Article: **Combined antibody and DNA detection for early diagnosis of leptospirosis after a disaster**

Hiroko Iwasaki · Haorile Chagan-Yasutan · Prisca Susan A. Leano · Nobuo Koizumi · Chie Nakajima · Delsi Taurustiati · Firmento Hanan · Talitha Lea Lacuesta · Yugo Ashino · Yasuhiko Suzuki · Nina G. Gloriani · Elizabeth Freda O. Telan · Toshio Hattori

*Maint Microbiol Infect Dis 01/2016*

**ABSTRACT:** Early diagnosis based on laboratory confirmation is essential for managing leptospirosis. This study investigated the effectiveness of a novel method of detecting leptospirosis that combines measurement of anti-Leptospira antibodies by the microscopic agglutination test (MAT), enzyme-linked immunosorbent assay (ELISA), and immunochromatographic test (ICT) and leptospiral DNA by loop-mediated isothermal amplification (LAMP) and real-time PCR in plasma and two types of urine pellets. Of 113 suspected cases, 68.1%, 76.1%, and 60.2% were positive by MAT, ELISA, and ICT, respectively. Real-time PCR using DNA purified from urine pellets collected by low speed centrifugation yielded positive signals for patients in late acute as well as early phase who were positive by LAMP using plasma DNA or urine pellets. Among antibody-negative patients, 9.5% were positive by DNA detection. These findings indicate that the leptospirosis detection rate is increased by combining antibody and DNA detection, providing a new tool for timely diagnosis of infection.

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Article: **Elevated OPN, IP-10, and Neutrophilia in Loop-Mediated Isothermal Amplification Confirmed Tuberculosis Patients**

Beata Shiratori · Susan Leano · Chie Nakajima · Haorile Chagan-Yasutan · Toshiro Niki · Yugo Ashino · Yasuhiko Suzuki · Elisabeth Telan · Toshio Hattori

*Mediators of Inflammation Oct 2014*

**ABSTRACT:** Tuberculosis (TB) is the second most common cause of death from infectious diseases and results in high socioeconomic losses to many countries. Proper diagnosis is the first step in TB eradication. To develop a rapid, simple, and accurate diagnostic TB test and to characterize the prevalence of Mycobacterium tuberculosis (MTB) genotypes and immune profiles of TB patients, a total of 37 TB patients and 30 healthy control (HC) from Metro Manila were enrolled. Loop-mediated isothermal amplification (LAMP) reliably detected MTB infection. Manila genotype was identified by spoligotyping method in all TB patients. Osteopontin (OPN), interferon-γ-induced protein 10 kDa (IP-10), and neutrophil counts were found to reflect the acute stage of MTB infection. The sensitivity and specificity were 94.6% and 93.3%, respectively, for both OPN and IP-10, and they were 83.8% and 78.6%, respectively, for neutrophils. The combination of OPN, IP-10, neutrophil count, IL-6, IL-8,
TNF-α, MCP-1, platelets, galectin-9, and leukocyte count correctly identifies all the HC and 96.3% of TB patients. LAMP method may serve as a rapid, supportive method in addition to time-consuming culture methods. OPN, IP-10, and neutrophil counts are useful in detecting MTB infection and may have utility in monitoring the course of the disease.

Article: Elevated Levels of Full-Length and Thrombin-Cleaved Osteopontin During Acute Dengue Virus Infection are Associated with Coagulation Abnormalities

Thrombosis Research 01/2014; · 3.13 Impact Factor

Haorile Chagan-Yasutan, Talitha Lea Lacuesta, Lishomwa C. Ndhlovu, Shigeru Oguma, Prisca Susan A. Leano, Elizabeth Freda O. Telan, Toru Kubo, Kouichi Morita, Toshimitsu Uede, Efren M. Dimaano, Toshio Hattori

