Inhibitory Effects of Peroxidase from Foxtail Millet Bran on Colitis-Associated Colorectal Carcinogenesis by the Blockade of Glycerophospholipid Metabolism

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SUPPORTING INFORMATION

Supplemental Experimental Procedures

Histopathology Assays

The organ tissues of all mice were fixed with 4 % buffered formalin and the fixed samples were embedded in paraffin. Next, these fixed organs were stained using hematoxylin and eosin (H&E) to observe histological features. Subsequently, these stained sections were visualized and photographed under inverted microscope (100× magnification).

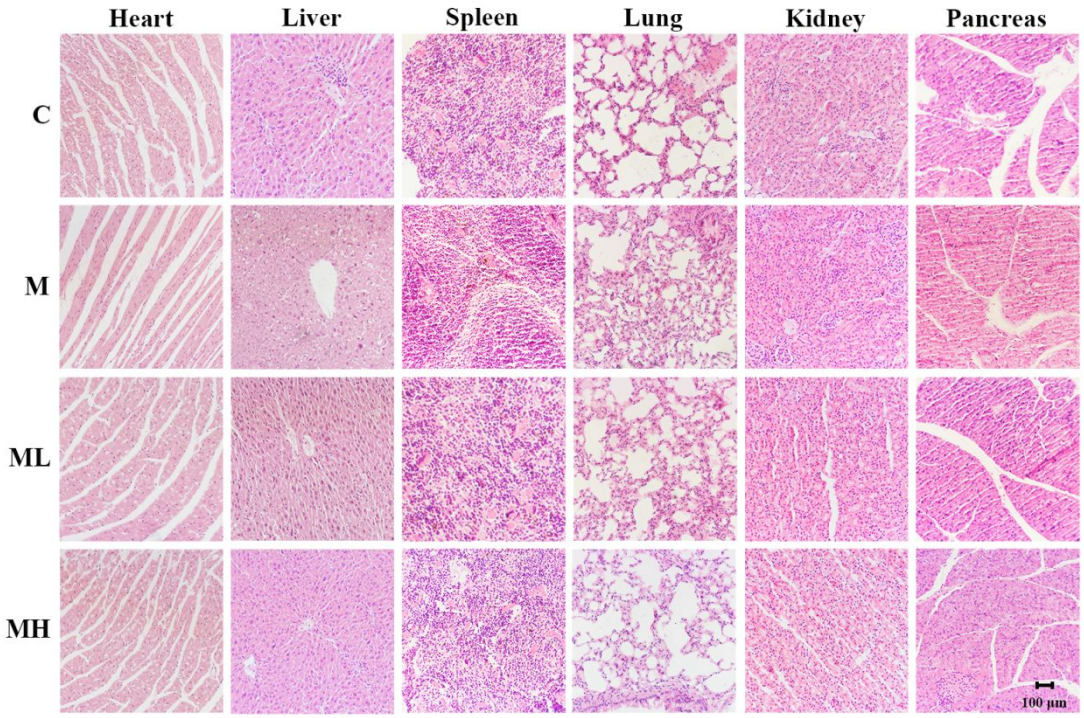

Figure. S1 Effects of FMBP on major organs of AOM/DSS-induced mice by HE staining.

