Frank D, Michael A, Paulo T, Mgone J, Kurubi J.

Management of meningitis in children with oral fluid restriction or intravenous fluid at maintenance volumes: a randomised trial.

Ann Trop Paediatr 2002 Jun;22(2):145-157.

A multi-centre randomised open trial was done to determine whether moderate oral fluid restriction or intravenous fluid at full maintenance volumes would result in a better outcome for children with bacterial meningitis in Papua New Guinea, and what clinical signs could guide fluid management. Children with clinical signs and cerebrospinal fluid suggestive of bacterial meningitis received either breast milk by nasogastric tube at 60% of normal maintenance volumes (n=172) or intravenous half-normal saline and 5% dextrose at 100% of normal maintenance volumes (n =174) for the 1st 48 hrs of treatment. An adverse outcome was death or severe neurological sequelae, and a good outcome was defined as intact survival or survival with at worst mild-to-moderate neurological sequelae. The probability of an adverse outcome was 24.7% in the intravenous group and 33.1% in the oral-restricted group, but the difference was not statistically significant (RR 0.75, 0.53-1.04, p=0.08). Sunken eyes or reduced skin turgor at presentation were risk factors for an adverse outcome (OR 5.70, 95% CI 2.87-11.29) and were most strongly associated with adverse outcome in the fluid-restricted group. Eyelid oedema during treatment was also a risk factor for an adverse outcome (OR 2.54, 95% CI 1.36-4.75) and eyelid oedema was much more common in the intravenous group (26%) than in the restricted group (5%). For many children with bacterial meningitis in less developed countries, moderate fluid restriction is unnecessary and will be harmful; a normal state of hydration should be achieved but over-hydration should be avoided. Giving 100% of normal maintenance fluids, especially with intravenous hypotonic fluid, will lead to oedema in up to one quarter of children with bacterial meningitis. If additional intravenous fluids are required for children with meningitis, an isotonic solution should be used.

20 Edrada RA, Ebel R, Supriyono A, Wray V, Schupp P, Steube K, van Soest R, Proksch P.

Swinhoeiamide A, a new highly active calyculin derivative from the marine sponge *Theonella swinhoei*.

J Nat Prod 2002 Aug;65(8):1168-1172.

Analysis of the Papua New Guinean sponge *Theonella swinhoei* afforded a new calyculinamide-related congener for which we propose the name swinhoeiamide A (1). The structure of the new compound was unambiguously established on the basis of NMR spectroscopic (¹H, ¹³C, COSY,

HMBC) and mass spectrometric (FABMS) data. Swinhoeiamide A exhibited insecticidal activity toward neonate larvae of the polyphagous pest insect *Spodoptera littoralis* when incorporated in an artificial diet offered to the larvae in a chronic feeding bioassay (ED₅₀ 2.11 ppm, LD₅₀ 2.98 ppm). Furthermore, it was found to be fungicidal against *Candida albicans* and *Aspergillus fumigatus* (MIC 1.2 and 1.0 microg/mL, respectively).

21 Eisen DP, Saul A, Fryauff DJ, Reeder JC, Coppel RL.

Alterations in *Plasmodium falciparum* genotypes during sequential infections suggest the presence of strain-specific immunity.

Am J Trop Med Hyg 2002 Jul;67(1):8-16.

Many of the asexual stage *Plasmodium falciparum* proteins that are the targets of host protective responses are markedly polymorphic. The full repertoire of diversity is not defined for any antigen. Most studies have focused on the genes encoding merozoite surface proteins 1 and 2 (MSP1, MSP2). We explored the extent of diversity of some of the less studied merozoite surface antigens and analyzed the degree of complexity of malaria field isolates by deriving nucleotide sequences of several antigens. We have determined the genotype of apical membrane antigen 1 (AMA1) in a group of 30 field samples, collected over 29 months, from individuals living in an area of intense malaria transmission in Irian Jaya, identifying 14 different alleles. AMA1 genotyping was combined with previously determined MSP2 typing. AMA1 had the greatest power in distinguishing between isolates but methodological problems, especially when mixed infections are present, suggest it is not an ideal typing target. MSP1, MSP3, and glutamate-rich protein genotypes were also determined from a smaller group of samples, and all results were combined to derive an extended antigenic haplotype. Within this subset of 10 patients, nine different genotypes could be discerned; however, five patients were all infected with the same strain. This strain was present in individuals from two separate villages and was still present 12 months later. This strain was predominant at the first time point but had disappeared at the fourth time point. This significant change in malaria genotypes could be due to strain-specific immunity developing in this population.

