

**UNIVERSITI SAINS MALAYSIA
GERAN PENYELIDIKAN UNIVERSITI PENYELIDIKAN
LAPORAN AKHIR**

**THE SEARCH FOR MACHANISM OF GENETIC
ABBERATION IN THE INFRONIC REGIONS OF THE
URIDINE-DIPHOSPATE GLUCURONOSYLTRANSFERASE
1A1 (UGT1A1) GENE AMONG NEONATAL JAUNDICE
MALAY INFANTS WITHOUT MUTATIONS IN THE
PROMOTER AND EXONIC REGIONS**

PENYELIDIK

DR. SURINI YUSOFF

PENYELIDIK BERSAMA

PROF. HANS VAN ROSTENBERGHE

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PROF. NARAZAH MOHD. YUSOFF

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ROSLIZA ISMAIL

NURUL AMIERAH ABDULLAH

2015



KEMENTERIAN
PENDIDIKAN
MALAYSIA

FINAL REPORT
FUNDAMENTAL RESEARCH GRANT SCHEME (FRGS)

Laporan Akhir Skim Geran Penyelidikan Fundamental (FRGS)
Pindaan 1/2015

A RESEARCH TITLE: The search for mechanism of genetic aberration in the intronic regions of the uridine-diphosphate glucuronosyltransferase 1A1 (*UGT1A1*) gene among neonatal jaundice Malay infants without mutations in the promoter and exonic regions

PHASE & YEAR: 2015

START DATE: 1st August 2011

END DATE: 31st July 2014

EXTENSION PERIOD (DATE): RMC LEVEL:
KPM LEVEL:

PROJECT LEADER: Dr. Surini Yusoff

IC / PASSPORT NUMBER: 800718715036

PROJECT MEMBERS: (including GRA)

1. Prof. Hans Van Rostenberghe.
2. Prof. Zilfalil Alwi
3. Prof. Narazah Mohd Yusoff
4. Assoc. Prof. Dr. Noorizan Haji Abdul Majid
5. Rosliza Ismail (MSc student)
6. Nurul Amierah Abdullah (MSc student)

PROJECT ACHIEVEMENT (*Prestasi Projek*)

B ACHIEVEMENT PERCENTAGE

Project progress according to milestones achieved up to this period	0 - 50%	51 - 75%	76 - 100%
Percentage (please state #%)	-	-	100%

RESEARCH OUTPUT

Number of articles/ manuscripts/ books (Please attach the First Page of Publication)	Indexed Journal	Non-Indexed Journal
	* 1 paper will be submitted soon (as attached) * 1 paper was prepared as the first draft (as attached)	-
Conference Proceeding (Please attach the First Page of Publication)	International	National
	1	3
Intellectual Property (Please specify)		

HUMAN CAPITAL DEVELOPMENT

Human Capital	Number				Others (please specify)
	On-going		Graduated		
Citizen	Malaysian	Non Malaysian	Malaysian	Non Malaysian	Rosliza Ismail will be submitting 10 copies of her thesis on 17 February 2015.
No. PHD STUDENT	-	-	-	-	
Student Fullname: IC / Passport No: Student ID:	-	-	-	-	
No. MASTER STUDENT	2	-	-	-	
Student Fullname: IC / Passport No: Student ID:	Rosliza Ismail 870103035636 PUM0022/12	-	-	-	
Student Fullname: IC / Passport No: Student ID:	Nurul Amierah Abdullah 900614035472 PUM0010/13	-	-	-	
No. UNDERGRADUATE STUDENT	-	-	-	-	
Student Fullname: IC / Passport No: Student ID:	-	-	-	-	
Total	-	-	-	-	

EXPENDITURE (Perbelanjaan) as Borang K1 (RMC)

C Budget Approved (Peruntukan diluluskan) : RM 203,500.00
Amount Spent (Jumlah Perbelanjaan) : RM 203,500.00
Balance (Baki) : RM 0
Percentage of Amount Spent : 100 %
(Peratusan Belanja)

ADDITIONAL RESEARCH ACTIVITIES THAT CONTRIBUTE TOWARDS DEVELOPING SOFT AND HARD SKILLS
(Aktiviti Penyelidikan Sampingan yang menyumbang kepada pembangunan kemahiran insaniah)

