

Fig.S1 β -actin protein bands.

Table S1 Gray scale value of β -actin protein

bands.	CK	CK	CK	MOD	MOD	MOD	L1-HS	L1-HS	L1-HS	L2-HS	L2-HS	L2-HS	L4-HS	L4-HS	L4-HS
β -actin	123.92	116.96	112.22	122.44	120.89	88.21	89.43	123.94	98.60	133.13	120.53	102.20	96.87	120.39	90.12



Fig.S2 H3 protein bands.

Table S2 Gray scale value of H3 protein

bands.															
Group	CK	CK	CK	MOD	MOD	MOD	L1-HS	L1-HS	L1-HS	L2-HS	L2-HS	L2-HS	L4-HS	L4-HS	L4-HS
H3	121.67	108.98	111.19	114.52	91.04	100.97	107.90	101.59	95.42	115.56	105.55	100.52	117.60	95.24	92.60

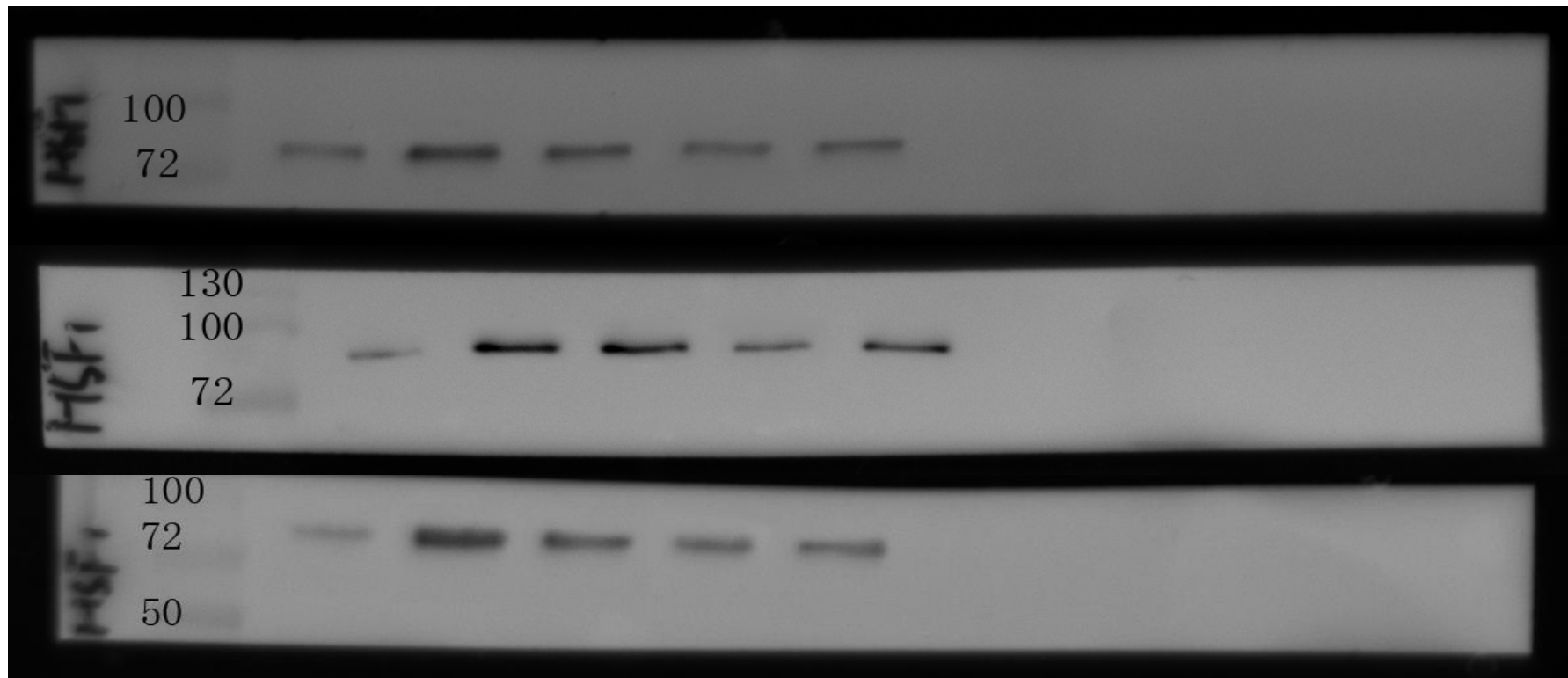


Fig.S3 Hsf1 protein bands.

Table S3 Gray scale value of Hsf1 protein

bands. Group	CK	CK	CK	MOD	MOD	MOD	L1-HS	L1-HS	L1-HS	L2-HS	L2-HS	L2-HS	L4-HS	L4-HS	L4-HS
Hsf1	9.98	9.34	10.07	35.28	26.93	30.48	23.68	17.07	21.98	10.55	12.82	10.06	17.31	13.59	15.04
Hsf1/H3	0.08	0.09	0.09	0.31	0.30	0.30	0.22	0.17	0.23	0.09	0.12	0.10	0.15	0.14	0.16

