



Infectious Diseases

MILITARY MEDICINE PARTNERSHIP DAYS
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US Army Medical Research and Materiel Command

8 March 2017



Disclaimer



The views expressed in this presentation are those of the author(s) and may not reflect the official policy or position of the Department of the Army, Department of Defense, or the U.S. Government.





Panel Members



- COL Nelson Michael (Moderator)
- COL Michael Kozar – Government Lead
- Dr. Sanjay Gurunathan – Sanofi-Pasteur
- Dr. William Ripley Ballou – GSK
- Dr. Joe Larsen – Deputy Director, BARDA
- Dr. Lou Jasper – USAMMDA





Military Infectious Diseases Research Program



Mission

To conduct for the Department of Defense, a focused and responsive world class infectious diseases research and development program leading to **fielding of effective, improved means of protection and treatment** to maintain maximal global operational capability with minimal morbidity and mortality

- ❖ Force Health Protection
- ❖ Naturally occurring, known, predictable threats
- ❖ Requirements driven



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Mission and Functions



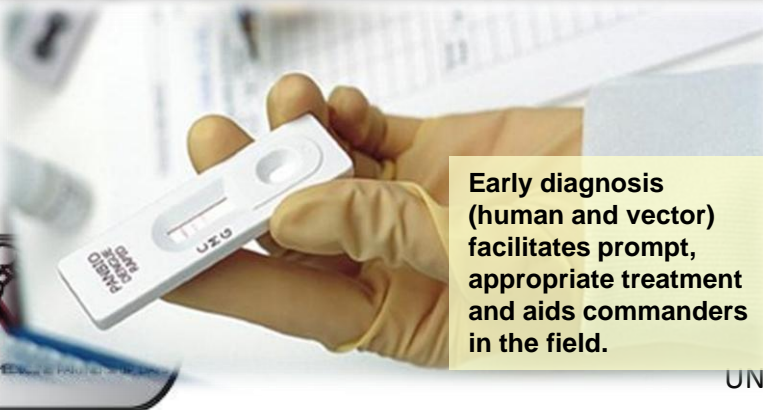
Plan, coordinate and oversee a DOD Science and Technology (S&T) program that develops effective and improved countermeasures to minimize the impact of naturally occurring endemic infectious diseases upon the warfighter.

Prevention



- Infectious diseases adversely impact military operations. Vaccines are the long-term solution.

Diagnostics



Early diagnosis (human and vector) facilitates prompt, appropriate treatment and aids commanders in the field.

Treatment



New drugs are continually required to overcome evolving drug resistance.

Insect Vector Control



Most militarily relevant infectious diseases are transmitted by biting insects and other arthropods.

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What Makes the MIDRP Unique?



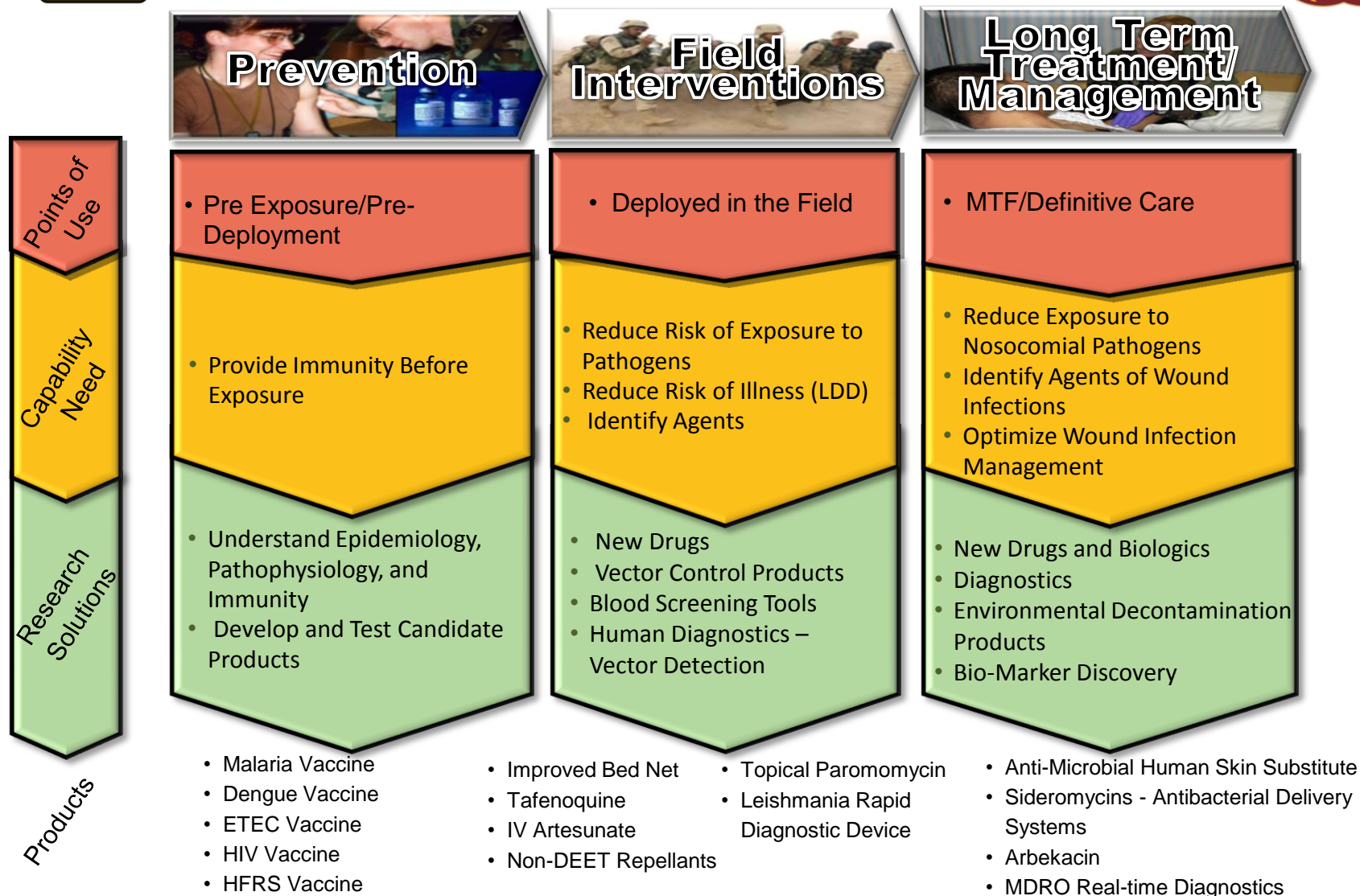
- **Focused on FDA/EPA approved products for adult indications**
 - Enhance global health security
 - Enhance stability operations
- **USAMRMC organized like a pharmaceutical company**
 - Product development oriented organizational structure and processes
 - Decision Gate System integrates best industry business practices
 - Historical success of vaccines/therapeutics
- **Core research program embedded in Military labs with uniformed researchers**
 - Discipline and mission focus
 - Global research platform – Host nation partners
 - Unique overseas clinical trial sites

