The proficiency testing program in hemoglobin separation and determination was organized by the National Institute of Health. Two quality control materials were sent to 9 participating laboratories throughout the country once every 3 months during January 1999- December 2000. The analysts were required to examine the samples and laboratory results were subsequently submitted to National Institute of Health for statistical analysis. It was found that clinically significant errors were observed in 1-2 participating laboratories in round 1,2,3,4 and 6. Almost all of the errors were due to higher level of Hb A2 than acceptable limit. After the 6 rounds, improved performances of all participating laboratories were clearly observed. All of them reported results within an acceptable range. It is thus illustrates the benefit of the proficiency testing program and its positive effect on the participating laboratories in working towards the improvement of analytical precision and accuracy.
Title: Survey of Host Reservoir of Rodent-Borne Diseases in Endemic Areas, Thailand, 1999


Affiliations: *National Institute of health, Department of Medical Science, Ministry of Public Health, Nonthaburi 11000

Source: Journal of Health Science 2001; 10: 526-532

Language: Thai with English abstract

Abstract: To study the distribution and level of infection by Rodent-borne diseases in reservoir rodent species in selected provinces from every regions in Thailand, a survey was conducted during October 1998 to April 2000. The total rodent serum of 1,164 samples, which collected from 10 provinces, were diagnosed for leptospirosis and found 4.8 per cent positive. The result of 1,125 samples of rodent serum for scrub typhus test were reportedly 22.4 per cent positive. The nation wide 862 samples for hantavirus test reported only 2.9 per cent positive. The level of infection by leptospira in reservoir rodent species were 6.9, 5.0, 2.6, 3.5 and 2.3 per cent in Rattus exulans, R. rattus, R. norvegicus, Bandicota indica and B. savilei respectively. For Orientia tsutsugamushi, they were 5.6, 29.2, 31.4, 25.7 and 32.1 per cent in R.exulans, R.rattus, R. norvegicus, B. indica and B. savilei respectively. And for hantavirus, the infection rates were 2.7, 2.4, 5.5 and 1.9 per cent in R.rattus, R. norvegicus, B. indica and B. savilei respectively. The highest evidence of leptospira infection were shown in the northeast, BuriRam province. That of O. tsutsugamushi infection was found in the central part, Ayutthaya province. The results of endoparasite diagnosis of 1,767 samples of rodent internal organ for intestinal parasite were reported 27.2 per cent positive and there were 10 species that can be transmitted to man with high density only 3 species. The examination confirmed the presence of blood parasites in 6.1 per cent of the samples and there was only 1 species that can be transmitted to man.
Title: Case report. Fungaemia due to *Penicillium piceum*, a member of the *Penicillium marneffei* complex

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Source: Mycoses 2001; 44(11-12): 502-4

Language: English

Abstract:

