

CHALLENGES TO TRANSLATING RESEARCH: Lessons Learned from the Philippine Research Landscape

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Translational Research

Or simply...
• *applies findings from basic science to enhance human health and well-being.*

Science from “bench to bedside”

- *In a medical **research** context, it aims to “translate” findings in fundamental **research** into medical and nursing practice and meaningful health outcomes.*

But.....

- In the Philippines, there is a disconnect between basic science and clinical science research
- Dearth of clinician-scientist in the Philippines

So.....

- Strategic partnership with the basic scientists seems to be the logical approach

Doing research in the Philippines

- Starts with asking a question of relevance

WHAT

MAKES

A

10 DOLLAR TEST
IN THE U.S. 

110 DOLLAR TEST
IN THE PHL 



WHAT?

MAKES

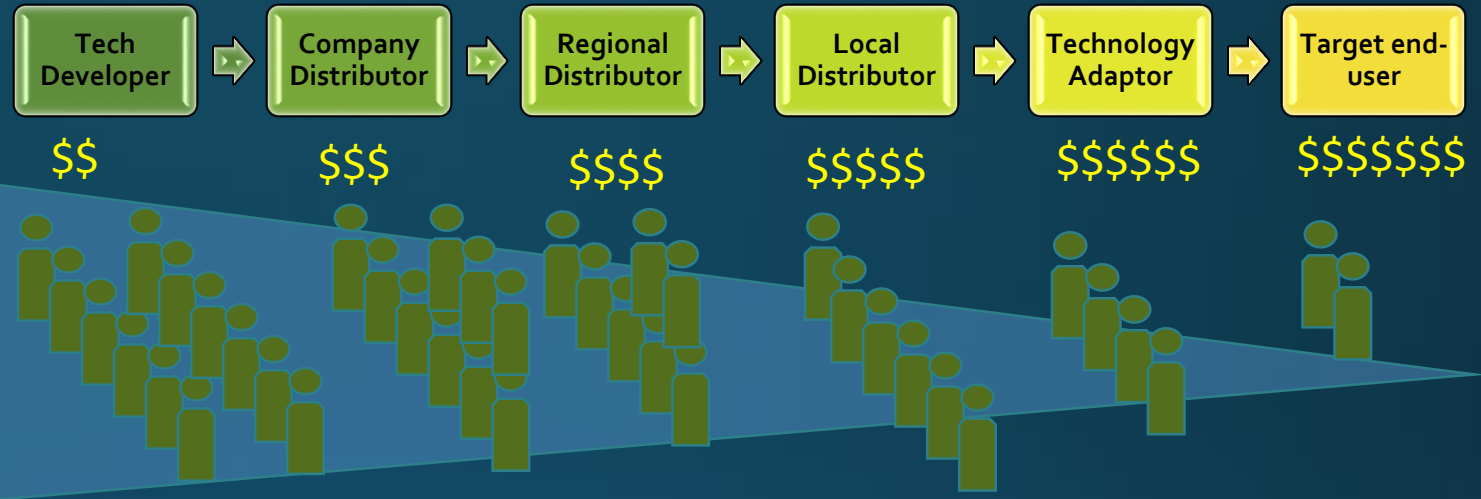
A

10 DOLLAR TEST
IN THE U.S. 

110 DOLLAR TEST
IN THE PHL 



THE LONG VALUE CHAIN



THE DECLINING ACCESS

THE LONG VALUE CHAIN

