

## 1 Supplementary Information

### 2 Mechanism investigation of fermented egg-milk peptides on colonic

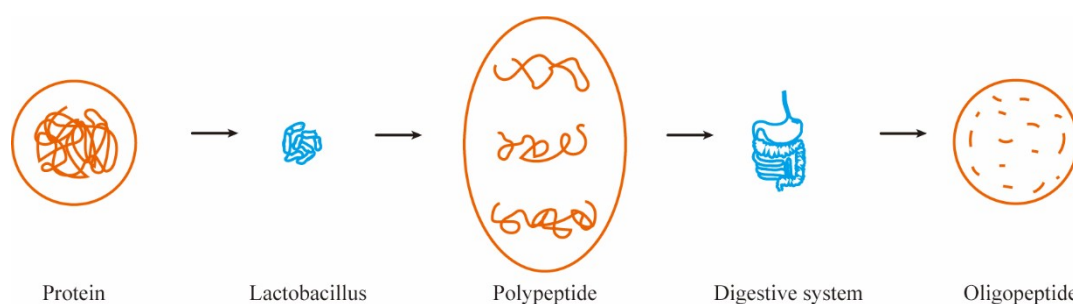
### 3 inflammatory diseases: Based on *in vivo* and *in silico* research

4 Siwen Lyu, Qi Yang, Ting Li, Xuehui Duan, Jingbo Liu, Fengguang Pan\*, Yiding Yu

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9 Fig.S1 The proteins in fermented egg-milk peptides (FEMP) could be hydrolyzed by

10 *Lactobacillus*, and the digested fermented egg-milk peptides (dFEMP) after digestion

11 in the gastrointestinal tract could be released.