Due to the inability of most *Penicillium* species to grow at 37 degrees C, systemic non-marneffei infections are very rare in the human host. We describe a case of fungemia due to *Penicillium piceum* in a female patient, who died a few days after repeated isolation of this fungus from blood cultures. The species is a member of the section Biverticillata of *Penicillium*, as was confirmed by rDNA Internal Transcribed Spacer (ITS) sequence data, and hence may share virulence factors with *P. marneffei*. 
Dengue virus which causes dengue fever (DF) and dengue hemorrhagic fever (DHF) consists of 4 serotypes, DEN1, DEN2, DEN3 and DEN4. This study was to identify the dengue serotype by RT-PCR. The specimens were from 4 hospitals at 4 provinces of Thailand, Ratchaburi hospital, Hatyai hospital at Songkhla province, Lampang hospital and Maharaj Nakhonratchasima hospital from June 1999 until December 2000. By RT-PCR, in 1999, 192 cases were found positive, of which 48.4, 34.4, 12.5 and 4.7 per cent were affected with DEN2, DEN1, DEN3 and DEN4 respectively. Of the 308 positive cases in 2000, DEN1, DEN2, DEN3 and DEN4 were identified in 153 cases (49.7%), 32 cases (10.4%), 111 cases (36.0%) and 11 cases(3.6%), respectively. Dual infection with DEN1 and DEN3 was found in only one case (0.3%). The dominant DEN1 in 2000 was found in 3 provinces. Although DEN3 was predominant in Ratchaburi, DEN1 was also reportedly high. There was significant correlation between officially reported dengue cases of Ratchaburi province and DEN3 – positive cases, and also DEN1 – positive cases of Ratchaburi hospital (p=0.01). The conclusion was that DEN2 was dominant in 1999 but DEN1 was dominant in 2000. DEN3 and DEN1 might be the main cause of dengue outbreak at Ratchaburi in 2000.
Only limited cytotoxic T lymphocyte (CTL) epitope mapping has been done in nonsubtype B HIV-infected persons. We used molecular immunogenetic tools to determine HIV-specific CTL responses in HIV-1 Env subtype E-infected female sex workers (FSWs) from northern Thailand, where more than 50% of the population is HLA-A11 positive. EpiMatrix, a computer-based T cell epitope prediction algorithm, and a manual editing approach were used to predict 77 possible HLA-A11 CTL epitopes in HIV-1, some of which were conserved between subtypes B and E. MHC binding of these peptides was determined in an HLA-A11 stabilization assay, and binding peptides were tested for CTL recognition in eight HLA-A11-positive FSWs. Subtype E versions of known HLA-A2 subtype B HIV epitopes were also tested in four HLA-A2 positive FSWs. CTL responses were detected in all HLA-A11-positive and in three of four HLA-A2-positive persons. Among the 12 FSWs responses to peptides were found to Pol in 9 (75%), Env in 7 (58%), Nef in 5 (42%), and Gag in 5 (42%), and to conserved epitopes in 8 (67%). To identify HLA-A11 CTL epitopes in the absence of prediction tools, it would have been necessary to test almost 3000 10-mer peptides. EpiMatrix and manual predictions reduced this number to 77, of which 26 were MHC binding and 12 were CTL epitopes. Six of these HLA-A11 CTL
epitopes have not been previously reported and are located in RT, gp120, and gp41. This report of CTL responses in subtype E-infected individuals defines epitopes that may be useful in HIV pathogenesis or vaccine studies.
Title: HIV-Specific Cytotoxic T Lymphocytes, HLA-A11, and Chemokine-Related Factors May Act Synergistically to Determine HIV Resistance in CCR5 ∆32-Negative Female Sex Workers in Chiang Rai, Northern Thailand


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Source: AIDS Research and Human Retroviruses 2001; 17(8): 719-734

Language: English

Abstract: Understanding how highly HIV-exposed individuals remain HIV uninfected may be useful for HIV vaccine design and development of new HIV prevention strategies. To elucidate mechanisms associated with resistance to HIV infection, immunologic and genetic factors were examined in 14 HIV-exposed but persistently seronegative (HEPS) female sex workers from Chiang Rai, northern Thailand and in ethnically matched, HIV-positive (n = 9) and HIV-negative women (n = 9). The HEPS women were identified in a study of commercial sex workers who had an HIV-1 incidence of 20.3 per 100 person-years. A high frequency of HLA-A11 was observed in HEPS women (86%) compared with northern Thai controls (56%). HIV-specific cytotoxic T lymphocyte (CTL) lytic responses were detected in cryopreserved peripheral blood mononuclear cells (PBMCs), using HLA-A-matched subtype E HIV-1 peptides in four of seven (57%) HEPS women, eight of eight HIV-positive women, and zero of nine HIV-negative unexposed controls (p = 0.019 HEPS women vs. HIV-negative controls). CTL
lysis levels were low, but responses were detected to peptides from Nef, Pol, Gag, and Env. Nef responses predominated in HEPS women. Compared with controls, HEPS women tended to have higher frequencies of CCR5 promotor 59402GG and SDF-1 3’UTR 801A genotypes known to influence HIV transmission or course of disease. HEPS women also had higher levels of spontaneous RANTES production by PBMCs than other groups. Each of these factors could potentially contribute to HIV resistance. As most HEPS women had one or more of these factors, they may prevent HIV infection synergistically by blocking HIV cell entry, delaying its dissemination, or killing HIV-infected cells.
Title: In vitro effect of *Derris scandens* on normal lymphocyte proliferation and its activities on natural killer cells in normals and HIV-1 infected patients

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Source: *Journal of Ethnopharmacology* 2001; 76: 125-129

Language: English

Abstract:

