Table S1 Peptide sequences containing Tryptophan (W) in TP

Peptide sequence [a]	ACL (%)	m/z	Tryptophan content (%)
HWPW	96.9	625.28772	20
WLPR	95.4	286.17093	25
WGDAGAE	94.6	705.2843	14.3
PAWE	94.3	502.22995	25
ELWDW	92.9	748.3316	40
DWRPPQP	92.8	448.22421	14.3
K(+42.01)WAKVESDLPAHGQ	92.6	804.41241	7.1
T(+42.01)ALPPW	91.5	363.69446	16.7
LPGDW	90.7	587.28217	20
K(+42.01)VSW	89.9	561.3028	25
WGLE	89.4	504.24451	25
K(+42.01)EWE	89.3	633.2879	25
A(+42.01)AGPW	89	543.2558	20
PSLPPW	88.4	348.68918	16.7
VGGDW	88.2	533.23529	20
EWLPPVPL	88.2	475.77084	12.5
VLSEW	87.4	633.32385	20
PSLPPW	87.3	348.68903	16.7
DVGDW	86.1	591.24084	20
EVRDVGDW	85.8	488.23004	12.5
WLPV	85.7	514.30133	25
WDFQ	85.6	595.25165	25
ALGGW	84.9	503.26166	20
DVLPPW	84.8	363.69446	16.7
VGDW	84.2	476.21313	25
VGWE	84.2	490.22885	25
WDQHLG	84	755.34729	16.7
HALLTDWDDMEK	84	737.3374	8.3
YPLEHALLTDWDDMEK	83.4	988.45837	6.3
PLSPPW	82.9	348.68918	16.7
GWLE	82.7	504.24451	25
A(+42.01)ALPPW	81.9	348.68918	16.7
NWPW	81.1	602.27203	50

[a] Peptide sequences were screened based on the criteria of ASL > 80% and Area > 10^6

Table S2 Peptide sequences containing Tryptophan (W) in TMP

Peptide sequence [a]	ALC (%)	m/z	Tryptophan content (%)
WAPPLK	98.2	356.21304	16.7
HFHW	98.1	313.64517	25
WLVR	97.8	287.17862	25
WLLK	97.8	280.18323	25
WLPR	97.6	286.17099	25
WEPPLK	97.3	385.2157	16.7
WVPVR	96.8	328.69736	20
WLLR	96.1	294.18692	25
WRPSF	96.1	346.67905	20
HWPW	96.1	625.2876	50
WQLK	95.9	287.67072	25
WQLR	95.9	301.67383	25
WLLPR	95.6	342.71307	20
NWVPVK	95.2	371.71558	16.7
WRPPQP	94.8	390.711	16.7
WGDAGAE	94.1	705.28436	14.3
WKPPV	94.1	313.68665	20
LVVHQN(+0.98)WNSNQLSK	94.1	834.42828	7.1
PVRPW	93.6	327.69107	20
WLLGDV	93.1	702.38257	16.7
SYWGSK	93.1	727.341	16.7
WGPY	92.9	522.23468	25
LPSDW	92.9	617.29254	20
KDMW	92.7	579.25952	25
WVPSVY	92.2	750.38104	16.7
WQLH	92	292.15277	25
WEKPF	91.7	353.68143	20
WKPPL	91.4	320.69412	20
WTGSLN	91.3	677.32562	16.7
WNRPPQP	91.2	447.73276	14.3
NWVVPR	90.5	385.71887	16.7
K(+42.01)VSW	90.4	561.30261	25
EGYW	90.3	554.22357	25
LSGW	90	462.23419	25
ALGGW	89.6	503.26041	20
DWRPPQP	89.4	448.22406	14.3
WQLT	89.2	547.28687	25
WPVH	88.8	269.64215	25
WQLTL	88.6	660.37146	20
WVVS	88.5	490.26578	25
WLTA	88.4	490.26578	25

(*Continued on next page*)

Table S2 Peptide sequences containing Tryptophan (W) in TMP (Continued)

Peptide sequence [a]	ALC (%)	m/z	Tryptophan content (%)
VGPW	88.4	458.23926	25
T(+42.01)ALPPW	88.2	363.69443	16.7
PSLPPW	88.2	348.68909	16.7
PVRWP	88	327.69107	20
WTPDSPTLKPHTP	88	738.87793	7.7
WVPPVPL	87.8	404.24118	14.3
VGGDW	87.5	533.23474	20
WEHPF	87.3	358.16336	20
N(+42.01)DLLNSQWVVSAAH	87.2	798.39404	7.1
WQLAL	87	630.36084	20
WQLA	86.7	517.27643	25
HWPF	86.6	586.27679	25
VLSEW	86.6	633.32361	20
LLPW	86.4	528.31787	25
WGLE	85.6	504.24435	25
WRPPGAP	84.9	390.711	14.3
WDMPL	84.7	661.30176	20
D(+42.01)NLLNSQWVVSAAH	84.6	798.39404	7.1
NWRPPQP	84.4	447.73276	14.3
VDLPPW	84.3	363.69443	16.7
PAWE	83.9	502.22952	25
WAGL	83.6	446.23917	25
NWVPVR	83.1	385.71887	16.7
YPWT	83	566.26025	25
NWVRVP	83	385.71887	16.7
WAPVTQ	82.9	351.18433	16.7
K(+42.01)GGW	82.8	489.24493	25
EWLPPVPL	82.7	475.77023	12.5
GWLE	82.7	504.24435	25
HSWPL	82.7	639.32489	20
WLPPVPL	82.6	411.24896	14.3
YPLEHALLTDWDDMEK	82.4	988.45441	5.9
WGGY	82.2	482.20319	25
EAGFW	81.6	609.26556	20
WLVPS	81.4	601.33502	20
WGPF	81.1	506.23938	25
DVLPPW	81	363.69443	16.7
DWLR	80.8	295.15823	25
A(+42.01)ALPPW	80.8	348.68909	16.7
WTPDSPTLKPHPES	80.5	796.39172	7.1