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Infectious Diseases Countermeasure Development Strategy



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Investment Strategy



Tier 1 - High user need, High operational risk

Disease
Malaria (all types)
Diarrhea - bacterial
Dengue fever
Chikungunya/Onyong-nyong, Ross River Fever
Norovirus
Mers-CoV and other Emerging Inf. Diseases
MDR Bacteria
Ebola hemorrhagic fever/Marburg
Influenza

**Active
MIDRP
Effort**

**Vaccine,
prophylactic or
treatment
available**

Select Agents

**Strong National/ Global
Effort**

Tier 2 - Medium user need, Medium operational risk

Disease
HIV/AIDS
Leishmaniasis - cutaneous and mucosal -visceral
Hantavirus hemorrhagic fever with renal syndrome/pulmonary syndrome
Adenovirus
Leptospirosis
Schistosomiasis
Typhoid/paratyphoid fever
Meningococcal meningitis
Rabies
Crimean-Congo hemorrhagic fever
Q fever
Lassa fever
Rift Valley fever
Melioidosis
Tuberculosis w/MDR included
West Nile fever

Conduct of Chemical And Biological Defense Program

50 U.S.C. § 1522 (d)(2) "Funding requests for the program may not be included in the budget accounts of the military departments."



Laboratories



USAMRIID

Ft. Detrick, MD

**U.S. Army Medical
Research Institute of
Infectious Diseases**

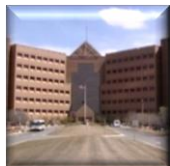


WRAIR

Forest Glen, MD

**Walter Reed Army
Institute of Research**

- Armed Forces Research Institute for Medical Sciences (AFRIMS), Thailand, Asia
- U.S. Army Medical Research Division, JBLM
- U.S. Army Research Division, Kenya, Africa
- U.S. Army Medical Research Division, Georgia. Europe