D		
International		
Activity	Date (Month, Year)	Organizer
(e.g : Course/ Seminar/ Symposium/ Conference/ Workshop/ Site Visit) International Conference on Medical and Health Sciences (Poster) Title: High resolution melting analysis of c.-3279 T>G mutation in the <i>UGT1A1</i> gene among Malay Kelantanese infants with neonatal hyperbilirubinemia	22-24 May 2013	Universiti Sains Malaysia, Health Campus, Kubang Kerian Kelantan

National		
Activity	Date (Month, Year)	Organizer
(e.g : Course/ Seminar/ Symposium/ Conference/ Workshop/ Site Visit)		
1. Health and Life Sciences Postgraduate Conference (HeLiPC) (Oral presentation) Title: Association of polymorphisms in intronic region of the uridine diphosphate glucuronosyltransferase 1A1 (UGT1A1) gene among Malay Kelantanese neonates with and without neonatal hyperbilirubinaemia	10-11 June 2014	Institute for Research in Molecular Medicine (INFORMM) Universiti Sains Malaysia
2. Health and Life Sciences Postgraduate Conference (HeLiPC) (Oral presentation) Title: Genetic Lesion Analysis of A(TA) ₇ TAA in the Promoter Region of UGT1A1 Gene among Malay Kelantanese Infants by High Resolution Melting Analysis	10-11 June 2014	Institute for Research in Molecular Medicine (INFORMM) Universiti Sains Malaysia
3. 6th National Paediatric Research Conference (Oral presentation) Title: Screening of the c.-3156 G>A in the Uridinediphosphate glucuronosyltransferase 1A1 (UGT1A1) Gene; the High Resolution Melting Analysis (HRMA) among Malay Kelantanese Infants with Hyperbilirubinemia	6-7 Dec 2013	College of Paediatric, Academy of medicine of Malaysia

E PROBLEMS / CONSTRAINTS IF ANY (Masalah/ Kekangan sekiranya ada)

Have problem with optimization and purchasing reagents take longer time. Therefore the project cannot be completed on time.

F RECOMMENDATION (Cadangan/Perambahbaikan)

G RESEARCH ABSTRACT – Not More Than 200 Words (Abstrak Penyelidikan – Tidak Melebihi 200 patah perkataan)

Many studies have been focusing on the exonic regions of the *uridine diphosphate glucuronosyltransferase 1A1 (UGT1A1)* gene in determining the risk factors of neonatal jaundice. However, very few studies suggested the intronic region as a part of it. This study was conducted to determine the possibility of involvement of polymorphisms in the intronic regions among neonatal jaundice Malay infants without polymorphism in the exons. The rationale of this study was rely on the other possible risk factors since there were still many infants developed jaundice without exhibit any polymorphisms in the exons of the *UGT1A1* gene. High resolution melting analysis has been used to screen for our target polymorphisms and confirmed by sequencing analysis. A total of 510 (n=260 samples of non-hyperbilirubinemia infants and 250 samples of hyperbilirubinemia infants) were evaluated. This study revealed that from six mutations in the promoter region evaluated, only c.-3279T>G was associated with neonatal jaundice and was statistically significant. Other polymorphisms were detected in the intronic regions such as IVS2+15(T>C) and IVS2+18(C>T) in non-hyperbilirubinemia group while IVS2+82 (C>T) was identified in hyperbilirubinemia group. However, no significant association was found. Therefore, so far only the c.-3279T>G is a possible risk factor of neonatal jaundice in Malay population.


Date : 14 February 2015
Tarikh

Project Leader's Signature: 
Tandatangan Ketua Projek

**H COMMENTS, IF ANY/ ENDORSEMENT BY RESEARCH MANAGEMENT CENTER (RMC)
(Komen, sekiranya ada/ Pengesahan oleh Pusat Pengurusan Penyelidikan)**

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Name: PROF. DR LEE KEAT TEONG
Nama: Pengarah
Pejabat Pengurusan & Kreativiti Penyelidikan
Universiti Sains Malaysia
11800 USM, Pulau Pinang.

Signature: 
Tandatangan:
16/2/15

Date:
Tarikh: