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PRINCIPAL INVESTIGATOR: MG Gobchoke Puavilai, MD.
COL Sorachai Nitayaphan, MD, Ph.D.

CONTRACTING ORGANIZATION: Armed Forces Research Institute of Medical Sciences/
Royal Thai Army Medical Component
Bangkok 10400 Thailand

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MG Gobchoke Puavilai, MD, COL Sorachai Nitayaphan, MD, Ph.D.

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Armed Forces Research Institute of Military Sciences
Royal Thai Army Medical Component
Bangkok 10400 Thailand

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Cooperative agreement # DAMD17-95-2-5001 was implemented October 15, 1994 to provide funding support for Royal Thai Army at Armed Forces Research Institute of medical Sciences (AFRIMS) engaged in research activities in collaboration with US Army. The principal focus of research under the agreement is directed to activities to prepare for development and testing of vaccine(s) for prevention of HIV infection and /or disease. During the funding period, research activities were directed in 4 primary areas 1) active surveillance of RTA conscripts to determine the dynamics of HIV epidemic inThailand; 2) studies of natural history of HIV infection/disease in Thais; 3) cohort development studies attempting to define an appropriate population(s) for phase III vaccine testing; 4) conduction of phase I/II vaccine studies to determine safety and immunogenicity of potential HIV vaccines in Thais. Other efforts under the Cooperative Agreement during the funding period included 1) animal care and handling in support of other ongoing research activities at AFRIMS, exclusive of HIV research; and 2) site maintenance activities in support of research activities including glassware and utilities support.

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GGobchoke Puavilai Jan 23. 01

PI - Signature Date

MG Gobchoke Puavilai, MD.
Principal Investigator
Royal Thai Army, AFRIMS
Bangkok 10400, Thailand

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I. INTRODUCTION

A. General

Collaborative studies into infectious diseases of military importance have been conducted at the Armed Forces Research Institute of Medical Sciences (AFRIMS) by both the US Army Medical Component (USAMC) and the Royal Thai Army Medical Component (RTAMC) for 4 decades. Studies leading to the prevention of HIV infections are of primary importance to the Royal Thai Army. In addition. malaria, dengue, hepatitis, Japanese encephalitis, scrub typhus, and infectious diarrhea are all areas in which the RTA have major interest.

B. Preparations for HIV Vaccine Efficacy Testing

Many of the regions of the world where the HIV pandemic is worst coincide with areas of current or potential deployment of American forces. HIV-1 is a sexually transmitted disease (STD) and hence poses a threat to forces deployed to areas where HIV-1 is epidemic. This lethal threat has been realized among United Nations (UN) forces deployed on "blue helmet" (peacekeeping) missions to countries such as Cambodia and Mozambique. Additionally, over 8,000 prevalent cases of HIV-1 infection within the US military are projected to cost over $1 billion for health care services within the DOD system by the end of this century. Hence there is a clear military relevance to the development of preventive measures for the prevention of HIV-1 disease and transmission, including, especially, an effective preventative vaccine.

HIV poses a significant threat to Thai and U.S. military personnel. Therefore, the Royal Thai Army and the U.S. Department of Defense are supporting a research and development to minimize the impact of HIV on military readiness by monitoring the spread of HIV infection in both military and civilian components around the world and, through the development of vaccines and other countermeasures, to prevent infection and infection sequelae.

In 1990, researchers in the Department of Defense (DOD), among others, recognized the emerging HIV-1 epidemic in Thailand which had first become apparent in 1989 in intravenous drug users (IDU's). An agreement was made with the Royal Thai Army Medical Component (RTAMC) at the Armed Forces Research Institute of Medical Sciences (AFRI MS) to embark on a program of preparation for eventual field-efficacy, evaluation of an appropriate vaccine candidate(s) for the prevention of HIV-1 disease and transmission.

We proposed to define the incidence and prevalence of HIV infection in populations suitable for Phase III vaccine trials; define the natural course of early infection in infected Thais; develop and improve assays for diagnosis and epidemiological surveys; conduct pre-clinical evaluation of vaccines (phase I/II); and conduct vaccine trials for safety, immunogenicity and efficacy.

Since 1991, The US Army Medical Component (USAMC) and the RTAMC at AFRIMS have conducted descriptive epidemiological studies of prevalent and Incident infection with HIV-1 in Royal Thai Army conscripts, thereby contributing critical data to the high level characterization

of the HIV-1 epidemic in Thailand. In January 1993, AFRIMS opened a Joint Clinical Research Center (JCRC) for the conduct of Phase I/II (safety & immunogenicity) trials of vaccine candidates in Bangkok. Since June of 1993, the HIV-1 research collaboration at AFRIMS has embarked on a program of cohort development to identify and prepare a population for eventual participation in the efficacy evaluation of an appropriate HIV-1 vaccine candidate.

C. Studies Using Animals

Most of the diseases studied at AFRIMS, including malaria, infectious diarrhea, dengue, hepatitis, scrub typhus and Japanese encephalitis, involve the use of animals as models of human disease. Data from animal models can be used to predict the outcome of similar events in humans. These data are reliable and can be applied to various types of research including vaccination, pathogenesis, toxicology and therapeutic agent studies. For example, one study is used to screen potential therapeutic agents for their activity against malaria. The animal model chosen for this is the mouse, one of the lowest animals on the phylogenetic scale that can be infected with malaria and then used to determine the effectiveness of new treatments. This is important not only to the military. but also to the more than 300 million people worldwide who become infected with malaria each year. In some areas, the malaria parasite is resistant to all known treatments.

However, many studies must be performed in a higher animal species. Before vaccines or drugs can be used in humans, the FDA requires that they be tested in a non-human primate model. AFRIMS is the best resource in the Department of Defense to perform this type of testing We have protocols approved to test two new malaria vaccines, a new Hepatitis E vaccine and a new dengue vaccine. These vaccines involve cutting-edge techniques in molecular biology for both vaccine development and vaccine delivery. The availability of modern investigative techniques coupled with the extensive animal model availability makes AFRIMS a unique facility to develop and explore the effectiveness of these new therapeutics.

D. Laboratory Science Support

The glassware section provides glassware cleaning and support to all science departments at AFRIMS. This support is of fundamental importance to the ongoing research activities at AFRIMS and includes stocking commonly used items of glassware and the proper disinfection, cleaning, and/or sterilizing of all laboratory glassware. The glassware section is also responsible for the daily production of sufficient quantities of pure deionized water for use in laboratory assays which cannot otherwise be performed properly.

E. Space and Utilities Required

Funding under the cooperative agreement is also directed by the Principal Investigator to the provision of site maintenance including space and utilities management for both the RTAMC and the USAMC in support of research activities.

II. BODY

A. General

Efforts made under the cooperative agreement are focused in three general areas: 1) preparations for HIV vaccine efficacy testing; 2) animal care and handling in support of ongoing research at AFRIMS; and 3) site maintenance and laboratory support activities.