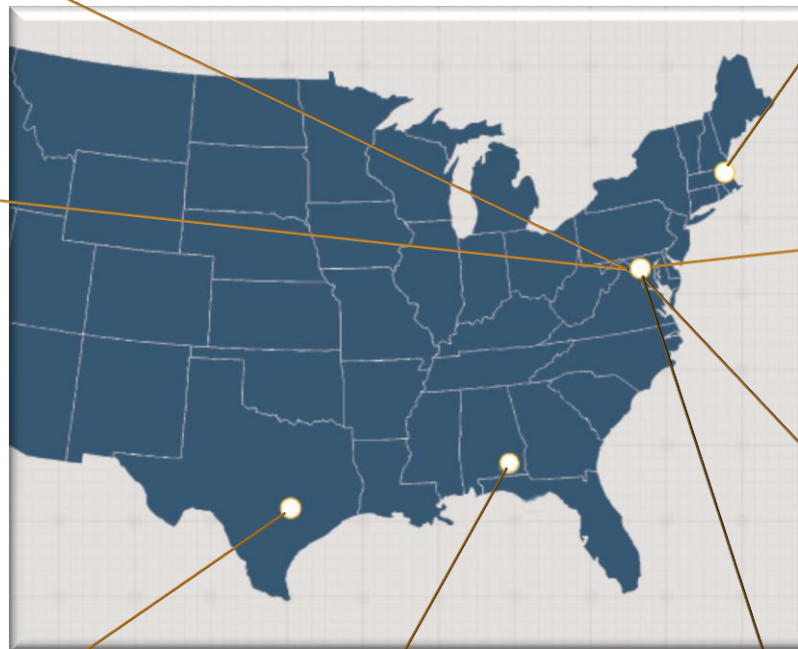


USAISR

Ft. Sam Houston, TX

**U.S. Army Institute of
Surgical Research**

- U.S. Army Dental and Trauma Research Detachment (USADTRD), Ft. Sam Houston, TX
- U.S. Army Medical Research Detachment (USAMRD), Ft. Sam Houston, TX



USARIEM

Natick, MA

**U.S. Army Research
Institute of
Environmental
Medicine**



USAMRICD

Aberdeen PG, MD

**U.S. Army Medical
Research Institute of
Chemical Defense**



TATRC

Ft. Detrick, MD

**Telemedicine and
Advanced Technology
Research Center**



USACEHR

Ft. Detrick, MD

**U.S. Army Center for
Environmental Health
Research**



USAARL

Ft. Rucker, AL

**U.S. Army Aeromedical
Research Laboratory**



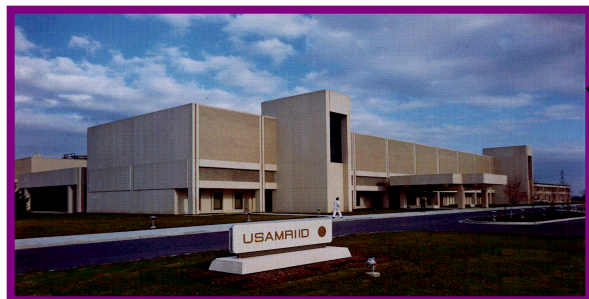
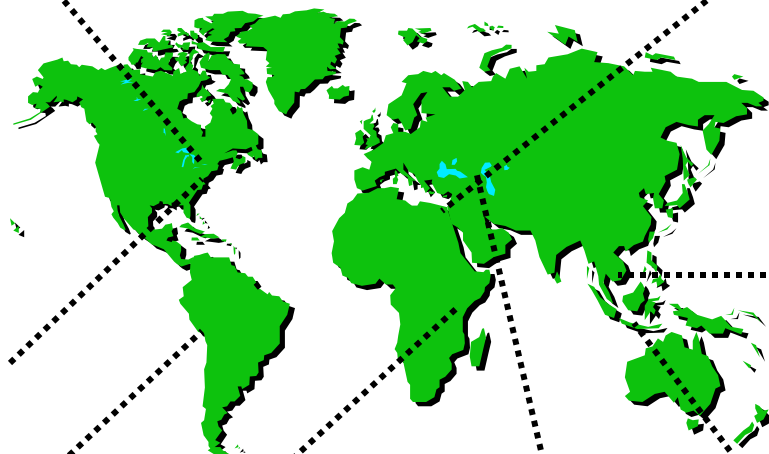
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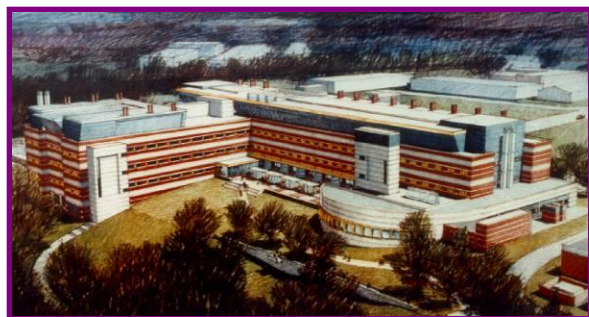
Intramural Overseas Research Laboratories



