Form 3

Report for Joint/Usage Research Program for Endocrine/Metabolism (Fiscal Year 2019)

Date: 2020/3/29

To Director of Institute for Molecular and Cellular Regulation, Gunma University

Principal Applicant	
Institution	Ajou university
Position	Professor
Name	Bum-Ho, Bin

We report on the results of joint research in fiscal 2019 as below.

(Program No. 19004)

1. Research Title	Targeting ZIP13 prevents liver fibrosis progression
2. Purpose and Significance of the research project	Liver fibrosis is a deadly disease in adult. Based on our previous data that ZIP13 is a regulator of TGF-β signaling, targeting ZIP13 may prevent liver fibrosis progression. The object of our study is to assess the underlying mechanism how ZIP13 is involved in liver homeostasis, and to develop the therapeutic strategy to treat liver fibrosis by controlling ZIP13.
3. Period of The Program	April 1, 2019 ～ March 31, 2020

4. Project Members

Name	Age	Gender	Institution/Department	Position	Role
(Principal Applicant) Bum-Ho, Bin	37	M	University of Ajou, Department of Molecular Science and Technology	Professor	Project director
(Research Collaborators)					

※If additional space is required, attach a separate sheet.

5. Collaborative Researcher of IMCR	Name of the Laboratory	Developmental Biology and Metabolism	Name	Ayako Fukunaka

6 . Research Plans:

2019: Establishment of liver fibrosis model mice

- *ZIP13*-knock down in cells and mice
- Toxic model (CCl_4-based model, etc.) with Wild type mice (Test)
- Toxic model (CCl_4-based model, etc.) with *Zip13*$^{-}$null mice
- Sirius red-positive area (%),Ishak score

2020: Molecular mechanism study

- Liver imaging (H&E staining / Azan staining)
- Next generation sequencing
- Analyzing the TGF-β responses
- Molecular biological experiments

7 . Research results

- Dimethylnitrosamine-based model mice: established
- Locked nucleic acid-mediated *ZIP13*-knock down: established
- Sirius-red staining: established
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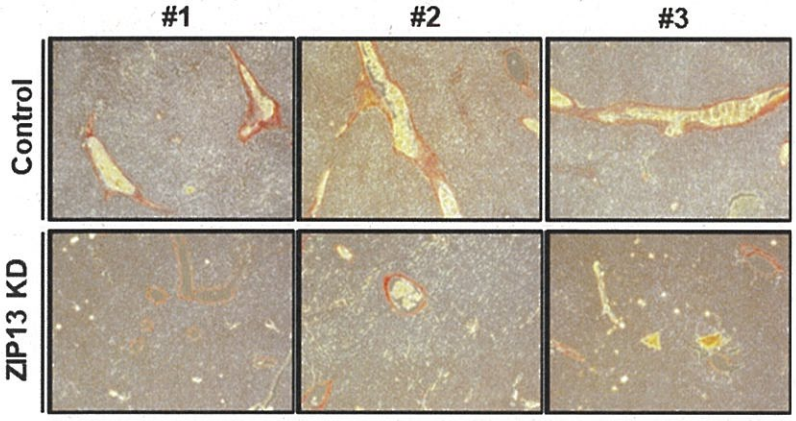

Fig. *ZIP13*-knock down (ZIP13-KD) inhibits liver fibrosis. Liver fibrosis was induced by the treatment of Dimethylnitrosamine (DMN) (5 ml/kg 1-2 time/week) with LNA 5 mg/kg for every week. Sirius-red staining positive-area indicates the fibrosis progression.

8 . Publications and/or Presentations resulting from Joint Research Program with IMCR.

①Please describe a list of publications in which the name of the collaborative researcher of IMCR appears and send one paper reprints of each publication to IMCR.
None

②Please describe a list of publications which include the description that the research is supported by Joint Research Program with IMCR and send one copy of each publication to IMCR.
None