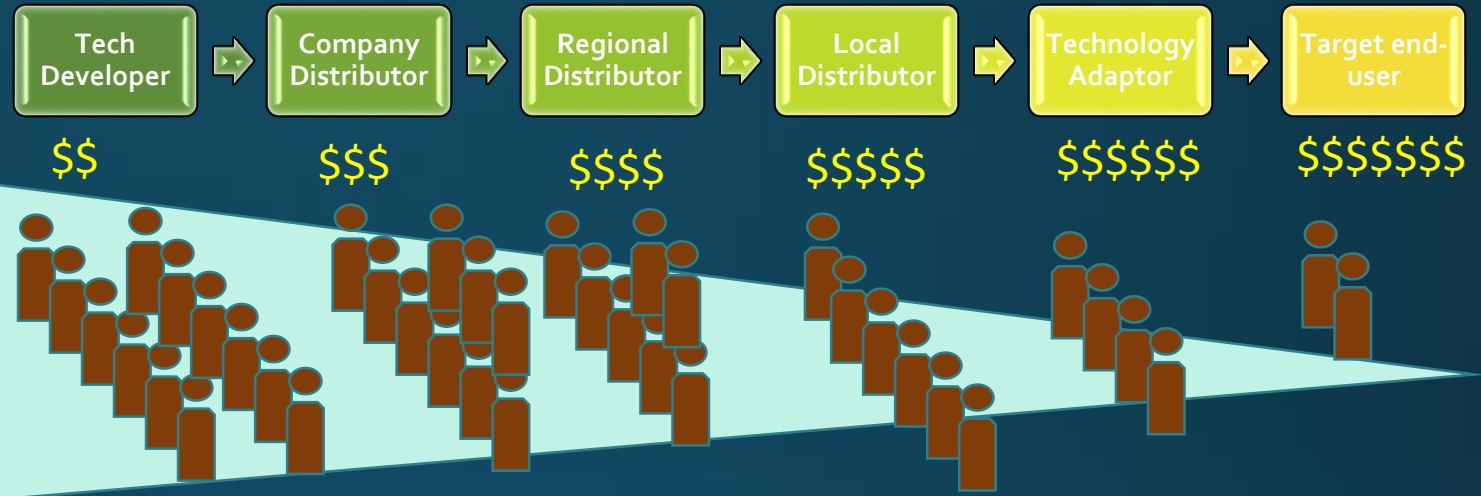
WHAT?

MAKES

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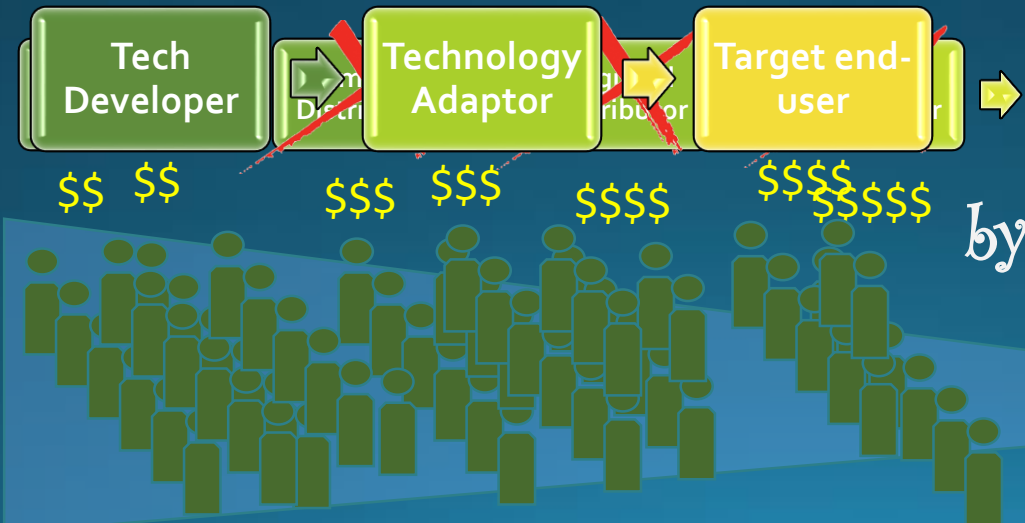
10 DOLLAR TEST
IN THE U.S. 

110 DOLLAR TEST
IN THE PHL 



THE DECLINING ACCESS

what **if** ...



The cost-limiting nature of molecular tools for diagnosing infectious diseases in the Philippines led to the creation of the Molecular Diagnostic Program in Biotech-Manila



Molecular Diagnostic Program

Target	Source of Funding	Platforms	Stage of Development
Vector Borne Diseases (Dengue & Chik)	DOST	RT-PCR LAMP NGS	NEAR MARKET
TB	EST	RT-PCR LAMP	NEAR MARKET
MDRO	NRCP	PCR SEQUENCING	RESEARCH
HIV Drug Resistance Profiling	DOST	RT-PCR SEQUENCING	CLINICAL SERVICES
Influenza	DOST	PCR LAMP	PRE-CLINICAL
NTD	DOH	PCR LAMP	NEAR MARKET
Waterborne Parasites	DOST	RT-PCR MICROARRAY	FIELD TESTING

Creating the environment

“I’ve learned that
dreams are
necessary to
transform realities”



Finding a role model



Finding Meaning



“Diseases of Poverty”

“Top ten causes of morbidity and mortality”

“Cancer in the family”