B. Preparations for HIV Vaccine Efficacy Testing

1a. Natural History Study

1. Introduction

Understanding the natural history of HIV-1 infection is essential to planning for a phase III vaccine trial. There are many possible outcomes in the vaccinated subject who subsequently becomes exposed to HIV-1. In the best case scenario, HIV-1 vaccines may prevent infection (sterilizing immunity) . However, protective vaccines (e.g. live attenuated polio vaccine) are thought to provide their clinical benefit through limiting (but not preventing) virus replication after challenge. Hence, although the induction of sterilizing immunity may be the ideal outcome in an HIV vaccine study, a product which induces an immune response which modifies viral replication, disease progression, or subsequent transmission is the more likely outcome.

Conceivably, vaccinees who are subsequently exposed to HIV-1 may demonstrate a booster effect of the immune response without infection, transient abortive infection, low grade controlled infection with a low viral load, unchanged symptoms of infection and viral load or, in the worst case, infection with higher than expected viral load, more severe symptoms and accelerated disease.

Valuable information about the natural history of HIV infection has come from prospective follow-up of cohorts of people at high risk of infection: homosexual males, hemophiliacs and intravenous drug users. As those in these cohorts become infected with HIV-1, the progression of the disease can be followed prospectively from the start of the infection. Because the time since infection is such an important predictor of progression, it is vital to study an incident cohort, that is, a cohort of people whose date of infection is known.

Almost all incident cohorts being studied at this time consist of males in Europe or North America, in most cases of Caucasian ancestry and infected with HIV-1, subtype B. There are many reasons to think that disease progression in the developing world might be different from that in the developed world, but there is very little data available to assess the question. Data from a prospectively followed cohort of commercial sex workers in Kenya show much more rapid progression of disease than has been reported in other cohorts. Hypotheses about the reasons for this difference are easy to generate and difficult to prove without following

other seroincident cohorts in the developing world. No information is currently available about the pathogenicity of subtype E, the predominant subtype in Thailand and whether the disease progression of those infected with E is significantly different from those infected with other subtypes, especially subtype B.

2. Objectives

(1) To characterize viral, immune regulatory and clinical sequelae in recently HIV-l infected Thai men, during the first three years post-infection. These data may form the basis of efficacy endpoints in future prophylactic vaccine trials in Thailand;

(2) To characterize (genetically and serologically) circulating HIV-1 from recently infected Thai's. These data may form the basis for selection of vaccine strain prototypes for use in development of Thai-specific vaccine constructs; and

(3) To assess virus specific and immune regulatory correlates.

3. Methods

Study population

Three type of subjects can be enrolled into this study: those with HIV infection whose date of infection is not known, persons with incident infections (where the dates of seroconversion can be inferred) and uninfected subjects. All infected subjects are either receiving medical care at PMK hospital or have been referred for medical care.

Seroincident cases

Persons with incident HIV infections from cohort studies in Thailand are recruited for this study. If willing, they sign a consent form to take part in the study. At that time they donate 50 ml of blood. The subjects also receive a physical examination and a brief questionnaire requesting information about their risk behaviors and recent medical history. The seroincident subjects are asked to return every 6 months for three years.

Seroprevalent HIV-Infected Thai's

HIV-Infected subjects who enroll in this study are referred to the AFRIMS clinic from local physicians collaborating in the study.

Thai's without HIV-1 infection

Uninfected Thai's in the study include Royal Thai Army recruits and personnel who work at AFRIMS.

At the beginning of this protocol, most prevalent and seronegative subjects were bled one time, but the protocol allows additional bleeds as frequently as every 3 months.

Laboratory methods

At the time of enrollment and at follow-up visits, a complete cell count (CBC) and lymphocyte immunophenotyping is done on all subjects. PCR is also conducted on seroincident and seroprevalent cases. Cells, plasma and sera are archived from each subject for future testing. Other testing, described below, will be done on a selected basis:

CBC and lymphocyte phenotyping

CBC and differential are measured using the Coulter MaxM counter. Lymphocyte immunophenotyping is performed using dual fluorescent staining and analyzed on the Facscan using Simulset software at AFRIMS.

PCR subtying

Primary PBMC derived DNA is used for PCR typing. HIV-1 subtypes are differentiated by nested PCR using primers in the gp 41 *env* region. Second round primers differentiated clades B and E, with the amplification of a 287 BP product.

4. Results

Study enrollment

Incident cases	116
Prevalent case	642
Seronegative case	108

Because of limited follow-up of incident cases in the study to date, many of the investigations planned in the protocol await further enrollment of additional incident cases from cohort studies. However, the protocol has provided specimens for assay development and investigations done both in Rockville and in Bangkok. Laboratory assays/projects have included:

a. Assay Development: This project continues to provide an excellent source of samples for the development and optimization of assay systems in the various AFRIMS laboratories including CTL, NK, ADCC, and neutralization assays specifically for the subtype E. The development of these assays have and continue to be critical in the program's vaccine evaluation program in the study of immunological and virological correlates of infection and progression of disease in these studies.

b. Serotyping: Incidence and prevalence cases from this project continue to show the narrow diversity of subtypes (B and E) being transmitted in Thailand. Further, this indicates that Thailand continues to be an ideal location for the evaluation of vaccine candidates. During this year a panel were examined specifically for dual and recombinant B/E infections. This work continues although preliminary evidence indicates that a potential B/E recombinant virus has been isolated from at least one case where a discordant serotype vs. genotype occurred.

c. The sequence for the subtype E prot gene has been determined using a group of 20 patient viruses for this project.

d. A panel of cases (Initial visit, CD4 > 450; F/U > 3 yr) has been identified from this project that will be used to determine the immunologic and virologic differences between disease progressors and nonprogressors. Preliminary neutralization studies with subtype E infected patients have shown that patients who remain clinically stable show stable or increasing neutralization titers over time. Further neutralization, antibody binding and molecular sequencing studies are ongoing.

1.b Health Evaluation of HIV-infected and Uninfected Thai Men after Discharge from the Royal Thai Army.

1. Introduction

Men who seroconverted when they were in the RTA 5-7 years ago were contacted and evaluated. Most of these persons have not been followed in natural history studies of HIV-1 infection.Clinical and laboratory markers of HIV infection were assessed. As a comparison group, men who were HIV negative at the time of discharge were also be assessed in this study. Evaluation of these subjects will provide valuable insights about the natural history of HIV-1 subtype E infection in Thailand.

2. Objectives

To describe the clinic status of persons 5-7 years after infection with HIV-1 in Thailand

To describe the distribution of CD4 counts and viral load, by time since seroconversion and the relationship between CD4 counts viral load and clinical status.

3. Methods

This is a cross-sectional study of men in Thailand who were infected with HIV-1 at a known time. The study population will consist of approximately290 HIV infected men who seroconverted when they were in HIV-1 cohort studies in the RTA or RTAF from 1991 to 1995. A random sample of men who were not infected at the time of discharge from the RTA wereselected from the same provinces as the incident subjects and also recruited for the study. All subjects who consented to participate were bled and CD4 counts were determined. Cells and plasma will be stored for later testing to include viral load. A questionnaire was administered to determine behavioral and health status of the men. Information was collected on cause of death, of any subjects deceased.