ABSTRACT: Introduction Dengue virus (DENV) is transmitted by the mosquito vector, and causes a wide range of symptoms that lead to dengue fever (DF) or life-threatening dengue hemorrhagic fever (DHF). The host and viral correlates that contribute to DF and DHF are complex and poorly understood, but appear to be linked to inflammation and impaired coagulation. Full-length osteopontin (FL-OPN), a glycoprotein, and its activated thrombin-cleaved product, trOPN, integrate multiple immunological signals through the induction of pro-inflammatory cytokines. Materials and Method To understand the role of OPN in DENV-infection, we assessed circulating levels of FL-OPN, trOPN, and several coagulation markers (D-dimer, thrombin-antithrombin complex [TAT], thrombomodulin [TM], and ferritin in blood obtained from 65 DENV infected patients in the critical and recovery phases of DF and DHF during a dengue virus epidemic in the Philippines in 2010. Results Levels of FL-OPN, trOPN, D-dimer, TAT, and TM were significantly elevated in the critical phase in both the DF and DHF groups, as compared with healthy controls. During the recovery phase, FL-OPN levels declined while trOPN levels increased dramatically in both the DF and DHF groups. FL-OPN levels were directly correlated with D-dimer and ferritin levels, while the generation of trOPN was associated with TAT levels, platelet counts, and viral RNA load. Conclusion Our study demonstrated the marked elevation of plasma levels of FL-OPN and thrombin-cleaved OPN product, trOPN, in DENV-infection for the first time. Further studies on the biological functions of these matricellular proteins in DENV-infection would clarify its pathogenesis.

Article: Galectin-9 plasma levels reflect adverse hematological and immunological features in acute dengue virus infection.

Haorile Chagan-Yasutan, Lishomwa C Ndhlovu, Talitha Lea Lacuesta, Toru Kubo, Prisca Susan A Leano, Toshiro Niki, Shigeru Oguma, Kouichi Morita, Glen M Chew, Jason D Barbour, Elizabeth Freda O Telan, Mitsuomi Hirashima, Toshio Hattori, Efren M Dimaano

Journal of clinical virology: the official publication of the Pan American Society for Clinical Virology 10/2013; · 3.12 Impact Factor

ABSTRACT: Dengue virus (DENV) infection remains a major public health burden worldwide. Soluble mediators may play a critical role in the pathogenesis of acute DENV
infection. Galectin-9 (Gal-9) is a soluble β-galactoside-binding lectin, with multiple immunoregulatory and inflammatory properties. To investigate plasma Gal-9 levels as a biomarker for DENV infection. We enrolled 65 DENV infected patients during the 2010 epidemic in the Philippines and measured their plasma Gal-9 and cytokine/chemokine levels, DENV genotypes, and copy number during the critical and recovery phases of illness. During the critical phase, Gal-9 levels were significantly higher in DENV infected patients compared to healthy or those with non-dengue febrile illness. The highest Gal-9 levels were observed in dengue hemorrhagic fever (DHF) patients (DHF: 2464pg/ml; dengue fever patients (DF): 1407pg/ml; non-dengue febrile illness: 616pg/ml; healthy: 196pg/ml). In the recovery phase, Gal-9 levels significantly declined from peak levels in DF and DHF patients. Gal-9 levels tracked viral load, and were associated with multiple cytokines and chemokines (IL-1α, IL-8, IP-10, and VEGF), including monocyte frequencies and hematologic variables of coagulation. Further discriminant analyses showed that eotaxin, Gal-9, IFN-α2, and MCP-1 could detect 92% of DHF and 79.3% of DF, specifically (P<0.01). Gal-9 appears to track DENV inflammatory responses, and therefore, it could serve as an important novel biomarker of acute DENV infection and disease severity.

Article: Possible HIV transmission modes among at-risk groups at an early epidemic stage in the Philippines.