Critical Resource in Global
Infectious Disease Research



USAMRIID, Fort Detrick



WRAIR/NMRC, Silver Spring



NAMRU-6, Lima



USAMRU-K, Nairobi



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USAMRU-G, Tbilisi



NAMRU-3, Cairo



AFRIMS, Bangkok



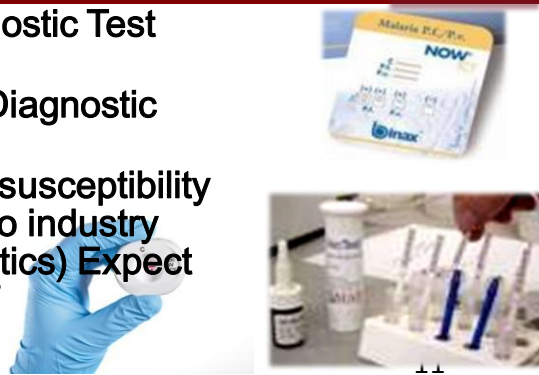


NMRC-Asia, Singapore/
NAMRU-2, Cambodia



Program Portfolio



	Research Effort	Advanced Development	Fielded Products
Parasitic Diseases	<ul style="list-style-type: none"> Malaria drug (CDD) Malaria vaccine (CDD) Leishmaniasis 	<ul style="list-style-type: none"> Intravenous Artesunate (CPD) Tafenoquine Topical Paromomycin drug (CPD) 	<ul style="list-style-type: none"> Atovaquone/Proguanil (Malarone®, 2000) Doxycycline (Vibramycin®, 1992) Halofantrine (Halfan®, 1992) Mefloquine (Lariam®, 1989) Sulfadoxine-Pyrimethamine (1983) Chloroquine-Primaquine Tablets (1969) Primaquine (1952) 
Viral Diseases	<ul style="list-style-type: none"> Dengue (CDD) Hemorrhagic fevers Scrub Typhus HIV Global (CDD) Acute respiratory disease research Chikungunya vaccine development 	<ul style="list-style-type: none"> Dengue Tetravalent (CDD) HIV Regional (CDD) 	<ul style="list-style-type: none"> Adenovirus 4 & 7 (1980) – (2011) Chloroquine (1949) Japanese Encephalitis - cell based (2009) Hepatitis A (1995) Japanese Encephalitis (1992) Hepatitis B (1981) 
Diagnostics Development	<ul style="list-style-type: none"> Point-of-need devices (CDD) Biofire Filmarray NGDS assay development ESKAPE pathogens, 	<ul style="list-style-type: none"> Biofire Filmarray NGDS - Malaria, Dengue, Chikungunya 	<ul style="list-style-type: none"> Malaria Rapid Diagnostic Test (2007) Leishmania Rapid Diagnostic Device (2014) 5 hour antimicrobial susceptibility testing transitioned to industry (Accelerate Diagnostics) Expect FDA approval in 2017 

FIED



Program Portfolio



	Research Effort	Advanced Development	Fielded Products
Bacteria I Diagnosis	<ul style="list-style-type: none">• Clinical studies using current antibiotics for the prevention of infection post surgery<ul style="list-style-type: none">• Intravital vancomycin• Bismuth-thiol• Preclinical studies with novel therapeutic agents for the treatment of wound infections<ul style="list-style-type: none">• Broad-spectrum conjugate vaccine• Gallium citrate• Antifungal (VT-1598)• Recombinant interleukin-12• Activated adult mesenchymal stem cells• Preclinical studies with novel anti-infective delivery systems for the treatment & prevention of wound infections<ul style="list-style-type: none">• Anti-infective human skin substitute• Diarrheal (CDD) nanoemulsion (NB-201)	<ul style="list-style-type: none">• Rapid Microbiological Diagnostics for MDRO Quantitative Identification	<ul style="list-style-type: none">• Antimicrobial Prescribing Practices - Prevention of Infections Associated With Combat-Related Injuries (series of publications. <i>J. Trauma</i> 2011)• Arbekacin (FDA-approved for Single site study at Walter Reed National Military Medical Center)• Recognition and Comprehensive Management of Invasive Fungal Infections in War Wounds - <u>JTTS Clinical Practice Guideline approved 1 Nov 2012</u>• Meningococcus (A, C, Y, W-135) (1981)• Oral Live Typhoid Ty21A (1989)• Sentrex BioSponge™ - added to FSS 1 Apr 2015
Vector Ctrl & Radio- protection	<ul style="list-style-type: none">• Repellents/Insect control• Insect identification• Arthropod-Vector Detection Device (CDD)	<ul style="list-style-type: none">• Bednet• CO2 Generator Mosquito Trap• AV-RDD Chikungunya Virus	<ul style="list-style-type: none">• Combined Camo Face Paint (2013)• Alternate Repellent System (2013)• Arthropod Vector Rapid Detection Device for Dengue (2012)• Rift Valley Fever virus Vector Detection Assay (2011)• West Nile Virus detection Kit (2001)• Amifostine (Ethyol®, 1995)• DEET-based Insect Repellent (1946)



Task Areas



Army

- Parasitic Diseases Research
 - Anti-Parasitic Drug Development
 - Malaria Vaccine Research
- Viral Diseases
 - Flavivirus Vaccine Research
 - Lethal Virus (Hantann, Puumala) Countermeasures
- Bacterial Diseases
 - Prevention of Diarrheal Diseases
 - Rickettsial Diseases
- Vector Control
 - Identification and Control of Insect Vectors of Infectious Diseases

DHP

- Parasitic Disease Research
 - Defense Malaria Assistance Program
- Viral Diseases
 - Military HIV Research Program
 - Acute Respiratory Diseases/Emerging Infectious Diseases
- Bacterial Diseases
 - Combat wound Infection Prevention, Management & Treatment
 - Combatting Antibiotic Resistant Bacteria
- Vector Control
 - Deployed Warfighter Protection Program
- Diagnostic Systems for Infectious Diseases
- Bio-preparedness Research Platform
 - Joint West Africa Research Group





