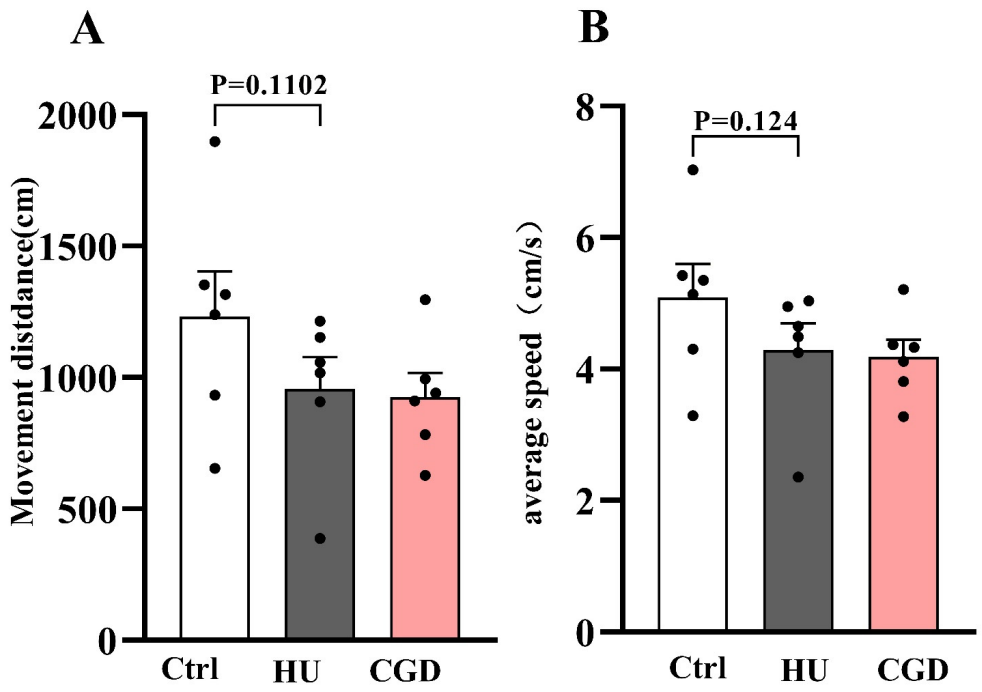
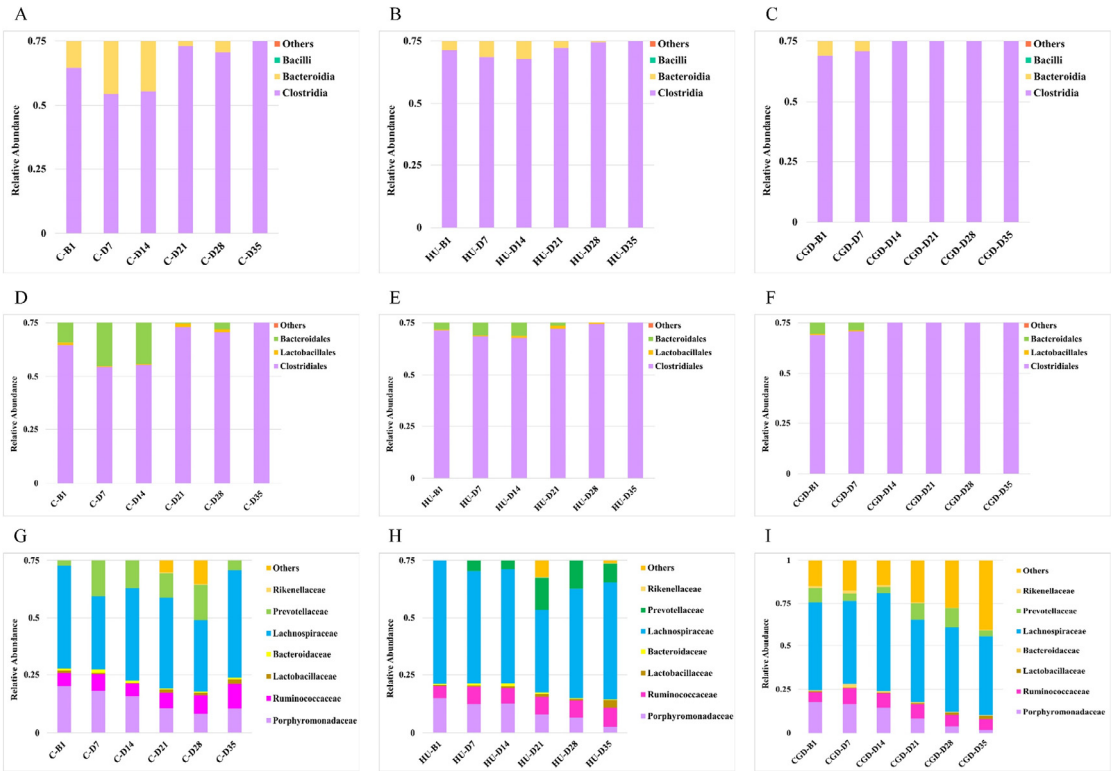
补充材料