Elizabeth Freda O Telan, Genesis May J Samonte, Noel Palaypayon, Ilya P Abellanosa Tac-An, Prisca Susan A Leaño, Akeno Tsuneki, Seiji Kageyama

Journal of Medical Virology 08/2013; · 2.37 Impact Factor

ABSTRACT: A concentrated human immunodeficiency virus (HIV) epidemic might have started in the Philippines. A subsequent characterization of viruses was carried out to estimate HIV transmission modes. Most HIV strains from injecting drug users belonged to subtype-B. CRF-01 was a major subtype harbored by three other at-risk populations: male visa applicants who had sex with men, "men who have sex with men," and visa applicants. An HIV phylogeny suggested that two strain groups of injecting drug users and others circulated separately. In contrast, there was substantial genetic overlap between two strain groups from "men who have sex with men" and visa applicants. Mean nucleotide distance within strains was shorter among subtype-B strains harbored by the injecting drug users (0.010) than among CRF-01 strains of the other three populations: male visa applicants who had sex with men (0.034), "men who have sex with men" (0.023), and visa applicants (0.032). Closely related strains of hepatitis C virus were derived from not only HIV-positive but also -negative individuals. These results suggest that there is potential for transmission from visa applicants to "men who have sex with men," and that once HIV occurs in injecting drug users, it spreads rapidly among them. Close contacts of hepatitis C virus carriers composed of HIV-negative and -positive individuals indicated ongoing HIV spread via blood and possible intervention points. Large-scale analysis is needed to provide more precise information on the transmission directions and to help curb the growth of this HIV epidemic in the Philippines.

**Article: Frequent detection of anti-tubercular-glycolipid-IgG and -IgA antibodies in healthcare workers with latent tuberculosis infection in the Philippines.**

Umme Ruman Siddiqi, Prisca Susan A Leano, Haorile Chagan-Yasutan, Beata Shiratori, Hiroki Saitoh, Yugo Ashino, Yasuhiko Suzuki, Toshio Hattori, Elizabeth Freda O Telan

Clinical and Developmental Immunology 01/2012; 2012:610707. · 3.06 Impact Factor

**ABSTRACT:** Anti-tubercular-glycolipid-IgG (TBGL-IgG) and -IgA (TBGL-IgA) antibodies, and the QuantiFERON-TB Gold test (QFT) were compared in healthcare workers (HCWs, n = 31) and asymptomatic human immunodeficiency virus-carriers (HIV-AC, n = 56) in Manila. In HCWs, 48%, 51%, and 19% were positive in QFT, TBGL-IgG, and -IgA, respectively. The TBGL-IgG positivity was significantly higher (P = 0.02) in QFT-positive than QFT-negative HCWs. Both TBGL-IgG- and -IgA-positive cases were only found in QFT-positive HCWs (27%). The plasma IFN-γ levels positively correlated with TBGL-IgA titers (r = 0.74, P = 0.005), but not TBGL-IgG titers in this group, indicating that mucosal immunity is involved in LTBI in immunocompetent individuals. The QFT positivity in HIV-AC was 31% in those with CD4+ cell counts >350/µL and 12.5% in low CD4 group (<350/µL). 59 % and 29% were positive for TBGL-IgG and -IgA, respectively, in HIV-AC, but no association was found between QFT and TBGL assays. TBGL-IgG-positive rates in QFT-positive and QFT-negative HIV-AC were 61% and 58%, and those of TBGL-IgA were 23% and 30%, respectively. The titers of TBGL-IgA were associated with serum IgA (P = 0.02) in HIV-AC. Elevations of TBGL-IgG and -IgA were related to latent tuberculosis infection in HCWs, but careful interpretation is necessary in HIV-AC.

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**Article: The early phase of an HIV epidemic in a population exposed previously to HCV in the Philippines.**


Journal of Medical Virology 06/2011; 83(6):941-7. · 2.37 Impact Factor

**ABSTRACT:** Human immunodeficiency virus (HIV) sentinel surveillance program for injecting drug users has been conducted in Metro Cebu, the Philippines. A low prevalence (0-0.52%) of anti-HIV-positivity had been detected in this population from 2002 to 2007. However, a 10-fold increase in HIV prevalence was detected in the 2009 national HIV sentinel surveillance program. It prompted an additional outreach program to be conducted in Metro Cebu in January 2010, which recorded the highest HIV prevalence rate ever documented in the Philippines (75%, 44/59). HIV genes from fourteen 2009 to 2010 Metro Cebu strains were clustered closely in the phylogenetic tree, but no other strain collected outside Metro Cebu and none stored in the International Nucleotide Sequence Database was allocated to the same phylogenetic cluster. All these HIV infections have emerged in the anti-hepatitis C virus (HCV)-positive population (100%, 62/62) in Metro Cebu from 2009 to 2010. The five HCV strains from the individuals harboring the closely related HIV strains were categorized into different subtypes. These results strongly suggest that HIV infections occurred recently and spread rapidly among injecting drug users, while HCV had been
circulating previously among them. Considering the fact that injecting drug use was the first mode of HIV transmission in Asia, extensive monitoring of injecting drug users and associated bridging populations is necessary. Therefore, HCV-guided characterization of the spread of HIV to populations that are vulnerable to blood-borne infections could play an important role in alerting health authorities to the early phase of an HIV epidemic.