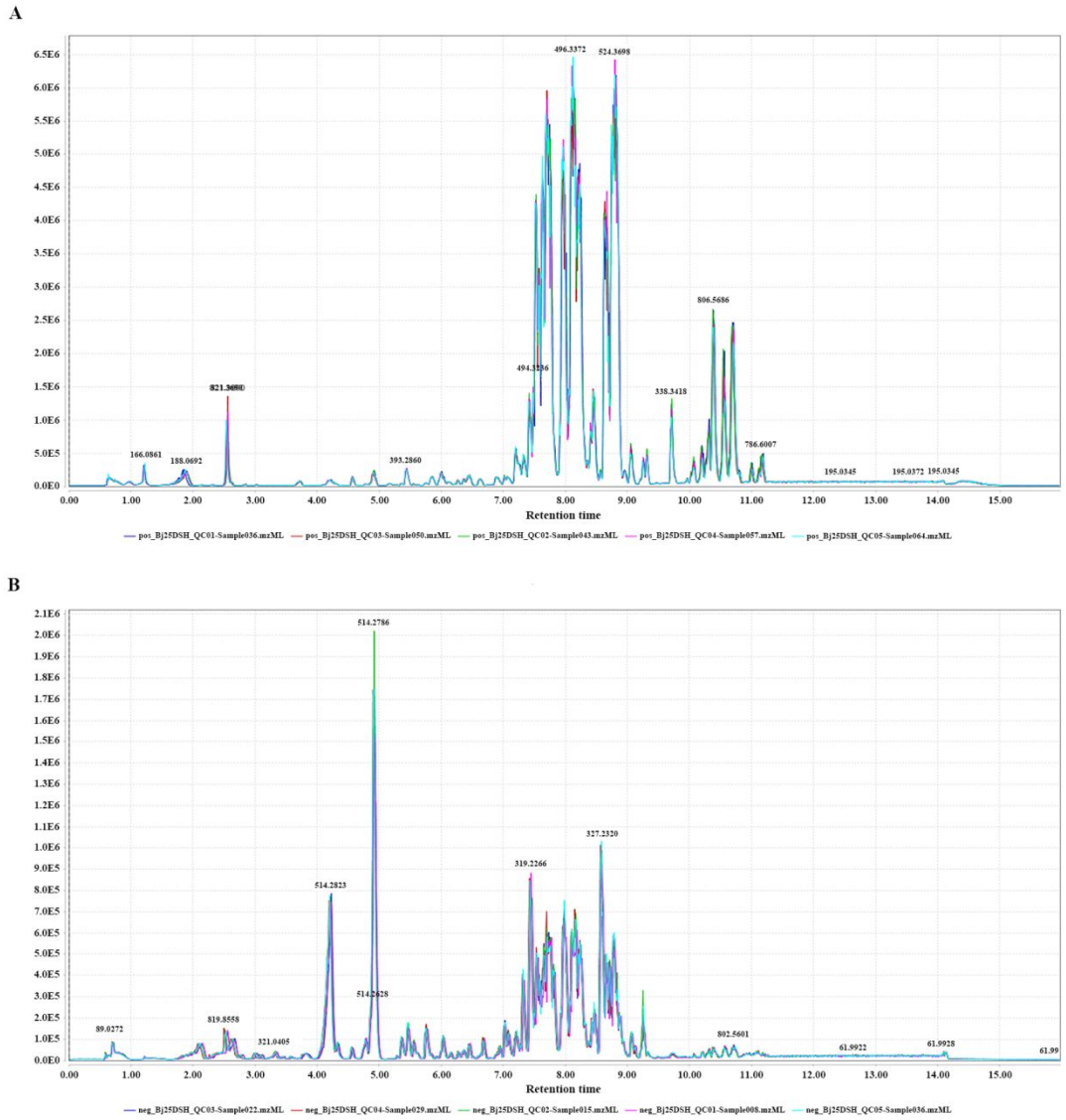

Figure. S2 The representative total ion chromatograms of LC-MS-based metabonomics

(A) The representative total ion chromatograms (TICs) were obtained in the positive ion mode in serum samples. (B) The representative total ion chromatograms (TICs) were obtained in the negative ion mode in serum samples.

Table. S1 Sequence Information of Gene Primers

Genes	Forward primer	Reverse primer
GPAT2	TGGCTGGTTCGGAGGCTCTG	GATGCGCTGTACCTCCTTCTTCAC
AGPAT3	AACTGCCGCCTCGCCTACTC	GATGATGACTGCGTGCTCCTTCC
LIPIN1	GCCGACATCTTGGTGCTGACG	TGCTCTCCACGCCACTGTCC
PCYT2	AGATTGACAGTGGCAGCAACCTC	GCTCCTTGGCTTCCTTCTTCTGG
ETNK1	GTGACCCTGCAGCTCTTCAC	GTTGTGGTGCACACCCATGA
CHKα	GCCTATCTGTGGTGCAAGGAGTTC	GCCGCCTCTGATGACACTGATG
PCYT1α	AGCTCTGATGCAAGCGAAGAACC	TTCCTCACCACCTCATCCACGTAG
PLD4	GTCGGCTGCGGACTCAACAC	TCCGTGACCATGAACTTGCTGTG
PLA2G6	GACTGTGCCATAGTGCTGCTGAC	CCACTTCTGCTCCGAACACGATG
CHPT1	ACCGAAGAGGCACCATACTGGAC	TCCTAAGCGAGCGGCAATTGAAG
CEPT1	GTGTAGCAGCGTGTCCAAGGC	GGAGCACAGCGATGGAAGAATGG