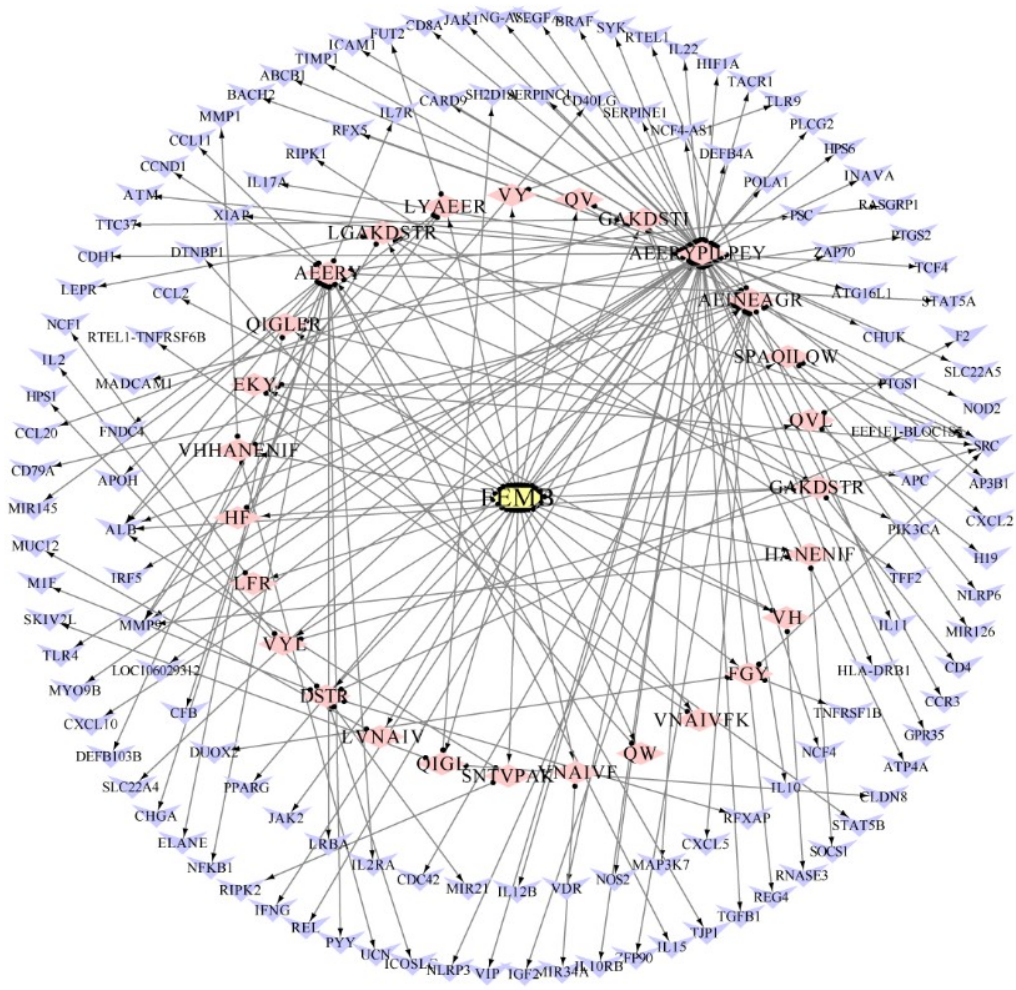


Fig.S2 Network diagram of digested fermented egg-milk peptides (dfFEMP)-targets interaction.

Tab.S1 The ingredient (proteins) in fermented egg-milk peptides (FEMP)

Protein	Mw (kDa)
Alpha lactalbumin	14.1
Alpha S1 casein	24.4
Alpha-S2-casein	26.0
Beta-casein	8.7
Beta-lactoglobulin	19.9
Extracellular fatty acid binding protein	3.7
Guanine nucleotide-binding protein G	40.0
Hep21 protein	12.0
Kappa-casein	14.9
Lactoferrin	78.1
Lysozyme	16.2
Major allergen beta-lactoglobulin	20.0
Ovalbumin (OVA)	42.8
Ovoinhibitor	57.0
Ovotransferrin	77.7
Riboflavin-binding protein	6.9
Selenium-binding protein	52.5
Serum albumin	69.2

Tab.S2 The ingredient (peptides) in fermented egg-milk peptides (FEMP)

Sequence	PSMs	Master Protein Description	Origin	m/z [Da]	XCorr
VHHANENIFYCPIAIMSALAMVYLGAK	62	Ovalbumin	Gallus	1011.844	6.52
CNFCNAVVESNGTLTSLSHFGK	11	Ovomucoid	Gallus	785.701	6.42
CNFCNAVVESNGTLTSLSHFGKC	4	Ovomucoid	Gallus	839.043	6.31
NAPYSGYSGAFHCLKDGGKGDVAFVK	18	Ovotransferrin	Gallus	672.827	6.25
RVPSLMDSQLYLGFEYYSIAIQSMR	22	Ovotransferrin	Gallus	952.133	6.22
KIVSDGNGMNAWVAVR	8	Lysozyme C	Gallus	902.450	6.03
LKPIAAEVYEHTEGSTTSYYAVAVVKK	13	Ovotransferrin	Gallus	739.393	5.96
GGLEPINFQTAADQAR	175	Ovalbumin	Gallus	844.422	5.81
KDSNVNWNNLK	6	Ovotransferrin	Gallus	666.338	5.75
SPAQILQWQVLSNTVPAK	2	$\kappa$ -Casein	Bos taurus	990.549	5.62
MGSIGAASMEFCFDVFK	46	Ovalbumin	Gallus	904.405	5.62
ILDKVGINYWLAHK	4	Alpha-lactalbumin protein	Bos taurus	557.319	5.59
VGINYWLAHK	2	Alpha-lactalbumin protein	Bos taurus	600.830	5.59
YPSYGLNYYQQKPVALINNQFLPYPPYAKPAAVR	1	Kappa casein	Bos taurus	858.406	5.54
LSFNPTQLEEQCHI	9	Beta-lactoglobulin	Bos taurus	809.423	5.51

Notes:  $m/z$ , the ratio of the protons number to the charges number. Generally, the range of a mass spectrum was judged by the mass-to-charge ratio.

