**Effects of herb DG and KK01 on Type 2 Diabetes Mellitus (T2DM) through Lipidomics**

Metabolomic Analysis: NIH Eastern Regional Comprehensive Metabolomics Resource Core (ERCMRC)

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**Abstract:**

DG is a “heat clearing” herb widely used in the clinic to treat T2DM in Traditional Chinese Medicine. KK01 was identified as the major compound of DG. An animal study using the db/db diabetic mouse model (Model Animal Research Center of Nanjing University) was performed at the Wuhan Institute of Drug and Medical Device Control to evaluate the effects of DG and KK01 on T2DM clinical measurements. Preliminary experiments revealed that KK01 was capable of inhibiting the blood glucose increase in the diabetic mice with comparable effect as metformin and rosiglitazone. The purpose of this study is to evaluate the anti-diabetic effects of DG and KK01 through lipidomics. Furthermore, working target(s) and mechanisms involved in the effects will be elucidated with the determined signature lipids in the lipidomics study.

**Sample Description:**

Mice with different treatments were classify into 9 groups: 1) db/db+DG high (n=10); 2) db/db+ DG low (n=10); 3) db/db+KK01 high (n=10); 4) db/db + KK01 low (n=10); 5) db/db+ metformin (n=9); 6) db/db + rosiglitazone (n=10); 7) db/db+ vehicle (n=9); 8) wild type + vehicle (n=10); 9) db/db + vehicle (i.p.) (n=4)

Mouse serum purchased from Sigma was used as QC samples.

For lipidomics in positive mode, 93 serum samples were analyzed, including QC and experimental samples.

For lipidomics in negative mode, 80 serum samples were analyzed, including QC and experimental samples.

The data required for the metabolomics analysis specific to serum samples can be found in the accompanying files:

Procedures: 1. Yuan-serum\_Lipidomics Procedure.docx

Study Design Table: 2. DG and KK01-mice serum Study Design Table.xlsx

Metadata: 3. DG and KK01-mice serum METADATA.xlsm

Processed Data: 4a. DG and KK01-mice serum\_RP-POS Normalized Data.xlsx

4b. DG and KK01-mice serum\_RP-NEG Normalized Data.xlsx

Raw Data (zip): 5a. DG and KK01-mice serum \_Raw-POS-LCMS Data.zip

5b. DG and KK01-mice serum\_Raw-NEG-LCMS Data.zip