22 Friedlaender JS, Gentz F, Green K, Merriwether DA.

A cautionary tale on ancient migration detection: mitochondrial DNA variation in Santa Cruz Islands, Solomon Islands.

Hum Biol 2002 Jun;74(3):453-471.

Over the past decade, the origin of the first Malayo-Polynesian settlers of the island Pacific has become a contentious issue in molecular anthropology as well as in archaeology and historical linguistics. Whether the descendants of the ancestral Malayo-Polynesian speakers moved rapidly through Indonesia and Island Melanesia in a few hundred years, or whether they were the product of considerable intermingling within the more westerly part of the latter region, it is widely accepted that they were the first humans to colonize the distant Pacific islands

beyond the central Solomon Islands approximately 3,000 years ago. The Santa Cruz Islands in the Eastern Solomons would have most likely been the first in Remote Oceania to be colonized by them. Archaeologically, the first Oceanic Austronesian settlement of this region appears to have been overlain by various later influences from groups farther west in a complex manner. Molecular anthropologists have tended to equate the spread of various Austronesian-speaking groups with a particular mitochondrial variant (a 9-base-pair [bp] deletion with specific D-loop variants). We have shown before that this is an oversimplified picture, and assumed that the Santa Cruz situation, with its series of intrusions, would be informative as to the power of mitochondrial DNA haplotype interpretations. In the Santa Cruz Islands, the 9-bp deletion is associated with a small number of very closely related hypervariable D-loop haplotypes resulting in a star-shaped Bandelt median network, suggesting a recent population expansion. This network is similar to Polynesian median networks. In a pairwise mismatch comparison, the Santa Cruz haplotypes have a bimodal distribution, with the first cluster being composed almost entirely of the 9-bp-deleted haplotypes – again attesting to their recent origins. Conversely, the nondeleted haplogroups bear signatures of more ancient origins within the general region. Therefore, while the profiles of the two sets of haplotypes indicate very distinctive origins in different populations with divergent expansion histories, the sequence of their introduction into the Santa Cruz Islands clearly does not follow simply.

23 **Goldfarb LG.**

Genetics and infectious disease: convergence at the prion.
Epidemiology 2002 Jul;13(4):379-381.

24 **Gross H, Kehraus S, Konig GM, Woerheide G, Wright AD.**

New and biologically active imidazole alkaloids from two sponges of the genus *Leucetta*.
J Nat Prod 2002 Aug;65(8):1190-1193.

Chemical investigation of two sponges, *Leucetta chagosensis* and *Leucetta cf chagosensis*, collected from the Great Barrier Reef and the Fiji Islands, respectively, has led to the isolation of three new imidazole alkaloids (1-3), along with the known compounds isonaamine B (4) and naamine A (5). The structures of the new compounds (1-3) were elucidated by employing spectroscopic techniques (NMR, MS, UV, and IR). The structures of the known compounds 4 and 5 were determined by comparison of their (1)H and (13)C NMR spectroscopic data with published values. Compounds 1 and 2 were found to be cytotoxic toward several tumor cell lines (GI(50) values ranged from 1.3 to 7.0 microg/mL).

25 **Howe M.**

Papua New Guinea faces HIV epidemic.
Lancet Infect Dis 2002 Jul;2(7):386.

26 **Huillard d'Aignaux JN, Cousens SN, Maccario J, Costagliola D, Alpers MP, Smith PG, Alperovitch A.**

The incubation period of kuru.

Epidemiology 2002 Jul;13(4):402-408.

