CONTRACT NO: DAMD17-92-C-2003

TITLE: CLINICAL RESEARCH OF HIV VACCINE STUDIES ON CHIMPANZEEs

PRINCIPAL INVESTIGATOR: Dr. Arthur W. Rowe
Dr. Elizabeth Muchmore

CONTRACTING ORGANIZATION: New York University Medical Center
Laboratory for Experimental Medicine and Surgery in Primates (LEMSIP)
550 First Avenue
New York, New York 10016

REPORT DATE: February 16, 1994

TYPE OF REPORT: Annual/Final Report

PREPARED FOR: U.S. Army Medical Research, Development,
Acquisition and Logistics Command (Provisional),
Fort Detrick, Frederick, Maryland 21702-5012

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94-12670
This contract involves clinical research of vaccine studies on Chimpanzees. Twelve chimpanzees housed in the LEMSIP facility are assigned to this project involving research on HIV vaccine efficacy. These animals are part of a "dynamic" pool whereby chimpanzees are used and replaced as needed and they do not represent the specific animals that will eventually be selected for vaccine study. Since the inception of the contract on 20 Nov 91, the available animals have not been subjected to any studies by the Department of Defense as outline in the contract proposal; hence there is no scientific progress to report regarding HIV vaccine evaluation.
NEW YORK UNIVERSITY MEDICAL CENTER
Laboratory for Experimental Medicine and Surgery in Primates (LEMSIP)

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550 First Avenue, New York, NY 10016
Telephone: (212) 679-8884, 263-6626
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ANNUAL REPORT
and
ANNUAL FINAL REPORT


Principal Investigators:
   Dr. Elizabeth Muchmore  Tel. No.  914-351-5124
   Dr. Arthur W. Rowe  914-351-2922

Institution:
   New York University Medical Center, LEMSIP

Project Title:
   CLINICAL RESEARCH OF HIV VACCINE STUDIES ON CHIMPANZEES

Current Staff, with Percent Effort of Each on Project:
   Dr. Elizabeth Muchmore  10%  (no charge to contract)
   Dr. Arthur W. Rowe  20%

Contract Expenditures to Date:
   Personnel:              $102,227.15
   Animal Care:            325,303.96
   Travel:                 4,717.42
   Equipment:              55,750.00
   Assignment Fee:         69,000.00
   Research Service:       56,768.60

   Total:                  $613,767.13

See attached New York University Medical Center Financial Report Voucher
(Form 1034) for 1 Oct 93 to 20 Nov 93
**Introduction**

Vaccines including a whole virus vaccine and vaccines containing portions of the virus envelope proteins are being developed by Walter Reed Army Institute of Research (WRAIR) to protect human beings against human immunodeficiency virus (HIV) infection. LEMSIP has proposed to test the efficacy and safety of HIV-1 vaccine prototypes using chimpanzees, the only animal model available, prior to use in uninfected human volunteers. Twelve (12) adult chimpanzees would be divided into two (2) groups with each group containing four (4) test animals and two (2) control animals. In the first phase the test animals would be inoculated with different vaccines provided by WRAIR and the control animals would receive only adjuvant or placebo. LEMSIP proposed to house, maintain and conduct the inoculation experiments in chimpanzees and to provide biweekly blood samples for testing by WRAIR. In the second phase after immunization, the animals were to be challenged with an HIV-1 strain and monitored monthly by blood sampling for analyses. In the third and subsequent phases after challenge, the virus infected animals were to be used in chemotherapy or immunotherapy experiments designated by WRAIR and LEMSIP would continue to monitor by providing monthly blood samples for analyses. LEMSIP has considerable expertise in developing vaccines, e.g., hepatitis A, B, C (non A- non B) and most recently HIV, in chimpanzees. Based on this experience, the facilities and the animal care and professional and technical expertise, LEMSIP proposed further development and testing of the efficacy and safety of HIV vaccines and treatment in chimpanzees when such vaccines became available.

**Scientific Progress for the Report Period of Nov 92-Nov 93 and Nov 91-Nov 93**

This contract involves clinical research of vaccine studies on chimpanzees. Twelve chimpanzees housed in the LEMSIP facility are assigned to this project involving research on HIV vaccine efficacy. These animals are part of a "dynamic" pool whereby chimpanzees are used and replaced as needed and they do not represent the specific animals that will eventually be selected for vaccine study. Since the inception of the contract on 20 Nov 91, the available animals have not been subjected to any studies by the Department of Defence as outlined in the contract proposal; hence there is no scientific progress to report regarding HIV vaccine evaluation.

In December 1992 a site visit was made to LEMSIP by Col. Philip Zack, Contracting officer, Col. Nathaniel Powell, Animal Use Review Officer, Ms. Tish Nelson, Contracting Officer, and Dr. Mark Lewis of the Henry M. Jackson Foundation Research Laboratory in Rockville, MD. The purpose of the meeting was to inspect the facilities and to meet with LEMSIP faculty and staff prior to initiation of the anticipated studies. Col. Powell inspected IACUC committee reports and reviewed AALAC accreditation requirements with LEMSIP. Discussions were held regarding the options available for taking care of infected animals after the end of the study. Specific capabilities involving Flow Cytometry, PCR analysis and virus isolation were assessed to make plans for effecting future investigative research.