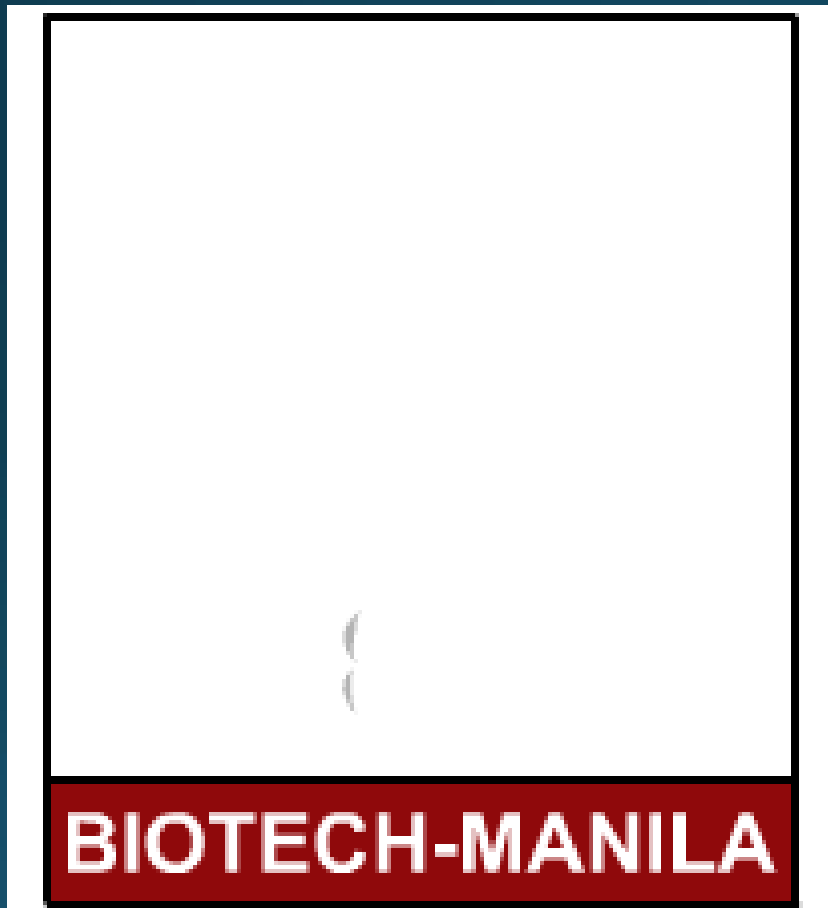
“because its cool!”

The Value of Persistence



“How long does it take you to procure your reagents?”

Sometimes you start alone..

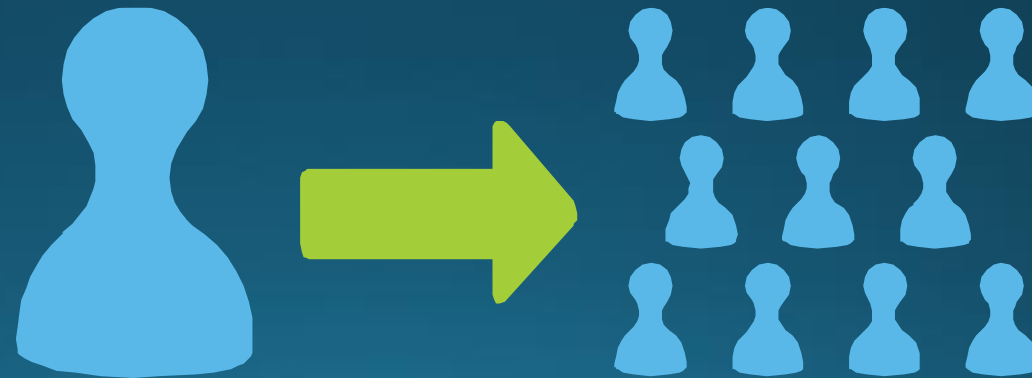


Biotech-Manila

Me, myself and I
And my
87\$




- Local and International full-time and visiting faculty
- Publications of ISI journals, modules, advisories and Patents
- Over 100 students mentored
- > 300 M of grants
- Molecular diagnostic services for marginalized sectors



“Researchers are not
born, they are
nurtured and
developed.”

A close-up photograph of a person's lower leg and foot wearing a dark grey and white running shoe. The shoe is stepping on a pile of dry, brown autumn leaves. The background is a soft-focus bokeh of yellow and green, suggesting an outdoor setting. The text is overlaid on the left side of the image.

We Are
What We
Repeatedly
Do. ~ Aristotle

The image features a collection of light bulbs hanging from the top. Most of the bulbs are unlit and appear as dark, translucent shapes against a dark blue background. On the right side, one bulb is brightly lit, glowing with a warm white light. The text is positioned in the upper right quadrant of the image.