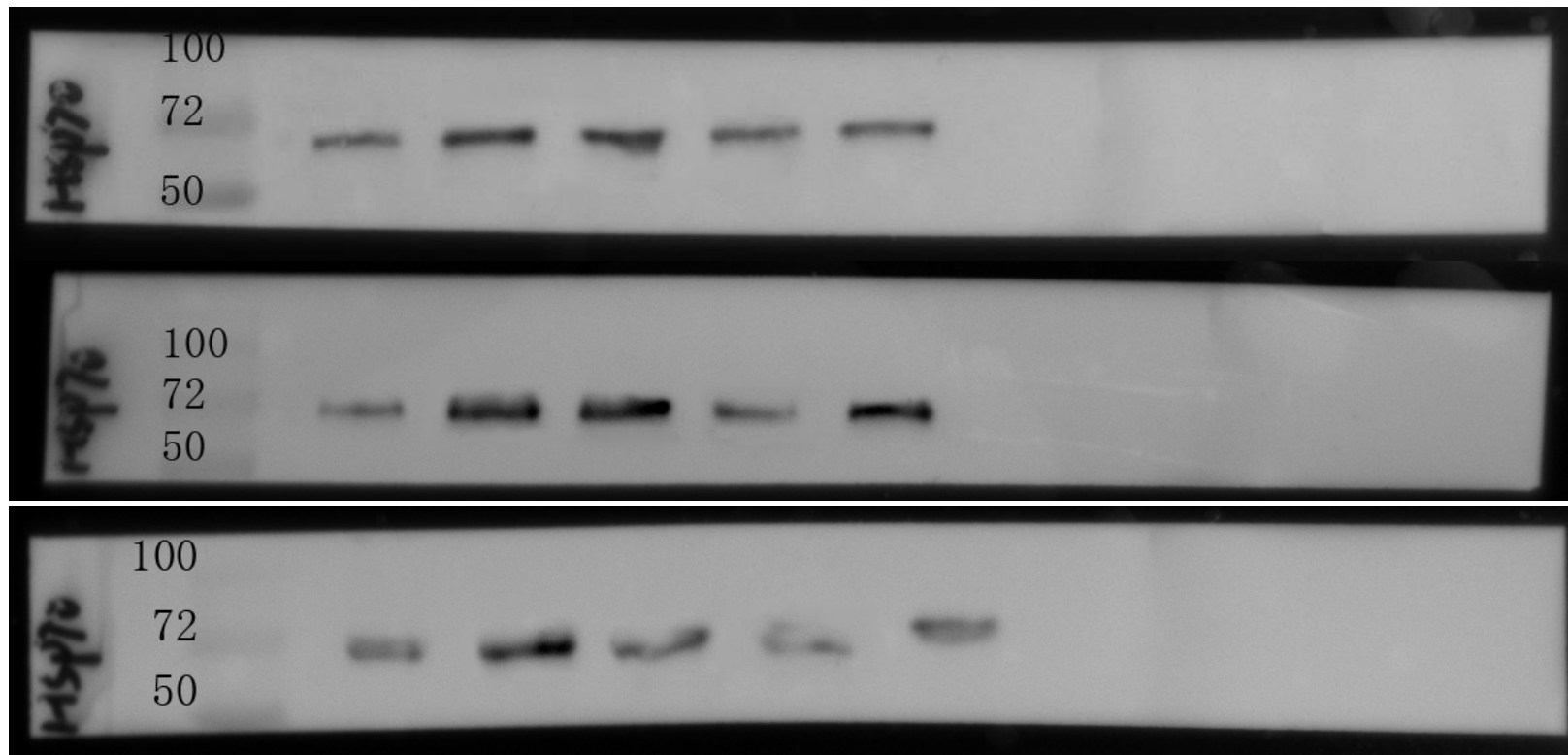


Fig.S4 Hsp70 protein bands.

Table S4 Gray scale value of Hsp70 protein

bands. Group	CK	CK	CK	MOD	MOD	MOD	L1-HS	L1-HS	L1-HS	L2-HS	L2-HS	L2-HS	L4-HS	L4-HS	L4-HS
Hsp70	8.03	10.40	9.87	27.68	37.37	32.81	17.96	26.83	23.28	9.63	11.40	6.99	13.80	19.47	16.10
Hsp70/ β - actin	0.09	0.08	0.08	0.25	0.31	0.27	0.20	0.30	0.19	0.08	0.09	0.08	0.14	0.20	0.13

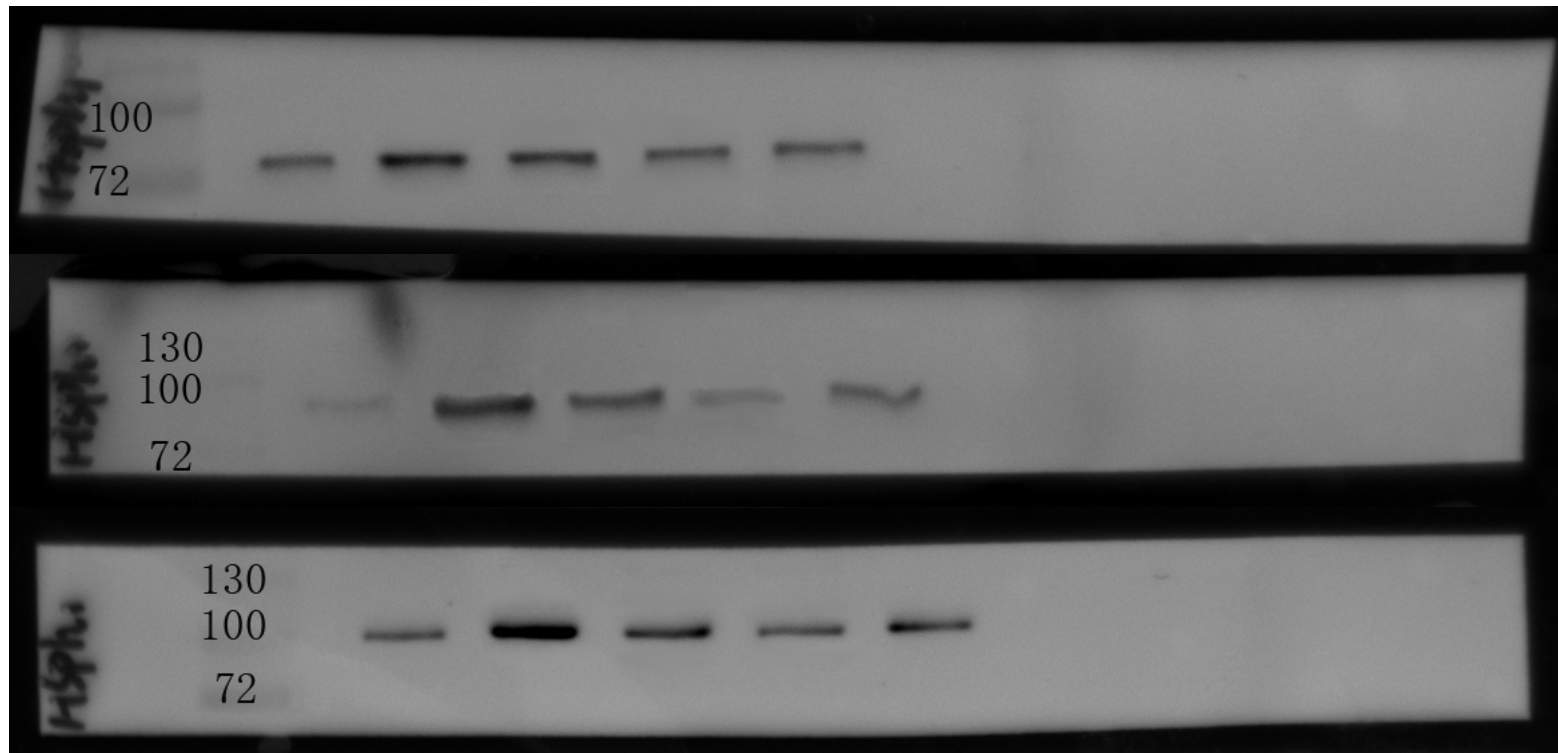


Fig.S5 Hsph1 protein bands.

Table S5 Gray scale value of Hsph1 protein

bands. Group	CK	CK	CK	MOD	MOD	MOD	L1-HS	L1-HS	L1-HS	L2-HS	L2-HS	L2-HS	L4-HS	L4-HS	L4-HS
Hsph1	11.54	9.71	6.05	46.49	43.92	32.26	20.75	26.19	19.93	11.49	11.94	5.31	17.40	18.52	11.32
Hsph1/ β - actin	0.09	0.08	0.05	0.38	0.36	0.37	0.23	0.21	0.20	0.09	0.10	0.05	0.18	0.15	0.13