We investigated the effect of *Derris scandens* hydroalcoholic extract on lymphocyte proliferation, natural killer (NK) cell activity and secretion of IL-2 and IL-4. Lymphocyte proliferative response of normal individuals was significantly increased at concentrations of 10 ng/ml, 100 ng/ml, 1 µg/ml and 5 µg/ml, whereas the response was significantly decreased at 100 µg/ml. *D. scandens* at the concentrations of 10 ng/ml, 100 ng/ml, 1 µg/ml and 10 µg/ml significantly enhanced the function of NK cells of normal individuals. The NK cell activity of HIV-infected individuals was significantly increased at a concentration of 10 µg/ml. Furthermore, the extract was shown to induce the IL-2 secretion from normal peripheral blood mononuclear cells (PBMC), whereas the IL-4 was not induced in the presence of the *D. scandens* extract. Our data suggested that the hydroalcoholic extract of *D. scandens* possesses in vitro immunostimulating activity on human immunocompetent and immunocompromised PBMC.
Serum lipoprotein(a)[Lp(a)], lipid and fructosamine levels were determined in 121 Type 2 diabetic patients (44 males and 77 females; median age of 58 years) and 100 non-diabetic subjects (36 males and 64 females; median age of 53 years) in order to evaluate the incidence of Lp(a) and lipid disorder in diabetes, and to examine the relationship between Lp(a) levels and glycaemic control. Patients with Type 2 diabetes demonstrated significantly higher levels of Lp(a) and triglyceride when compared with non-diabetic subjects (136 vs 103 mg/l and 170 vs 95 mg/l, respectively, p < 0.05). There were no significant differences of total cholesterol, high density lipoprotein-cholesterol (HDL-C) and low density lipoprotein-cholesterol (LDL-C) between the study groups. The distribution of Lp(a) levels was highly skewed towards the lower levels in both groups, being over 300 mg/l in 28% of diabetic patients and only 8% of non-diabetics. Lp(a) level was not correlated with lipid levels and fructosamine concentrations in the patient group. These results suggest that serum Lp(a) in Type 2 diabetes is an independently risk factor for atherosclerotic cardiovascular disease, and does not depend upon the degree of glycaemic control. Serum Lp(a) is useful in identifying high risk individuals need to be treated. In addition, high serum Lp(a) patients must be extremely managed to detect coronary artery disease in advance.
Laboratory and field evaluations of the insect repellent 3535 (ethyl butylacetylaminopropionate) and deet against mosquito vectors in Thailand


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Journal of the American Mosquito Control Association 2001 Sep; 17(3): 190-5

The insect repellents 3535 (ethyl butylacetylaminopropionate or IR3535) and deet (N,N-diethyl-3-methylbenzamide) were prepared as 20% solutions in absolute ethanol and evaluated for repellency against many mosquito species in Thailand under laboratory and field conditions using human subjects. In the laboratory, 0.1 ml was applied per 30-cm2 of exposed area on a volunteer's forearm (0.66-0.67 mg active ingredient [AI]/ cm2), whereas in the field, volunteers' legs (from knee to ankle, with a surface area of about 712-782 cm2) were treated with 3 ml per exposed area (0.76-0.84 mg AI/cm2). In the laboratory, both IR3535 and deet showed equal repellency ($P > 0.05$) for 9.8 and 9.7 h against *Aedes aegypti*, for 13.7 and 12.7 h against *Culex quinquefasciatus*, and for 14.8 and 14.5 h against *Cx. tritaeniorhynchus*, respectively. *Anopheles dirus* was significantly less sensitive to IR3535 than to deet ($P < 0.05$), with a mean protection time of 3.8 and 5.8 h, respectively. Under field conditions, both IR3535 and deet provided a high degree of protection against various mosquito vectors ranging from 94 to 100% during the test periods. Both repellents provided a high level of protection for at least 8 h against *Ae. albopictus* and for at least 5 h against *Cx. gelidus, Cx. tritaeniorhynchus, Cx. quinquefasciatus,*
Mansonía dives, *Ma. uniformis*, *Ma. annulata*, *Ma. annulifera*, *Anopheles minimus*, and *An. maculatus*. This study clearly documents the potential of IR3535 for use as a topical treatment against a wide range of mosquito species belonging to several genera.
Title: Mosquito burden and impact on the poor: measures and costs for personal protection in some communities in Thailand