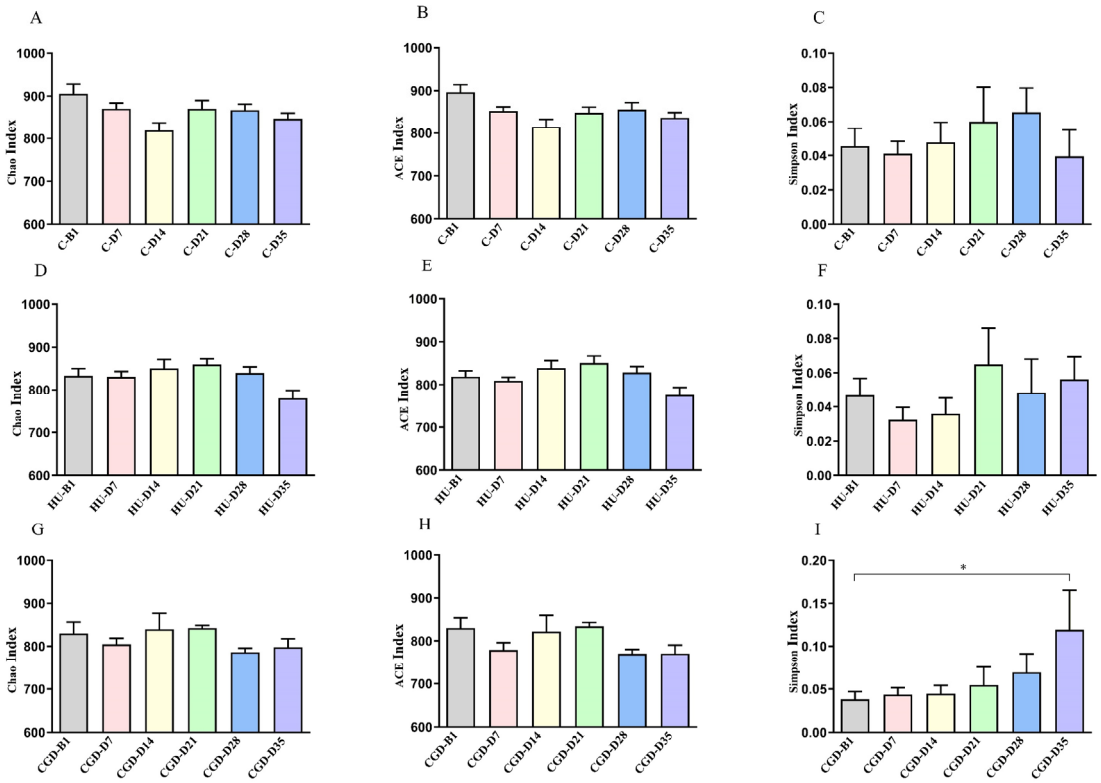
附图 1. 旷场测试中小鼠的移动距离和平均速度

Supplementary figure 1. The movement distance and average speed in the open field test. *A:* The movement distance of Ctrl, HU, and CGD groups mice in the open field test. *B:* The movement average speed of Ctrl, HU, and CGD groups mice in the open field test. HU: hindlimb unloading; CGD: Chaihu Guizhi decoction-treated HU.