MIDRP Accomplishments



USAMRMC PLAYS A KEY ROLE IN CURRENT VACCINE DEVELOPMENT EFFORTS

- HIV
(TIME 2009 - Top 10 Medical Breakthroughs)
- Malaria
(Time 2011 - Top 10 Medical Breakthroughs)
- Dengue



Vaccination with ALVAC and AIDSVAX to Prevent HIV-1 Infection in Thailand

Supachai Rerk-Ngarm, M.D., Punnee Pitisuttithum, M.D., D.T.M.H., Sorachai Nitayaphan, M.D., Ph.D., Arant Kaewkungwal, Ph.D., Joseph Chiu, M.D., Robert Paris, M.D., Nakorn Premrat, M.D., Chawentana Namwat, M.D., Mark de Souza, Ph.D., Elizabeth Adams, M.D., Michael Berenson, M.D., Sangy Gurunthan, M.D., Jim Tantiagla, Ph.D., John G. McNeil, M.D., Donald P. Francis, M.D., D.Sc., Donald Stablein, Ph.D., Deborah L. Birx, M.D., Supamit Chumsawat, M.D., Chirak Khambonnuang, M.D., Prasert Thongcharoen, M.D., Ph.D., Merlin L. Robb, M.D., Nelson L. Michael, M.D., Ph.D., Prayura Kunasol, M.D., and Jerome H. Kim, M.D., for the MORPH-TAVEG Investigators*



Immune-Correlates Analysis of an HIV-1 Vaccine Efficacy Trial

Barton F. Haynes, M.D., Peter B. Gilbert, Ph.D., M. Juliana McElrath, M.D., Ph.D., Susan Zolla-Pazner, Ph.D., Georgia D. Tomaras, Ph.D., S. Munir Alam, Ph.D., David T. Evans, Ph.D., David C. Montefiori, Ph.D., Chitraporn Kamasuta, Ph.D., Ruengrueng Suthutth, M.D., Ph.D., Hua-Xin Liao, M.D., Ph.D., Anthony L. DeVico, Ph.D., George K. Lewis, Ph.D., Constance Williams, B.S., Abraham Pinter, Ph.D., Youyi Gong, Ph.D., Holly Janes, Ph.D., Alan DeCamp, M.S., Yunda Huang, Ph.D., Mangala Rao, Ph.D., Erik Billings, Ph.D., Nicos Katsouras, Ph.D., Merlin L. Robb, M.D., Viseth Ngway, M.D., Mark S. de Souza, Ph.D., Robert Paris, M.D., Guido Ferrari, M.D., Robert T. Bailer, Ph.D., Kelly A. Soderberg, Ph.D., Charla Andrews, Sc.M., Phillip W. Berman, Ph.D., Nicole Fraham, Ph.D. Stepi

LETTER

Increased HIV-1 vaccine efficacy against genetic signatures in Env V2

Morgane Rolland*, Paul T. Edlefsen*, Brendan B. Larsen*, Sodsai Tovanabutra*, Eric Sanders-Bruce*, Allan C. deCamp*, Chris Carrico*, Sergey Mens*, Craig A. Magaret*, Hassan Ahmed*, Michal Jur Philip Koon*, Sheela Nariya*, Julia N. Stoddard*, Kim Wong*, Hong Zhao*, Wenjie Deng*, Brant Shana Howell*, Adam Bates*, Michelle Lazzaro*, Annemarie O'Sullivan*, Esther Lev*, Andrea Bradt Vatchararin Asawadachai*, Robert J. O'Connell*, Mark S. deSouza*, Sorachai Nitayaphan*, Supa Merlin L. Robb*, Jason S. McLellan*, Ivelin Georgiev*, Peter D. Kwong*, Jonathan M. Carlson*, Neil Williams*, Schief*, Peter B. Gilbert*, James I. Mullins*, & Jerome H. Kim*



BILL & MELINDA GATES foundation

GSK's malaria candidate vaccine, Mosquirix™ (RTS,S), receives positive opinion from European regulators for the prevention of malaria in young children in sub-Saharan Africa.



Early clinical development was done in collaboration with WRAIR



Protective efficacy of multiple vaccine platforms against Zika virus challenge in rhesus monkeys

Peter Abbink*, Rafael A. Luciw*, Rafael A. De La Barrera*, Christof A. Bruns*, Edward T. Mosley*, Michael Boyd*, Mariana Kikilova*, Zhenfeng Li*, David Nganga*, Oshin Nanyakatura*, Ramya Nityanandan*, Scott B. Mearns*, Erica N. Bonhag*, Anshu Agarwal*, Amanda L. Brinkman*, Crystal Cabral*, Abhishek Chandrasekhar*, Patricia B. Gaglio*, David Jettam*, Jessica Jansen*, Benjamin C. Lee*, Shantel Mello*, Katherine Meloy*, Mayuri Shetty*, George H. Neubauer*, Kathryn E. Stephenson*, Jean Pierre S. Perin*, Paolo M. de A. Zanotto*, Johnathan Misanura*, Brad Plesner-Frue*, Mark G. Lewis*, Gaili Allen*, Kayvon Modjarrad*, Richard G. Jarman*, Kenneth H. Ekiels*, Nelson L. Michael*, Stephen J. Thomas*, Dan H. Baruch*