“I’ve learned that ideas will remain just an idea unless you execute them”

Braving the unknown..



The **first private, SEC registered** R&D company on Health Biotechnology in the Philippines that is focused on developing and providing affordable diagnostic technologies for communicable and non-communicable disease

THE LONG ROAD



RESEARCH &
DEVELOPMENT ₁



RESEARCH &
DEVELOPMENT ₂



RESEARCH &
DEVELOPMENT ₃

ASSAY
DEVELOPMENT

PRE-CLINICAL
TESTING

CLINICAL
VALIDATION

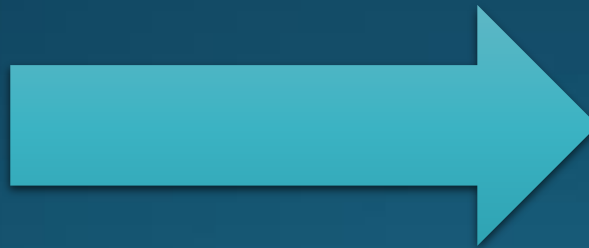
FDA APPROVAL

TECHNOLOGY
ADAPTATION

- ✓ Analytical and Clinical Sensitivity and specificity testing
- ✓ Limit of detection
- ✓ Miniaturization
- ✓ Stability
- ✓ Packaging and storage
- ✓ SOP
- ✓ QC Parameters

- Will they use our technology?
- Will someone be bold enough to invest?
- What is the best strategy to meet our objectives?

Customized Isothermal Heaters



Customized LED trans illuminators



Our Technology Solution



Biotek-M™ Dengue Kit

Biotek-M™ TB Kit

Biotek-M™ Salmonella Kit

Biotek-M™ Chikungunya Kit

Biotek-M™ Influenza Kit

Biotek-M™ Malaria Kit

Biotek-M™ Schisto Kit

“Lab-in-Mug”

Your own molecular Laboratory
anywhere, anytime.