4. Results

Enrollment of this protocol was completed in August 1999. Volunteers know to be HIV-infected (n=235) and uninfected (n=232) at baseline were enrolled. Thirty-two percent of the HIV infected had died compared to 3% of the uninfected.

The 5 year survival rate was 82% following HIV infection. All subjects found alive had not received antiviral therapy even though 30% reported complications attributable to HIV. Median CD4 count was 298/mm3 with 37% below 200. CD4 count were found to be inversely correlated to HIV RNA concentration.

1.c Evaluation of Mucosal Virology and Immunity of HIV-1 in Thailand

1. Introduction

Mucosal surfaces of the human body serve as primary barriers against infectious agents and thus are capable of generating humoral immune responses. Secretory IgA (S-IgA) is the predominant isotype of immunoglobulin prodced at mucosal sites and is the principal determinant of the mucosal response. Numberous studies have provided indirect evidence that links the antigen-specific humoral immune responses at various mucosal effector sites into a common mucosal immune system in humans. Experimental example of this include the induction of specific S-IgA in the nasal and duodenal secretions of infants after oral vaccination with live, attenuated poliovirus vaccine. Mucosal-derived antibodies against HIV-1 have been measured from a variety of sources. Archibald et al. Detected S-IgA in about 90% of parotid saliva specimens from HIV-1 infected subjects. Belec et al. Also detected IgA directed against all of major protein of HIV-1 in the vaginal washings of about 65% of infected subjects. The potential influence of mucosal response on the transmission, pathogenesis and immunity to HIV-1 have not been completely delineated. Hoever, mucosal immune responses may be protective against other infections acquired through mucosal routes. Hence. These are important parameters to monitor in both naturally infected and vaccinated individuals. To this end, ongoing and future clinicl trials of HIV-1 candidate vaccines will usually include complete assessments of mucosal immune responses from multiple sites in each individual in order to evaluate the relative ability of different products and regimens to elicit local antibody.

2. Objectives

Describe the mucosal immunology of HIV-1 in Thai subjects.

Compare measurements of specific antibody in specimens derived from blood, nasopharyngeal and endocervical/vaginal or seminal compartments.

Compare the measurements of HIV-1 RNA levels among the studied compartments.

3. Methods

Specimens including blood, nasopharyngeal washings, endocervical secretions, vaginal washings, semen and urine were collected from HIV-1 infected and non-infected Thai males and females population. These samples were evaluated in the laboratory for HIV-1 serologic testing, complete blood count, immunophenotyping, HIV subtyping , the total and HIV-1 specific IgG, IgA and S-IgA, The measurement of HIV-1 viral burden in blood and HIV-1 peripheral blood monnuclear cell co-culture in semen and vaginal wash were also performed. The results of these studies would be analyzed to compare the intra- and inter- subject antibody responses between and within compartments, to find out the influence of epidemiologic and clinical factors on humoral resposes in mucosal compartments, to compare the seminal or vaginal cell culture results with HIV-1 RNA levels and antibody measurements and to evaluate the effects of HIV-1 subtype on cell culture results, HIV-1 RNA levels, and antibody measurements.

4. Results

a. Enrollment:

HIV Seropositive = 100 (50 male, 50 female)
HIV Seronegative = 67 (37 male, 30 female)

b. HIV subtypes determined: E - 90; B - 10

c. NK functional studies conducted on 40 HIV-neg and 17 HIV-pos subjects

d. Thirty nine subjects were diagnosed with AIDS at enrolment.

e. Viral load quantitation in mucosal compartments begun. All volunteers screened at V1. There were no significant differences in either CD4 absolute counts or plasma HIV viral load between genders. The median CD4 count for the 100 HIV infected subjects at V1 was 274/ul (range 3-1099) and the median viral load was 4.55 $\log_{10}$ copies/ml (range 2.65-5.90)

f. HIV RNA was detected and quantitated in nasopharyngeal (NP) washes obtained at V1 from 28/97 subjects. The median viral load from NP washes was 3.34 log10 copies/ml (range 2.56-4.89). HIV RNA was detected in NP washes from both infected men and women, and was not a function of the infecting HIV subtype.

g. One potential HIV recombinant subtype has been identified using molecular and serologic assays and this virus (2079) has been isolated from the subject.

2. Cohort Studies

Cohort development for Phase III trials is ongoing. Cohort development includes planning recruitment and follow-up mechanisms and determination of follow-up rates, HIV-1 incidence, behavior and STD rates in the population. Data collected from routine HIV-1

surveillance being conducted in the RTA, as well as several HIV-1 cohort studies, will provide information concerning cohorts which might be suitable for Phase III trials. Because the HIV epidemic in Thailand is dynamic and there are rapid changes occurring in the society, the process of identifying a suitable cohort has been challenging.

a Prevalence and incidence of HIV-1 infections among recruits in the Royal Thai Army at Prachuab Khiri Khan

1. Introduction

Numerous studies have focused on the incidence and prevalence of HIV-1 infection among Royal Thai Army conscripts (Tahan Gahn) . RTA conscript populations are socio-demographically homogeneous as relatively advantaged populations are excluded from conscription. Conscripts tend to be from non-municipal areas, engaged in agrarian occupations, possess a primary school education, and come from a Buddhist background. Those studies examining risk factors, interventions, or follow-up have focused on recruits in the Northern region where the epidemic has been most prominent.

Prachuap Khirl Khan is the southernmost province of the Central region. Fort Thanarat, the major RTA installation in the province has conscripts from geographically diverse backgrounds. Conscripts who arrive for service in May generally come from the Central or Southern provinces, while those who arrive in May are drawn from the Northeast. Fort Thanarat was chosen because it had a large recruit population, increasing prevalence, predominantly non deploying units (to simplify follow-up), and a single large hospital responsible for care. It's geographically diverse population also permitted exploration of regional differences in epidemiology and behavioral norms. The start date for this study was July 1995.

2. Objectives

(1) Study the prevalence and incidence of HIV-1 infection in recruits stationed at Fort Thanarat, Prachuap Khiri Khan province, Thailand.

(2) Study the attitudes, behavior and follow-up patterns in the recruits.

3. Methods

HIV-1 testing is being done at baseline and every 6 months. At each bleed, a questionnaire is administered to evaluate behavior and knowledge. Two different educational and behavioral intervention programs are being implemented. using a non-randomized, quasi-experimental design. The incidence of HIV-1 in the recruits, over all and in the two intervention groups, will be determined, along with changes in knowledge and behavior over time. At the end of the follow-up period, subjects will complete a questionnaire to assess attitudes towards participation in vaccine trials. As a service and incentive to the conscripts, Hepatitis B immunization is being offered, along with treatment of prevalent cases of syphilis. Routine

follow-up and care is provided for HIV seropositive participants in this study. The HIV care and behavioral interventions will be adapted by the fort hospital and continued after the study is completed.