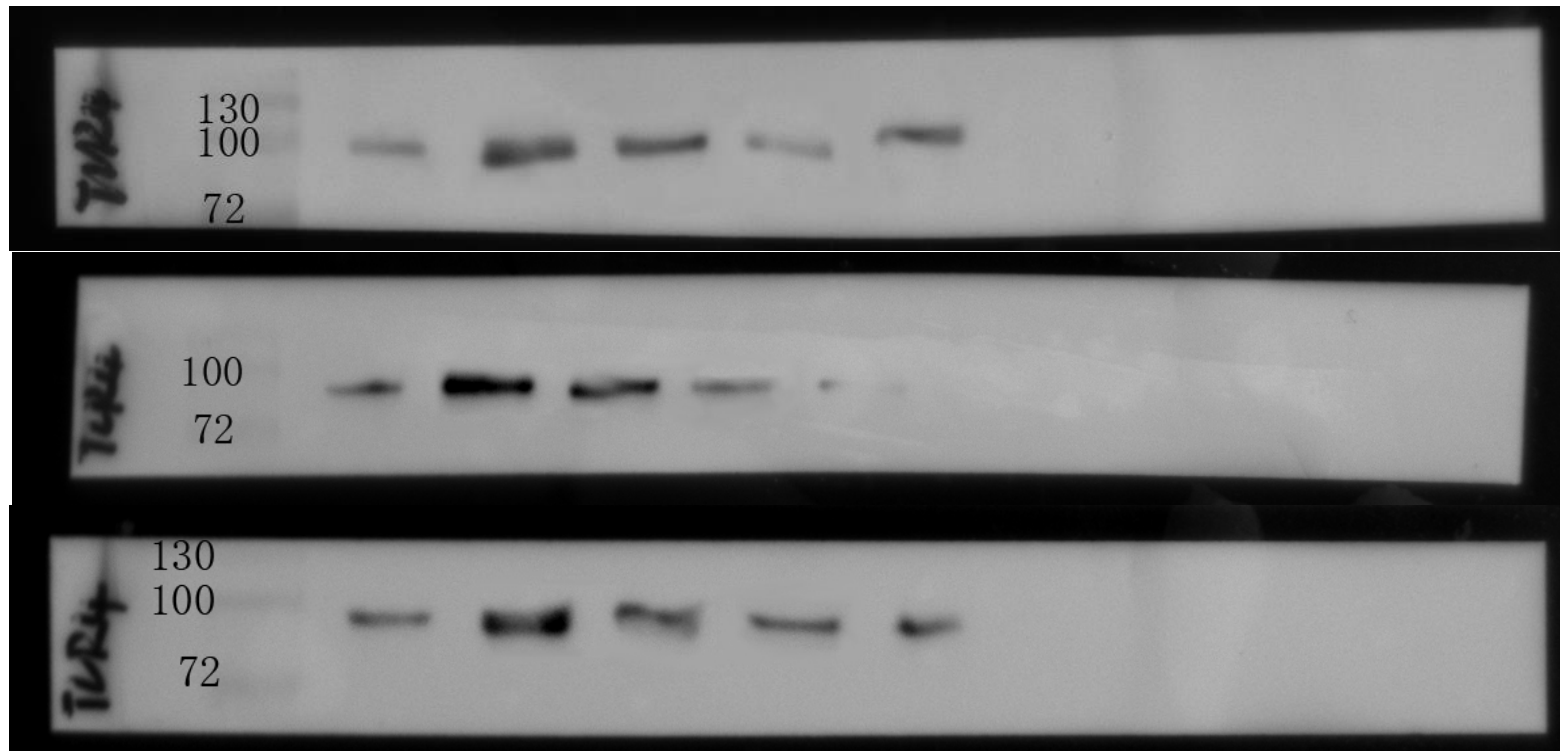


Fig.S6 TLR4 protein bands.

Table S6 Gray scale value of TLR4 protein

bands Group	CK	CK	CK	MOD	MOD	MOD	L1-HS	L1-HS	L1-HS	L2-HS	L2-HS	L2-HS	L4-HS	L4-HS	L4-HS
TLR4	13.14	7.96	10.22	39.97	33.25	32.29	24.30	22.98	19.10	12.97	8.42	10.73	8.19	16.07	14.14
TLR4/ β -actin	0.11	0.07	0.11	0.33	0.28	0.29	0.27	0.19	0.21	0.10	0.07	0.12	0.08	0.13	0.14

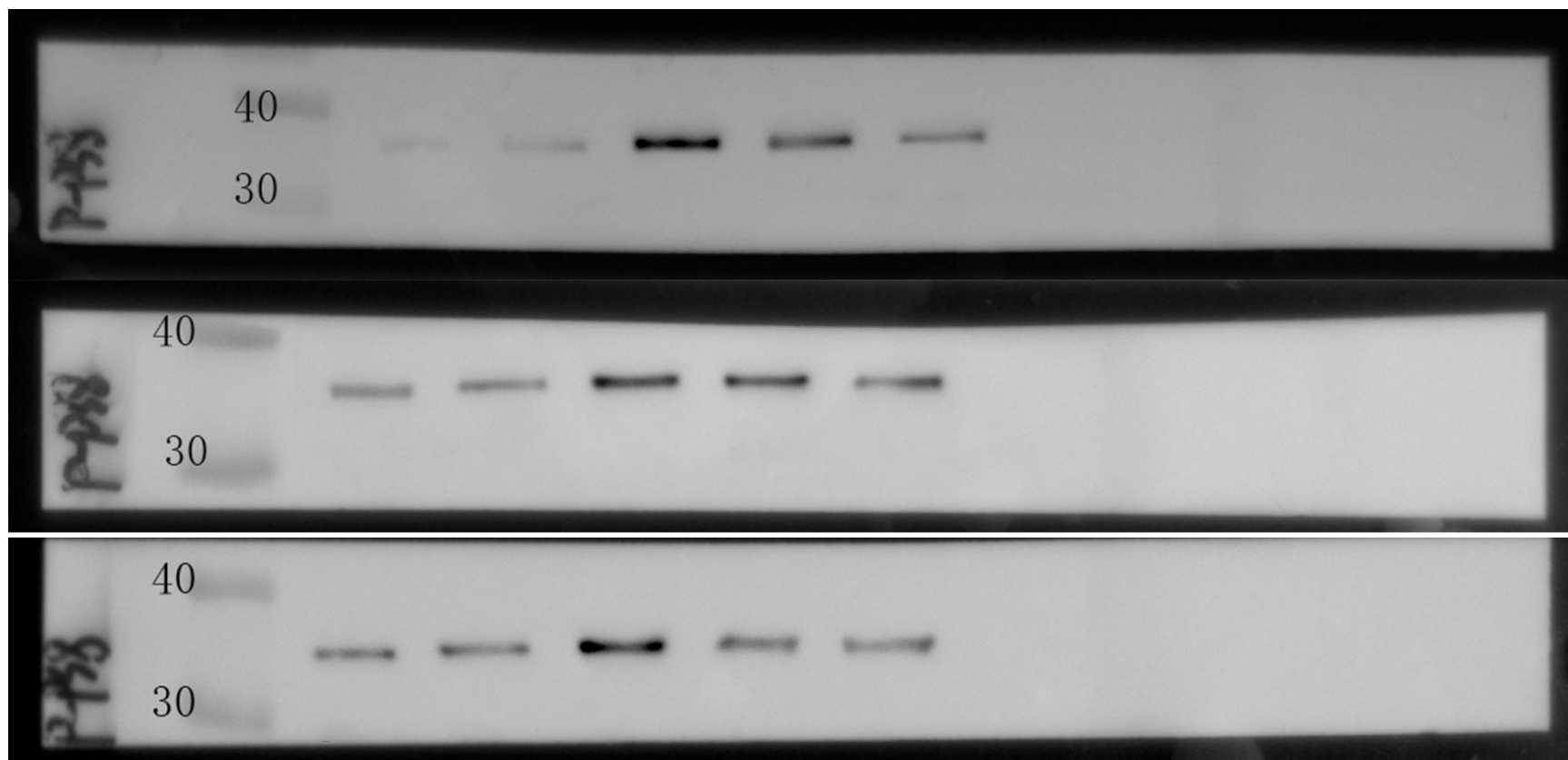


Fig.S7 p-P38 protein bands.