Our 4 Pillars

DIAGNOSTIC SERVICES

2015

ISOTHERMAL TECHNOLOGIES

2016

PCR TECHNOLOGIES

2017

Avian-Derived TECHNOLOGIES

2018

TB (RIFr) PCR

EBV Viral Load

PCP PCR

Pillar 1: Diagnostic Services

CMV Viral Load

CHIK PCR

HCV Viral Load

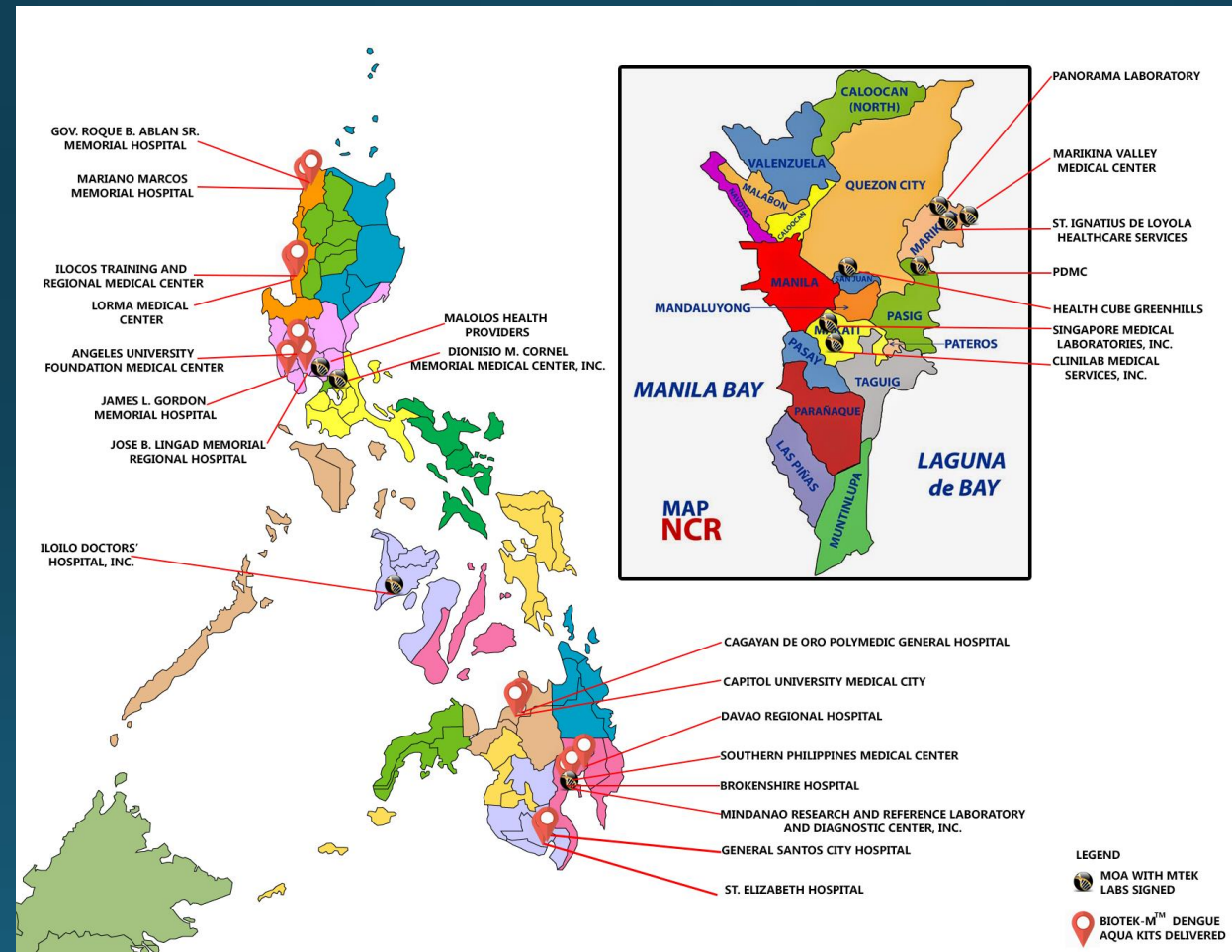
HIV Viral Load

EGFR MUTATION

HBV Viral Load

TEST

Hospitals and stand-alone labs currently using our technology



2017 NSTW Outstanding
Technology
Commercialization Award
(Gregorio Zara Medal)

by
NAST-DOST

INQUIRER.NET Friday, March 3, 2017

TECHNOLOGY / SCIENCE, HEALTH AND RESEARCH 951 SHARES

Microbiologist vs dengue leads science awardees

By: **Jocelyn R. Uy - Reporter** / @mj_uyINQ Philippine Daily Inquirer / 03:26 AM July 31, 2016



Dr. Raul Destura receives his award. FACEBOOK PHOTO/CECILIA ACUIN

A microbiologist who developed a portable kit that can detect within an hour the presence of dengue virus in the blood and a University of the Philippines (UP) professor who used computer programs to develop designer drugs against tuberculosis were among the winners of this year's

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TRENDING

NEWSINFO
Gunmen kill people's doctor
MARCH 3, 2017

NEWSINFO
Family of slain rural doctor cries for justice
MARCH 2, 2017

NEWSINFO
Duterte renews attack on Church as he defends war on drugs
MARCH 2, 2017

ENTERTAINMENT
Kris Aquino hints at TV comeback: 'Where I belong'

Intellectual Property

**CRUZ MARCELO
& TENEFRANCIA**

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**OFFICE OF TECHNOLOGY TRANSFER
AND BUSINESS DEVELOPMENT**
Ground Floor, National Institute of Molecular Biology
And Biotechnology, National Science Complex
University of the Philippines
Diliman, Quezon City

Attention : **DR. LUIS SISON**

Re : **Philippine Utility Model Registration Nos. 2-2015-000237
and 4-2015-000236 both for "DETECTION OF PATHOGENS"
both in the Name of the UNIVERSITY OF THE PHILIPPINES
Our Refs. : 6.6156(B)/UM and 6.6156(C)/UM**

Gentlemen:

We are pleased to inform you that the Philippine Intellectual Property Office ("IPO") has issued its Notices of Issuance of the Certificates of Registration ("Notices") both bearing mailing date of 28 September 2015, stating that the Certificates of Registration for the subject utility models have been issued.

The subject registrations have a term of seven (7) years from the date of filing, or until **19 May 2022**.

With our best regards.

Very truly yours,

DIVINA GRACIA E. PEDRON


ROWANIE A. NAKAN


Encl.: a/s


6.6156(B)(C)/UM/DEPRAN/CTM
SR NOI OR (UTILITY MODEL)_6156(B)_6156(C)/DETECTION OF PATHOGENS/IP#KYLE

CONFIRMATION COPY



It Received FDA Approval

 Republic of the Philippines
Department of Health
FOOD AND DRUG ADMINISTRATION

 **FDA**
Food and Drug Administration
PHILIPPINES

CERTIFICATION


To Whom This May Concern:

This is to certify that the **BIOTEK-M™ DENGUE AQUA KIT** is currently not required to be registered with this Office because the new Food and Drug Administration (FDA) Guidelines for the registration of medical devices has not yet been issued.

