

## TECHNOLOGY DEVELOPMENT DIVISION

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	...	Daw Haymar Htay Win BSc(Chemistry)(DU)
	...	Daw Phoo Pwint Than
	...	Daw Ei Ei Phyu

Technology Development Division was established under Vaccine Research Center in April, 2012. Currently, the main work is purification of hepatitis B surface antigen (HBsAg) from plasma for hepatitis B vaccine production. It also involves in development of new diagnostic test kits and test methods, vaccine immunogenicity studies and research on viral hepatitis infections, reproductive tract infections, non-communicable diseases mainly on cancer research.

### RESEARCH PROJECTS

#### 1. COMMUNICABLE DISEASES

##### 1.1. VIRAL HEPATITIS

###### 1.1.1. Laboratory scale production of plasma-derived hepatitis B vaccine (2015)

Plasma-derived hepatitis B vaccine was produced as laboratory scale by purification of hepatitis B surface antigen (HBsAg) from plasma. HBsAg positive blood was collected from blood banks of Central Women Hospital, North Okkalapa General Hospital, Insein General Hospital and Central National Blood Bank. In 2015, after 44 visits of blood collection, 405 units of HBsAg positive blood were attained. Among them, 78 units of blood obtained for vaccine production after assessing with Counter –Current Electrophoresis (CEP) test for high HBsAg titre. Among them, CEP (+1) are 14 units, CEP (+2) are 37 units, CEP (+3) are 26 units and CEP (+>3) are 1 unit. There were 16.2 liters of plasma acquired for production pool after plasma separation. From Purified HBsAg Lot number P01/14, four formulations and vialing procedures were performed in 2015. A total of 4009 of plasma-derived hepatitis B vaccine 5 mL vials were produced in 2015. From them, 39 hepatitis B vaccine 5 mL vials were sent to QC Division. Vaccine 350 vials left from 2014. In 2015, total 4,320 vials of hepatitis B vaccine (5mL/vial) were issued to Vaccine and Diagnostic Clinic, DMR.

## 2. ACADEMIC AND TECHNOLOGY DEVELOPMENT

### 2.1. DEVELOPMENT OF TEST KIT FOR INFECTION SCREENING OF DONOR BLOOD

#### 2.1.1. Laboratory evaluation of test kits for screening of transfusion transmitted infections in donor blood

This is the collaboration between Olipro Biotechnology Sdn. Bhd., Malaysia and Department of Medical Research: Technology Development Division and Experimental Medicine Research Division. BLOODCHEK LF Dipstick was to be developed for screening of transfusion transmitted infections (Human Immunodeficiency Virus: HIV 1 & 2, Hepatitis B Virus: HBV, Hepatitis C Virus: HCV, Syphilis and Malaria). Two Scientists from Olipro Biotechnology, Malaysia visited to DMR in February, 2015 and performed small scale laboratory evaluation of BLOODCHEK LF Dipstick tests. The Dipstick test is Immunochromatographic Test Strip which can detect four infections (HIV 1&2, HBV, HCV and Syphilis) in two strips (one for IgG and one for IgM) and malaria in separate strip. According to laboratory evaluation using fresh blood samples, the sensitivities for all the infections are less than 85%. Optimization to improve the sensitivity, specificity and stability test of the test kit are necessary before large scale evaluation.

## SERVICES PROVIDED

### ACADEMIC

Sr. No	Name	Course	Responsibility
1.	Dr. Win Maw Tun	MMedSc (Microbiology), First year, UM(1)	External Examiner
		MMedSc (Microbiology), UM(1)	Supervisor
		Workshop on Research Methodology (2015)	Lecturer
2	Dr. Mu Mu Shwe	Workshop on Research Methodology (2015)	Facilitator
		Dr.Med.Sc (Obstetrics & Gynecology), UMM	Co-Supervisor
		Dr.Med.Sc (Obstetrics & Gynecology), UMM	Co-Supervisor
		Dr.Med.Sc (Obstetrics & Gynecology), DSMA	Co-Supervisor
		Dr.Med.Sc (Rheumatology), UM (1)	Co-Supervisor
	Dr.Med.Sc(Rheumatology), UM (1)	Protocol Review	