(*Continued on next page*)

Table S2 Peptide sequences containing Tryptophan (W) in TMP (Continued)

Peptide sequence [a]	ALC (%)	m/z	Tryptophan content (%)
WLPV	80.3	514.3017	25
WLLGDVF	80	849.44879	14.3

[a] Peptide sequences were screened based on the criteria of ASL > 80% and Area > 10^6

Table S3. Approximate composition of experimental diet

Ingredients (g / 100 g diet)	Normal chow diet
Casein	18.96
L-Cystine	0.28
Corn Starch	29.86
Maltodextrin	3.32
Sucrose	33.17
Cellulose	4.74
Soybean Oil	2.37
Lard	1.90
Mineral Mix	2.68
Potassium Citrate, 1 H_2O	1.56
Vitamin Mix	0.95
Choline Bitartrate	0.19
Glycerol monocaprylate	0
Calories supplementation (kcal %)	
Proteins	20
Carbohydrates	70
Fats	10
Total calories (kcal / 100 g diet)	385.0

Table S4. Information on the primers used in Quantitative Real-time PCR (qPCR)

Target gene	Primer sequence（5′-3′）
β-actin	Forward：GTGCTATGTTGCTCTAGACTTCG
	Reverse：ATGCCACAGGATTCCATACC
Claudin-1	Forward：GCTTTAGCGAACAGAAGGAGC
	Reverse：TTCATTTTTCCGAGACTTCACCA
Occludin	Forward：TGAAAGTCCACCTCCTTACAGA
	Reverse：CCGGATAAAAAGAGTACGCTGG
E-cadherin	Forward：CAGGTCTCCTCATGGCTTTGC
	Reverse：CTTCCGAAAAGAAGGCTGTCC
Bcl-6	Forward：TGAGGTCGTGGAGAACAA
	Reverse：TCATCAGAGAAGAGGAAGGT
Prdm-1	Forward：TTTGTGGACAGAGGCCGAGT
	Reverse：AAAGCGTGTTCCCTTCGGTAT
CD79a	Forward：CTGTTCTTCCCCGAAGTAAACAA
	Reverse：CACGCGGAGGTAAGTACCAC
CD79b	Forward：CCGAGGTTTGCAGCCAAAAAG
	Reverse：CACAATGCGTCCCTCTTCTG
Il22r	Forward：ATGAAGACACTACTGACCATCCT
	Reverse：CAGCCACTTTCTCTCTCCGT
Ahr	Forward：GCTGCTGGTGAGGTTGACTTC
	Reverse：GCTGTTGCTGTTGCTCTAGTTG
Stat3	Forward：CACCTTGGATTGAGAGTCAAGAC
	Reverse：AGGAATCGGCTATATTGCTGGT
Aid	Forward：TCACCTGGTTCACCTCCTGGA
	Reverse：CTCAGCCTTGCGGTCTTCACA
Tslp	Forward：GTTCTTCTCAGGAGCCTCTTCA
	Reverse：GCTGGCTTGCTCTCACAGT
Tlr2	Forward：CACCACTGCCCGTAGATGAAG
	Reverse：AGGGTACAGTCGTCGAACTCT
Tlr4	Forward：ATGGCATGGCTTACACCACC
	Reverse：GAGGCCAATTTTGTCTCCACA
Myd88	Forward：TCATGTTCTCCATACCCTTGGT
	Reverse：AAACTGCGAGTGGGGTCAG
J chain	Forward：TGACGACGAAGCGACCATTC
	Reverse：TTCAAAGGGACAACAATTCGGA
pIgR	Forward：ATGAGGCTCTACTTGTTCACGC
	Reverse：CGCCTTCTATACTACTCACCTCC

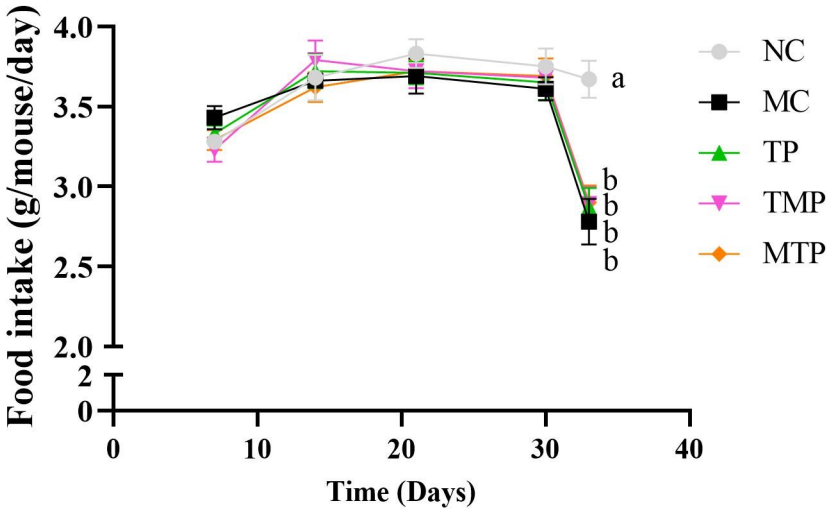

Fig. S1 Food intake during the experiment. Data are expressed as mean ± SEM, n = 3. Significant difference between the groups was denoted by different letters ($P < 0.05$)