Tab.S3 The targets prediction of peptides in **digested fermented egg-milk peptides**  
(dFEMP)

Number	Target	Genename	Uniprot ID
1	Acetyl-CoA acetyltransferase, mitochondrial	ACAT1	P24752
2	Aldose reductase	AKR1B1	P15121
3	Aldo-keto reductase family 1 member C2	AKR1C2	P52895
4	Serum albumin	ALB	P02768
5	Angiogenin	ANG	P03950
6	Apoptotic protease-activating factor 1	APAF1	O14727
7	Tyrosine-protein kinase BTK	BTK	Q06187
8	Complement C1s subcomponent	C1S	P09871
9	Caspase-1	CASP1	P29466
10	Catalase	CAT	P04040
11	C-C motif chemokine 24	CCL24	O00175
12	Cyclin-A2	CCNA2	P20248
13	Cell division control protein 42 homolog	CDC42	P60953
14	Chloride intracellular channel protein 1	CLIC1	O00299
15	Chymase	CMA1	P23946
16	Casein kinase II subunit alpha	CSNK2A1	P68400
17	Cathepsin G	CTSG	P08311
18	Spliceosome RNA helicase DDX39B	DDX39B	Q13838
19	Dipeptidase 1	DPEP1	P16444
20	Ephrin type-A receptor 2	EPHA2	P29317
21	Fatty acid-binding protein, epidermal	FABP5	Q01469
22	Glucose-6-phosphate 1-dehydrogenase	G6PD	P11413
23	Trifunctional purine biosynthetic protein adenosine-3	GART	P22102
24	Growth factor receptor-bound protein 2	GRB2	P62993
25	Glycogen synthase kinase-3 beta	GSK3B	P49841
26	Glutathione reductase, mitochondrial	GSR	P00390
27	Glutathione S-transferase A1	GSTA1	P08263
28	Glutathione S-transferase Mu 1	GSTM1	P09488
29	Glutathione S-transferase P	GSTP1	P09211
30	Hydroxyacyl-coenzyme A dehydrogenase, mitochondrial	HADH	Q16836
31	Hepatocyte growth factor	HGF	P14210
32	3-hydroxy-3-methylglutaryl-coenzyme A reductase	HMGCR	P04035
33	GTPase HRas	HRAS	P01112
34	Heat shock protein HSP 90-alpha	HSP90AA1	P07900
35	Insulin-like growth factor 1 receptor	IGF1R	P08069
36	Interleukin-2	IL2	P60568
37	Inosine-5'-monophosphate dehydrogenase 2	IMPDH2	P12268
38	Insulin receptor	INSR	P06213
39	Inositol-trisphosphate 3-kinase A	ITPKA	P23677
40	Mast/stem cell growth factor receptor Kit	KIT	P10721

41	Tyrosine-protein kinase Lck	LCK	P06239
42	Lysozyme C	LYZ	P61626
43	Mitogen-activated protein kinase 12	MAPK12	P53778
44	MAP kinase-activated protein kinase 2	MAPKAPK2	P49137
45	Neprilysin	MME	P08473
46	Interstitial collagenase	MMP1	P03956
47	Macrophage metalloelastase	MMP12	P39900
48	Stromelysin-1	MMP3	P08254
49	Matrix metalloproteinase-9	MMP9	P14780
50	Nitric oxide synthase, endothelial	NOS3	P29474
51	cAMP-specific 3',5'-cyclic phosphodiesterase 4D	PDE4D	Q08499
52	Phosphatidylinositol 3-kinase regulatory subunit alpha	PIK3R1	P27986
53	Phospholipase A2, membrane associated	PLA2G2A	P14555
54	Mismatch repair endonuclease PMS2	PMS2	P54278
55	Tyrosine-protein phosphatase non-receptor type 1	PTPN1	P18031
56	Ras-related protein Rab-5A	RAB5A	P20339
57	Ras-related C3 botulinum toxin substrate 1	RAC1	P63000
58	RAF proto-oncogene serine/threonine-protein kinase	RAF1	P04049
59	Retinoic acid receptor beta	RARB	P10826
60	Retinoic acid receptor gamma	RARG	P13631
61	Eosinophil cationic protein	RNASE3	P12724
62	Retinoic acid receptor RXR-alpha	RXRA	P19793
63	Retinoic acid receptor RXR-beta	RXRB	P28702
64	E-selectin	SELE	P16581
65	Proto-oncogene tyrosine-protein kinase Src	SRC	P12931
66	Antigen peptide transporter 1	TAP1	Q03518
67	Transforming growth factor beta-2	TGFB2	P61812
68	Triosephosphate isomerase 1	TPI1	P60174
69	Triggering receptor expressed on myeloid cells 1	TREM1	Q9NP99

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