Table S7 Gray scale value of p-P38 protein

bands Group	CK	CK	CK	MOD	MOD	MOD	L1-HS	L1-HS	L1-HS	L2-HS	L2-HS	L2-HS	L4-HS	L4-HS	L4-HS
p-P38	10.30	12.18	12.16	7.99	12.00	10.56	28.67	32.31	28.57	21.15	19.50	17.32	14.25	15.91	15.07



Fig.S8 P38 protein bands.

Table S8 Gray scale value of P38 protein

bands Group	CK	CK	CK	MOD	MOD	MOD	L1-HS	L1-HS	L1-HS	L2-HS	L2-HS	L2-HS	L4-HS	L4-HS	L4-HS
P38	40.48	30.69	37.32	48.08	57.24	44.91	50.75	55.92	39.65	39.28	40.68	38.04	49.32	40.62	33.52
P-P38/P38	0.25	0.40	0.33	0.17	0.21	0.24	0.56	0.58	0.72	0.54	0.48	0.46	0.29	0.39	0.45

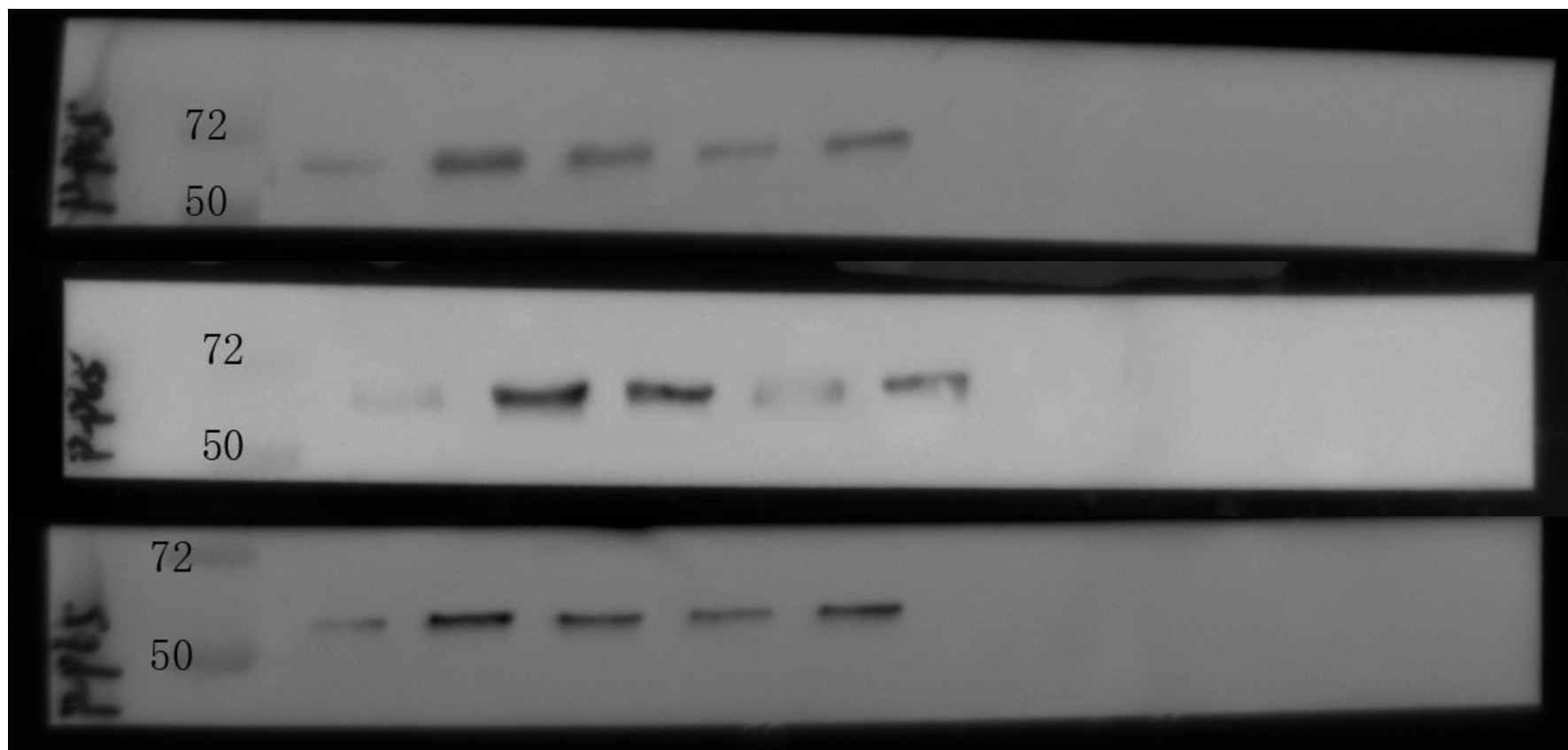


Fig.S9 p-P65 protein bands.

Table S9 Gray scale value of p-P65 protein

bands, Group	CK	CK	CK	MOD	MOD	MOD	L1-HS	L1-HS	L1-HS	L2-HS	L2-HS	L2-HS	L4-HS	L4-HS	L4-HS
p-P65	5.56	5.61	6.30	37.97	37.26	38.64	27.58	26.30	25.57	6.14	8.87	6.11	14.24	20.73	18.74