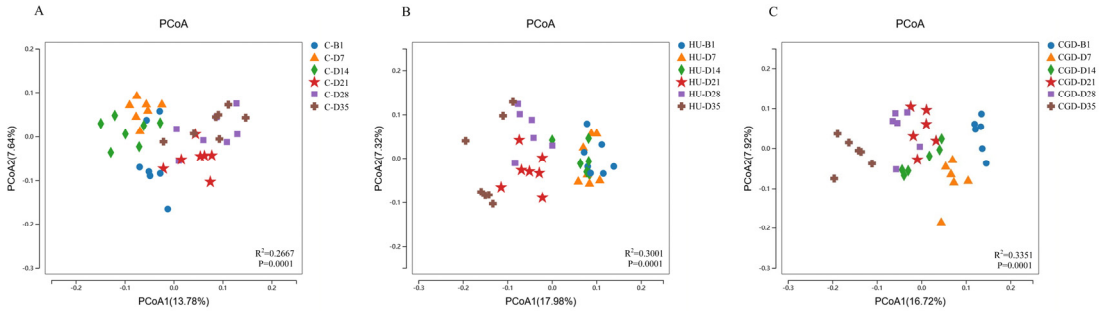
附图 2. 三组小鼠肠道菌群在纲、目、科水平的变化特征

Supplementary figure 2. Fluctuations of gut microbes at the class, order, and family levels. *A*, *B*, *C*: Top three class abundances in the gut microbiota of three groups at six time points according to 16S rRNA gene sequencing. *D*, *E*, *F*: Top three order abundances in the gut microbiota of three groups at six time points according to 16S rRNA gene sequencing. *G*, *H*, *I*: Top seven family abundances in the gut microbiota of three groups at six time points according to 16S rRNA gene sequencing. C: control; HU: hindlimb unloading; CGD: Chaihu Guizhi decoction-treated HU; B1: 1 day before HU; D7, D14, D28, D35: the 7th day, 14th day, 21st day, 28th day, and 35th day after HU.



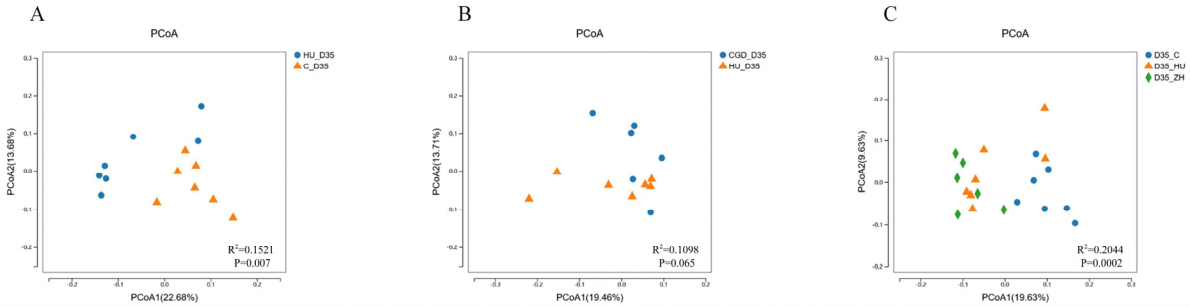
附图 3. 三组小鼠肠道菌群 Chao、ACE、辛普森指数等 α 多样性指标的变化规律