During the early part of 1993 plans and schedules were prepared for collecting blood samples from a random group of chimpanzees, not necessarily those to be used in future vaccine studies. The specific plan was to collect blood samples from the 12 randomized animals housed at LEMSIP in Tuxedo, New York, and ship for arrival *the same day* at Jackson Foundation Research Laboratories in Rockville, Maryland.
Specific instructions were subsequently received from Col. Philip Zack to initiate the pilot project to test the shipping and routine blood analysis system. Peripheral blood samples were to be obtained from twelve chimpanzees of LEMSIP's choice representing various ages and sexes. Specifics involved:

a) LEMSIP performance of routine CBC with differential, reticulocyte count and platelet count;

b) A routine clinical chemistry panel was to be performed by Maryland Medical Laboratories - (Serum was separated from clotted blood immediately after collection to minimize potential for hemolysis and any effect on blood glucose);

c) Shipment of heparinized whole blood to be made to Dr. Mark Lewis at the Henry M. Jackson Foundation Research Laboratories in Rockville, Maryland.

Based on this special request for blood from twelve chimpanzees to establish baselines for future HIV studies, twelve animals of random ages and sexes were selected from our "dynamic" pool of animals but were not necessarily those held in reserve for eventual vaccine testing and study.

Samples of blood were collected early in the morning from the twelve anesthetized chimpanzees housed at LEMSIP in Tuxedo, New York. The samples were then transported immediately by courier to Newark Airport where they were placed on an air carrier (Continental) to Baltimore Airport where arrangements for pickup and delivery were made by Maryland Medical Laboratories. Samples consisting of 2 ml. serum and 2 ml. EDTA blood were sent to Maryland Medical Laboratories for Clinical Profile #58, and 10 ml. heparinized whole blood were sent to Dr. Mark Lewis of the H. M. Jackson Research Foundation in Rockville, MD. All samples arrived in the afternoon of the day of collection. Results of the blood analyses by Maryland Medical Laboratories have not been reported to LEMSIP.

Collection of blood samples from the twelve chimpanzees at LEMSIP in Tuxedo NY and their same day shipment to Rockville, MD was coordinated and effected with ease and efficiency. This exercise clearly demonstrates the feasibility of using the LEMSIP facilities for the anticipated studies on testing the clinical efficacy of HIV vaccines,