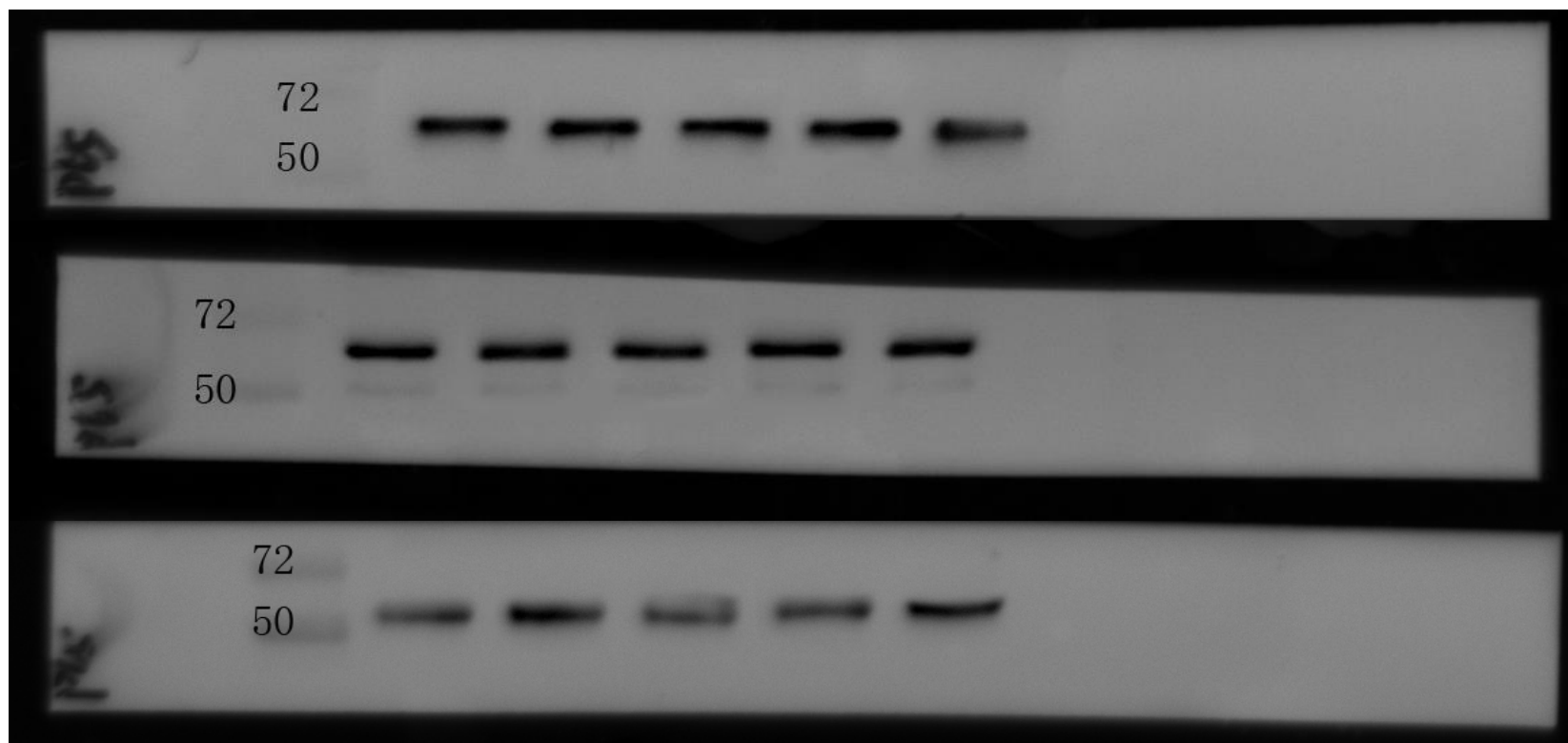


Fig.S10 P65 protein bands.

Table S10 Gray scale value of P65 protein

bands Group	CK	CK	CK	MOD	MOD	MOD	L1-HS	L1-HS	L1-HS	L2-HS	L2-HS	L2-HS	L4-HS	L4-HS	L4-HS
P65	51.96	46.85	52.48	52.84	59.89	56.92	48.28	42.63	54.05	54.84	50.49	58.19	52.03	55.25	52.78
p-P65/P65	0.11	0.12	0.12	0.72	0.62	0.68	0.57	0.62	0.47	0.11	0.18	0.11	0.27	0.38	0.36

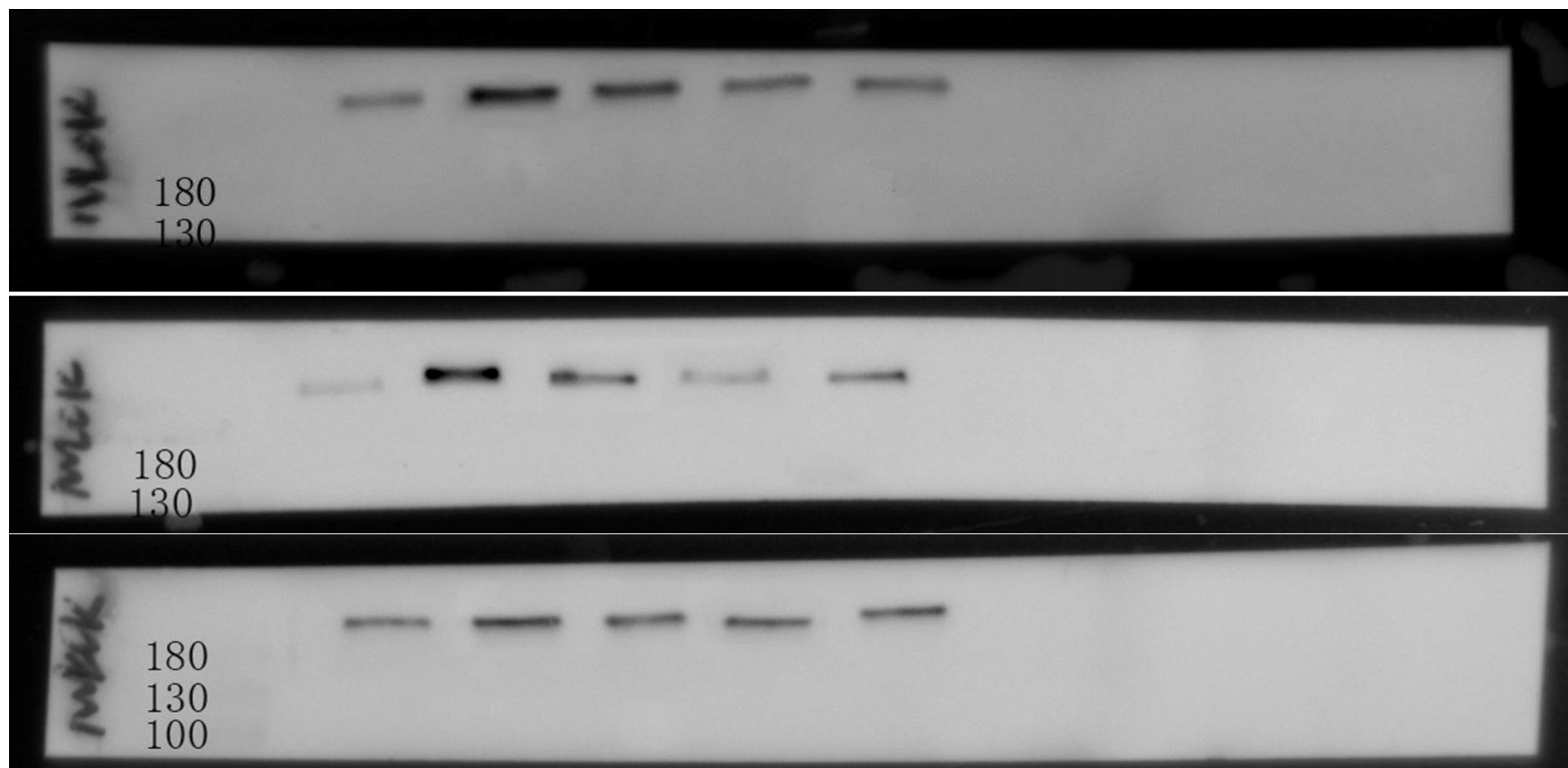


Fig.S11 MLCK protein bands.