4. Results

3839 seronegative recruits were enrolled for incidence follow-up, 88.7 % were available for follow-up at 24 months. The overall incidence was 0.43%/100py. During the study period, CSW patronage decreased from 24.8% to 15.5% ($p<0.05$) and consistent condom use with CSWs increased from 59.7% to 76.4% ($p<0.05$). Of the seroconverters, 89.1% participated in a program for prophylaxis and treatment for HIV-related infection. Of the HBV-naive, 59.3% presented for first Hepatitis B vaccination and 90.2% of these vaccinees received a full 3 doses course. Publication manuscripts were written with regard to HIV-1 seroprevalence, seroincidence, patterns of baseline risk behavior, willingness to participate in HIV vaccine trials, and the clinical care package that was offered to HIV-1 seropositive personnel at the Fort. The local fort hospital has assumed responsibility for continuing the two interventions. The RTA Medical Department reviewed the behavioral intervention as a model for other posts

b. Incidence of HIV-1 infection among persons attending STD clinics and anonymous test sites

1. Introduction

This protocol studied the prevalence and incidence of HIV-1 infection in persons attending STD clinics in several areas of Thailand in order to determine whether this group represented a feasible cohort for HIV vaccine efficacy trials.

The planning for this was initiated early in 1995 and enrollment began in September 1995. Recruitment and enrollment continued through February 1996. Subject follow-up and all data collection was completed in May 1997.

2. Objectives

(1) Study the prevalence and incidence of HIV-1 infection in persons attending STD clinics and anonymous test sites.

(2) Study the attitudes, behavior and follow-up patterns in the cohort.

3. Methods

Subjects are enrolled from STD clinics and anonymous test sites at three sites, Bangkok, Chonburi, and Lampang. Participants are tested for HIV-1 at 4 month intervals for one year. Education and counseling are provided at each visit. At each bleed, a questionnaire is administered to evaluate behavior and knowledge. At the end of the follow-up period, subjects will complete a questionnaire to assess attitudes towards participation in vaccine trials.

4. Results

Between September 1995 and February 1996, 1901 eligible persons were asked to participate in the study. Thirty percent of eligible men (371/1238) and 24% of women (161/663) agreed and were enrolled into the study. Among the 532 person who enrolled in the study, the HIV-1 seroprevalence was 3.4%. History of an ulcerative SI'D and lifetime CSW partners were associated with HIV-1 infection among men. There were no statistically significant risk factors identified for women. Follow-up at the second and third study visits has been 70-80%. The over all incidence was 1.4%/100py.

While this study was successful in attaining its stated goals, unfortunately, the results suggested that this cohort would probably not be suitable as a Phase III cohort due to low incidence and other factors. However, this was the first successful cohort development effort for the Thailand Site outside military populations and provided the experience and many invaluable lessons on the planning and conduct of such efforts in Thailand. It has and continues to serve as an excellent model for current cohort development efforts that are either on-going or in the planning stages such as the Rayong Family Planning Clinic Study and the planned Chonburi community-based study.

c. Incidence of HIV-1 Infection Among Women Attending Family Planning Clinics in Rayong Province, Thailand

1. Introduction

This protocol studies the prevalence and incidence of HIV-1 infection in women attending family planning clinics in Rayong. This group represents a potentially feasible cohort for HIV vaccine efficacy trials. The start date for the original study was February 1998 the continuation study was begun in September of 1999.

2. Objective

To determine (1) the incidence of HIV-1 infection in a cohort of women who attend family planning clinics; (2) the rate of follow-up during the one year study period in this cohort; (3) the subtype and further characterize HIV isolates from seroconvertors in the cohort; and (4) assess willingness to participate in HIV vaccine trials.

3. Methods

Three health centers in Rayong Province were used for recruiting volunteers in this study including: Nernprah Health Center, Pae Health Center, and Tapong Health Center. Women who attend the family planning clinicswereasked to participate in the study when they come in for their quarterly follow-up or as a new patient to the clinic desiring birth control . The initial cohort of 500 volunteers were enrolled and complete their 12 months visit. Subjects from the previous cohort who are under the age of 30 were asked to be followed for another 12

months. Volunteers were enrolled under the age of 30 until a cohort of approximately 1000 women is identified. They were enrolled and followed at 6 month and 12 months. They had baseline studies done for HIV, syphilis, and Hepatitis B. Pre- and post- counseling were provided. At the 6 month and 12 month visit they were counseled and tested for HIV. At the final visit they were asked about their interest in participating in a potential phase III vaccine trial.

4. Results

Prevalence: Two-hundred sixty five women were continued from the previous study. Eight Hundred and Fifty new volunteers were enrolled. There were 34 prevalent cases in this group (4.0%). A rate essentially identical to the prevalence from the original cohort (3.9%).

Follow-up Success: Ninety-one percent of the 265 women seen at 18 months were again seen at 24 months. The follow-up of the 850 new volunteers was 86% at the 6-month visit.

Incidence: There were two women from the original cohort who had sero-converted when they were seen at the first visit in the continuation study (18 months from their original enrollment). At the 12 month visit for the 850 new volunteers, 338 had been seen and there was one sero-convertor. The crude estimate of the incidence is approximately 0.5 cases/100 Person-Years of follow-up.

Summary: Willingness to enroll was higher than expected, and follow-up has been good, but the incidence is still low in this cohort of essentially married women.

d. Community-Based Cohort Study of HIV-1 Incidence in Sattahip, Chonburi, Thailand

1. Introduction

In this study, we propose community-based cohort development in four communities in the subdistrict of Sattahip in Chonburi, Thailand: Phlutaluang, Chong Samaesan, Taothan and Bang Sare. Chonburi is a province located southeast of Bangkok on the eastern seaboard.

While the size of the communities evaluated in this protocol may not be adequate for phase III trials, this concept could be enlarged and adequate numbers enrolled from a community-based cohort. Calculations have been made to determine the cohort size needed for phase III efficacy studies. AFRIMS has and is exploring a variety of cohorts. Because vaccine efficacy trials should be able to start in the year 2002, several cohorts need to be explored simultaneously in order to ensure that a cohort is available when vaccines are ready for phase III trials.

2. Objective

To determine:- (1) the baseline Human Immunodeficiency Virus, Type I (HIV-1) prevalence and the HIV-1 incidence in persons 20-49 years of age in a community-based study in Sattahip, Chonburi, Thailand; (2) participation rates and differences between participants and non-participants; (3) the follow-up rates during the study period; (4) attitudes toward participation in phase III HIV vaccine trials; (5) behavioral changes in the participants during the study period; and (6) HIV subtypes among HIV-1 infected persons in the cohort.