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Source: Journal of the American Mosquito Control Association 2001 Sep; 17(3): 153-9

Language: English

Abstract:
To gauge the extent of mosquito problems and their impact on local people in Thailand, a simple questionnaire was designed consisting of 6 questions with multiple choices to be answered in 4 different communities in Thailand in 1998 and 1999. Mosquito biting activity was noted often by respondents. They reported that mosquitoes bit both night and day, and that the insects were abundant both in the dry and the rainy seasons. In all 4 communities, a large proportion of the residents used bed nets, mosquito coils, and aerosol sprays for personal protection; vaporizing mats and repellents were used sparingly. The cost of such measures amounted to dollars 4 to dollars 25 per year per household. For most of the residents, this represented a substantial proportion of their income, and was proportionally greater than the average cost of organized mosquito control in developed countries. This suggests that instituting organized local vector control programs would be cheaper and more effective than the individual use of personal protectants that do not reduce mosquito numbers. An assessment of the available products stocked in neighborhood stores and supermarkets for personal protection was made. A variety of insecticidal aerosols, mosquito coils, liquid sprays, vaporizing mats, and vaporizing liquids was stocked. This ample supply of household insecticides lends support to the preferred methods of protection reported by the respondents. The active ingredients in most of the formulations were synthetic pyrethroids, although a few contained dichlorvos, propoxur, and a
few other compounds. Mosquito coils, the most preferred products used by the poor, were evaluated for efficacy, and were found to provide a reduction of 72-96% in landing-biting rates in controlled experiments.
Cockroach surveys using sticky traps were conducted in urban areas of 14 Thailand provinces. At least 30 houses in each province were randomly sampled for cockroaches. Each house was trapped in three areas: kitchen, bedroom and outside. A total of 2,648 cockroaches was caught by 550 out of 1,542 traps (35.7%), from 337 of the 514 houses (65.6%). Overall, relative density ranged from 2.6 to 9.1 with an average of 5.2 cockroaches/house. On the average, 47.7% of the cockroaches were caught in the kitchen, 24.4% and 27.9% were caught in the bedroom and outside of dwellings, respectively. There were 10 species of cockroaches caught from the 14 provinces: Periplaneta americana (60.9%), Periplaneta brunnea (15.4%), Neostylopyga rhombiofolia (9.6%), Periplaneta australasiae (9.2%), Pycnoscelis surinamensis (3.3%), Blatella germanica (0.6%), Periplaneta fuliginosa (0.5%), Supella longipalpa (0.3%), Blatella lituricollis (0.15%) and Nauphoeta cinerea (0.05%), belonging to six genera. According to the surveys in this study, Periplaneta americana and Periplaneta brunnea were the most abundant cockroach species in urban Thailand, whereas the kitchen was the major habitat.
2001-12

Title: Mosquito larval control with *Bacillus sphaericus*: reduction in adult populations in low-income communities in Nonthaburi Province, Thailand

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Source: Journal of Vector Ecology 2001 Dec; 26(2): 221-31

Language: English

Abstract:

During 1999 and 2000 several larvicidal treatments of *Bacillus sphaericus* strain 2362 water dispersible granular (WDG) formulations were made at 50 to 200 mg/m2 in mosquito developmental sites in low-income communities in Nonthaburi Province, Thailand to determine whether larviciding dense populations would result in a noticeable reduction of adult mosquitoes in small treated areas. In the treated area in 1999 (Soi Jumpa), immature populations were suppressed to extremely low levels for extended periods, especially at the higher dosages. This decline in immature populations was followed by a substantial decline in adult mosquitoes. There was a lag of 7 to 14 days post-larval treatments before maximum decline in adults was noted. Adults that emerged prior to treatments survived for 7-14 days or longer, thus no drastic reduction was noted soon after treatments. Despite a slight resurgence in adult mosquitoes during the middle of the experimental period, adult female mosquitoes (over 98% *Cx quinquefasciatus*), remained low during the 5-month period of trials. During the last 2 weeks (17 days post last treatment) of the experimental period, female populations reached the pre-treatment level. During the 2000 tests at Wat Pikul reduction in larvae was 87-98% for 7 weeks after first treatment at 200 mg/m2, resulting in a reduction of 24 to 73% (2 and 7 days post-treatment respectively) and 87 to 98 (2-6 weeks) in the adults. In the second and third treatments at 50 mg/m2, larval control and subsequent adult
reduction were lower and shorter-lived than at the high dosage, and the fourth treatment at 100 mg/m² did not yield a high level of reduction in the larvae (18 to 33%), but reduction of adults was still 80%. The final fifth treatment at 200 mg/m² yielded only 18% control of larvae, suggesting tolerance to *B. sphaericus* at this site. It was shown that at both treated sites repeated treatments with a larvicide such as *B. sphaericus* could result in substantial reduction in adult mosquitoes. Vigilance for detection of resistance development should be practiced, as resistance could emerge in certain populations following a few treatments.
Title: Larval occurrence, oviposition behavior and biting activity of potential mosquito vectors of dengue on Samui Island, Thailand