Table S11 Gray scale value of MLCK protein

bands Group	CK	CK	CK	MOD	MOD	MOD	L1-HS	L1-HS	L1-HS	L2-HS	L2-HS	L2-HS	L4-HS	L4-HS	L4-HS
MLCK	6.04	10.68	9.46	40.97	36.17	34.28	18.14	28.99	21.96	6.87	11.88	11.33	13.94	22.38	16.01
MLCK/ β -actin	0.05	0.09	0.08	0.33	0.30	0.39	0.20	0.23	0.22	0.05	0.10	0.11	0.14	0.19	0.18

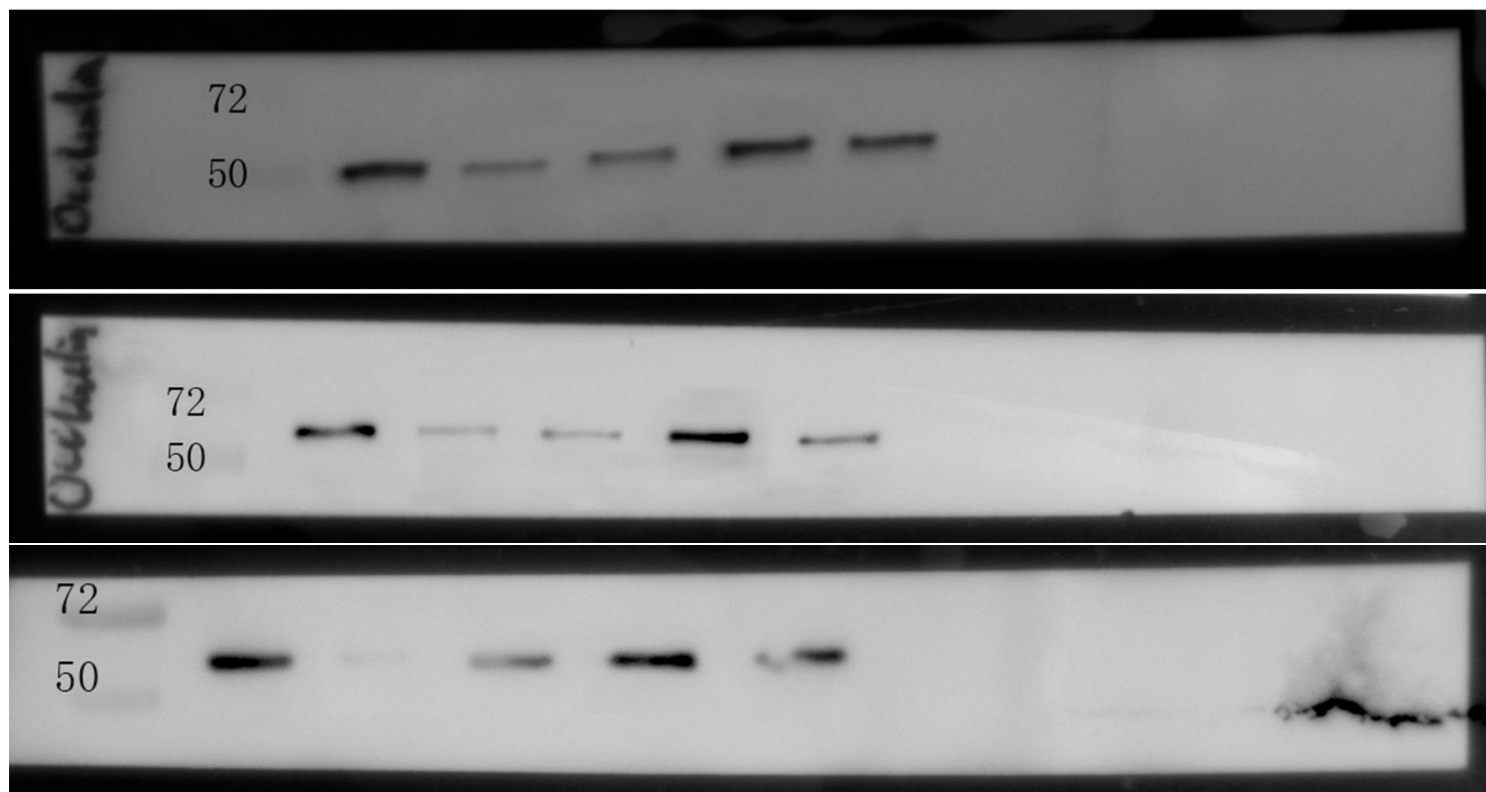


Fig.S12 Occludin protein bands.

Table S12 Gray scale value of Occludin protein

bands Group	CK	CK	CK	MOD	MOD	MOD	L1-HS	L1-HS	L1-HS	L2-HS	L2-HS	L2-HS	L4-HS	L4-HS	L4-HS
Occludin	37.09	39.97	35.65	5.20	4.63	8.10	9.58	15.15	15.02	44.25	36.83	37.10	17.60	23.92	27.26
Occludin/ β -actin	0.30	0.34	0.32	0.04	0.04	0.09	0.11	0.12	0.15	0.33	0.31	0.36	0.18	0.20	0.30