3. Methods

In this feasibility study we developed community based cohorts in four communities in the subdistrict of Sattahip, Chonburi: Phlutaluang , Samaesan were originally chosen and 600 volunteers were enrolled from Samaesan and 900 fromPhlutaluang. These volunteers were between the ages of 20 and 49 years. Because of the low incidence in Rayong and in the parallel studies being done in Chiang Mai it was decided to increase the number of volunteers and to enroll persons between the ages of 20 and 30. Two additional communities were enlisted and 500 volunteers under the age of 30 were recruited from both Taothan and Bang Sare health centers.

In addition to evaluating HIV-1 incidence in this cohort, changes in risk behavior will be evaluated. Attitudes and motivation for participation in HIV vaccine trials will be investigated by a questionnaire administered at the end of the study.

4. Results

Enrollment: Enrollment started in March 1999 in Samaesan and Phlutaluang and was completed in June. Enrollment began in July and was completed in Aug for Taothan, and began in September and completed in October for Bang Sare.

Prevalence: Of the 2500 hundred volunteers, 121 were HIV positive at the time of enrollment, a prevalence rate of 4.8%. The rate varied from a high of 7.0% at Samaesan to a rate of 3.8% in Phlutaluang.

Follow-up: At the six month visit the follow-up rate was approximately 87%. Most of those lost to follow-up were due to movement from the area. Follow-up at the 12 month interval is presently ongoing. In Phlutaluang and Samaesan, which have completed the 12 month visit the follow-up rates are 87% and 90% respectively.

Incidence: To date there have been 16 incident cases in the cohort. A crude estimate of the incidence rate is approximately 0.7 cases/100 Person-Years of follow-up. The rate varying by community from 0.57 in Phlutaluang to 1.05 in Bang Sare.

Summary: Enrollment of the cohort using the health centers has been better than anticipated. The incidence rate is moderate and has been fairly consistent over time. The follow-up rate has been acceptable. These parameters suggest that a phase III trial could be done in this community.

3. *HIV-1 Vaccine Testing*

a. Screening and evaluation of potential volunteers

1. Introduction

Recruitment and screening of volunteers for HIV vaccine trials is necessary for the success of vaccine trials; however, the techniques and methods for successful recruitment for HIV vaccine trials were unproved and virtually untried in Thailand. Volunteers for all vaccine trials will be required to have clinical and laboratory, characteristics which will be generally constant for all trials. Therefore, screening for potential vaccine trial subjects can be independent of the particulars anticipated vaccine trials. The ability to begin screening volunteers under a human use approved protocol, according to criteria which satisfy inclusion and exclusion criteria for the actual vaccine trial 30 to 50 days in advance of actual trial approval allows for a more rapid implementation and enrollment phase for each vaccine trial.

Information from this protocol is being used to guide future recruitment strategies. Additionally information on normal lab values obtained in screening for the RV99 protocol has been useful in the design inclusion and exclusion criteria for future HIV research protocols in Thailand.

The protocol was amended to include the two new TAVEG sites (Vaccine Trial Centre, Faculty of Tropical Medicine and Siriraj Hospital, both of Mahidol University) and to it more flexible as a screening tool for various vaccine protocols. Some examples: the age range was changed from 20 - 50 to be age 18 or older. The requirement for Thai nationality was removed, some of the specifics about lab assays and were made more general to allow flexibility in future studies, as were the descriptions of the sequence of procedures at each visit. A section was added to allow compensation to be paid for the last screening visit for those volunteers who are found to be eligible for the upcoming vaccine protocol.

2. Methods

Evaluation includes collection of demographic information, medical history, physical examination, laboratory evaluation may include CBC, CD4 count, chemistries, CXR, HBsAg, pregnancy test, RPR and a psychological assessment. Specific screening procedures and required assays would be specified within the individual vaccine protocol

This protocol is periodically active, when needed for screening for an upcoming vaccine protocol.

3. Results

This protocol, approved in January 1995, enrolled 107 volunteers between 1 August 1995 and 14 December, 1995 to screen potential volunteers for RV99 protocol ("A phase I Trial of Biocine HIV SF2 gp120/MF59 Vaccine in Seronegative Thai Volunteers").

Enrollment recommended on September, 1997 to screen for RV114 vaccine protocol (A phase I/II, Double-blind, placebo-controlled Study of Chiron HIV Thai E gp120/MF59 Vaccine Admisnistered Alone or Combined with the Chiron HIV SF2 gp120 Antigen in Healthy HIV-Seronegative Thai Adults). 611 volunteers (VTC 151, Siriraj 123, AFRIMS 132, RIHES 203) have been enrolled at the four TAVEG study sites.

Enrollment recommended on January 2000 to screen for RV132/RV135 vaccine protocol (RV132: "Phase I/II Trial of Aventis Pasteur Live Recombinant ALVAC-HIV (vCP1521) Priming With Either Oligomeric gp160 TH023/LAI-DID or Chiron Vaccines HIV Thai E (CM235) gp120 plus SF2 gp120 Boosting in Thai HIV-Seronegative Adults"/ RV135: "A Phase I/II Trial of Aventis Pasteur Live Recombinant ALVAC-HIV (vCP1521) Priming With VaxGen gp120 B/E (AIDSVAX™ B/E) Boosting in Thai HIV-Seronegative Adults."). 437 volunteers have been enrolled at four TAVEG study sites

The preliminary finding of these volunteers are the following (by Trial):

RV99/RV114

- Continue high altruistic motives for participation.
- Negligible results from mass media. Majority of volunteers were either recruited from through community outreach or referral by study staff or study volunteers.
- Demographic differences between volunteers enrolled in Bangkok and Chiang Mai in that Chiang Mai volunteers were more likely to be married, have lower education and personally know someone with HIV.
- Approximately 65% of volunteers completed screening successfully and were enrolled in RV114 vaccine protocol.
- Compared to Bangkok sites, Chaing Mai site had more screening failures as a result of more withdrawal of consent, failing test of understanding and medical / laboratory abnormality.
- Only 3 screening volunteers were found to be HIV infected. Majority of medical / laboratory exclusions were due to hypertention, elevated liver function and microscopic hematuria.

RV132/135

Screening for both of these vaccine protocols has been completed.

The current protocol was terminated in August 2000 at the completion of the screening and enrollment of RV132/135. A replacement screening protocol (RV140) has been finalized and will be submitted for IRB approval in the first quarter of FY01. It is expected that this new protocol will be used for the screening of volunteers for future phase I/II trials

b. Phase I trial of Biocine HIV SF2 gp12O/MF59 vaccine

1. Introduction

This double-blind, randomized, Phase I study evaluates the safety/tolerability and immunogenicity of the BIOCINE Human Immunodeficiency Virus (HIV) SF2 gpl2O/MF59 Vaccine at the dose of 50ug in two immunization schedules.

2. Objective

To evaluates safety and immunogenicity of the BIOCINE HIV SF2 gpl2O/MF59 Vaccine in Thai seronegative volunteers.