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Language: English

Abstract:

A 1995 outbreak of dengue haemorrhagic fever (DHF) occurred on Samui Island in Thailand with an incidence of almost 500 cases/100,000 population. To find and develop effective strategies to control this disease through cost-effective vector control programs, entomological studies were carried out on the island between 1996 and 1998. There were two species of DHF vectors, Aedes aegypti and Ae. albopictus prevailing on the island, and the population of Ae. aegypti remained relatively constant throughout the year while the abundance of Ae. albopictus increased substantially during the rainy season (May-December) and then declined drastically in the dry season (January-April). The ranges of the three Aedes larval indices, Breteau index (BI), house index (HI) and container index (CI) were 93-310, 43-89 and 16-50 respectively. The ceramic or earthen jars both inside and outside the dwellings and concrete water storage tanks (mostly in toilets and bathrooms) served as the main breeding places of Ae. aegypti whereas coconut husks and coconut floral spathes found outdoors were the major breeding sites of Ae. albopictus. The number of washing water jars, concrete tanks and natural sites infested with Aedes larvae increased significantly in rainy season, with 60% of ovitraps become positive for Ae. albopictus eggs with an average number of 26 eggs/trap in 3 days of setting. There was a complete lack of oviposition by Ae. aegypti in outdoor ovitraps (15 m away from the houses). The indoor biting rate ranged from 1.5 to 8.1
mosquitoes/man-hour, while the outdoor rate was between 5 and 78 mosquitoes/man-hour. Of the indoor biting mosquitoes, 75.4% were identified as *Ae. aegypti* and 99% of the outdoor ones were *Ae. albopictus*. The diel biting activity of *Aedes* during the period from 0800 h to 1700 h in the houses was higher in the morning than in the afternoon period, with a low prevalence between 1300 h and 1400 h.
Title: Repellency of volatile oils from plants against three mosquito vectors

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Language: English

Abstract: Volatile oils extracted by steam distillation from four plant species (turmeric (Curcuma longa), kaffir lime (Citrus hystrix), citronella grass (Cymbopogon winterianus) and hairy basil (Ocimum americanum)), were evaluated in mosquito cages and in a large room for their repellency effects against three mosquito vectors, Aedes aegypti, Anopheles dirus and Culex quinquefasciatus. The oils from turmeric, citronella grass and hairy basil, especially with the addition of 5% vanillin, repelled the three species under cage conditions for up to eight hours. The oil from kaffir lime alone, as well as with 5% vanillin added, was effective for up to three hours. With regard to the standard repellent, deet alone provided protection for at least eight hours against Ae. aegypti and Cx. quinquefasciatus, but for six hours against An. dirus. However, deet with the addition of 5% vanillin gave protection against the three mosquito species for at least eight hours. The results of large room evaluations confirmed the responses for each repellent treatment obtained under cage conditions. This study demonstrates the potential of volatile oils extracted from turmeric, citronella grass and hairy basil as topical repellents against both day- and night-biting mosquitoes. The three volatile oils can be formulated with vanillin as mosquito repellents in various forms to replace deet (N,N-diethyl-3-methylbenzamide), the most common chemical repellent currently available.
Ovipositional deterrence, larvicidal and repellent effects of turmeric (Curcuma longa Linn.) and galangal minor (Alpinia officinarum Hance) against four mosquito vectors

Authors: Apiwat Tawatsin*, Usavadee Thavara*, Yenchit Techadamrongsin**, Jakkrawarn Chompoosri*, Wichai Kong-ngamsuk*

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Language: English

Abstract:

Volatile oils extracted by steam distillation from rhizomes of turmeric (Curcuma longa Linn.) and galangal minor (Alpinia officinarum Hance) were evaluated for ovipositional deterrence, larvicidal and repellent activities against four mosquito vectors: Aedes aegypti (L.), Ae. albopictus (Skuse), Anopheles dirus Peyton & Harrison, and Culex quinquefasciatus Say. In three-choice oviposition assays carried out in cages in the laboratory, open cups in which water was treated with turmeric oil and galanga oil (each with 5 ul of the extracts) received significantly fewer mosquito eggs or egg rafts than did untreated cups. However, the mosquito eggs or egg rafts obtained from the cups treated with turmeric oil were significantly lower than in cups treated with galanga oil. Evaluations of larvicidal activity conducted in laboratory revealed that both oils provided a high degree of larvicidal effects against larvae of the four mosquito species tested. Turmeric oil exhibited LC50 of 53.9, 11.4, 1.2 and 30.6 ppm against the fourth instar larvae of Ae. aegypti, Ae. albopictus, An. dirus and Cx. quinquefasciatus, respectively, whereas those obtained from galanga oil were 77.5, 47.1, 20.5 and 55.7 ppm, respectively. Regarding repellent efficacy against host-seeking mosquitoes tested in cages in laboratory, turmeric oil repelled adults of the four mosquito species for up to 8 hours, whereas galanga oil showed less repellency against the mosquitoes than did turmeric oil. However in the field, turmeric oil
provided protection from biting of various mosquito species, such as *Ae. albopictus*, *An. barbirostris*, *An. umbrosus*, *Armigeres subalbatus*, *Cx.gelidus*, *Cx. quinquefasciatus*, *Cx. tritaeniorhynchus*, *Mansonina annulifera*, *Ma. dives*, *Ma. indiana*, *Ma. uniformis* during the 12 hours of exposure period, between 1800 h to 0600 h. In conclusion, this study demonstrated the potential uses of volatile oils extracted from turmeric and galanga as natural products for prevention and control of mosquito-borne diseases.
Cytomegalovirus (CMV) infection is one of the most common congenital viral infection worldwide and the incidence is 0.2%. To explore the symptomatic congenital CMV infection. We determined the rate of congenital CMV infection in Thai newborns by analyzing data from clinical history and laboratory results in 621 infants who were suspected of CMV infection during 1996-2000. The CMV-specific IgM antibodies were performed by enzyme-linked immunosorbent assay from infant sera which were obtained from Queen Sirikit National Institute of Child Health, Bangkok. Among the newborns aged 1 day to 3 weeks, the confirmed congenital CMV disease was only 1.6% of all, but the possible congenital CMV disease among infants aged 3 weeks to 1 year was as high as 21.0%. From our study, the congenital CMV infected rate seems to be relatively constant and their main clinical manifestations are hepatomegaly and splenomegaly. Even though our infection rate was higher than the previous study, this was more likely to be associated with the low socioeconomic status, younger maternal ages or closeness of contacts. In order to get the exact rate of congenital CMV infection, the positive IgM results should be confirmed by cell culture and Polymerase Chain Reaction.
Title: Genetic construction of chimeric protease binding-green fluorescent protein for detection of *Burkholderia pseudomallei*

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Source: Presented at Exhibition of Graduate Thesis II: 2001. Mahidol University, Bangkok, Thailand

Language: English

Abstract:

*Burkholderia pseudomallei* is a causative agent of melioidosis, a fatal community acquired septicemia in Southeast Asia and Northern Australia. Protease has been proposed to be one of the major pathogenic factors to play a significant role in melioidosis. We used phage display technology to identify peptides binding to *B. pseudomallei* protease. By screening a constrained cyclic heptapeptide library, five independent clones with affinity to this protease were isolated and the amino acid sequences were determined. The Cys-Phe-Phe-Met-Pro-His-Thr-Phe-Cys peptide was decoded and subjected to gene fusion and protein engineering to derive the chimeric autofluorescence protein having the protease binding site and green fluorescent protein molecule. The chimeric protease binding-green fluorescent protein (PB-GFP) was successfully constructed. It bound to the *B. pseudomallei* protease while exhibited fluorescence emission of GFP. The lower limit of detection was 250 ng of protease. It provided no binding activity to subtilisin, trypsin, proteinase K and RNase. A simple one step protocol for detection of *B. pseudomallei* using chimeric protein PB-GFP is now ongoing.
Title: Prevalence and drug sensitivity of Salmonellosis and Shigellosis in puppies