This certification is issued upon the request of **MANILA HEALTHTEK INC.** with business address at 109 Gil Fernando Avenue, Sta. Elena, Marikina City for whatever legal purpose this may serve.

This certification is automatically cancelled or revoked upon the issuance of the pertinent health products registration guidelines. This certificate cannot be used for advertising purposes in whatever medium and neither can this certificate be construed as an endorsement by the Center for Device Regulation, Radiation Health, and Research.


Done this 20th September 2016 at Alabang, Muntinlupa.



ENGR. BAYANI C. SAN JUAN, MSc, MNSA, CESE
Officer-in-charge
Center for Device Regulation, Radiation Health, and Research

Not valid without DOH Seal

OR No. : 0774754
Amount : PhP 2,550.00 (5 Products)
Date : 22 August 2016
LRD/CDRRHR_EXEMP-2016-8025
DTN: 20160822150114

/ddd

 Republic of the Philippines
Department of Health
FOOD AND DRUG ADMINISTRATION

 **FDA**
Food and Drug Administration
PHILIPPINES

CERTIFICATION


To Whom This May Concern:

This is to certify that the **BIOTEK-M™ LAMP HEATER** is currently not required to be registered with this Office because the new Food and Drug Administration (FDA) Guidelines for the registration of medical devices has not yet been issued.

This certification is issued upon the request of **MANILA HEALTHTEK INC.** with business address at 109 Gil Fernando Avenue, Sta. Elena, Marikina City for whatever legal purpose this may serve.

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Done this 20th September 2016 at Alabang, Muntinlupa.