3. Methods

The study population consisted of fifty-two HIV-1 seronegative, healthy Thai adults enrolled from the community, twenty-six at AFRIMS in Bangkok and twenty-six in Chiang Mai. Each site had one drop out who was replaced, so a total of 54 volunteers were enrolled. The final regular visit occurred 18 September 1996. Compliance was 100% for each visit at each site. Each subject was asked to return for three follow-up visits at 6-month intervals. The compliance rate (overall for 2 sites) was 96% of volunteers at first follow-up visit, 84% at the second, and 74% at the final (18-month) follow up visit.

4. Results:

Results to date indicate that the vaccine is safe. It induces no significant systemic toxicity or local reactogenicity; the safety profile of the vaccine in vaccinated Thais similar to that seen in volunteers who received this product in clinical trials in the United States. Binding and neutralizing antibodies were elicited, as were lymphoproliferative responses. These immune responses appeared greater in magnitude with the third dose at 6 rather than 4 months.

Manuscript regarding recruitment and enrollment has been accepted for publication and represent the first published evaluation of HIV vaccine recruitment in the world. Manuscript regarding reactogenicity and immunogenicity has been published in Vaccine, January 2000. There have been no volunteers developing HIV infection during the course of an AFRIMS HIV vaccine trial, neither in this completed trial nor in a subsequent ongoing trial.

c. A Phase I/II Double -blind, Placebo Controlled of Chiron HIV Thai E gp120/MF59 Vaccine Administers Alone or Combined with the Chiron HIV Sf2 gp120/MF59 Vaccine in Healthy HIV-seronegative Thai Adults

1. Introduction

The protocol evaluated the safety and immunogenicity of Biocine HIV Thai E gp120/MF59 (25, 50, 100 ug) alone or combined with Chiron Biocine HIV SF2 gp120 antigen (25 and 50 ug) in healthy Thai adults seronegative for HIV type 1.

2. Objective

- **Safety Objective :**
  To evaluate and compare the safety of three doses of Chiron HIV Thai E gp 120/MF 59 Vaccine (25, 50, 100 μg) alone or combined with one of two doses of the Chiron HIV SF2 gp120 antigen (25 and 50 μg) in healthy, HIV-1 seronegative Thai adults.

- **Immunogenicity Objective :**
  To evaluate and compare the immunogenicity of the three above-mentioned doses of the Thai E gp120/MF 59 Vaccine when given alone or combined with one of two doses of SF2 gp120 antigen and to evaluate potential interactions between antigens. If there is no meaningful interaction between antigens, comparisons will be made among the Thai E gp120 antigen dose groups and the SF2 gp120 antigen dose group. These comparisons will allow for the selection of a vaccine candidate anticipation for a future efficacy study.

3. Methods

An open-label, Phase I study (part A) was initiated prior to a blinded, Phase II portion of the trial. In part A, 12 subjects will receive a total of 3 immunizations at 0, 1, and 6 months. In part B, 368 subjects will be randomized to receive vaccine (n=32 for each of the 9 antigen groups) or placebo (MF59/vehicle only [n=80]) at 0, 1, and 6 months. The dosage groups (Thai E and SF2 gp120 antigens, respectively) are 25/0, 50/0, 100/0, 25/25, 50/25, 100/25, 25/50, 50/50, and 100/50. Measures of immunogenicity will include binding, neutralizing antibodies, and cellular proliferate responses to both SF2 and Thai E antigens.

4. Results:

Open label trial was started on November1997and this study was completed in July 1999. The data set was locked and made available to investigators in early FY00. There was no serious adverse event related to the vaccine reported. There was no breakthrough infection. The preliminary data suggested that these vaccines are safe. This immunogenicity data is under analysis. Behavioral data collected during the trial is also being analyzed

d. Addendum #1 to RV114 "Two booster injections with a higher dose of Chiron Vaccines HIV Thai E gp120 (200μg) / MF59 Vaccine alone in RV114 volunteers previously immunized with Chiron Vaccines HIV Thai E gpl20 (100μg) / MF59 Vaccine or Thai E gp120 (100μg) + SF2 gp120 (25 or 50 μg)/ MF59 Vaccine."

1. Introduction

The immunogenicity data from RV114 seem to indicate that V3 antibody responses were relatively weak, and no neutralizing antibody responses against Thai E primary isolates were induced. It has been speculated that the doses administered in RV114 might not be optimal to raise such antibodies to the threshold of detection. Thus, this protocol amendment will offer two additional booster injections, at three-month intervals of the Chiron Vaccines Thai E gp120/MF59 at a higher dose (200μg) with the expectation to enhance the binding and neutralizing antibodies, especially those directed against a Thai E primary isolate.

2. Objectives:

To evaluate the safety of two additional booster doses (given three months apart) of Chiron HIV Thai E gp 120 (200 μg) vaccine in RV114 previously immunized Thai volunteers.

3. Methods:

This addendum will be a open-label trial. Twenty-four volunteers already enrolled in RV114 at the AFRIMS and VTC study centers and having received the Chiron Vaccines Thai E gp120 (100 μg) / MF59 vaccine alone or simultaneously with the Chiron Vaccines HIV SF2 gp120 antigen (25 or 50 μg) will receive intramuscularly two doses at a three-month interval of Chiron Vaccines Thai E gp120 (200 μg) / MF59 vaccine. Volunteers will be enrolled into this addendum and receive their first immunization subsequent their last injection of gp120 in RV114. Subjects will be followed up for 3 months after the second booster immunization. In addition, all subjects will be followed for 12 months after the final study visit for HIV testing and will also be contacted annually for a period of 5 years after the last immunization to monitor their general health according to guidelines outlined in the National Plan for AIDS Vaccine Development and Evaluation. Volunteers who experience "breakthrough" HIV-1 infection during the trial, or up to 18 months after the last immunization, will be offered enrollment in a study to evaluate the natural history of HIV-1 (RV99).

4. Results

Enrollment of 24 volunteers from the previous trial were completed.

e. A Phase I/II Trial of Aventis Pasteur Live Recombinant ALVAC-HIV (vCP1521) Priming With VaxGen gp120 B/E (AIDSVAX™ B/E) Boosting in Thai HIV-Seronegative Adults."

1. Introduction

This protocol is a Phase I/II comparative vaccine trial of the safety and immunogenicity of ALVAC-HIV (vCP1521) priming with two different doses of a bivalent AIDSVAX™ B/E gp120 boosting. The trial will be conducted in two parts: (1) a open label trial to determine the safety and tolerability of the ALVAC-HIV vaccine and (2) a double blind trial to determine the safety and immunogencity of ALVAC-HIV (vCP1521) priming with either of two doses of bivalent AIDS-VAX B/E gp120 boosting.

2. Objectives:

Phase I: Determination of the acute safety and tolerability of ALVAC-HIV (vCP1521; $10^{6.53}$ $CCID_{50}$) vaccine from Aventis Pasteur.

Phase II: Determination of the safety and immunogenicity of ALVAC-HIV (vCP1521) priming with either 200 μg or 600 μg (100 or 300 μg each B and E gp120) of the bivalent AIDSVAX™ B/E gp120 boosting.