**PLANS FOR THE NEXT REPORT PERIOD and CONCLUSION**

Based on this successful exercise, plans were made for repeating the collection of blood from twelve different randomized chimpanzees for shipment to the Rockville laboratories. Since reliable sample delivery was established, we anticipated initiation by Department of Defence scientists of HIV vaccine inoculation experiments involving the available LEMSIP chimpanzees. We have subsequently been informed that the contract has expired on 20 Nov 93. We are ready to reinitiate these studies at any time in the future when the Department of Defence is ready to evaluate the clinical efficacy of HIV vaccines in chimpanzees.
<table>
<thead>
<tr>
<th>ANIMAL NO-NAME</th>
<th>YOB yr</th>
<th>SEX</th>
<th>WT kg</th>
<th>ARRIVED Date From</th>
<th>RESEARCH EXPOSURE Date Study</th>
<th>HEPATITIS STATUS HBV</th>
<th>HAV</th>
<th>HCV</th>
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<tr>
<td>CH-272 ANNE</td>
<td>1962</td>
<td>F</td>
<td>41</td>
<td>1976 SanDiego Zoo</td>
<td>Hepatitis B vaccine safety test</td>
<td>Negative anti-HAV+ Negative</td>
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<td>CH-291 COCHISE</td>
<td>1974</td>
<td>M</td>
<td>67</td>
<td>1978 Primate Found'n of Arizona</td>
<td>1979 NANBH putative inoculum</td>
<td>Negative anti-HBs+ anti-HBc+</td>
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<tr>
<td></td>
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<td>1984 Anti-thrombin III for HBV removal</td>
<td>Negative</td>
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<td></td>
<td></td>
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<td>1992 Pharmacokinetics</td>
<td>Negative</td>
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<td>CH-348 MINKY</td>
<td>1970</td>
<td>F</td>
<td>51</td>
<td>1981 Private owner</td>
<td>None; Breeder</td>
<td>anti-HBs+ anti-HBc+ anti-HCV-</td>
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<td>CH-381 ONAN</td>
<td>1972</td>
<td>M</td>
<td>59</td>
<td>1982 U.O KlA.</td>
<td>Plasma product safety test for HCV &amp; HBV removal</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>1985 Booster immunizations for anti-HBs harvest</td>
<td>anti-HAV+ anti-HCV-</td>
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<td></td>
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<td></td>
<td></td>
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<td>1986 125-I, 51-Cr tagged MAb and immune complexes</td>
<td>anti-HBV anti-HAV</td>
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<td>1987 Japanese NANBH inoculum</td>
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<td>1988 CH-125 NANBH challenge</td>
<td>anti-HBV anti-HAV</td>
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<td>CH-407 SPUD</td>
<td>1982</td>
<td>M</td>
<td>58</td>
<td>1982 Born at LEMSIP</td>
<td>Factor IX HBV removal IV Human globulin</td>
<td>Negative Negative Negative</td>
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<td></td>
<td></td>
<td></td>
<td>1988 Human CD4 Immunization</td>
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| CH-417 BOY     | 1969   | M   | 56    | 1982 U.TX Rsch Pk Bastrop, TX | Splenectomy for malaria Plasmodium falciparum infected and Rx'd | anti-HBs+ anti-HBc+ anti-HAV-
<p>|                |        |     |       |                   | 1982 Plasma product safety test for HCV &amp; HBV removal | anti-HBV now |
|                |        |     |       |                   | 1985 P.vivax infected &amp; Rx'd | anti-HBV now |
| CH-420 IDA     | 1982   | F   | 46    | 1983 Southwest Foundation | Hepatitis B vaccine test | anti-HBs+ anti-HBc+ anti-HBV anti-HAV+ anti-HCV negative now |
|                |        |     |       |                   | 1985 HAV infectivity |                |
|                |        |     |       |                   | 1989 HCV infectivity removal Positive control. Infected |                |
| CH-424 MIMITOO | 1982   | F   | 38    | 1983 Southwest Foundation | Hepatitis B vaccine Efficacy | anti-HBs+ anti-HBc+ anti-HAV- |
|                |        |     |       |                   | 1985 HAV ISG prophylaxis |                |
|                |        |     |       |                   | 1989 HCV infectivity removal test Was infected |                |</p>
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<tr>
<td></td>
<td>yr</td>
<td></td>
<td>kg</td>
<td>Date</td>
<td>From</td>
<td>HBV</td>
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<tr>
<td>CH-554 AMANDA</td>
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<td>F</td>
<td>26</td>
<td>1987</td>
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<td>1990</td>
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<td>F</td>
<td>25</td>
<td>1988</td>
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<td>CH-568 GINA-M</td>
<td>19</td>
<td>F</td>
<td>54</td>
<td>1988</td>
<td>Merck</td>
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**PUBLIC VOUCHER FOR PURCHASES AND SERVICES OTHER THAN PERSONAL**

**U.S. DEPARTMENT, BUREAU, OR ESTABLISHMENT AND LOCATION**

Administrative Contracting Office
Office of Naval Research (N62927)
Resident Representative
33 Third Avenue - Lower Level
New York, NY 10003-9998

**DATE VOUCHER PREPARED**
January 11, 1994

**DATE INVOICE RECEIVED**

**DISCOUNT TERMS**

**PAYEE'S ACCOUNT NUMBER**
60-1-8306

**PAYEE**
New York University Medical Center
550 First Avenue
New York, NY 10016

**PAYMENT: APPROVED FOR EXCHANGE RATE DIFFERENCES**
- [ ] PROVISIONAL
- [ ] COMPLETE
- [ ] PARTIAL
- [ ] FINAL
- [ ] PROGRESS
- [ ] ADVANCE

**Pursuant to authority vested in me, I certify that this voucher is correct and proper for payment.**

**PAYEE'S NAME AND ADDRESS**

**SHIPPED FROM**

**TO**

**WEIGHT**

**GOVERNMENT B/L NUMBER**

**NUMBER AND DATE OF ORDER**
**DATE OF DELIVERY OR SERVICE**
**ARTICLES OR SERVICES**
**QUANTITY**
**UNIT PRICE**
**AMOUNT**

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- [ ] PARTIAL
- [ ] FINAL
- [ ] PROGRESS
- [ ] ADVANCE

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- [ ] FINAL
- [ ] PROGRESS
- [ ] ADVANCE

**ACCOUNTING CLASSIFICATION**

**Check Number**

**On Account of U.S. Treasury**

**Check Number**

**On (Name of Bank)**

**Cash**

**Date**

**Payee**

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The information requested on this form is required under the provisions of 31 U.S.C. 82b and 82c, for the purpose of disbursing Federal money. The information requested is to identify the particular creditor and the amounts to be paid. Failure to furnish this information will hinder discharge of the payment obligation.
U.S. Army Medical Research Acquisition

NYU Medical Center
550 First Avenue
New York, NY 10016

Contract No. DAMD17-92-C-2003
Target/Estimated Cost

$1,178,862.00

Analysis of Claimed Current and Cumulative Costs and Fees Earned

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<thead>
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<th>Major Cost Elements</th>
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<tr>
<td>Fringe Benefits</td>
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<td>325,303.96</td>
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<tr>
<td>Travel</td>
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<td>Equipment</td>
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<td>55,750.00</td>
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<td>Research Service</td>
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New York, NY 10016

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Report Prepared by: Arthur W. Rowe, Ph.D.
Research Professor
LEMSIP-New York University
Medical Center