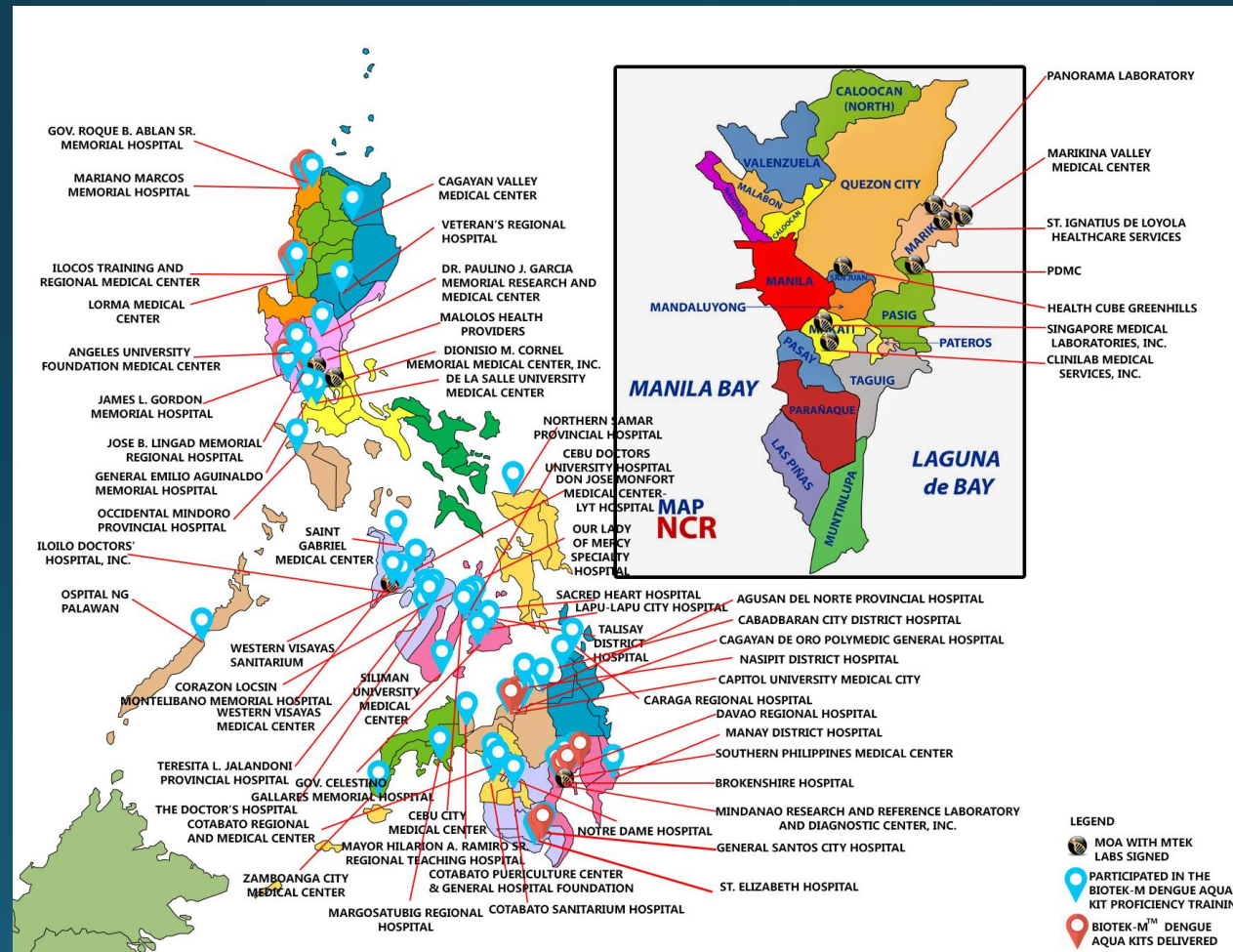

ENGR. BAYANI C. SAN JUAN, MSc, MNSA, CESE
Officer-in-charge
Center for Device Regulation, Radiation Health, and Research

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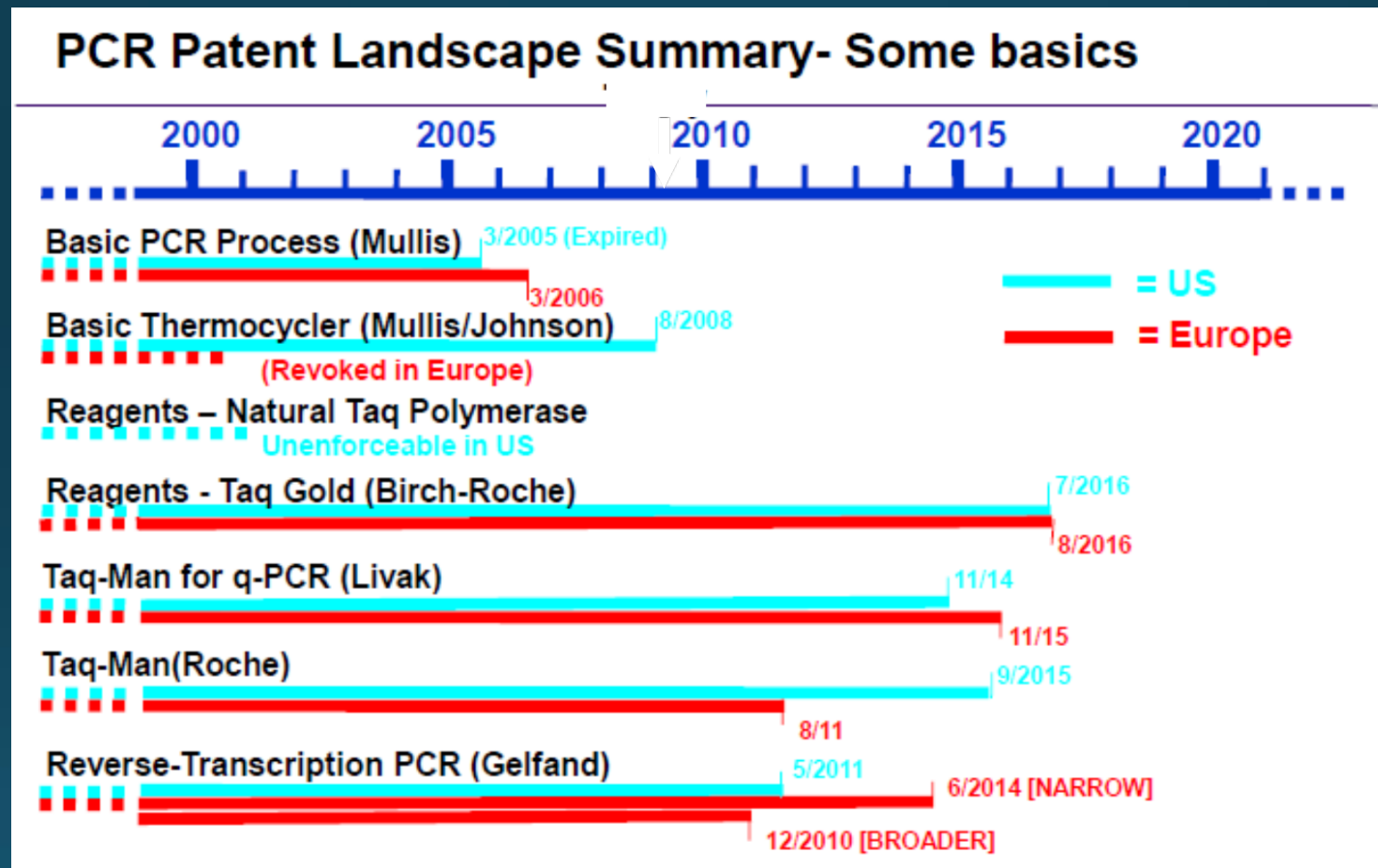
OR No. : 0774754
Amount : PhP 2,550.00 (5 Products)
Date : 22 August 2016
LRD/CDRRHR_EXEMP-2016-8029
DTN: 20160822150114