3. Method:

Phase I

Group I: ALVAC-HIV (vCP1521; $10^{6.53}$ $CCID_{50}$) will be tested for acute safety and tolerability in a group of 5 low risk, HIV seronegative Thai adults. Results from the first two immunizations were presented to the DSMB for review; the initiation of Phase II was based on their approval.

Phase II (subjects are enrolled concurrently into Group II and Group III):

Group II: 45 low-risk HIV seronegative Thai adults are given ALVAC-HIV (vCP1521;$10^{6.53}$ $CCID_{50}$) priming at weeks 0, 4, 12, and 24. At weeks 12 and 24, vCP1521 is administered with 200 μg of a bivalent AIDSVAX™ B/E gp120 (100 μg for each B and E gp120). Fifteen other subjects receive placebos.

Group III: 45 low-risk, HIV-seronegative Thai adults are given ALVAC-HIV (vCP1521; $10^{6.53}$ $CCID_{50}$) at weeks 0, 4, 12, and 24. At weeks 12 and 24, vCP1521 is administered with 600 μg of a bivalent AIDSVAX™ B/E gp120 (300 μg for each B and E gp120). Fifteen other subjects receive placebos.

SUBJECTS:

One hundred twenty-five healthy, low-risk, HIV-seronegative Thai adults, 20 to 50 years of age, available for at least 1 year of follow-up. There are 5 subjects in Group I. There are 60 subjects in each of Groups II and III (45 vaccinees and 15 placebo-recipients each).

Significant Findings:

Phase I is fully enrolled and immunization complete. Based on the vaccine safety profile, the DSMB approved initiation of phase II. Enrollment was completed.

f. QA/QC programs

Development of Quality Assurance program in all laboratoriesIn FY00 a CAP inspector from WRAIR provided a technical assist re-visit which included an inspection of all vaccine trial laboratories. The purpose of the inspection was to determine readiness of the laboratories for a certification inspection in the future and to point out problems and areas that require continued improvement prior to that inspection. The visit was highly successful and there were considerable improvements following his first visit in FY 99. The visiting inspector again provided training and assisted in the planning and implementation of continuing improvements in the QA/QC program.

The laboratories continue to participate in several external Proficiency Programs including:

1. Streck laboratories UKNEQAS & Australia for flow cytometry
2. CAP - flow cytometry, serum chemistry, viral load, hematology
3. WRAIR/Thai National HIV serology and viral load PT programs.

Results continue to be excellent overall and only occasional discrepancies have been noted. Similarly, the laboratories continue to participate in the NRL (Australia) HIV Viral Load Program. Again, results of this program have been excellent throughout. One of our collaborating laboratories began CAP proficiency panel testing in hematology, HIV serology and clinical chemistries.

The QA coordinator and the laboratory director attended a 5 day-workshop in Bangkok sponsored by the national reference laboratory of Australia entitled "SEAWP Regional Quality Assurance Workshop".

4. Surveillance

a. Introduction

A previous nationwide seroprevalence survey with demographic data collection was conducted on Royal Thai Army conscripts from November 1991 to May 1993. This survey allowed definition of the epidemic nationwide and has assisted both the Ministry of Defense, the Ministry of Public Health, and other Royal Thai Government agencies to better understand the epidemic in Thailand.

This project studies the prevalence nationwide among recruits serving with the Royal Thai Army in Thailand and will assess temporal, geographic and demographic correlates of HIV-1 infection among the young men. The information obtained from this study will help monitor the epidemic and assist in identification of location for potential cohorts for Phase III trials.

b. Methods

Demographic information is collected on young men entering service with the Royal Thai Army (RTA) nationwide and is merged with routine serologic HIV data collected by the RTA. The recruits are bled at entry into the RTA (every November and May) . Sera are testing for HIV by ELISA and positives are confirmed by Western Blot.

In 1996, serotyping of all HIV positive sera was initiated using a V3 peptide ELISA. In addition, a comparison of serotypes in a random sample of recruits from each regions in 1992 and 1995 was performed.

Data from this study was analyzed, along with data from RV70 (a previous project which had a similar design) to evaluate trends in nationwide seroprevalence.

c. Results

Trends in seroprevalence in the RTA

Demographic information was collected on young men entering service with the Royal Thai Army nationwide and is merged with routine serologic HIV data collected by the RTA. The recruits were bled at entry into the RTA (every November and May) and sera were tested for HIV by ELISA (confirmed by Western blot). In 1997, serotyping of all HIV positive sera was initiated using a V3 peptide ELISA. Data from this study is analyzed to evaluate trends in nationwide seroprevalence.

Trends in seroprevalence in the RTA

HIV-1 Seroprevalence (%) by Region of Service in the RTA and Year

Region	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Central*	1.2	2.2	2.9	3.0	2.6	2.5	2.0	1.8	1.4	1.3	1.3
Bangkok	1.2	2.8	3.3	3.2	2.9	2.6	1.7	2.2	2.2	3.0	2.1
Northeast	0.9	1.8	2.4	2.6	2.6	1.6	1.6	1.1	1.1	0.7	0.7
North	6.1	6.5	7.5	7.3	5.0	3.4	3.3	2.5	1.8	1.3	1.4
South	1.6	2.2	2.6	2.8	2.2	2.0	2.1	2.6	2.0	2.2	2.3
Total	**1.9**	**2.9**	**3.5**	**3.7**	**3.0**	**2.4**	**2.0**	**1.9**	**1.6**	**1.6**	**1.4**

* Bangkok not included

Serotyping

Over 95% of prevalent infections were subtype E.

C. Studies Using Animals

The Department of Veterinary Medicine provides support for multiple animal-based research efforts at AFRIMS. With expanding regulatory requirements; increasing sensitivity to animal-care issues; and a relatively constant level of ongoing or new animal-based studies, demands for a high level of animal care and handling continue unabated. During October 1994-December 2000, care and handling were provide for several species of animals in support of research studies.

D. Laboratory Science Support

The ready availability of proper cleaning and decontamination of laboratory glassware is a fundamental requirement for all science departments at AFRIMS. The glassware section currently supports over 25 separate categories of glassware stock and stocks over 13,000 glassware items on a continuing basis. The glassware section is also responsible for the daily production of sufficient quantities of pure deionized water for use in laboratory assays. The glassware section also invariably complies with AFRIMS safety regulations to make sure that all hazardous waste materials be discarded in a proper place for environmental protection.

Results

Between October 1994-December 2000, the glassware section received approximately 320,000items of glassware for cleaning and decontamination. They distributed approximately 217,000 items for use by various departments at AFRIMS. All hazardous waste materials after decontamination either by chemical treatment or under sterilization process will be dumped in the proper place.