Journal of Medical Virology 02/2010; 82(2):213-9. · 2.37 Impact Factor

Dorothy M Agdamag, Seiji Kageyama, Prisca S Leaño, Rontgene M Solante, Elizabeth F Telan, Ernesto R Que, Hiroshi Ichimura

ABSTRACT: The response marker for interferon has not been investigated fully for hepatitis B viruses (HBVs) in the Philippines where novel subtypes B5 and C5 were recognized recently. The prediction parameters for interferon treatment were assessed, with emphasis on the mutation patterns in the basal core promoter and precore regions in patients with chronic hepatitis B. Seventeen HBeAg-positive patients were stratified according to response to treatment with pegylated interferon based on HBe seroconversion and HBV load. Intra-patient distributions of wild-type strains (A1762, G1764) and variants (T1762, A1764) were analyzed using HBV-DNA amplification and subsequent molecular cloning. The rate of variants (T1762, A1764) harbored by a patient was higher among responders (41.2% and 31% per person on average) than among non-responders (2.4% and 2.4%) to treatment with pegylated interferon at the baseline, respectively (P < 0.05). The rate of variants (T1762, A1764) harbored by responders (41.2% and 31%) decreased to 1.7% and 1.7%, and wild-type strains (A1762, G1764) conversely became majority (98.3% and 98.3%) after treatment with pegylated interferon, respectively. HBV strains harbored by two of six responders and a patient with lower baseline load (1.0 x 10(4) copies/ml) showed genotype shift from A to other genotypes, where genotype A disappeared preferentially after the loss of HBeAg and genotypes B and C formed a major population. These results suggest that the HBV variants (T1762, A1764) and HBV genotype A in the Philippines have an advantage in the response to pegylated interferon. These results warrant a large-scale examination for further precise prediction of the response to treatment with interferon.

Article: Multi-country evaluation of the sensitivity and specificity of two commercially-available NS1 ELISA assays for dengue diagnosis.

PLoS Neglected Tropical Diseases 01/2010; 4(8). · 4.57 Impact Factor

Maria G Guzman, Thomas Jaenisch, Roger Gaczkowski, Vo Thi Ty Hang, Shamala Devi Sekaran, Axel Kroeger, Susana Vazquez, Didye Ruiz, Eric Martinez, Juan C Mercado, Angel Balmaseda, Eva Harris, Efren Dimano, Priscia Susan A Leano, Sutee Yoksan, Elci Villegas, Herminia Benduzu, Iris Villalobos, Jeremy Farrar, Cameron P Simmons

ABSTRACT: Early diagnosis of dengue can assist patient triage and management and prevent unnecessary treatments and interventions. Commercially available assays that detect
the dengue virus protein NS1 in the plasma/serum of patients offers the possibility of early and rapid diagnosis. The sensitivity and specificity of the Pan-E Dengue Early ELISA and the Platelia Dengue NS1 Ag assays were compared against a reference diagnosis in 1385 patients in 6 countries in Asia and the Americas. Platelia was more sensitive (66%) than Pan-E (52%) in confirmed dengue cases. Sensitivity varied by geographic region, with both assays generally being more sensitive in patients from SE Asia than the Americas. Both kits were more sensitive for specimens collected within the first few days of illness onset relative to later time points. Pan-E and Platelia were both 100% specific in febrile patients without evidence of acute dengue. In patients with other confirmed diagnoses and healthy blood donors, Platelia was more specific (100%) than Pan-E (90%). For Platelia, when either the NS1 test or the IgM test on the acute sample was positive, the sensitivity versus the reference result was 82% in samples collected in the first four days of fever. NS1 sensitivity was not associated to disease severity (DF or DHF) in the Platelia test, whereas a trend for higher sensitivity in DHF cases was seen in the Pan-E test (however combined with lower overall sensitivity). Collectively, this multi-country study suggests that the best performing NS1 assay (Platelia) had moderate sensitivity (median 64%, range 34-76%) and high specificity (100%) for the diagnosis of dengue. The poor sensitivity of the evaluated assays in some geographical regions suggests further assessments are needed. The combination of NS1 and IgM detection in samples collected in the first few days of fever increased the overall dengue diagnostic sensitivity.