Zika virus (ZIKV) is responsible for a major emerging epidemic in the Americas and has been causally associated with fetal microcephaly. The development of a safe and effective ZIKV vaccine is therefore an urgent global health priority. Here we demonstrate that three different vaccine platforms protect against ZIKV challenge in rhesus monkeys. A purified inactivated virus vaccine induced ZIKV-specific neutralizing antibodies and completely protected monkeys against ZIKV strains from both Brazil and Puerto Rico. Purified immunoglobulin from vaccinated monkeys also conferred passive protection in adoptive transfer studies. A plasmid DNA vaccine and a single-shot recombinant rhesus adenovirus serotype 52 vector vaccine, both expressing ZIKV pre-membrane and envelope, also elicited neutralizing antibodies and completely protected monkeys against ZIKV challenge. These data support the rapid clinical development of ZIKV vaccines for humans.



Tropical Medicine and Hygiene

Safety and Immunogenicity of a Tetravalent Live-Attenuated Dengue Vaccine in Flavivirus-Naïve Infants

Veerachai Watanaveeradej, Sriuluck Simasathien, Ananda Nisalak, Timothy P. Endy, Richard G. Jarman, Bruce L. Innis, Stephen J. Robert V. Gibbons, Sumetha Hengpraserit, Rudwilai Samakos Angkool Kerdpanich, David W. Vaughn, J., Robert Putnak, Ken Rafael De La Barrera and Mammen P. Mammen Jr.*

THE NEW ENGLAND JOURNAL OF MEDICINE

ORIGINAL ARTICLE

Efficacy and Long-Term Safety of a Dengue Vaccine in Regions of Endemic Disease

S.R.S. Hadinegoro, J.L. Arredondo-García, M.R. Capeding, C. Deseda, T. Chotpitayusunondh, R. Dietze, I.I. Hj Muhammad Hussain, H. Reynales, K. Limkittikul, D.M. Rivera-Medina, H.N. Tran, A. Bouckenoghe, D. Chansinghakul, M. Cortés, K. Fanouillere, R. Forrat, C. Frago, S. Gailhardou, N. Jackson, F. Noriega, E. Plennevaux, T.A. Wartel, B. Zambrano, and M. Saville, for the CYD-TDV Dengue Vaccine Working Group*



SANARIA
MALARIA ERADICATION THROUGH VACCINATION



Successful Program Partnerships



ACADEMIA

Institut Cochin
Universite Rene
Decartes
NYU School of
Medicine
The London School of
H. & T. Medicine
Johns Hopkins Univ.
Oxford Univ.

INDUSTRY

sanofi-pasteur,
GenVec
Protein Potential, LLC
Cobra Biologics, Inc
HepaLife Technologies, Inc.
Vital Probes, Inc.
LabNow, Inc.
GSK
VaxDesign Corporation
VaxInnate
Sanaria

\$22M

MALARIA VACCINE PROGRAM

US GOVT

USAID
NIAID
CDC

Others

Malaria Vaccine
Initiative
Queensland Institute
of Medical Research
Seattle Biomedical
Research Institute
Genocea, HJP
The Geneva
Foundation

ACADEMIA

Univ. of Pennsylvania,
Duke Univ, Beth-Israel
Deaconess Hospital,
Karolinska Institut

INDUSTRY

Sanofi Pasteur, GSK,
Crucell, Novartis,
GeoVax

\$37M

HIV RESEARCH PROGRAM

US GOVT DAIDS/NIAID/ CSI

Others

Gates Foundation,
EuroVacc,
French National
Agency for AIDS
Research
International AIDS
vaccine Institute

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DoD Response to Ebola – Operation United Assistance



Health Care Training

DoD SUCCESSFULLY TRAINED



DoD FORMED



Mobile Labs & Personal Protective Equipment

7 MOBILE
LABS
PROCESSED
4,709
SAMPLES

DOD CONTRACTED
FOR THE PROCUREMENT OF
1.4 MILLION
SETS OF PERSONAL
PROTECTIVE EQUIPMENT

Ebola Treatment Units/ Monrovia Medical Unit

10
DoD EBOLA
TREATMENT UNITS

25
MONROVIAN
MEDICAL UNIT

DoD Ebola-Related Costs

\$330.2
MILLION

DIRECT
SUPPORT FOR
WEST AFRICA

EBOLA
RESEARCH
INVESTMENTS

\$25.6 MILLION
Research & Development
(e.g. vaccine research)

\$47.0 MILLION
Cooperative Threat Reduction
(e.g. biosurveillance/biosecurity)

Total Cost - \$402.8 million

*as of March 26



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Ebola Treatment Units (ETUs) & DoD Labs as of 15 Dec 2014



ETU Build End State:

Up to 17 ETUs and MMUs,
transition to a self sufficient NGO.

