Reference No: RMC/01/20022023/001
Date: 01 Jun 2022

DR ZULHABRI OTHMAN
Faculty of Health & Life Sciences (FHLS)
Management & Science University

Dear Dr,

EXTENSION OF FUNDAMENTAL RESEARCH GRANT SCHEME (FRGS)

Ministry of Higher Education (MOHE) has approved your grant extension application for FRGS grant. The details are as below:

No.	Project Code	Principal Investigator	Research Title	Duration
1.	**FRGS/1/2018/SKK08/MSU/02/2**	**Dr Zulhabri Othman**	**Modelling of Inflammatory Biomarkers DNA Methylation Profile in the Progression of Premature Atherosclerosis in Rats**	01 Jan 2019 – 31 Dec 2021 Extension 3: 30 Sep 2022 – 31 Dec 2022

Please submit FRGS progress report every 6 month and final report 3 months after the end date via MyGRANTS portal (https://mygrants.gov.my). If you have any questions or concern, please do not hesitate to contact our officer at 03-55216741 or email rmc@msu.edu.my.

Thank you.

Regards,

Prof. Dr. Indang Ariati Binti Ariffin
VP for Research & International Affairs
Management & Science University

MSU EXTERNAL GRANT

28 DECEMBER 2018

ZULHABRI BIN OTHMAN

School of Graduates Studies (SGS),

Dear Sir/Madam,

ADMINISTRATIVE LETTER EXTERNAL GRANT

We are pleased to inform you that the Research Committee has acknowledge the following grant:

No.	Project Code	Project Leader	Other researcher	Research Title	Amount Pledged	Duration
1.	NAT-007-012019-FRGS 20210322003	S012012100001 **ZULHABRI BIN OTHMAN**	1 L274 **NORSHAFARINA BINTI SHARI @KAMARUDDIN** 2 S012013080004 **MARIAM AISHA FATIMA**	**MODELLING OF INFLAMMATORY BIOMARKERS DNA METHYLATION PROFILE IN THE PROGRESSION OF PREMATURE ATHEROSCLEROSIS IN RATS**	RM 128,000.00	**38 Months** (1st January 2019 - 31st December 2021)

Please find attached external grant document for reference.

If you have any questions or concerns, please contact our officer at 03-5521 6547 or email rmc@msu.edu.my.

Thank You.

Prof. Dato' Dr. Md Gapar Md Johar
Senior Vice President
Research,Innovation,Technology & System
Management and Science University

Overview

Project Title

View Application

Modelling of Inflammatory Biomarkers DNA Methylation Profile in the Progression of Premature Atherosclerosis in Rats

Project ID

13118

University

Management and Science University (MSU)

Reference Code

FRGS/1/2018/SKK08/MSU/02/2

Selected Grant

FRGS 2018-1

Cluster

Main Cluster	Sub Cluster	NKEA	Sustainable Development Goals	WKB
Clinical and Health Sciences	Basic Medical Sciences	Healthcare	Good Health and Well-Being	Advanced & Modern Services

Project Duration

Start	Original End Date	Extension Date (RMC)	Extension Date (KPT)	End Date after Extension Due to MCO	Actual End Date
01/01/2019	31/12/2021	31/12/2022	N/A	31/3/2022 (by 3 months) 30/9/2022 (by 6 months)	31/12/2022

Members

Researcher ID	Name	IC/Passport Number	University	Faculty/School/Centre/Unit	Position	Overall Contribution	Status
11528	Zulhabri Othman	771029115393	MSU	FACULTY OF HEALTH & LIFE SCIENCES	Associate Professor	2280 Hours (57.14%)	Project Leader
92124	Nor Azimah Bt. Abdul Azize	810509016748			Others	120 Hours (3.01%)	Member
36349	Nurul Izza Nordin	760202055272	MITI	Industrial Biotechnology Research Centre	Others	0 Hours (0.00%)	Member
20934	Siti Azma Jusoh	770619115022	UITM	Faculty of Pharmacy	Senior Lecturer	120 Hours (3.01%)	Member
50814	Norshafarina Shari @ Kamaruddin	801125105456	MSU	FACULTY OF HEALTH & LIFE SCIENCES	Associate Professor	300 Hours (7.52%)	Member
26126	Norwahidah Binti Abdul Karim	780926085010	UKM	FAKULTI PERUBATAN	Senior Lecturer	360 Hours (9.02%)	Member
46813	Mariam Aisha Fatima	830605045248	MSU	Research Management Centre	Associate Professor	810 Hours (20.30%)	Member

Executive Summary

Introduction: Cardiovascular disease (CVD) is the leading cause of death in develop countries, as well as Malaysia. Several evidences suggest the alterations in gene-specific DNA methylation patterns od inflammatory genes may be implicated in the progression of premature atherosclerosis.
Problem statement: The identification of inflammatory biomarkers which effected by DNA methylation that may be implicated in the development of premature atherosclerosis is still not well understood. With the identification of modelling of inflammatory biomarkers DNA methylation might provide methods for early detection and diagnosis of premature atherosclerosis and cardiovascular disease.
Objectives: To propose a new modelling of inflammatory biomarkers DNA methylation profile in the progression of premature atherosclerosis in rats
Research methodology: Wistar rats will be divided into three groups (Normal , restricted and high lipid diet). Blood serum will be analyses for biochemical parameters, oxidative stress and inflammatory biomarkers. DNA and RNA from Blood and coronary artery will be used for DNA methylation profile and gene expression analysis of Inflammatory genes. Modelling of inflammatory protein-protein interaction will be conducted using bioinformatics tools.
Expected outcome: Identification of modelling of inflammatory biomarker DNA methylation profile in the progression of pre-mature atherosclerosis.