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**Department of Medical sciences, Ministry of Public Health

Source: Journal The 39th Kasetsart University Annual Conference, 5 February 2001

Language: English

Abstract:

The prevalence of Salmonella from the fecal of 1-6 months of 154 diarrheal puppies was 25.3%. The most serovar was S. Weltevreden from 23 serovars. While the prevalence of Salmonella from the fecal of 48 normal puppies was 22.9% and the most serovar was S. Anatum from total 7 serovars. No Shigella was found in this study. The drug sensitivities characteristic of Salmonella isolates were discussed base on the results ascertained by the disk diffusion method. Fifty isolates originated from the fecal of diarrheal and normal puppies were studied with 13 antimicrobial drugs and the results revealed that all Salmonella isolates were resistant to erythromycin but were sensitivity to cefotaxime and norfloxacin. Moreover, 46% of resistance isolates were resistant to more than two antimicrobial drugs and there were fourteen multiresistance patterns and the most one was S-T-DO-E.
Title: Thermal Stability Assessment of Japanese Encephalitis Vaccine Produced in Thailand


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Source: Bulletin of the Department of Medical Services 2001; 26(8) : 347-352

Language: English

Abstract:

A comparative study on thermal stability of both Beijing and Nakayama strains of Japanese Encephalitis (JE) vaccine was undertaken by using electron microscopy and ELISA method to investigate morphological and antigen content alterations. The control vaccine were kept at 2 – 8 °C as a usual storage condition and the treated ones were kept at 37 °C for 1 week to imitate the probable circumstance affected by heat and sunlight. Such an incident may occur in case of transportation vaccine to rural areas where there are no proper places to keep or in case that the refrigerator is out of function for several days. The electron microscopic views of both strains showed that virus particles kept at 2 – 8 °C were fairly complete and distributed individually while most particles kept at 37 °C appeared to be aggregated and degenerated. This is corresponding to the ELISA assay resault of triplicate in each group: both stains kept at 2 – 8 °C expressed obviously higher values of antigen contents than those kept at 37 °C: the antigen contents of Beijing stain kept at 2 – 8 °C were 4.51, 4.91 and 5.00 at 37 °C were 0.22, 0.96 and 0.48; for Nakayama strain kept at 2-8 °C, the detected antigen contents were 2.02, 2.40 and 2.35 at 37 °C were 0.28, 0.88 and 0.77 times of reference vaccine. The international dose of JE vaccine for immunization: Beijing strain is 0.25 ml. while Nakayama strain is 0.5 ml. for children under 3 years old. The above resault implied that Japanese encephalitis vaccine of both Beijing and Nakayama strains...
should be strictly stores at 2 – 8 °C to maintain the efficacy of the vaccines.

Title: Separation of 6-deoxy-heptan [correction of 6-deoxy-heptane] from a smooth-type lipopolysaccharide preparation of *Burkholderia pseudomallei*

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Abstract:

Smooth-type lipopolysaccharide (LPS) of *Burkholderia pseudomallei* has been reported to contain two kinds of O-antigenic polysaccharides, a 1,3-linked homopolymer of 6-deoxy-heptose and a polymer with a repeating unit of \((\rightarrow\text{3})\)-glucose-(1\(\rightarrow\text{3})\)-6-deoxy-talose-(1\(\rightarrow\)) with O-acetyl or O-methyl modifications. A LPS preparation containing these two polysaccharides was separated by gel-permeation chromatography in this study. Chemical analysis of the separated fractions revealed the 6-deoxy-heptan [corrected] to be a polysaccharide without a lipid portion and the polymer of glucose and 6-deoxy-talose to be an O-antigenic polysaccharide of the LPS. This result was further supported by the assay of these polysaccharide molecules for macrophage activation activity. The 6-deoxy-heptan [corrected] showed no macrophage activation, indicating that this polysaccharide was not the LPS, but one of the capsular polysaccharides of *B. pseudomallei*. 
**2001-21**