Supplementary figure 3. The alpha diversity of Chao, ACE, and Simpson indices. *A*, *D*, *G*: Comparison of alpha diversity of Chao across six time points in three groups according to 16S rRNA gene sequencing. *B*, *E*, *H*: Comparison of alpha diversity of ACE across six time points in three groups according to 16S rRNA gene sequencing. *C*, *F*, *I*: Comparison of alpha diversity of Simpson indices across six time points in three groups according to 16S rRNA gene sequencing. C: control; HU: hindlimb unloading; CGD: Chaihu Guizhi decoction-treated HU; B1: 1 day before HU; D7, D14, D28, D35: the 7th day, 14th day, 21st day, 28th day, and 35th day after HU. $^{*}P < 0.05$.



附图 4. 三组小鼠肠道菌群在不同时间点 β 多样性的主坐标分析

Supplementary figure 4. The PCoA plots of microbial beta diversity across six time points in the three groups. C: control; HU: hindlimb unloading; CGD: Chaihu Guizhi decoction-treated HU; B1: 1 day before HU; D7, D14, D28, D35: the 7th day, 14th day, 21st day, 28th day, and 35th day after HU.



附图 5. 三组小鼠肠道菌群在造模和干预 35 天后 β 多样性的主成分分析

Supplementary figure 5. The PCoA plots of microbial beta diversity between the three groups on the 35th day (D35) after HU. C: control; HU: hindlimb unloading; CGD: Chaihu Guizhi decoction-treated HU.

附表 1. 粪便样本 16S rRNA 基因测序稀释深度

Supplementary table 1. The rarefaction depth of fecal 16S rRNA gene sequencing

sample_name	read_length	rawData_size	ployBase_percent	lowQuality_percent	cleanData_size	dataUtilizationRatio_percent	rawReads_num	cleanReads_num	removePrimerReads_num
B1_C1	300:300	42.95	0.001	0.023	42.86	99.79	77812*2	77338*2	77338*2
B1_C2	300:300	42.93	0.001	0.022	42.86	99.83	77986*2	77460*2	77460*2
B1_C3	300:300	42.93	0.001	0.014	42.86	99.84	78100*2	77598*2	77598*2
B1_C4	300:300	42.92	0.003	0.016	42.86	99.85	77165*2	76617*2	76617*2
B1_C5	300:300	42.93	0.001	0.022	42.86	99.83	77257*2	76767*2	76767*2
B1_C6	300:300	42.92	0.001	0.02	42.86	99.85	77606*2	77055*2	77055*2
B1_C7	300:300	42.92	0.0	0.024	42.86	99.85	78098*2	77577*2	77577*2
B1_HU1	300:300	42.91	0.001	0.012	42.86	99.88	77123*2	76599*2	76599*2
B1_HU2	300:300	42.92	0.003	0.016	42.86	99.86	77311*2	76740*2	76740*2
B1_HU3	300:300	42.92	0.002	0.014	42.86	99.85	77580*2	77033*2	77033*2
B1_HU4	300:300	42.93	0.001	0.024	42.86	99.84	77703*2	77161*2	77161*2
B1_HU5	300:300	42.93	0.002	0.019	42.86	99.84	77804*2	77305*2	77305*2
B1_HU6	300:300	42.93	0.001	0.026	42.86	99.83	77924*2	77443*2	77443*2
B1_HU7	300:300	42.94	0.003	0.029	42.86	99.8	78182*2	77603*2	77603*2
B1_ZH1	300:300	42.93	0.001	0.024	42.86	99.84	77790*2	77303*2	77303*2
B1_ZH2	300:300	42.92	0.002	0.023	42.86	99.85	77918*2	77440*2	77440*2
B1_ZH3	300:300	42.92	0.001	0.018	42.86	99.84	78245*2	77729*2	77729*2
B1_ZH4	300:300	42.92	0.0	0.023	42.86	99.85	77272*2	76749*2	76749*2
B1_ZH5	300:300	42.93	0.001	0.023	42.86	99.84	77438*2	76886*2	76886*2

