ARR code: **NQIR10K9**
DOI: https://doi.org/10.15419/arr.2019.2

Urinary Protein Profile Changes in Diabetic Rats and Pre-diabetic Rats Fed with High Fat Diets

Animal species	Rat
Condition Category	Diabetes
Date applied	15-11-2019
Date assigned	20-11-2019
Lasted edited	21-11-2019
Overall trial status	Completed

SECTION A – PROJECT SUMMARY and PERSONNEL

A1 – PROJECT TITLE and SUMMARY

Project Title This title will be used in all correspondence relating to this project	Urinary Protein Profile Changes in Diabetic Rats and Pre-diabetic Rats Fed with High Fat Diets

Project Summary Provide a brief plain English snapshot of the project (max. 100 words).	This study aimed to analyze the changes in urinary protein profile in diabetic rats and pre-diabetic rats by the effect of HFD. Urine from ten groups of rats fed with different diet and metformin treatment was resolved by performing 1D electrophoresis. Results show that pre-diabetic rats with normal diet and metformin treatment are more like those of healthy rats with normal diet. This indicates that early metformin treatment, as well as diet control, is effective ways to delay the progression of pre-diabetes to diabetes.

A2 – PRINCIPAL RESEARCHER or PROJECT SUPERVISOR (*this is not the research student)*

Name *(eg Dr John Smith)*	Prof Gam Lay Harn
Qualifications relevant to this project	Corresponding Author
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ORCID ID	

SECTION B – PROJECT DETAILS

B1	Duration of data collection for research			
	Start:	**01/11/2016**	**End:**	**01/07/2018**

(insert X in box)

B2	Is this an ongoing OR completed protocol?	Ongoing		Completed	**X**
	If ONGOING, please indicate the date for completion				

B3	Has the research been approved, or is it under consideration, by another Animal Ethics Committee (AEC)?	Yes	**x**	No	
	Name of AEC: Animal Ethics Committee of Universiti Sains Malaysia	*No. of approval letter:* USM/Animal Ethics Approval /2016/(717)			

B4 List all the different types of animals to be used in this project.

Number of animals required:	**60**
Species Category No. & Name:	**S2 - Rats - Laboratory**
Common name of Species	**Rat**
Breed/Strain:	**Sprague Dawley**
Age:	**12 weeks**
Sex:	**Male**
Source:	**Animal Research Center, USM**
Conservation status (if applicable):	

Copy and paste this section again if more than one species is used
If the animal you are intending to conduct research on is not listed in the dropdown box, contact the Animal Ethics Secretary before proceeding further.

B5 Indicate from the list of **procedures** provided those that apply to this protocol (more than one may apply). Please **bold** the appropriate **number**(s) & **description**(s) in the list below:

P1	Observation involving minor interference	P6	Minor physiological challenge
P2	Animal unconscious without recovery	P7	Major physiological challenge
P3	Minor conscious intervention	P8	Death as an end point i.e. LD50 or LC50

P4	Minor surgery with recovery	P9	Production of genetically modified animals
P5	Major surgery with recovery		

B6 Indicate from the list of **purposes** provided those that apply to this protocol. Please **bold** the appropriate **number**(s) & **description**(s):

A1	Stock breeding	A6	Research: Animal management or production
A2	Stock maintenance	A7	Research: Environmental study
A3	Education	A8	Production of biological products
A4	Research: Human or animal biology	A9	Diagnostic procedures
A5	Research: Human or animal health & welfare	A10	Regulatory product testing

SECTION C – STUDY DESIGN

C1.1 A detailed description of the study design is crucial for preregistration

Confirmatory studies	High fat diet was previously known to increase risk of type 2 diabetes by provoking insulin resistance and low-grade of systemic inflammation in the body. People living with type 2 diabetes are advised to follow a strict dietary plan to control the further progression of diabetes complications. Thus, diet management is one of the crucial steps in preventing diabetes prevalence.
Exploratory studies	This study is aimed to analyse the effect of high fat diet to the urinary protein profile of diabetic and prediabetic rats.
Method of blinding	None
Method of randomization	None
If no blinding and/or randomization will be applied, the reasons	No human studies included

should be briefly stated	

C1.2. Methods

Details of the apparatus	Metabolic Cage, Urine bottle, Oral Gavage Needle, Glucometer and glucose strips
Description of the consumables including the supplier	Sodium azide (Sigma, USA), Beddings (Chipsi, Italy), Glove (Gene Express, Malaysia), Syringe and needles (Terumo, Australia)
Software used for analysis	Quantity One (Biorad, USA), ImageLab (Biorad, USA)
Time of the day when the experiments will be conducted	9 am – 12 pm
Measured parameters and their respective unit	Fasting Blood glucose level (mmol/L)
Previous handling or training of animals	YES
Method of euthanasia in case of ex vivo studies	NA
Details of the narcotic and/or analgesic treatment (e.g., prenarcotic treatment, type of anesthesia including the name of drugs and substances)	NA
Details of the drugs and substances being used including, e.g., name of the supplier, route of administration, dosing, treatment intervals, duration and time point of the treatment	Metformin 500mg (Dynapharm, Malaysia),
Provision of the suppliers' name and catalog number if antibodies will be used	NA

A list of all cell lines, viruses, DNA or RNA constructs, and bacteria that will be used	NA

C1.3. Statistics

The main experimental endpoints the sample size calculation relies on	6 weeks of Dietary treatment
A sample size calculation	10 groups 6 animals per group, 10 x 6 = 60
Any additional outcomes measures that will be assessed	NA
What kind of primary statistical analysis will be used	NA
Exclusion criteria for certain data points if applicable	NA