BACKGROUND: Kuru is a transmissible spongiform encephalopathy that was identified in Papua New Guinea in the late 1950s. Several thousand cases of the disease occurred during a period of several decades. Epidemiologic investigations implicated ritual endocannibalistic funeral feasts as the likely route through which the infectious agent was spread. **METHODS:** We estimated the incubation period distribution of kuru using a back-calculation model and explored the relation among sex, age at infection, and incubation period. Key assumptions in the model were that the number of new kuru infections in a year was proportional to the number of kuru cases dying that year, and that the epidemic arose from a single case of sporadic Creutzfeldt-Jakob disease occurring around 1900. **RESULTS:** The mean incubation period of kuru was estimated at between 10.3 and 13.2 years. Point estimates of the 90th percentile ranged from 21.1 to 27.0 years. The incubation period in females was estimated to be shorter than that in males. The shortest incubation periods were estimated in adult women, who may have been exposed to the largest doses of infectious material. **CONCLUSIONS:** Our findings suggest that the relatively young age of cases of variant Creutzfeldt-Jakob disease probably reflects increased levels of exposure in young people, rather than age-dependency in the incubation period.

27 **Jülicher S, Kremsner PG, Alpers MP, Reeder JC, Kun JF.**

Restricted polymorphisms of the mannose-binding lectin gene in a population of Papua New Guinea.
Mutat Res 2002 Aug 29;505(1-2):87-91.

The human mannose-binding lectin (MBL) is an important protein of the innate immune system. MBL is able to eliminate potential pathogens by activating the complement cascade or by opsonisation. We investigated the gene and promoter region of MBL in a population from Papua New Guinea infected with *Plasmodium falciparum* parasites and measured the appropriate serum concentrations of these individuals. Their serum levels of MBL, detected by ELISA, showed a wide range with concentrations between 632 and 7325 microg/l MBL. A known polymorphism in exon 1 at codon 54 causing an amino acid exchange from Gly to Asp occurred with a low frequency of 3%. Additional to the previously reported polymorphisms in the gene and promoter region of MBL, two novel polymorphic sites were found in the promoter region. One site was in the untranslated region of the MBL gene at position +1 (G→A, termed R/S), and the second was located upstream of the gene at position -4 (G→A, termed T/U).

28 **Khan M, Omoloso A.**

Antibacterial and antifungal activities of *Dracontomelon dao*.
Fitoterapia 2002 Jul;73(4):327.

The crude methanolic extracts of the leaves, stem and root barks of *Dracontomelon dao* and their subsequent partitioning (petrol, dichloromethane, ethyl acetate, butanol) gave fractions which demonstrated a very good level of broad-spectrum antibacterial activity. The dichloromethane and butanol fractions of

the leaf were the most active. Only the leaf fractions had antifungal activity, particularly the dichloromethane and butanol.

29 **Khan M, Omoloso A.**

Antibacterial, antifungal activity of *Harpullia petiolaris*.

Fitoterapia 2002 Jul;73(4):331.

The methanol extracts of *Harpullia petiolaris* leaves, stem, root barks and heartwoods were fractionated into petrol, dichloromethane, ethyl acetate and butanol. All fractions exhibited antibacterial activity.

30 **Khan MR, Omoloso AD.**

Antibacterial, antifungal activities of *Barringtonia asiatica*.

Fitoterapia 2002 Jun;73(3):255-260.

The crude methanolic extract of *Barringtonia asiatica* (leaves, fruits, seeds, stem and root barks) and the fractions (petrol, dichloromethane, ethyl acetate, butanol) exhibited a very good level of broad-spectrum antibacterial activity. A number of fractions demonstrated antifungal activity against a number of fungi.

31 **Khan MR, Omoloso AD.**

Antibacterial activity of *Hygrophila stricta* and *Peperomia pellucida*.

Fitoterapia 2002 Jun;73(3):251-254.

The crude methanolic extracts of *Hygrophila stricta* and *Peperomia pellucida* were fractionated into petrol, dichloromethane, ethyl acetate and butanol. All the crude extracts and the fractions exhibited a very good level of broad-spectrum antibacterial activity. The fractions were more active than the crude extracts. The petrol fraction of *H. stricta* and the butanol fraction of *P. pellucida* were particularly good. No activity was noticed for the moulds tested.

32 **King SE, Mascie-Taylor CGN.**

Nutritional status of children from Papua New Guinea: associations with socioeconomic factors.

