

Fructophilic *Apilactobacillus kunkeei* alleviates high-fructose diet-induced lipid accumulation by modulating gut microbiota and intestinal barrier function in mice

Haiyan Xu^{1*}, Wenjia Ba¹, Zhuzhu Yurong¹, Zijia He¹, Peizhi Wang¹, Xun Gou¹,
Xiaoyu Zhang¹, Fang Wang^{2*}

¹College of Life Sciences, Sichuan Normal University, Chengdu, Sichuan, China

²College of Chemistry and Life Sciences, Institute of Food Fermentation, Chengdu Normal University, Chengdu, China

***Correspondence:** Haiyan Xu, College of Life Sciences, Sichuan Normal University, No.1819, Section 2, Chenglong Avenue, Longquan District, Chengdu, 610101, China.

E-mail: xuhy2020@sicnu.edu.cn.

Supplementary material

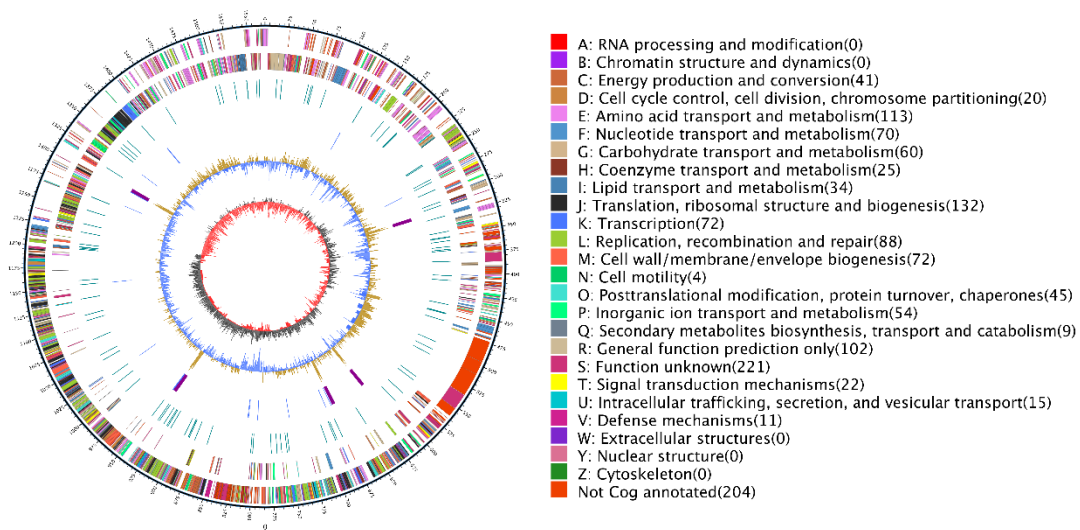


Figure S1. The entire genome circle diagram of *Apilactobacillus kunkeei* FM01

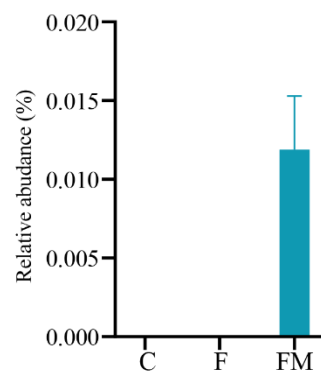


Figure S2. The relative abundance of *Apilactobacillus kunkeei* based on metagenomic sequencing.

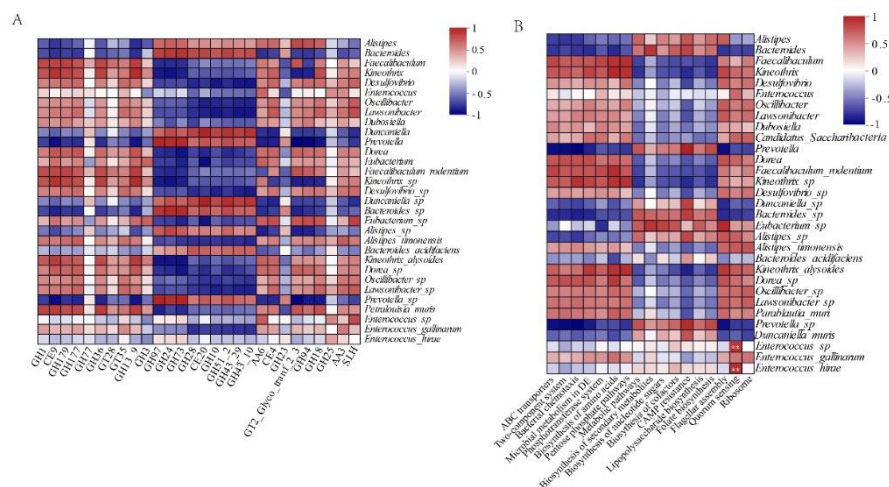


Figure S3. Correlation Analysis Between *Apilactobacillus kunkeei* FM01-Modulated Bacterial

Taxa and Functional Profiles. Spearman correlation between bacterial taxa modulated by *A. kunkeei* FM01 intervention and (A) carbohydrate-active enzyme (CAZyme) families and (B) Kyoto Encyclopedia of Genes and Genomes (KEGG) pathways

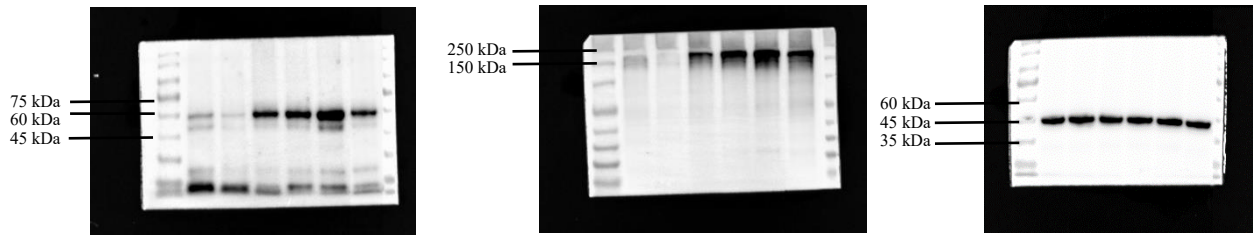
Table S1 The ingredient list of fructose feed

	20% Fructose diet	
	gm%	kcal%
Protein	20.30%	20.30%
Carbohydrate	63.95%	63.95%
Fat	7.00%	15.75%
Total		100.00%
kcal/gm	4.00	
Ingredient	gm	kcal
Casein)	200	800
L-Cystine	3	12
Corn Starch	297.5	1190
Maltodextrin	132	528
Sucrose	0	0
Fructose	200	800
Cellulose	50	0
Soybean Oil	70	630
Vitamin Mix V10037 - 10X	10	40
Mineral Mix S10022G	35	0
Choline Bitartrate	2.5	0
Total	1000	4000

Table S2 Primers sequences used in this test

Primer name	Forward primer	Reverse primer
<i>β-actin</i>	ctacctcatgaagatcctgacc	cacagcttctctttgatgtcac
<i>occludin</i>	tgcttcacgcttccttagtaa	gggttcactcccattatgtaca
<i>ZO-1</i>	ctggtgaagtctcggaaaaatg	catctcttgctgccaaactatc

Uncropped and unprocessed scans of blots for Figure 5



Note: The three pictures from left to right represent the gene occludin, ZO-1 and β -actin, respectively.