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**Article: Tracking the entry routes of hepatitis C virus as a surrogate of HIV in an HIV-low prevalence country, the Philippines.**


*Journal of Medical Virology 08/2009; 81(7):1157-62. · 2.37 Impact Factor*

**ABSTRACT:** From 2002 to 2007, 1,590 individuals were enrolled in an active surveillance program conducted in Metro Cebu, Philippines, where the anti-HCV-positive rate was significantly and constantly high among injecting drug users (83%, 793/960; 71-88%), especially among those living in downtown (89%, 683/770; 87-100%), despite the extremely low percentage of anti-HIV-positives (0.34%, 3/874). Sampling areas were then enlarged nationwide and the number of samples increased to 2,645 at the end of 2007. A total of 444 samples were positive for HCV RNA. Phylogenetic analysis based on NS5B and E1-E2 regions revealed that the most dominant HCV subtype was 1a, and followed by 2b, 2a, and 1b, and that the HCV strains had the largest variety in Metro Manila and its vicinity (P < 0.01). Interestingly, subtype 1b was detected solely in Metro Manila, and four HCV strains collected in this area showed higher homology to specific foreign strains retrieved from the Genbank/EMBL/DDBJ database with bootstrap values of 68-95% comparing with other strains analyzed in this nationwide study. These data suggest that HCV strains may be introduced occasionally into the Philippines possibly through Metro Manila as a main entry point. Considering the fact that an HIV epidemic started primarily via contaminated needle sharing in Asia, the constantly high rate of HCV infections and the newly introduced foreign HCV strains in the absence of HIV epidemic warrant further investigation on HCV entry and spread for early detection of an HIV epidemic in the Philippines.
**Article: High-risk HPV types in lesions of the uterine cervix of female commercial sex workers in the Philippines.**

Michiko Miyashita, Dorothy M Agdamag, Toshiyuki Sasagawa, Kaori Matsushita, Lourdes Ma Salud, Calixto O Salud, Kunikazu Saikawa, Prisca S Leano, Teresita Pagcaliwagan, Jessica Acuna, Azumi Ishizaki, Seiji Kageyama, Hiroshi Ichimura

*Journal of Medical Virology 02/2009; 81(3):545-51. · 2.37 Impact Factor*

**ABSTRACT:** In order to prevent cervical cancer, vaccines against human papilloma virus types 16 (HPV-16) and 18 (HPV-18) have been implemented worldwide. However, the HPV types that cause cancer can differ according to geographical area and ethnicity. In this new era of the HPV vaccine, it is important to elucidate the prevalent HPV types in each area. Therefore, the prevalence of HPV infection and cervical abnormalities among 369 female commercial sex workers in the Philippines were examined. HPV L1 gene was amplified by polymerase chain reaction (PCR) using modified GP5+/6+ primers, and genotyping was performed by sequencing cloned PCR products. HPV DNA was detected in 211 (57.2%) women, among whom 46 HPV types were identified. HPV-52 was most common and multiple-type infection was observed in 44.5%. Among 56 women with abnormal cervical cytology (low- and high-grade squamous intraepithelial lesions and adenocarcinoma in situ), HPV-52 was most common (23.2%), followed by HPV-16 (19.6%), -58 (10.7%), and -67 (10.7%). Only 27% of these women were positive for HPV-16 and -18. Multivariate analysis revealed that HPV-16, -39, -52, -67, and -82 were significantly associated with abnormal cytology. Repeated analysis of HPV-52 single-positive samples using the original GP5+/6+ PCR primers produced negative results in 57% of cases, suggesting that the prevalence of HPV-52 infection may have been underestimated in previous studies, and the current vaccines may not be sufficient for preventing infection and the development of premalignant lesions of the cervix in women in the Philippines.