Am J Human Biol 2002 Sep-Oct;14(5):659-668.

Growth faltering has been well documented in children from Papua New Guinea, although there is evidence that broad processes of modernization, such as cash cropping, have resulted in increased body size. It is not clear, however, what household socioeconomic factors may be associated with larger body size in populations undergoing early stages of modernization. This cross-sectional study examined the nutritional status of children between birth and 5 years of age living near Kanabea, Papua New Guinea, a relatively remote outpost in the highland fringe experiencing a limited cash economy. Weight and height were measured on 260 children from 190 households. The mean z-scores of -2.26 ± 1.50 (SD) for height-for-age, -2.43 ± 1.25 for weight-for-age, and -1.34 ± 1.49 for weight-for-height are suggestive of both acute and chronic malnutrition. Using a cut-off value of $\leq -2SD$, 68.8% of the children were stunted and/or wasted. These values are similar to those from a 1992-93 survey in the district, revealing that malnutrition remains a problem in the area. In this largely traditional horticultural group, educated

mothers and mothers who spoke pidgin and/or English in addition to the local language had children with better z-scores.

33 **Ling J, Baird JK, Fryauff DJ, Sismadi P, Bangs MJ, Lacy M, Barcus MJ, Gramzinski R, Maguire JD, Kumusumangsih M, Miller GB, Jones TR, Chulay JD, Hoffman SL, Naval Medical Research Unit 2 Clinical Trial Team.**

Randomized, placebo-controlled trial of atovaquone/proguanil for the prevention of *Plasmodium falciparum* or *Plasmodium vivax* malaria among migrants to Papua, Indonesia.

Clin Infect Dis 2002 Oct 1;35(7):825-833.

The increasing prevalence of resistance to antimalarial drugs reduces options for malaria prophylaxis. Atovaquone/proguanil (Malarone; GlaxoSmithKline) has been >95% effective in preventing *Plasmodium falciparum* malaria in lifelong residents of areas of holoendemicity, but data from persons without clinical immunity or who are at risk for *Plasmodium vivax* malaria have not been described. We conducted a randomized, double-blinded study involving 297 people from areas of nonendemicity in Indonesia who migrated to Papua (where malaria is endemic) ≤ 26 months before the study period. Subjects received prophylaxis with 1 Malarone tablet (250 mg of atovaquone and 100 mg of proguanil hydrochloride; n=148) or placebo (n=149) per day for 20 weeks. Hematologic and clinical chemistry values did not change significantly. The protective efficacy of atovaquone/proguanil was 84% (95% confidence interval [CI], 44%-95%) for *P. vivax* malaria, 96% (95% CI, 72%-99%) for *P. falciparum* malaria, and 93% (95% CI, 77%-98%) overall. Atovaquone/proguanil was well tolerated, safe, and effective for the prevention of drug-resistant *P. vivax* and *P. falciparum* malaria in individuals without prior malaria exposure who migrated to Papua, Indonesia.

34 **Lum JK, Jorde LB, Schiefenhövel W.**

Affinities among Melanesians, Micronesians, and Polynesians: a neutral biparental genetic perspective.

Hum Biol 2002 Jun;74(3):413-430.

The human colonization of Remote Oceania, the vast Pacific region including Micronesia, Polynesia, and Melanesia beyond the northern Solomon Islands, ranks as one of the greatest achievements of prehistory. Many aspects of human diversity have been examined in an effort to reconstruct this late Holocene expansion. Archaeolinguistic analyses describe a rapid expansion of Austronesian-speaking "Lapita people" from Taiwan out into the Pacific. Analyses of biological markers, however, indicate genetic contributions from Pleistocene-settled Near Oceania into Micronesia and Polynesia, and genetic continuity across Melanesia. Thus, conflicts between archaeolinguistic and biological patterns suggest either linguistic diffusion or gene flow across linguistic barriers throughout Melanesia. To evaluate these hypotheses and the general utility of linguistic patterns for conceptualizing Pacific prehistory, we analyzed 14 neutral, biparental genetic (short tandem repeat) loci from 965 individuals representing 27 island Southeast Asian, Melanesian, Micronesian, and Polynesian populations. Population bottlenecks during the

colonization of Remote Oceania are indicated by a statistically significant regression of loss of heterozygosity on migration distance from island Southeast Asia ($r=0.78$, $p < 0.001$). Genetic and geographic distances were consistently correlated ($r > 0.35$, $p < 0.006$), indicating extensive gene flow primarily focused among neighboring populations. Significant correlations between linguistic and geographic patterns and between genetic and linguistic patterns depended upon the inclusion of Papuan speakers in the analyses. These results are consistent with an expansion of Austronesian-speaking populations out of island Southeast Asia and into remote Oceania, followed by substantial gene flow from Near Oceanic populations. Although linguistic and genetic distinctions correspond at times, particularly between Western and Central-Eastern Micronesia, gene flow has reduced the utility of linguistic data within Melanesia. Overall, geographic proximity is a better predictor of biparental genetic relationships than linguistic affinities.

35 **Miki K, Komase K, Mgone CS, Kawanishi R, Iijima M, Mgone JM, Asuo PG, Alpers MP, Takasu T, Mizutani T.**

Molecular analysis of measles virus genome derived from SSPE and acute measles patients in Papua New Guinea.

J Med Virol 2002 Sep;68(1):105-112.

A very high annual incidence of 56 per million population below the age of 20 years for subacute sclerosing panencephalitis (SSPE) has been reported from Papua New Guinea (PNG). In a more recent study, we have confirmed this unusual high incidence for Eastern Highlands Province (EHP) of PNG. In the study, it was observed that the vaccination rate among SSPE patients registered at Goroka Base General Hospital (GBGH) in EHP was higher than that of other infants in the province in recent years. To identify the measles virus (MV) responsible for SSPE in EHP, sequence analysis of the hypervariable region of the N gene was performed from 13 MV genomes: 2 amplified from clinical specimens of SSPE patients and 11 from acute measles patients. In 2 cases among the 11 with acute measles, nucleotide sequence of the entire H gene derived from isolated viruses was determined. Both nucleotide sequence and phylogenetic tree analyses showed that the amplified MV cDNAs were closely related to one another and belonged to the D3 genotype though they were different from any previously reported MV sequences. No genome sequences of vaccine strains were detected. These findings suggest that the MV strains prevailing in the highlands of PNG belong to genotype D3 of the MV and this wild-type MV rather than the vaccine strains was likely to be responsible for SSPE in these patients.

36 **Nakao M, Okamoto M, Sako Y, Yamasaki H, Nakaya K, Ito A.**

A phylogenetic hypothesis for the distribution of two genotypes of the pig tapeworm *Taenia solium* worldwide.

Parasitology 2002 Jun;124(Pt 6):657-662.

Genetic polymorphism was determined among 13 isolates of *Taenia solium* from various regions using

PCR-amplified sequences of 2 mitochondrial genes: cytochrome c oxidase subunit 1 and cytochrome b. The 2 phylogenies obtained were similar to each other regardless of the genes examined. The isolates from Asia (China, Thailand, Irian Jaya and India) formed a single cluster, whereas the isolates from Latin America (Mexico, Peru, Ecuador, Bolivia and Brazil) combined with those from Africa (Tanzania, Mozambique and Cameroon) to form an additional cluster. These results and historical data of swine domestication, distribution of pigs and colonization suggest that *T. solium* was introduced recently into Latin America and Africa from different regions of Europe during the colonial age, which started 500 years ago, and that the tapeworm of another origin independently spread in Asian countries.

37 **Pameh W, Ripa P, Vince J, Mueller I.**

Adoption and hospital admission in Port Moresby, Papua New Guinea.

J Trop Pediatr 2002 Oct;48(5):264-269.

We report a study of adopted children admitted to the children's wards of Port Moresby General Hospital, Papua New Guinea over a 5-month period in 2000. The proportion of hospitalized children known to be adopted was almost three times that in the children's outpatients department. Gastroenteritis and neonatal sepsis were more common causes of admission in adopted children than in the general paediatric hospital population. Admitted adopted children were lighter and shorter than the controls with no difference in weight-for-height, suggesting that stunting is the predominant nutritional problem among adopted children. These differences were even more marked in children with diagnoses other than gastroenteritis. Thirty-three (82.5%) of the adopted children had ever been bottle fed compared with 11 (13.75%) of the controls ($p=0.029$). Twelve (30%) children had been adopted because of neglect or abandonment. The biological mothers of seven of these children had died, and two children had been bought for cash. Biological mothers were more likely than the adoptive or control mothers to be single and less than 20 years of age. Knowledge of formal adoption procedures was very poor. The present study therefore shows that adoption in Papua New Guinea is not without risk and it is important that adoption should be recognized as having the potential for serious adverse effects on the child's well-being, especially since adoption is likely to become even more prevalent as the HIV epidemic continues. Consideration needs to be given to protection of the rights of children at high risk of adoption.

38 **Reeder J.**

More, but not better.

Trends Parasitol 2002 Aug 1;18(8):373.

39 **Schurr TG, Wallace DC.**

Mitochondrial DNA diversity in Southeast Asian populations.

Hum Biol 2002 Jun;74(3):431-452.

In a previous study of Southeast Asian genetic variation, we characterized mitochondrial DNAs (mtDNAs) from six populations through high-resolution restriction fragment length polymorphism

(RFLP) analysis. Our analysis revealed that these Southeast Asian populations were genetically similar to each other, suggesting they had a common origin. However, other patterns of population associations also emerged. Haplotypes from a major founding haplogroup in Papua New Guinea were present in Malaysia; the Vietnamese and Malaysian aborigines (Orang Asli) had high frequencies of haplogroup F, which was also seen in most other Southeast Asian populations; and haplogroup B, defined by the Region V 9-base-pair deletion, was present throughout the region. In addition, the Malaysian and Sabah (Borneo) aborigine populations exhibited a number of unique mtDNA clusters that were not observed in other populations. Unfortunately, it has been difficult to compare these patterns of genetic diversity with those shown in subsequent studies of mtDNA variation in Southeast Asian populations because the latter have typically sequenced the first hypervariable segment (HVS-I) of the control region (CR) rather than used RFLP haplotyping to characterize the mtDNAs present in them. For this reason, we sequenced the HVS-I of Southeast Asian mtDNAs that had previously been subjected to RFLP analysis, and compared the resulting data with published information from other Southeast Asian and Oceanic groups. Our findings reveal broad patterns of mtDNA haplogroup distribution in Southeast Asia that may reflect different population expansion events in this region over the past 50,000-5,000 years.

40 **Shimizu C, Nabeshima S, Kikuchi K, Furusyo N, Kashiwagi S, Hayashi J.**

Prevalence of antibody to *Chlamydia pneumoniae* in residents of Japan, the Solomon Islands, and Nepal. *Am J Trop Med Hyg* 2002 Aug;67(2):170-175.

Sera of 4050 residents from Japan, 276 from the Solomon Islands, and 602 from Nepal were tested by an enzyme-linked immunosorbent assay to determine the prevalence of antibody to *Chlamydia pneumoniae*. The prevalence of IgG and IgA antibodies was significantly higher in the Solomon Islands (64.9% and 82.2%) and Nepal (73.1%, and 69.8%) than in Japan (53.6% and 41.1%). These prevalence rates increased throughout the teenage years in the Solomon Islands and Japan and leveled off with age, whereas in Nepal the prevalence rates gradually increased with age. The prevalence of a high (>3.0) IgA antibody index, which is suggestive of acute infection, was significantly higher in the Solomon Islands (34.8%) than in Japan (3.2%) and Nepal (10.5%). The prevalence of IgG antibody ranged from 46.4% to 67.7%, and the prevalence of IgA antibody ranged from 33.7% to 61.8% in the four different areas of Japan. These findings indicate considerable differences in the prevalence of antibodies to *C. pneumoniae* by age in these nations and between the regions of Japan tested.

41 **Sillitoe P.**

After the 'affluent society': cost of living in the Papua New Guinea highlands according to time and energy expenditure-income. *J Biosoc Sci* 2002 Oct;34(4):433-461.