/ddd

This is the number of hospitals we already trained



Pillar 3: PCR Technologies



GenAmplify™

Dengue-ChikV PCR Detection Kit

Salmonella PCR Detection Kit

TB/MDR PCR Detection Kit

Pneumocystis jirovecii PCR Detection Kit

HBV-DNA PCR Detection Kit

A quality Philippine Product of



Republic of the Philippines
Department of Health
FOOD AND DRUG ADMINISTRATION



CERTIFICATION


To Whom This May Concern:

This is to certify that the **GENAMPLIFY™ VIRAL RNA PURIFICATION KIT** is currently not required to be registered with this Office because the new Food and Drug Administration (FDA) Guidelines for the registration of medical devices has not yet been issued.

This certification is issued upon the request of **MANILA HEALTHTEK INC.** with business address at 109 Gil Fernando Avenue, Sta. Elena, Marikina City for whatever legal purpose this may serve.

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Done this 20th September 2016 at Alabang, Muntinlupa.


ENGR. BAYANI C. SAN JUAN, MSc, MNSA, CESE
Officer-in-charge
Center for Device Regulation, Radiation Health, and Research

Not valid without DOH Seal

OR No. : 0774754
Amount : PhP 2,550.00 (5 Products)
Date : 22 August 2016
LRD/CDRRHR_EXEMP-2016-8028
DTN: 20160822150114

ddd

Pillar 4: Avian-derived IgY Technologies



Diagnosics and Therapeutics

Our new brand



- FDA Certification as R&D facility
- FDA Certification as Special Clinical Molecular Laboratory
- FDA Certification as a Manufacturing Facility

Our first technology Adaptor

- DEPARTMENT OF HEALTH

July 12, 2017

DEPARTMENT MEMORANDUM

0353

TO: ALL UNDERSECRETARIES; ASSISTANT SECRETARIES; DIRECTORS OF BUREAUS, DOH REGIONAL OFFICES AND SERVICES (REGION I, VI AND IX); EXECUTIVE DIRECTORS OF SPECIALTY HOSPITALS; CHIEFS OF MEDICAL CENTERS; AND OTHERS CONCERNED

CT: Interim Guidelines for Initial Implementation of Nucleic Acid Amplification Test –Loop Mediated Isothermal Assay (NAAT-LAMP) as One of Dengue Confirmatory Tests to Support Dengue NS1 Rapid Diagnostic Test (RDT)

2016 the Administrative Order No. 2016-0043 "Guidelines on the Implementation of Dengue NS1 Rapid Diagnostic Test (RDT)" was approved by the Secretary of Health. This approval paves way on the availability of a rapid diagnostic test for dengue at the Rural Health Units (RHUs) and health centers for same-day diagnosis making early detection, prompt treatment, and management as possible. Although the Dengue Rapid Diagnostic Test (RDT) is a sensitive

Summary of Lessons

Researchers must ask the question of relevance.

Researchers need to address unmet medical needs

Know your technology development landscape.

Creating an Enabling Environment

Do not be afraid engaging with technology adaptors.

Re-tool yourself.

Share your blessings.

Acknowledgements

- The team would like to acknowledge
 - the grant support provided by PCHRD-DOST, TAPI-DOST, VENTURES-DOST
 - DOH-NEB for assisting us identifying testing sites
 - the panel of evaluators who has provided us a wealth of advice and constructive challenges
 - The Philippine Genome Center for helping us find and defend all our funding applications
 - The NIH-UP Manila administration for the research environment
- May this project meet its aim to provide affordable technology for the Filipino people.

Thank you.