B1_ZH6	300:300	42.93	0.001	0.023	42.86	99.84	77710*2	77166*2	77166*2
D7_C1	300:300	42.94	0.001	0.024	42.86	99.81	78068*2	77602*2	77602*2
D7_C2	300:300	42.93	0.003	0.023	42.86	99.82	78291*2	77734*2	77734*2
D7_C3	300:300	42.92	0.002	0.016	42.86	99.85	78312*2	77869*2	77869*2
D7_C4	300:300	42.93	0.002	0.024	42.86	99.84	77381*2	76888*2	76888*2
D7_C5	300:300	42.94	0.003	0.028	42.86	99.81	77572*2	77033*2	77033*2
D7_C6	300:300	42.93	0.001	0.025	42.86	99.82	77849*2	77313*2	77313*2
D7_C7	300:300	42.92	0.002	0.023	42.86	99.86	78003*2	77426*2	77426*2
D7_HU1	300:300	42.92	0.002	0.022	42.86	99.85	78124*2	77574*2	77574*2
D7_HU2	300:300	42.92	0.001	0.015	42.86	99.85	78218*2	77720*2	77720*2
D7_HU3	300:300	42.93	0.0	0.021	42.86	99.83	78525*2	77880*2	77880*2
D7_HU4	300:300	42.93	0.002	0.027	42.86	99.83	78547*2	78001*2	78001*2
D7_HU5	300:300	42.92	0.001	0.018	42.86	99.87	77551*2	77019*2	77019*2
D7_HU6	300:300	42.93	0.0	0.025	42.86	99.84	77706*2	77158*2	77158*2
D7_HU7	300:300	42.92	0.001	0.019	42.86	99.85	78041*2	77446*2	77446*2
D7_ZH1	300:300	42.91	0.0	0.016	42.86	99.87	78723*2	78136*2	78136*2
D7_ZH2	300:300	42.91	0.002	0.02	42.86	99.87	77737*2	77146*2	77146*2
D7_ZH3	300:300	42.91	0.001	0.014	42.86	99.87	78239*2	77570*2	77570*2
D7_ZH4	300:300	42.91	0.001	0.024	42.86	99.87	78295*2	77708*2	77708*2
D7_ZH5	300:300	42.93	0.001	0.028	42.86	99.84	78426*2	77858*2	77858*2
D7_ZH6	300:300	42.94	0.001	0.028	42.86	99.81	78736*2	78016*2	78016*2
D14_C1	300:300	42.93	0.002	0.023	42.86	99.84	77983*2	77299*2	77299*2
D14_C2	300:300	42.94	0.001	0.025	42.86	99.82	78108*2	77598*2	77598*2
D14_C3	300:300	42.92	0.001	0.022	42.86	99.84	78243*2	77718*2	77718*2
D14_C4	300:300	42.92	0.001	0.02	42.86	99.84	78403*2	77866*2	77866*2
D14_C5	300:300	42.93	0.004	0.028	42.86	99.83	78463*2	77996*2	77996*2