III. CONCLUSIONS

A. Preparations for HIV Vaccine Efficacy Testing

1. Natural History Study

The natural history study has been most useful as a tool for providing reagents for laboratory strengthening and development. It has also yielded potentially useful insights for further research. A revised natural history protocol is prepared to better address the needs of long-term follow-up for describing the natural history of HIV disease and defining endpoints for vaccine efficacy testing and to provide a mechanism for adequately following and evaluating vaccine subjects who develop HIV infection during vaccine trials. Three protocols regarding the natural history of HIV infection were implemented during this grant period. Information obtained from these protocols will help to better understand the pathogenicity of HIV infection in Thailand.

2. Cohort Studies

The intensity of effort and resources which such undertakings demand has only become apparent with experience. Four cohort feasibility projects have been implemented. Study of a civilian cohort (STD clinic attendees) and a military cohort were completed. While these two study yields valuable data, they also demonstrated that neither a STD clinic attendees cohort nor a military cohort was optimal as the potential study population for a phase III vaccine efficacy trial. The study of women in MOPH family planning clinics is on-going in Rayong province. Enrollment was excellent. Cohort development of community based cohort in Sattahip is on going.

The single-most important ingredient in successful cohort projects is a solid base of support and trust within the collaborating institutions. The Royal Thai Ministry of Public Health (MOPH) and the network of ministry sponsored hospitals and clinics have been most cooperative at all levels of cohort development. Cohort development within MOPH facilities and with civilian subjects, have required considerable efforts to establish working relationships with key individuals, including the Director, Department of Communicable Disease Control, the Director of the Division of AIDS and with numerous ministry officials at province, district and community levels. In the case of the RTA, success was based upon relationships built with hospital and based commanders, and support from the central command.

3. Phase I/II Vaccine Trial

The first phase I/II trial of an HIV vaccine (rgp120) was completed with vaccine found safe and immunogenic in Thais. Manuscript is published. A large phase I/II trial of a subtype E HIV subunit vaccine (rgp120) was completed in July 1999 . There was no serious adverse events related to the vaccine. The immuogenicity of this vaccine is under analysis. Two of phase I/II are ongoing, are is the prime-boost vaccine and the second is the addendum of booster injection with a higher dose Chiron vaccines.

4. Surveillance

Active surveillance of RTA conscripts is ongoing. The data collected in this effort continues to provide one of the best windows to the dynamics of the HIV epidemic in Thailand. Serotyping defines the virological dynamics of the epidemic, especially as regards the intrusion of new viral subtypes (e.g., subtype C) and shifting dynamics of the current subtypes, B and E.

B. Studies Using Animals

Animal-based research will continue to place a fundamental demand on Veterinary Medicine resources at AFRIMS. With expanding regulatory requirements; increasing sensitivity to animal-care issues; and a relatively constant level of ongoing or new animal-based studies, demands for a high level of animal care and handling will continue unabated and very likely increase in coming years.

C. Laboratory Science Support

The level of active research protocols, ongoing and projected will continue at historical levels or greater and will continue to require an active glassware section to meet the needs of highly technical and resource intensive scientific investigation.

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B. Abstracts and Presentations

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V. APPENDICES: PERSONNEL ASSIGNED UNDER AGREEMENT

Vet. Med.

No.	*Name*	*Surname*	*Position*
1	Komdej	Kongsunarat	Lab Animal Research Supervisor
2	Niyom	Sornchan	Supervisor Monkey Section
3	Phongsak	Maneerat	Supervisor Assistant
4	Bumrung	Chaikwang	Supervisor Assistant
5	Manas	Suphasri	Supervisor Rodent Section
6	Pakdee	Chuenchom	Supervisor Assistant
7	Suchin	Poolgird	Supervisor Assistant
8	Samran	Kongsua	Animal Care Taker Technician
9	Ampai	Bhudthongchai	Animal Care Taker Technician
10	Thonglor	Detkokao	Animal Care Taker Technician
11	Sawang	Sripakdee	Support Supervisor Section
12	Phatcharaphon	Jaikla	Operator Equipment
13	Samruay	Jecksaeng	Operator Equipment
14	Dechmongkol	Onchompoo	Operator Equipment
15	Manop	Pooyindee	Operator Equipment
16	Choosri	Sangsri	Guard
17	Komgrit	Ekkachart	Admin. Assistant
18	Jarin	Keawjarat	Lab Animal Research Assistant
19	Sarawut	Komjalern	Lab Animal Research Assistant
20	Anchalee	Tungtang	Lab Animal Research Assistant

Glasswares Worker

No.	*Name*	*Surname*	*Position*
21	Sawadi	Boonnak	Glasswares Worker Supervisor
22	Charan	Kajeechitr	Glasswares Worker
23	Thongchai	Duangkaew	Glasswares Worker
24	Boonthum	Jamjang	Glasswares Worker
25	Komson	Boonnak	Glasswares Worker

Administration

No.	*Name*	*Surname*	*Position*
26	Sutthida	Srijan	Admin. Clerk
27	Weerasak	Yeephu	Computer Technician
28	Sompol	Boonnak	Computer Technician
29	Daungjai	Lumson	Data Entry
30	Barnyen	Permpanich	Nurse
31	Ratchada	Thipwong	Medical Technician
32	Nipat	Promchart	Air-Conditining Repairman
33	Russama	Jittawisuthikul	Admin. Clerk
34	Thongsuk	Munmuenpom	Driver
35	Somsak	Sangsri	Driver
36	Somchai	Putsang	Driver
37	Pattrapan	Jullasing	Information Technologist
38	Puwanai	Sangsri	Audio-Visual Assistant

HIV Personnels

NO.	*Name*	*Surname*	*Position*
1	KRITIKA	SINGHARAJ	ADMIN. ASSISTANT
2	NARONGRID	PONGPAKDEE	DATA ENTRY
3	NUCHAREE	THONGSEN	CHIEF OF DATA ROOM
4	PLOYPAILIN	KHLAIMANEE	LOGISTIC ASSISTANT
5	YAOWALUX	KITKUNGWAL	BAA SECRETARY
6	WAREEPORN	WONGBOWONNAN	PI. SECRETARY
7	WONLANA	JAIDEE	DATA ENTRY
8	VIROJ	YAMUTHAI	DATA ENTRY
9	WISUT	LOKPICHART	PROGRAMMER
10	SITHINAN	BUNYATUB	DATA ENTRY
11	SUCHAT	THEPSANAN	DATA ENTRY
12	SUPIN	PANKOTE	DATA ENTRY
13	ORANUCH	SUPAPYAN	SPECIAL PROJECT TECH
14	APORN	CHITSUNTHORNRAT	SPECIAL PROJECT TECH
15	KORNCHANOK	PANJAPORNSUK	TECHNICIAN
16	KAMPOL	PUAPUEN	RESEARCH ASSISTANT
17	VINAL	KANEECHIT	RESEARCH ASSISTANT
18	SIRIVAJRA	EKAPIRAT	MEDICAL TECHNOLOGIST
19	SUTCHANA	TABPRASIT	TECHNICIAN
20	SUCHAT	CHUANGPHO	CLEANER / MESSENGER
21	APICHAT	SUDATHID	TECHNICIAN
22	ATHAYA	RUANGPHUENG	TECHNICIAN