What is the cost of living in the Papua New Guinea highlands? An answer is sought using a time and

energy accounting approach. The subsistence regime of Wola-speaking highlanders, the subjects of this investigation, comprises three components. The principal one is horticulture: people clearing gardens from forest and grassland, with tuberous crops predominating, notably sweet potato. The second component comprises animal rearing, notably of domestic pigs. The third, and least important, is hunting and gathering for food in the forest. The calculated returns on investments in these subsistence domains vary considerably. Gardens return in their crops between ten and fifteen times the energy expended in cultivation. Pigs may also give a good return, of four to five times the energy invested in rearing them, if slaughtered when adult, but people regularly keep animals for years and may incur negative energy returns on their labour investments. This relates to the high cultural premium put on pigs. Foraging for food is also energetically costly, the Wola expending four times more energy on these activities than they gain in return from the food they secure. This analysis of energy gains and losses challenges the relative notion of affluence as applied to foragers, by reviewing it in the comparative context of subsistence horticulture.

42 **Tan LT, Marquez BL, Gerwick WH.**

Lyngbouilloside, a novel glycosidic macrolide from the marine cyanobacterium *Lyngbya bouillonii*. *J Nat Prod* 2002 Jun;65(6):925-928.

A glycosidic macrolide, lyngbouilloside (1), was characterized from the marine cyanobacterium *Lyngbya bouillonii* collected from Papua New Guinea. Its structure was elucidated by spectroscopic analysis and chemical derivatization. Relative stereochemistry was deduced from homonuclear and heteronuclear coupling constants as well as NOE information. Lyngbouilloside was modestly cytotoxic to neuroblastoma cells (IC₅₀ value of 17 microM).

43 **Taylor WR, Widjaja H, Basri H, Fryauff DJ, Ohrt C, Taufik, Tjitra E, Hoffman SL, Baso S, Richie TL.**

Assessing the Parasight-F test in northeastern Papua, Indonesia, an area of mixed *Plasmodium falciparum* and *Plasmodium vivax* transmission.

Am J Trop Med Hyg 2002 Jun;66(6):649-652.

User-friendly, reliable, and inexpensive methods for diagnosing malaria are needed at the primary health care level. During a randomized treatment trial, the Parasight-F test was assessed on days 0, 3, 7, and 28 against standard light microscopy of Giemsa-stained thick blood smears for diagnosing *Plasmodium falciparum* parasitemia in patients with *P. falciparum* (n = 84) or *P. vivax* (n = 59) malaria. The median *P. falciparum* parasite count on day 0 was 2,373/microL (range = 20-74,432/microL). At the start of treatment, the Parasight-F test had a sensitivity of 95.2% (80 of 84; 95% confidence interval [CI] = 88.2-98.7), and a specificity of 94.9% (56 of 59; 95% CI = 85.8-98.9). On day 7, this test showed false-positive results in 17 (16.3%) of 104 patients (95% CI = 9.8-24.9). The Parasight-F test performed well when compared with light microscopy in detecting *P. falciparum* parasitemia in patients presenting with clinical malaria. However, the high false-positive rate on day 7 limits its use for patient follow-up.