D14_C6	300:300	42.94	0.003	0.026	42.86	99.82	78756*2	78156*2	78156*2
D14_C7	300:300	42.93	0.001	0.027	42.86	99.83	78851*2	78289*2	78289*2
D14_HU1	300:300	42.93	0.002	0.028	42.86	99.83	77842*2	77301*2	77301*2
D14_HU2	300:300	42.93	0.001	0.024	42.86	99.83	78012*2	77445*2	77445*2
D14_HU3	300:300	42.94	0.001	0.026	42.86	99.82	78302*2	77733*2	77733*2
D14_HU4	300:300	42.92	0.001	0.021	42.86	99.84	78432*2	77861*2	77861*2
D14_HU5	300:300	42.93	0.001	0.024	42.86	99.84	78562*2	78004*2	78004*2
D14_HU6	300:300	42.93	0.001	0.024	42.86	99.83	78658*2	78149*2	78149*2
D14_HU7	300:300	42.91	0.001	0.016	42.86	99.87	77454*2	76925*2	76925*2
D14_ZH1	300:300	42.92	0.0	0.018	42.86	99.85	78093*2	77578*2	77578*2
D14_ZH2	300:300	42.91	0.001	0.017	42.86	99.88	77110*2	76598*2	76598*2
D14_ZH3	300:300	42.91	0.001	0.013	42.86	99.88	77510*2	77012*2	77012*2
D14_ZH4	300:300	42.92	0.001	0.018	42.86	99.86	77665*2	77163*2	77163*2
D14_ZH5	300:300	42.93	0.0	0.02	42.86	99.83	77791*2	77317*2	77317*2
D14_ZH6	300:300	42.92	0.001	0.018	42.86	99.84	77986*2	77449*2	77449*2
D21_C1	300:300	42.92	0.001	0.02	42.86	99.84	77233*2	76756*2	76756*2
D21_C2	300:300	42.93	0.002	0.02	42.86	99.84	77673*2	77080*2	77080*2
D21_C3	300:300	42.93	0.003	0.023	42.86	99.84	77710*2	77159*2	77159*2
D21_C4	300:300	42.93	0.001	0.028	42.86	99.84	77842*2	77297*2	77297*2
D21_C5	300:300	42.94	0.002	0.023	42.86	99.81	78005*2	77465*2	77465*2
D21_C6	300:300	42.93	0.001	0.025	42.86	99.83	78203*2	77590*2	77590*2
D21_C7	300:300	42.92	0.002	0.023	42.86	99.85	78263*2	77714*2	77714*2
D21_HU1	300:300	42.92	0.0	0.02	42.86	99.85	77275*2	76750*2	76750*2
D21_HU2	300:300	42.93	0.001	0.018	42.86	99.84	77435*2	76894*2	76894*2
D21_HU3	300:300	42.91	0.001	0.012	42.86	99.88	77759*2	77201*2	77201*2
D21_HU4	300:300	42.92	0.006	0.014	42.86	99.86	77813*2	77294*2	77294*2

D21_HU5	300:300	42.91	0.001	0.014	42.86	99.88	77929*2	77431*2	77431*2
D21_HU6	300:300	42.93	0.0	0.022	42.86	99.83	78074*2	77599*2	77599*2
D21_HU7	300:300	42.93	0.001	0.019	42.86	99.84	78297*2	77729*2	77729*2
D21_ZH1	300:300	42.92	0.001	0.015	42.86	99.86	77930*2	77434*2	77434*2
D21_ZH2	300:300	42.93	0.0	0.021	42.86	99.83	78080*2	77590*2	77590*2
D21_ZH3	300:300	42.92	0.002	0.014	42.86	99.86	78354*2	77855*2	77855*2
D21_ZH4	300:300	42.91	0.001	0.012	42.86	99.89	77343*2	76876*2	76876*2
D21_ZH5	300:300	42.92	0.002	0.014	42.86	99.85	77561*2	77029*2	77029*2
D21_ZH6	300:300	42.94	0.003	0.025	42.86	99.8	77921*2	77369*2	77369*2
D28_C1	300:300	42.95	0.002	0.023	42.86	99.79	78236*2	77764*2	77764*2
D28_C2	300:300	42.94	0.001	0.022	42.86	99.8	78426*2	77895*2	77895*2
D28_C3	300:300	42.94	0.002	0.024	42.86	99.81	78512*2	78023*2	78023*2
D28_C4	300:300	42.93	0.002	0.021	42.86	99.84	77565*2	77031*2	77031*2
D28_C5	300:300	42.94	0.0	0.029	42.86	99.8	77664*2	77189*2	77189*2
D28_C6	300:300	42.93	0.003	0.018	42.86	99.83	78132*2	77522*2	77522*2
D28_C7	300:300	42.92	0.002	0.015	42.86	99.86	78141*2	77576*2	77576*2
D28_HU1	300:300	42.92	0.002	0.017	42.86	99.86	78222*2	77711*2	77711*2
D28_HU2	300:300	42.93	0.002	0.021	42.86	99.83	78392*2	77873*2	77873*2
D28_HU3	300:300	42.94	0.001	0.02	42.86	99.82	78686*2	78024*2	78024*2
D28_HU4	300:300	42.92	0.002	0.025	42.86	99.84	78724*2	78136*2	78136*2
D28_HU5	300:300	42.91	0.001	0.014	42.86	99.87	77692*2	77158*2	77158*2
D28_HU6	300:300	42.92	0.0	0.019	42.86	99.85	77857*2	77307*2	77307*2
D28_HU7	300:300	42.93	0.0	0.016	42.86	99.82	78337*2	77677*2	77677*2
D28_ZH1	300:300	42.92	0.001	0.019	42.86	99.85	78858*2	78280*2	78280*2
D28_ZH2	300:300	42.92	0.001	0.015	42.86	99.86	77839*2	77311*2	77311*2
D28_ZH3	300:300	42.92	0.0	0.017	42.86	99.85	78331*2	77721*2	77721*2