**Title:** Demonstration of serogroup 6-\textit{Legionella pneumophila} in soil \textit{Acanthamoeba}

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**Language:** English

**Abstract:**

We isolated \textit{Acanthamoeba spp.} From soil samples collected from the Faculty of Science, Mahidol University, Bangkok, Thailand. The amoebae were examined for the presence of intracellular \textit{Legionella spp.} by in vitro cultivation. We found growth of \textit{Legionella} from 3 out of 15 isolates of the \textit{Acanthamoeba}. The bacteria were identified by specific antiserum to be serogroup 6-\textit{Legionella pneumoniae} in one of the \textit{Acanthamoeba} isolates. Legionella of unknown serogroup were also found in 2 other isolates of the \textit{Acanthamoeba}. The bacteria were carried in cystic stage of the \textit{Acanthamoeba}.

This finding clearly demonstrated the close association of soil \textit{Acanthamoeba spp.} and \textit{Legionella spp.} in nature. The role of soil \textit{Acanthamoeba} as the shelter and also the vehicles for \textit{Legionella spp.} in nature is of environmentally and medically significance.
Objective  The NARST has been established since 1998 to follow resistance trends and use the result to update treatment guideline and lists of essential drug.

Method  In 1998-1999, 22 hospitals participated and were expanded to 33 in the year 2000. Results of routine antimicrobial susceptibility test, according to the NCCLS standard, were recorded by using the WHONET software and submittee to the coordinating center for analysis. To obtain the reliable results, the laboratory quality system is applied. The quality assurance activities include organizing yearly training course, strengthening the internal quality control, and proficiency testing. The center also conducts as National Reference Laboratory on species identification and confirmation of unusual susceptibility result of isolates sent from the members.

Result  In the year 1998, 1999 and 2000, a total of 89,425, 113,843 and 79,386 isolates were tested by all members. *E. coli*, *P. aeruginosa*, *K. pneumoniae* and *Acinetobacter spp.* were the 5 most common isolates accounted for 60% for all isolates. Resistance among *P. aeruginosa* and *Acinetobacter* were resistant to most agents even to the effective Imipenam with the nonsusceptibility at 13% and 19% respectively. During 1998-2000 penicillin resistant pneumococci, vancomycin resistant enterococci and MRSA were at the rate of 47-48, 3-7 and 22-39%. The significance increase of
resistance were noted in *S. pneumoniae* isolated from sterile site of children < 5 years old from 34% in 1998 to 59% in 1999. MRSA isolated from patients seen at OPD increased from 10% in 1998 to 34% in 2000. 

**Conclusion** The data from NARST provides useful information on threatening the future crisis of antibiotic resistant which will promote the awareness and concern on rational use of antibiotic and containment of antimicrobial resistance in the country.
We report on three adults (one nurse and two medical students) diagnosed as having measles. All the patients presented with fever, cough, conjunctival injection and rash. They contracted measles from pediatric patients who had been treated at Chulalongkorn Hospital in the previous two weeks. Physical examination revealed Koplik’s spots on the oral mucosa and typical maculopapular rash. The diagnosis was confirmed by viral isolation. Measles IgG antibodies were measured in 36 medical students who were in close contact with patient 2 and measles vaccines were given. Thirty-three specimens had positive measles IgG, two had equivocal results and one had negative result. The student with negative measles IgG eventually developed measles (patient 3). Except for patient 2 and 3, no further cases of measles were seen among the contacts.
Measles is a highly contagious disease, preventable by vaccine. Measles epidemics have been dramatically controlled since the introduction of live attenuated measles vaccine. Measles antibody is used as an indicator of previous natural infection or vaccination, and also as a marker of protective immunity. The authors determined measles IgG levels in 1,176 children in Ubon Ratchathani province by ELISA from September 1998 to January 1999. Two-hundred and sixty-five cases (22.5%) had antibodies below the protective level (<320 mIU/ml). Antibodies were high during the neonatal period, then declined to below the protective level at 4-6 months of age, and were negative at age 7-11 months. An increase in antibody level after 1 year old might be the result of measles immunization at 9-12 months of age, then antibodies decreased to the lowest level at 3-5 years after immunization or 4-6 years of age. A second dose of immunization will increase the number of children who have antibodies above the protective level better than one dose of immunization and it is recommended to revaccinate at 4-6 years of age. There was no statistical difference of measles antibody between boys and girls in all age groups.