## Inhibition of ADORA1 attenuates hepatic steatosis by gut

## microbiotaderived acetic acid from Astragalus polysaccharides

Ying Hong<sup>1#</sup>, Ningning Zheng<sup>1#</sup>, Xuyun He<sup>1</sup>, Jing Zhong<sup>2</sup>, Junli Ma<sup>1</sup>, Aihua Zhao<sup>3</sup>, Xiaojiao Zheng<sup>3</sup>, Yu Gu<sup>1</sup>, Jian Yao<sup>4</sup>, Yue Li<sup>5</sup>, Lin Yuan<sup>6</sup>, Min Lin<sup>6</sup>, Xiong Lu<sup>6</sup>, Jinliang Ping<sup>7</sup>, Pengtao Song<sup>7</sup>, Bingbing Li<sup>1</sup>, Ruiting Han<sup>1</sup>, Lili Sheng<sup>8</sup>, Weidong Zhang<sup>9</sup>, Kan Ding<sup>4</sup>, Jun Liu<sup>5</sup>, Wei Jia<sup>3,10\*</sup> and Houkai Li<sup>1\*</sup>

<sup>1</sup>Functional Metabolomic and Gut Microbiome Laboratory, Institute of Interdisciplinary Integrative Medicine Research, Shanghai University of Traditional Chinese Medicine, Shanghai 201203, China

<sup>2</sup>Huzhou Key Laboratory of Molecular Medicine, Huzhou Central Hospital, Huzhou 313000, China

<sup>3</sup>Shanghai Key Laboratory of Diabetes Mellitus and Center for Translational Medicine, Shanghai Jiao Tong University Affiliated Sixth People's Hospital, Shanghai 200233, China

<sup>4</sup>Glycochemistry and Glycobiology Laboratory, Shanghai Institute of Materia Medica, Chinese Academy of Sciences, Shanghai 201203, China

<sup>5</sup>Department of Endocrinology, Shanghai Fifth People's Hospital affiliated to Fudan University, Shanghai 200240, China

<sup>6</sup>Experiment Center for Science and Technology, Shanghai University of Traditional Chinese Medicine, Shanghai 201203, China

<sup>7</sup>Department of Pathology, Huzhou Central Hospital, Huzhou 313000, China <sup>8</sup>Department of Pathology and Laboratory Medicine, University of California, Davis, Sacramento, California, USA

<sup>9</sup>Department of Phytochemistry, College of Pharmacy, Second Military Medical University, Shanghai 200433, China

<sup>10</sup>University of Hawaii Cancer Center, Honolulu, Hawaii, USA

<sup>#</sup>These authors contributed equally

## \*Corresponding author

Wei Jia, University of Hawaii Cancer Center, Honolulu, Hawaii, USA; wjia@cc.hawaii.edu; 808-564-5823.

Houkai Li, Functional Metabolomic and Gut Microbiome Laboratory, Institute for Interdisciplinary Medicine Sciences, Shanghai University of Traditional Chinese Medicine, Shanghai 201203, China; houkai1976@126.com; +86-21-5132-2729.

## Abstract

The authors have withdrawn this manuscript, because some data could not be replicated. During the process of subsequent revision of the manuscript, we separated the data into two parts. The majority data of the preprint draft, the anti-NAFLD effect of *Astragalus* polysaccharides (APS) in mice and the contribution of gut microbiota, were independently published in 2021 after substantial revision (doi: https://doi.org/10.1080/19490976.2021.1930874). However, the data on figure 6 (about ARs inhibitors DPCPX orally ameliorating NAFLD in mice, and *Adora1* si-RNA data *in vitro*) could not be fully replicated in subsequent experiments. The most probable reason might be due to the batch differences of mice / cells, or other undetermined factors during experiment. Moreover, we have carried out in-depth studies on the exact role of hepatic A<sub>1</sub>R on NAFLD formation, which is opposite to our prior assumption. Therefore, we do not wish this work to be cited as reference for the project. We apologize for any inconvenience caused to our readers. Any questions can be addressed to first/corresponding author.