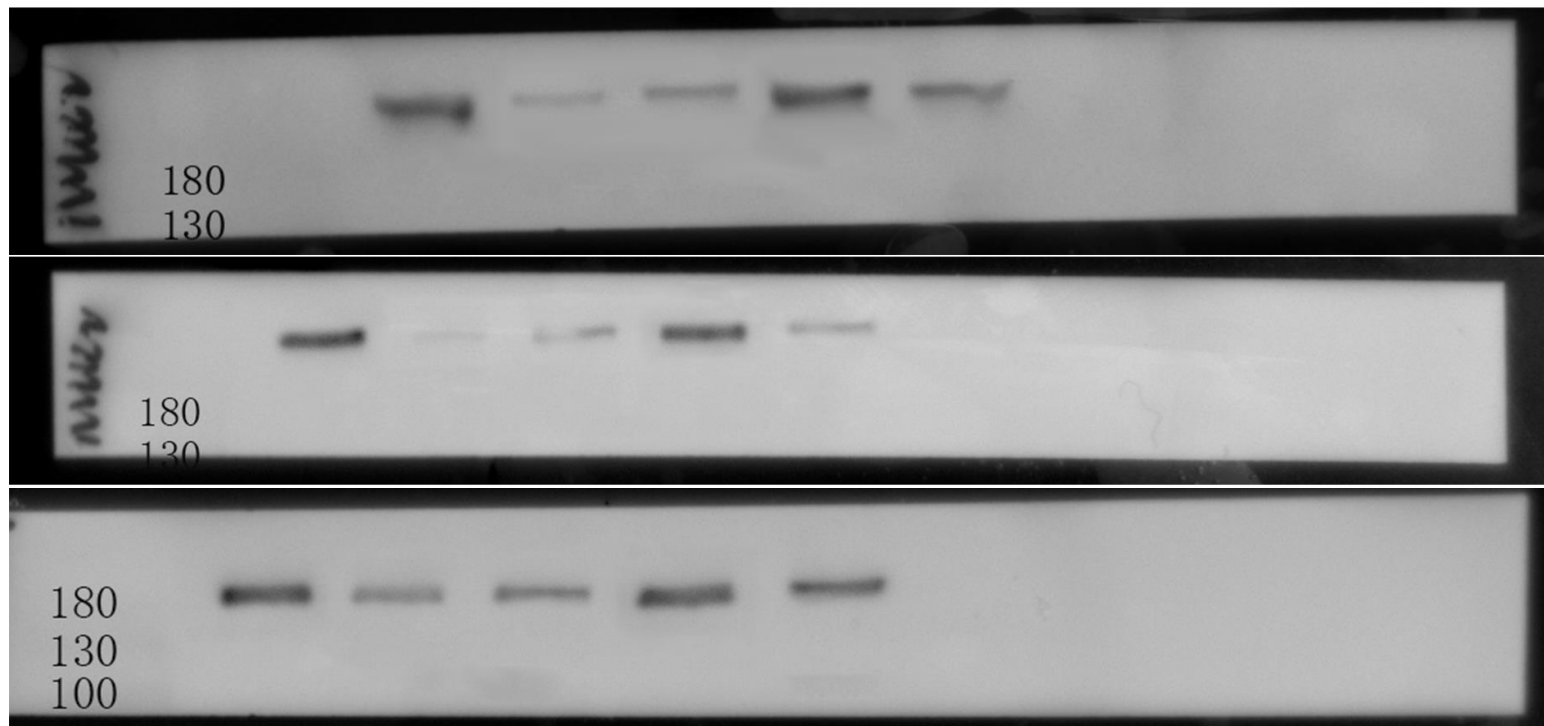


Fig.S13 Muc2 protein bands.

Table S13 Gray scale value of Muc2 protein

bands Group	CK	CK	CK	MOD	MOD	MOD	L1-HS	L1-HS	L1-HS	L2-HS	L2-HS	L2-HS	L4-HS	L4-HS	L4-HS
Muc2	25.92	30.85	31.45	4.42	5.20	9.56	9.45	8.80	14.65	26.54	32.56	30.22	12.94	12.23	20.66
Muc2/ β -actin	0.23	0.25	0.27	0.05	0.04	0.08	0.10	0.10	0.12	0.26	0.24	0.25	0.14	0.13	0.17

Table S14 Effect of LTA interventions on the increase in body mass and food intake of mice during HS

Group	CK	MOD	L1-HS	L2-HS	L4-HS
50-44d Δ -Body mass(g)	0.26±0.14	-0.76±0.39**	-0.57±0.50	-0.38±0.30 ^{##}	-0.42±0.37 [#]
50-44d Δ -Food intake(g)	0.09±0.05	-0.74±0.24**	-0.69±0.23	-0.43±0.39 [#]	-0.66±0.51 [#]

Table S15 Differences in villus height and crypt depth among treatment groups

Group	CK	MOD	L1-HS	L2-HS	L4-HS
villus height(μ m)	156.51	88.87	115.47	153.99	145.04
villus height(μ m)	185.86	108.89	142.32	136.69	120.12
villus height(μ m)	152.85	79	121.53	163.21	130.4
crypt depth(μ m)	50.05	70.31	42.8	55.63	52.62
crypt depth(μ m)	60.71	88.08	55.36	57.38	50.23
crypt depth(μ m)	41.94	56.67	62.28	68.96	65.77
V/C	3.13	1.26	2.7	2.77	2.76
V/C	3.06	1.24	2.57	2.38	2.39
V/C	3.64	1.39	1.95	2.37	1.98

Table S16 Levels of DAO, D-LA and FITC-dextran in HS mouse serum

Group	CK	MOD	L1-HS	L2-HS	L4-HS
DAO	90.26448	111.143	103.8	102.16	98.1
DAO	89.92181	108.5729	104.02	103.78	98.64

DAO	92.2226	112.1465	100.91	99.57	96.7
DAO	98.83127	110.2373	102.28	96.48	98.81
DAO	98.78232	110.2863	103.95	98.42	101.16
D-LA($\mu\text{g/L}$)	616.3706	715.5834	692.1667	546.27	565.53
D-LA($\mu\text{g/L}$)	624.5356	717.4321	695.4019	555.21	569.85
D-LA($\mu\text{g/L}$)	611.7489	701.2561	674.4501	559.37	583.25
D-LA($\mu\text{g/L}$)	651.9578	649.4929	638.863	617.76	613.44
D-LA($\mu\text{g/L}$)	655.193	670.2906	661.0472	597.27	604.2
FITC-dextran($\mu\text{g/mL}$)	0.54114	1.01102	0.73253	0.77237	0.46281
FITC-dextran($\mu\text{g/mL}$)	0.6158	1.1911	0.8185	0.7827	0.6847
FITC-dextran($\mu\text{g/mL}$)	0.69406	1.37118	0.90447	0.79303	0.90659

Table S17 Differences in goblet cells count among groups

Group	CK	MOD	L1-HS	L2-HS	L4-HS
Goblet cells count	1459	638	848	1279	1006
Goblet cells count	1887	594	895	1340	1265
Goblet cells count	1432	804	895	1307	968

Table S18 Levels of TNF- α , IFN- γ , sIgA, IL-4 and IL-10 in HS mouse colon

Group	CK	MOD	L1-HS	L2-HS	L4-HS
TNF- α (pg/g)	3045.666	4158.711	4348.354	2864.885	4024.011
TNF- α (pg/g)	2983.634	4380.257	4031.101	2964.137	3710.303

TNF- α (pg/g)	3237.082	4662.063	4475.964	2739.047	3931.848
TNF- α (pg/g)	3019.081	4644.339	3738.661	3366.464	4417.477
TNF- α (pg/g)	2838.3	5902.718	3944.255	3462.172	3951.344
TNF- α (pg/g)	3244.171	5470.261	3795.376	3137.829	3740.433
TNF- α (pg/g)	2999.585	5746.75	4612.437	4082.5	3914.125
TNF- α (pg/g)	3245.943	4522.046	4371.395	4153.394	3366.464
TNF- α (pg/g)	3245.943	4522.046	4257.963	3933.621	3577.376
IFN- γ (pg/g)	3646.884	6702.049	5906.236	3732.975	4816.456
IFN- γ (pg/g)	3348.717	7014.915	5645.865	4012.244	4961.34
IFN- γ (pg/g)	3466.304	6607.559	5881.039	4035.342	4476.293
IFN- γ (pg/g)	2279.934	4885.748	4314.611	3203.833	5318.301
IFN- γ (pg/g)	2576.002	5183.916	4173.926	3487.302	5232.21
IFN- γ (pg/g)	2542.406	4961.34	4035.342	3113.543	5511.479
IFN- γ (pg/g)	2680.99	6271.596	5503.081	4566.583	4675.771
IFN- γ (pg/g)	3035.851	6175.007	5547.176	4864.75	4791.259
IFN- γ (pg/g)	2905.666	5937.733	5862.141	4218.021	4791.259
sIgA(μ g/g)	304.0728	97.25605	138.6773	248.941	183.3814
sIgA(μ g/g)	284.1829	91.1732	138.3877	261.7826	172.9537
sIgA(μ g/g)	304.459	89.72491	148.2361	232.4304	187.5332
sIgA(μ g/g)	290.1692	158.5673	194.6781	215.0508	195.354
sIgA(μ g/g)	226.8303	167.0639	184.9263	227.4096	203.6576
sIgA(μ g/g)	241.9892	161.7535	190.4298	225.0924	200.4713

