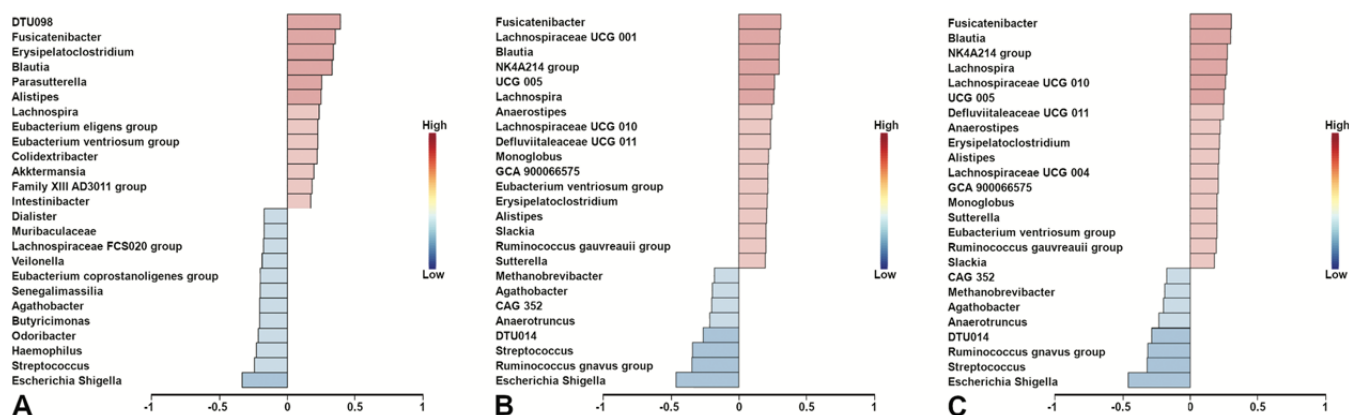


Supplementary Fig. S1.

Supplementary Table S1. First six significant KEGG orthologues (KO) after single factor analysis with DeSeq2.

KO	log2FC	lfcSE	<i>p</i> -values	FDR
K00620	-22.116	0.50349	1,12E-01	0.00079132
K00145	-21.548	0.49094	1,14E-01	0.00079132
K00852	-22.234	0.50693	1,15E-01	0.00079132
K00930	-22.545	0.51428	1,17E-01	0.00079132
K01693	-21.356	0.48728	1,17E-01	0.00079132
K03637	-22.212	0.50738	1,20E-02	0.00079132

FDR: false discovery rate; KEGG: Kyoto Encyclopedia of Genes and Genomes; lfcSE: standard error of log2 fold change; log2FC: log2 fold change.



Supplementary Fig. S2. Top 25 genera correlated with IBMFRS sub-scores for item 1 (A: swallowing), items 2-4 (B: hand function) and items 7-10 (C: mobility) as determined by Spearman correlation. Note that no correlations were statistically significant following false discovery rate correction.

Supplementary Table S2: Pearson correlation coefficients.

	BSS	mGSRS	Age (years)	IBMFRS	IBMFRS (7-10)	Faith's PD	Shannon's entropy	Observed features	Pielou evenness
BSS	1	-0.089	0.188	0.081	0.229	0.222	0.198	0.309*	0.091
mGSRS	-0.089	1	0.225	-0.367*	-0.311*	0.029	-0.033	0.047	-0.071
Age (years)	0.188	0.225	1	-0.312*	-0.219	0.253	0.069	0.266	-0.035
IBMFRS	0.081	-0.367*	-0.312*	1	0.855**	-0.016	0.037	0.071	0.006
IBMFRS (7-10)	0.229	-0.311*	-0.219	0.855**	1	-0.063	0.069	0.068	0.051
Faith's PD	0.222	0.029	0.253	-0.016	-0.063	1	0.633**	0.903**	0.338*
Shannon's entropy	0.198	-0.033	0.069	0.037	0.069	0.633**	1	0.775**	0.924**
Observed features	0.309*	0.047	0.226	0.071	0.068	0.903**	0.775**	1	0.477**
Pielou evenness	0.091	-0.071	-0.035	0.006	0.051	0.338*	0.924**	0.477**	1

Age: in years; BSS: Bristol Stool Scale; IBMFRS: Inclusion Body Myositis Functional Rating Scale; IBMFRS (7-10): items 7-10 of IBMFRS; mGSRS: modified Gastrointestinal Symptom Rating Scale; PD: phylogenetic diversity.

*Correlation is significant with $p < 0.05$ (2-tailed); **Correlation is significant with $p < 0.01$ (2-tailed).