D28_ZH4	300:300	42.93	0.0	0.026	42.86	99.82	78461*2	77871*2	77871*2
D28_ZH5	300:300	42.93	0.003	0.024	42.86	99.84	78477*2	78007*2	78007*2
D28_ZH6	300:300	42.93	0.002	0.019	42.86	99.83	78818*2	78161*2	78161*2
D35_C1	300:300	42.92	0.001	0.018	42.86	99.85	78003*2	77445*2	77445*2
D35_C2	300:300	42.93	0.004	0.024	42.86	99.82	78362*2	77774*2	77774*2
D35_C3	300:300	42.92	0.001	0.022	42.86	99.84	78380*2	77864*2	77864*2
D35_C4	300:300	42.93	0.001	0.024	42.86	99.83	78613*2	78005*2	78005*2
D35_C5	300:300	42.94	0.001	0.024	42.86	99.81	78710*2	78167*2	78167*2
D35_C6	300:300	42.92	0.002	0.022	42.86	99.85	78918*2	78277*2	78277*2
D35_C7	300:300	42.92	0.001	0.021	42.86	99.84	78998*2	78428*2	78428*2
D35_HU1	300:300	42.92	0.0	0.023	42.86	99.85	77957*2	77448*2	77448*2
D35_HU2	300:300	42.93	0.001	0.019	42.86	99.84	78142*2	77588*2	77588*2
D35_HU3	300:300	42.93	0.003	0.024	42.86	99.82	78593*2	77914*2	77914*2
D35_HU4	300:300	42.92	0.0	0.023	42.86	99.85	78553*2	77995*2	77995*2
D35_HU5	300:300	42.92	0.001	0.017	42.86	99.86	78715*2	78139*2	78139*2
D35_HU6	300:300	42.93	0.0	0.023	42.86	99.82	78828*2	78307*2	78307*2
D35_HU7	300:300	42.93	0.0	0.017	42.86	99.83	79029*2	78445*2	78445*2
D35_ZH1	300:300	42.92	0.0	0.016	42.86	99.86	77525*2	77029*2	77029*2
D35_ZH2	300:300	42.92	0.0	0.019	42.86	99.85	77689*2	77168*2	77168*2
D35_ZH3	300:300	42.91	0.004	0.016	42.86	99.88	79098*2	78544*2	78544*2
D35_ZH4	300:300	42.92	0.001	0.02	42.86	99.86	78139*2	77579*2	77579*2
D35_ZH5	300:300	42.92	0.001	0.02	42.86	99.86	78251*2	77713*2	77713*2
D35_ZH6	300:300	42.92	0.003	0.016	42.86	99.86	77491*2	76931*2	76931*2