- 44 **Thomas B.**
 "Mushroom madness" in the Papua New Guinea highlands: a case of nicotine poisoning?
J Psychoactive Drugs 2002 Jul-Sep;34(3):321-323.
 "Mushroom madness" is a condition that was first reported in the Western Highlands Province of Papua New Guinea. This condition was originally blamed on the ingestion of hallucinogenic mushrooms. This was later proven to be incorrect and this condition was explained instead as a form of collective hysteria. There is, however, ethnographic, phytochemical and pharmacological evidence to suggest that "mushroom madness" was actually a state of acute nicotine poisoning produced by the ingestion of toxic quantities of tobacco.
- 45 **Tracer DP.**
 Somatic versus reproductive energy allocation in Papua New Guinea: life history theory and public health policy.
Am J Human Biol 2002 Sep-Oct;14(5):621-626.
 A fundamental evolutionary problem faced by organisms is how to allocate energy to somatic and reproductive functions in ways that optimize fitness. Given that energy is limited in all environments, energy allocation necessarily involves physiological tradeoffs between such factors as growth and reproduction, reproduction and condition, and current reproduction and future survival. Ultimately, the "decisions" that are made about energy allocation among growth, survival, and reproduction determine life history patterns and trajectories of organisms. For humans, knowing how energy allocation to reproduction will likely impact other aspects of the somatic well-being of individuals may also have practical implications for public health policy. This article reviews the evidence for energy tradeoffs between somatic and reproductive functioning in a range of human societies. It also seeks to corroborate the results of earlier work in Papua New Guinea on lactation-related maternal energy depletion using an independent measure of maternal energy reserves, tetrapolar bioelectrical impedance analysis. The current analysis shows that maternal energy reserves decline over the course of lactation and that a cumulative parity-specific decline in maternal energy reserves also exists. A longitudinal follow-up of five women over 11 years shows the decline to amount to about 3 mm of subcutaneous fat per round of pregnancy and lactation. The results corroborate predictions from life history theory and have applied public health implications. In particular, it is suggested that policies such as lactation advocacy that encourage enhanced energy allocation to reproduction in order to promote child health may have the unintended result of compromising maternal well-being, particularly in nations of the developing world. Consequently, it is recommended that nutritional support of mothers be implemented in concert with lactation promotion.
- 46 **Wada T, Matsubayashi K, Okumiya K, Garcia del Saz E, Kita T.**
 Health status and subjective economic satisfaction in West Papua.
Lancet 2002 Sep 21;360(9337):951.
- 47 **Wardlow H.**
 Giving birth to gonolgia: "culture" and sexually transmitted disease among the Huli of Papua New Guinea.
Med Anthropol Q 2002 Jun;16(2):151-175.
 The "culture concept" has been challenged on a number of fronts, both by medical anthropologists researching AIDS and in the discipline of cultural anthropology more generally. Medical anthropologists have argued against the "etiologization" of culture, and cultural anthropologists have taken issue with the tendency to treat beliefs and practices as static and seamlessly shared. Using the narrative of one Huli woman's shifting explanation of a diagnosis of syphilis, this article argues that, rather than avoid the notion of culture, we should strive for representations that demonstrate how individuals use discourses in expedient, ad hoc, and yet deeply felt ways. This article also argues for the importance of a sociology of knowledge approach to understanding local notions of etiology. The woman's understanding of her situation was strongly influenced by her entry into a new "community" of women who had similarly been diagnosed with a sexually transmitted disease.
- 48 **Yanagihara R, Nerurkar VR, Scheirich I, Agostini HT, Mgone CS, Cui X, Jobes DV, Cubitt CL, Ryschkewitsch CF, Hrdy DB, Friedlaender JS, Stoner GL.**
 JC virus genotypes in the western Pacific suggest Asian mainland relationships and virus association with early population movements.
Hum Biol 2002 Jun;74(3):473-488.
 Distinct genotypes of human polyomavirus JC (JCV) have remained population associated possibly from the time of dispersal of modern humans from Africa. Seven major genotypes with additional subtypes serve as plausible markers for following early and more recent human migrations in all parts of the world. Phylogenetic trees of JCV sequences from the major continental population groups show a trifurcation at the base indicating early division into European, African, and Asian branches. Here, we have explored JCV relationships in the island populations of the western Pacific. Since these islands were settled from the Asian mainland and islands of Southeast Asia, we expected that their virus genotypes might show an Asian connection. We found that Type 2E (Austronesian) and Type 8 (non-Austronesian) are widely distributed in western Pacific populations. A few south China strains were found (Type 7A). A subtype of Type 8, Type 8A, was confined to Papua New Guinea. In keeping with these assignments we find that phylogenetic analysis by neighbor-joining and maximum parsimony methods places Type 2E in a closer relationship to east Asian mainland strains such as Type 2A and Type 7. Our findings support the Asian origins of the western Pacific JCV strains, and suggest three broad movements: an ancient one characterized by Type 8A, and then Type 8B, followed much later by migrations carrying Type 2E, which may correlate with the arrival of Austronesian-language speakers, the bearers of the "Lapita" cultural complex (approximately 3,500 to 5,000 years ago), and relatively recent movements carrying largely Type 7A (south China) strains directly from the west.

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