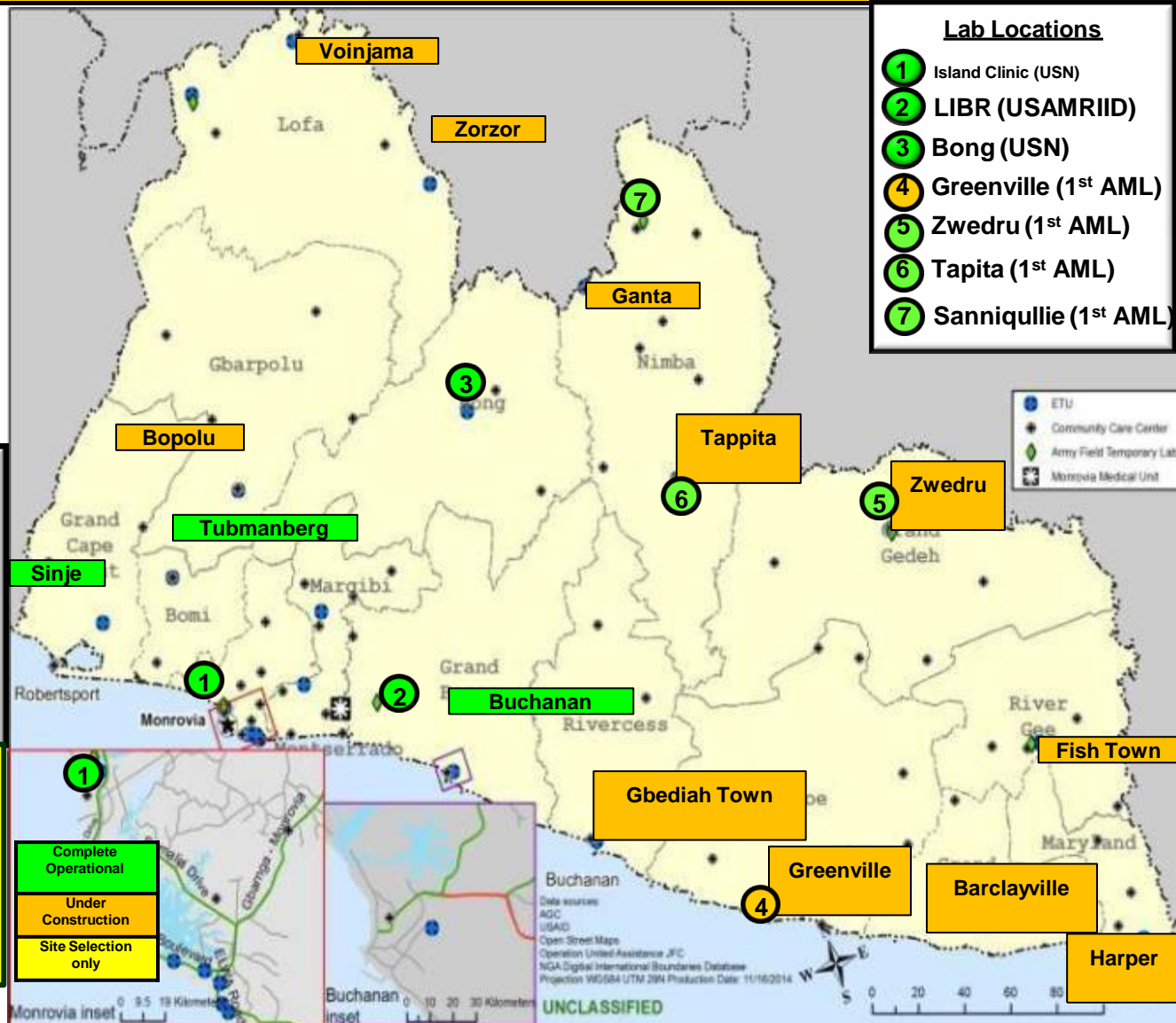
1 x US (Buchanan) (100 Bed)
1x AFL/US (Gbediah Town) (50 Bed)
2x AFL (Tubmanberg, Sinje) (100 Bed) 6
x LOGCAP (Ganta, Tappita, Zorzor,
Voinjama, Barclayville, Bopolu) (50 Bed)
4 x WHH (Zwedru, Harper, Fishtown,
Greenville) (50 Bed)
2 x WFP (Old Mod & SKD) JFC refuel only
1 x IMC (Kakata) JFC (PPE only)

DoD Lab

Labs conduct Ebola Virus
Disease (EVD) laboratory testing
to identify and communicate the
infection of local nationals with
EVD IOT prevent the spread of
the disease.