附表 2. 粪便样本 16S rRNA 基因测序 OTU 数量

Supplementary table 2. The OTUs number of fecal 16S rRNA gene sequencing.

sample_name	tag_num	otu_num
B1_C1	45181	818
B1_C2	51146	663
B1_C3	49516	800
B1_C4	47076	823
B1_C5	49163	797
B1_C6	50709	758
B1_C7	46863	764
B1_HU1	49735	720
B1_HU2	47919	718
B1_HU3	47478	752
B1_HU4	53675	642
B1_HU5	47750	782
B1_HU6	48512	721
B1_HU7	51111	674
B1_ZH1	45530	703
B1_ZH2	43549	779
B1_ZH3	48366	705
B1_ZH4	49766	671
B1_ZH5	47416	768
B1_ZH6	49165	766
D7_C1	43971	660

D7_C2	45299	718
D7_C3	46267	723
D7_C4	46123	784
D7_C5	47234	706
D7_C6	47423	745
D7_C7	47876	747
D7_HU1	44715	710
D7_HU2	46804	753
D7_HU3	49847	741
D7_HU4	47289	698
D7_HU5	46176	726
D7_HU6	47329	676
D7_HU7	50602	708
D7_ZH1	47732	691
D7_ZH2	44735	605
D7_ZH3	46801	683
D7_ZH4	46635	677
D7_ZH5	48969	707
D7_ZH6	49587	722
D14_C1	46820	704
D14_C2	49625	658
D14_C3	47781	722
D14_C4	44968	705
D14_C5	45394	686
D14_C6	50167	782
D14_C7	46228	704

D14_HU1	47229	777
D14_HU2	44062	676
D14_HU3	47314	751
D14_HU4	49128	715
D14_HU5	47307	799
D14_HU6	48232	661
D14_HU7	49600	725
D14_ZH1	48987	675
D14_ZH2	48791	620
D14_ZH3	49137	631
D14_ZH4	47810	747
D14_ZH5	47413	800
D14_ZH6	47214	752
D21_C1	46341	755
D21_C2	52303	725
D21_C3	54857	669
D21_C4	48439	746
D21_C5	49464	733
D21_C6	50897	735
D21_C7	48990	768
D21_HU1	50827	753
D21_HU2	49236	754
D21_HU3	50135	794
D21_HU4	53170	657
D21_HU5	49430	774
D21_HU6	48370	698

D21_HU7	52963	697
D21_ZH1	47218	721
D21_ZH2	46659	669
D21_ZH3	49709	713
D21_ZH4	44847	683
D21_ZH5	53054	711
D21_ZH6	49493	770
D28_C1	51715	732
D28_C2	50751	713
D28_C3	51792	710
D28_C4	52789	707
D28_C5	49656	714
D28_C6	53009	782
D28_C7	51048	773
D28_HU1	51394	696
D28_HU2	48536	740
D28_HU3	54728	741
D28_HU4	49447	732
D28_HU5	49108	771
D28_HU6	52564	686
D28_HU7	53920	647
D28_ZH1	47993	616
D28_ZH2	50561	642
D28_ZH3	53502	644
D28_ZH4	53308	633
D28_ZH5	50284	716

D28_ZH6	52723	684
D35_C1	47263	703
D35_C2	48292	742
D35_C3	49616	728
D35_C4	51195	745
D35_C5	51442	693
D35_C6	54521	703
D35_C7	52032	699
D35_HU1	50252	623
D35_HU2	52592	659
D35_HU3	54097	734
D35_HU4	53122	635
D35_HU5	54246	662
D35_HU6	54599	640
D35_HU7	54197	655
D35_ZH1	57664	550
D35_ZH2	50876	654
D35_ZH3	56205	648
D35_ZH4	56367	619
D35_ZH5	55033	593
D35_ZH6	52542	720