sIgA(μ g/g)	238.4167	123.2288	203.8507	196.7057	219.4923
sIgA(μ g/g)	218.4302	129.1186	199.4092	222.6785	235.2304
sIgA(μ g/g)	230.4993	126.5116	209.2577	247.203	218.4302
IL-4 (pg/g)	1189.696	457.8452	799.8851	1088.422	1019.154
IL-4 (pg/g)	1087.466	434.9151	749.2479	1131.415	1044.95
IL-4 (pg/g)	1236.989	413.8959	853.8662	1014.854	955.6183
IL-4 (pg/g)	1237.467	674.2475	797.9742	960.3954	886.8282
IL-4 (pg/g)	1179.186	700.0438	781.7321	919.7901	806.0953
IL-4 (pg/g)	1135.715	723.9293	722.4962	935.5545	896.86
IL-4 (pg/g)	1305.779	531.8901	685.2348	1098.453	840.4904
IL-4 (pg/g)	1238.9	521.8582	579.1833	1071.702	809.9169
IL-4 (pg/g)	1342.085	530.457	717.2413	1162.466	897.8155
IL-10(pg/g)	2979.596	1364.018	2513.61	2487.59	2986.693
IL-10(pg/g)	3117.973	1290.69	2346.848	2446.195	2748.969
IL-10(pg/g)	3010.347	1437.346	2432.003	2453.292	2989.058
IL-10(pg/g)	2468.667	1324.989	2255.779	2728.862	2482.859
IL-10(pg/g)	2372.867	1256.392	2106.758	2648.438	2388.243
IL-10(pg/g)	2441.465	1248.113	2178.903	2663.813	2662.631
IL-10(pg/g)	3447.948	1531.962	2434.368	2870.787	2692.198
IL-10(pg/g)	3553.209	1459.817	2370.502	2754.882	2715.853
IL-10(pg/g)	3458.593	1443.259	2429.637	2681.554	2758.43

Table S19 Differences in Shannon, ACE, and microbiota among groups

Gruop	CK	MOD	L1-HS	L2-HS	L4-HS
ACE	392.64	370.72	462.86	494.45	376.11
ACE	402.91	345.48	452.19	456.6	401.85
ACE	403.11	349.69	461.16	475.52	412.99
Shannon	2.66	2.12	3.39	4	3.58
Shannon	2.83	1.8	3.66	3.86	3.67
Shannon	2.99	1.47	3.13	4.03	2.73
<i>Enterorhabdus</i>	2.46167±0.	8.42667±1.	0.89±0.499	1.11333±0.	6.833±0.89
abundance(%)	401328	869474	3	675747	24
<i>Turicibacter</i>	3.4463±1.3	0.2587±0.0	2.1193±1.3	5.6887±3.5	7.6047±3.6
abundance(%)	1585	2542	7397	2650	2542
<i>Bifidobacterium</i>	12.8253±5.	0.5927±0.0	4.6917±1.0	4.5373±1.8	5.5757±1.0
abundance(%)	1736	2706	885	4558	0418
<i>Desulfovibrio</i>	2.208±0.86	4.9033±2.1	1.43500±0.	0.61533±0.	3.4933±1.0
abundance(%)	1786	95822	80047	139919	44674

Table S20 Effect of LTA on the expression of Hsps and intestinal barrier-associated mRNAs in colon tissues of heat-stressed mice

Gruop	CK	MOD	L1-HS	L2-HS	L4-HS
<i>Hsfl</i>	1.00	1.38	0.82	0.68	0.67
<i>Hsfl</i>	1.00	1.29	0.78	0.50	0.44

<i>Hsf1</i>	1.00	1.35	0.57	0.20	0.47
<i>Hsp70</i>	1.00	1.04	0.97	0.74	0.49
<i>Hsp70</i>	1.00	2.45	0.85	0.36	0.45
<i>Hsp70</i>	1.00	1.50	0.96	0.25	0.33
<i>Hsph1</i>	1.00	9.07	2.31	2.01	12.14
<i>Hsph1</i>	1.00	16.26	2.48	1.69	10.52
<i>Hsph1</i>	1.00	13.40	2.56	1.87	7.44
<i>TLR4</i>	1.00	1.45	1.27	1.01	1.05
<i>TLR4</i>	1.00	1.52	1.06	0.93	0.81
<i>TLR4</i>	1.00	1.58	1.29	0.92	1.30
<i>MAPK</i>	1.00	1.15	0.43	0.83	2.15
<i>MAPK</i>	1.00	2.62	0.77	1.04	1.51
<i>MAPK</i>	1.00	2.55	0.52	0.74	1.60
<i>NF-κB</i>	1.00	1.88	1.30	0.93	1.27
<i>NF-κB</i>	1.00	1.98	1.38	0.94	1.35
<i>NF-κB</i>	1.00	1.47	1.59	0.88	1.02
<i>GPR41</i>	1.00	1.01	2.03	5.69	3.77
<i>GPR41</i>	1.00	0.48	3.70	4.01	2.92
<i>GPR41</i>	1.00	0.74	2.59	6.36	4.33
<i>GPR43</i>	1.00	0.34	3.31	4.07	4.83
<i>GPR43</i>	1.00	0.78	2.04	4.94	5.21
<i>GPR43</i>	1.00	0.93	3.03	5.01	5.60

<i>GPR109A</i>	1.00	0.71	1.35	4.51	2.76
<i>GPR109A</i>	1.00	0.49	1.41	5.04	2.21
<i>GPR109A</i>	1.00	0.52	0.67	4.77	3.69
<i>MLCK</i>	1.00	5.70	5.00	3.55	5.67
<i>MLCK</i>	1.00	7.14	3.68	4.01	4.46
<i>MLCK</i>	1.00	10.37	1.99	0.88	2.82
<i>Claudin-1</i>	1.00	0.64	0.56	0.84	0.83
<i>Claudin-1</i>	1.00	0.26	0.72	0.95	0.74
<i>Claudin-1</i>	1.00	0.13	0.78	0.98	0.84
<i>Occludin</i>	1.00	0.29	0.26	0.47	0.42
<i>Occludin</i>	1.00	0.20	0.35	0.58	0.35
<i>Occludin</i>	1.00	0.13	0.36	0.68	0.44
<i>ZO-1</i>	1.00	0.28	0.47	0.55	0.47
<i>ZO-1</i>	1.00	0.23	0.41	0.51	0.76
<i>ZO-1</i>	1.00	0.12	0.28	0.72	0.45
<i>Muc2</i>	1.00	0.30	0.44	0.93	0.63
<i>Muc2</i>	1.00	0.48	0.40	0.76	0.73
<i>Muc2</i>	1.00	0.34	0.35	0.65	0.87
<i>Muc4</i>	1.00	0.46	0.38	0.51	0.65
<i>Muc4</i>	1.00	0.36	0.47	0.66	0.46
<i>Muc4</i>	1.00	0.25	0.51	0.80	0.65