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**Article: The prevalence of HIV, HBV and HCV among Filipino blood donors and overseas work visa applicants.**

Yumiko Yanase, Takashi Ohida, Yoshitaka Kaneita, Dorothy May D Agdamag, Prisca Susan A Leaño, Christopher J Gill


**ABSTRACT:** Our aim was to estimate the prevalence of HIV, HBV and HCV among the general population of the Philippines using data sources outside of the limited existing active surveillance network. We analysed aggregate HIV, HBV and HCV test results for hospital-based blood donors (BDs) and overseas Filipino worker candidates (OFWCs) that had been reported from licensed laboratories to the National STD/AIDS Cooperative Central Laboratory in Manila between 2002 and 2004. From over 144 000 blood-screening results, the HIV prevalence was 0.006% in BDs and 0.001% in OFWCs; that of HBV was 4.2% in both groups; and that of HCV was 0.3% in BDs and 0.9% in OFWCs. Males were at increased risk of both HBV and HCV; among OFWCs, younger women were at increased risk. Laboratories that tested sequentially but stopped testing after the first positive result
were far less likely to detect HCV, indicating that sequential testing protocols may underestimate HCV and HIV prevalence. OFWCs were at low risk of HIV, and the risk of testing positive for these viruses was not increased among OFWCs applying for a repeated work visa, compared with first time-applicants. Based on these data, we conclude that HIV is rare in the Philippines. In contrast with prior reports, we found no evidence that OFWCs constitute a high-risk group for HIV. Further research is needed to understand why younger women are at increased risk of acquiring HBV.

Article: **Comparison of serological test kits for diagnosis of typhoid fever in the Philippines.**

Razel L Kawano, Susan A Leano, Dorothy May D Agdamag

*Journal of Clinical Microbiology* 02/2007; 45(1):246-7. · 4.07 Impact Factor

**ABSTRACT:** We evaluated four recent antibody-detection kits for typhoid fever by using 177 febrile patients from our hospital, in 75 of whom Salmonella enterica serotype Typhi grew. TUBEX performed best, achieving 94.7% sensitivity and 80.4% specificity. Typhidot, SD Bioline Typhoid, and Mega Salmonella were less specific and, in most cases, less sensitive.

Article: **A natural inter-genotypic (2b/1b) recombinant of hepatitis C virus in the Philippines.**

Seiji Kageyama, Dorothy M Agdamag, Evelyn T Alesna, Prisca S Leaño, Anna Marie L Heredia, Ilya P Abellanosa-Tac-An, Lourdes D Jereza, Tomoaki Tanimoto, Jun-ichi Yamamura, Hiroshi Ichimura


**ABSTRACT:** The prevalence study and the characterization of hepatitis C virus (HCV) was carried out in the Philippines and the sequence determination of the 5'-untranslated region (5'-UTR)-Core and the NS5B regions of HCV was carried out in this study. An HCV strain (SE-03-07-1689) collected in Metro Manila, Philippines, belonged to discordant subtypes, 2b and 1b in 5'-UTR-Core and NS5B regions, respectively. The 9.3 kb sequence of this strain including the entire open reading frame was compared with those of the reference strains retrieved from the HCV sequences database (GenBank/EMBL/DDBJ) and indicated a recombination event. The computation of the sequence similarity mapped a crossover point within the NS3 region. This is the second report on the inter-genotype recombinant of HCV and the third when an intra-genotype recombinant is included. This recombinant strain, SE-03-07-1689, is designated tentatively as RF3_2b/1b according to the suggestions used for the other two HCV recombinants.
Article: **Rapid spread of hepatitis C virus among injecting-drug users in the Philippines: Implications for HIV epidemics.**