**All ETU Build Complete –
30 DEC 14**

**All Labs Operational –
NLT 23 DEC 14**





Response to Zika - Timeline



Walter Reed Army Institute of Research and Beth Israel Deaconess Medical Center Zika Virus Vaccine collaboration

<u>Date</u>	<u>Event</u>
2012-2015	WRAIR SEA sites detect ZIKV via passive surveillance
28 Jan 2016	Dan <u>Barouch</u> begins development of mouse and rhesus ZIKV challenge models and DNA/Ad vaccines
08 Feb 2016	WRAIR starts production of engineering lots of ZPIV vaccine
09 Mar 2016	BIDMC vaccinates mice with DNA vaccines to test in a murine challenge model
21 Mar 2016	Dan <u>Barouch</u> calls Nelson Michael seeking ZIKV collaboration
18 Apr 2016	WRAIR sends ZPIV vaccine to BIDMC to test in a murine model and rhesus monkey model
25 Apr 2016	BIDMC vaccinates mice with ZPIV vaccine to test in a murine challenge model
25 Apr 2016	BIDMC vaccinates 32 rhesus monkeys with ZPIV or placebo to test in the primate challenge model
28 Jun 2016	WRAIR and BIDMC publish murine protection data for ZPIV and BIDMC DNA vaccine in <i>Nature</i>
15 Jul 2016	WRAIR finishes <u>cGMP</u> (clinical trial material) lot of ZPIV vaccine (1,500 doses). Release testing begins.
04 Aug 2016	WRAIR and BIDMC publish rhesus protection data for ZPIV & BIDMC DNA/RhAd52 vaccines in <i>Science</i>
30 Sep 2016	Projected date of ZPIV clinical trial release for human testing
Oct 2016	Projected date of initiation of ZPIV phase 1 studies at WRAIR, BIDMC, and two DMID/NIAID VTEU sites



Rapid Response to Zika



U.S. Army-developed Zika Vaccine

Rapid Countermeasure Development

2015

NOVEMBER
First case of
Zika in USA



2016

FEBRUARY
WRAIR starts
production of Zika
Vaccine, ZPIV



JUNE
ZPIV provides
100% protection
in mice



JULY
License technology
to Sanofi Pasteur to
scale-up production



AUGUST
ZPIV provides
100% protection in
rhesus monkeys



OCTOBER
Human Phase I
clinical studies
begin with ZPIV



Proven Vaccine Platform

Successfully developed licensed vaccine for Japanese encephalitis, another flavivirus

Early Zika Detection

Biosurveillance in Southeast Asia aided vaccine design

In-house Capabilities

Developed and produced 1,500 doses for clinical testing

U.S. Army Medical Research and Materiel Command
Walter Reed Army Institute of Research



WRAIR

Walter Reed Army
Institute of Research
Soldier Health • World Health

NIH
National Institute of
Allergy and
Infectious Diseases



- WRAIR, Beth Israel Deaconess Medical Center, and the National Institute of Allergy and Infectious Diseases manufactured a Zika vaccine, tested it in rodents & primates and initiated a clinical trial in < 10 months.
- WRAIR manufactured 1,500 vaccine doses for a clinical trial which began in October, 2016. Seventy-five healthy adults were recruited to participate at WRAIR's Clinical Trial Center in Silver Spring, MD.
- WRAIR and Sanofi Pasteur have agreed to co-develop the Zika virus vaccine.
- USAMRIID, as part of the National Laboratory Response Network, received the Emergency Use Authorization Zika diagnostic assay from the CDC.



Strategic Science & Technology Research Gaps

- Hantann/Puumala Virus DNA Vaccine – Co-Development Partner
 - A Phase 2a Randomized, Double-Blind, Dose-Optimizing Study to Evaluate the Immunogenicity of Hantaan/Puumala Virus DNA Vaccine Administered to Healthy Adult Volunteers Using the TDS-IM Electroporation Delivery Device for Prevention of Hemorrhagic Fever With Renal Syndrome
- Next Generation Malaria Drug
 - “Substituted Triazines for Malaria Treatment and Chemoprophylaxis”, U.S. Patent 9,334,246, issued 10 May 2016.
 - Phase 0 with 3 candidates scheduled for early FY18
- Novel drug delivery technologies for treatment/prevention of infectious disease
 - Sustained release or reduce toxicity
 - Passive prophylaxis – eliminate individual compliance issues with an emphasis on anti-malarials
- Broad spectrum antiviral drugs
 - Agents that are clinically effective for treating multiple viral families, including the potential for "designer" applications that would allow for selection of combinations of agents based on geographic deployment.





Working with MIDRP

- New Product Ideas Website - <http://mrmc-npi.amedd.army.mil/>
- Broad Agency Announcement - <http://www.grants.gov>
 - On the Grants.gov homepage, click the tab "SEARCH GRANTS";
 - In the "Funding Opp #" block, enter W81XWH-17-R-BAA1
- Peer Reviewed Medical Research Program <http://cdmrp.army.mil/prmrp/>
 - \$278.7 million in FY16
 - 39 topic areas including: Emerging Infectious Diseases, Malaria, and Vaccine Development for Infectious Diseases





Questions?



For additional questions after the conclusion of the conference, send an email message to usarmy.detrick.medcom-usamrmc.mbx.mmpd@mail.mil