Table. S2 Differential Metabolites between C and M

Metabolites	P-value	VIP	FC
(20R)-24-Hydroxygeminivitamin D3	*	1.168	1.557
(R)-Butaprost	*	6.663	3.679
11β-PGE2	*	1.105	0.582
6α-Hydroxy-castasterone	*	1.599	2.213
Cholic acid	*	14.139	3.836
Daidzein	*	1.424	0.275
DG(15:1(9Z)/18:2(9Z,12Z)/0:0)[iso2]	*	4.263	1.767
enantio-PAF C-16	*	22.436	0.906
Hydroxyphenyllactic acid	*	1.301	1.441
Indolelactic acid	*	2.267	1.425
Lactosylceramide (d18:1/12:0)	*	6.139	0.892
LysoPE(22:5(4Z,7Z,10Z,13Z,16Z)/0:0)	*	2.444	0.538
PE(18:0/0:0)	**	9.465	0.734
PE(18:1(9Z)/0:0)	*	6.483	0.772
PE(20:0/P-18:1(11Z))	*	2.463	0.777
PG(18:1(9Z)/0:0)	*	1.557	0.569
PC(16:0/20:4(6E,8Z,11Z,14Z) (50H[S]))	*	1.643	0.612
PS(14:0/16:0)	*	1.821	0.560
PS(21:0/20:2(11Z,14Z))	**	1.413	0.452
Typhasterol	*	1.132	1.942
Xanthoaphin	**	2.490	7.135

Note: different metabolites in C group compared with M group. FC > 1 represents high level, FC < 1 represents low level.

Table. S3 Differential metabolites between ML and M

Metabolites	P-value	VIP	FC
(R)-Butaprost	*	10.662	9.682
13(S)-HODE	*	9.589	0.536
1-Nitro-5-hydroxy-6-glutathionyl-5,6-dihydronaphthalene	*	1.165	1.505
1α,25-dihydroxy-3-deoxyvitamin D3	*	1.778	1.541
7Z, 10Z, 13Z, 16Z, 19Z-docosapentaenoic acid	*	5.108	1.556
8,9-DiHETE	*	1.027	0.526
9,10-DiHOME	*	3.356	0.539
Arg Ala Trp	*	1.183	1.962
C16 Sphinganine	*	4.721	2.383
Cholic acid	**	21.166	8.662
Cys Cys Gln Leu	*	1.055	8.560
Deoxycholic acid	*	13.924	2.238
Frangulanine	*	2.270	2.156
Glycocholic Acid	*	1.260	2.253
Ile His Lys His	**	1.072	0.329
Lactosylceramide (d18:1/12:0)	*	4.326	0.896
Leu Leu Ala Glu Glu	*	1.036	0.145
LysoPC(O-18:0)	*	3.717	0.747
PC(16:0/18:3(6Z,9Z,12Z))	**	3.281	0.517
PC(16:0/20:4(6E,8Z,11Z,14Z)(5OH[S]))	*	1.755	0.481
PC(18:2(9Z,12Z)/18:3(6Z,9Z,12Z))	*	3.894	0.687
PC(18:2(9Z,12Z)/18:4(6Z,9Z,12Z,15Z))	*	1.351	0.610
PC(20:2(11Z,14Z)/14:1(9Z))	*	4.380	0.792
PE(20:0/P-18:1(11Z))	*	2.050	0.826
PE(18:1(9Z)/0:0)	*	2.033	0.644
PE(O-16:0/0:0)	**	2.068	0.661
PE(O-18:0/0:0)	*	2.152	0.727
PE(18:0/0:0)	*	2.471	0.683
Phthalic acid Mono-2-ethylhexyl Ester	*	1.216	0.835
Ursodeoxycholic acid	*	8.319	2.573

Note: different metabolites in ML group compared with M group. FC > 1 represents high level, FC < 1 represents low level.

Table. S4 Differential metabolites between MH and M

Metabolites	P-value	VIP	FC
5(S)-HpEPE	*	1.821	0.106
PC(16:0/20:4(6E,8Z,,11Z,14Z)(50H[S]))	*	6.145	0.539
PE(15:0/22:2(13Z,16Z))	*	8.339	0.807
PE(20:0/P-18:1(13Z))	*	7.766	0.812
PE(18:1(9Z)/0:0)	*	6.058	0.622
11-Dehydrocorticosterone	*	6.321	0.534
PC(18:2(9Z,12Z)/18:3(6Z,9Z,12Z))	*	4.741	0.643
Gln Tyr Gln Phe	*	1.654	0.442
PC(16:0/18:3(6Z,9Z,12Z))	*	2.885	0.599
PC(20:3(5Z,8Z,11Z)/P-16:0)	*	2.028	0.707
PE(O-16:0/0:0)	*	1.733	0.736
PE(18:0/0:0)	*	1.441	0.689
Trifluoroacetic acid	*	2.04	0.516
Phytosphingosine 1-phosphate	*	1.325	3.715
Arg Ala Trp	*	1.564	2.157
Retinol / Retinol skeleton	*	2.519	0.744
C16 Sphinganine	**	6.776	2.903
Ser Ile Ala Asp	**	1.685	0.184

Note: different metabolites in MH group compared with M group. FC > 1 represents high level, FC < 1 represents low level.