**ABSTRACT:** From the trends of human immunodeficiency virus (HIV) epidemics in South and Southeast Asia, it was postulated that an HIV epidemic would start as a blood-borne infection among injecting-drug users in the Philippines. In 2002, 560 individuals were recruited in Metro Cebu, Philippines and tested for HIV, hepatitis C virus (HCV), and hepatitis B virus (HBV) infections. The seroprevalence of anti-HCV among injecting-drug users (70.1%, 61/87) was significantly higher than those among inhalation drug users (16.3%, 7/43; \( P = 0.00; \text{OR} = 12 \)), sex workers (0%, 0/130; \( P = 0.00; \text{OR} = \text{infinity} \)), antenatal clinic attendees (0%, 0/100; \( P = 0.00; \text{OR} = \text{infinity} \)), and students/health care workers (2%, 4/200; \( P = 0.00; \text{OR} = 115 \)). The seroprevalence of HBsAg among injecting-drug users (10.3%, 9/87) was significantly higher than those among sex workers (2.3%, 3/130; \( P = 0.01; \text{OR} = 4.9 \)), and antenatal clinic attendees (3%, 3/100; \( P = 0.04; \text{OR} = 3.7 \)), but was not statistically different from those among inhalation drug users (9.3%, 4/43; \( P = 0.9 \)) and students/health care workers (4.5%, 9/200; \( P = 0.06 \)). None of the study population was reactive to anti-HIV antibody. The HCV strains obtained from the injecting-drug users belonged to either genotype 1a or 2b and the strains in each genotype clustered closely to each other. There was no dual infection with genotype 1a and 2b. These results suggest that the HCV infection in injecting-drug users may be emanating rapidly from limited number individuals in Metro Cebu, Philippines.

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Article: **Introduction of human immunodeficiency virus type 2 infection in the Philippines.**

**Prisca Susan Leaño**, Seiji Kageyama, **Adelfa Espantaleon**, Janak Maniar, Masaomi Iwasaki, Dattatray Saple, Namiko Yoshihara, Takashi Kurimura, **Dorothy May Agdamag**

*Journal of Clinical Microbiology* 02/2003; 41(1):516-8. · 4.07 Impact Factor

**ABSTRACT:** The aim of this study was to describe and document the first case of human immunodeficiency virus type 2 (HIV-2) in the Philippines by using serological and molecular techniques and to compare the diversity of this strain to that of strains from other countries. With the introduction of HIV-2 into the country and the presence of diversified strains of HIV-1, the use of highly sensitive assays to detect all these strains is recommended.

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Article: The influence of the expanding HIV genetic diversity on molecular diagnosis in the Philippines.


A Espantaleon, S Kageyama, M T Bernardo, T Nakano, P S Leaño, P Alban, R Abrenica, S Morimatsu, H Teraoka, D M Agdamag

ABSTRACT: Since the discovery in the Philippines of the first AIDS case in 1984, several subtypes of HIV-1 have been discovered. From the persons diagnosed in the early 1980s only subtype B was found and thereafter other subtypes, C, D, E, and F were also identified although HIV was not particularly prevalent at that time. In this paper, we determine whether the rapid expansion of genetic diversity will influence molecular diagnosis by polymerase chain reaction (PCR). First, we determine HIV-1 subtype on env (V3) and gag (p24) gene as a means of rapid genetic diversity. Secondly, we tried to analyse and identify homologous regions of gag (p24) gene of HIV genome for diagnostic purposes of designing primers. Out of 46 samples analysed, six subtypes were classified based on gag and env gene subtyping namely: 33 subtype B/B (71.2%), nine subtype A/E and one each subtype C/C, A/B and G/A (2.2% each). As a result, occurrence of non-subtype B and inter-subtype recombinant contributed to expanding genetic diversity. Based on inter- and intra-subtype gag alignment, oligonucleotides (>10 bases in length) could be easily selected as a universal primer to produce the PCR product composed of more than 100bp. This indicates that the PCR technology can be safely used with limited length of primers for the diagnosis of HIV infection in this country.