2a. Taxonomic level = Genus

Key	
🟦 LGG	🟥 PLC

Taxonomy after 12-months of Treatment

					Taxonomy at Baseline (Genus level)																					
Phylum	**Class**	**Order**	**Family**	**Genus**	***Bifidobacterium***	***Collinsella***	**undefined**	***Faecalibacterium***	**undefined**	***Acidaminococcus***	***Rumniococcus***	***Blautia***	**undefined**	**undefined**	**undefined**	***Streptococcus***	***Lactobacillus***	***Bacteroides***	***Parabacteroides***	***Prevotella***	***Proteus***	***Enterococcus***	**undefined**	**LGG**	**PLC**	***P***
Actinobacteria	*Actinobacteria*	*Bifidobacteriales*	*Bifidobacteriaceae*	***Bifidobacterium***	🟦 S103; S108					🟦 S148				🟥 S121				🟦 S133						4	1	0.005
		Coriobacteriales	*Coriobacteriaceae*	***Collinsella***														🟦 S100						1	0	
				undefined																🟥 S151				0	1	
Firmicutes	*Clostridia*	*Clostridiales*	*Ruminococcaceae*	***Faecalibacterium***														🟦 S126				🟦 S119		2	0	
				undefined																				0	0	
			Veillonellaceae	***Acidaminococcus***					🟦 S129															1	0	
			Lachnospiraceae	***Rumniococcus***	🟥 S115																			0	1	
				Blauta																				0	0	
				undefined																	🟦 S122			1	0	
			Clostridiaceae	**undefined**																				0	0	
			Undefined Family	**undefined**											🟦 S104									1	0	
	Bacilla	*Lactobacillales*	Streptococcaceae	***Streptococcus***																			🟥 S111	0	1	
			Lactobacillaceae	***Lactobacillus***																				0	0	
Bacteroidetes	*Bacteroidia*	*Bacteroidales*	*Bacteroidaceae*	***Bacteroides***	🟥 S149												🟥 S110	🟥 S117; S140						0	4	
			Porphyromonadaceae	***Parabacteroides***								🟥 S134												0	1	
			Prevotallaceae	***Prevotella***																				0	0	
Proteobacteria	*Gamma-proteobacteria*	*Enterobacteriales*	*Enterobacteriaceae*	***Proteus***	🟥 S112																			0	1	
				Enterococcus														🟥 s156						0	1	
				Undefined														🟥 S154	🟦 S152					1	1	
Total number of subjects with longitudinal paired samples																								**11**	**12**	

2b. Taxonomic level = Family

Key	
LGG	**PLC**

					Taxonomy at Baseline (Family level)															
	Phylum	**Class**	**Order**	**Family**	***Bifidobacteriaceae***	***Coriobacteriaceae***	***Ruminococcaceae***	***Veillonellaceae***	**Undefined Family**	***Clostridiaceae***	**undefined**	***Streptococcaceae***	***Lactobacillaceae***	***Bacteroidaceae***	***Porphyromonadaceae***	***Prevotallaceae***	***Enterobacteriaceae***	**LGG**	**PLC**	***P***
Taxonomy after 12-months of Treatment	*Actinobacteria*	*Actinobacteria*	*Bifidobacteriales*	***Bifidobacteriaceae***	S103; S108			S148		S121				S133				4	1	0.11
			Coriobacteriales	***Coriobacteriaceae***										S100		S151		1	1	
	Firmicutes	*Clostridia*	*Clostridiales*	***Ruminococcaceae***										S126			S119	2	0	
				Veillonellaceae			S129											1	0	
				Lachnospiraceae	S115												S122	1	1	
				Clostridiaceae														0	0	
				Undefined Family							S104							1	0	
		Bacilla	*Lactobacillales*	**Streptococcaceae**													S111	0	1	
				Lactobacillaceae														0	0	
	Bacteroidetes	*Bacteroidia*	*Bacteroidales*	***Bacteroidaceae***	S149								S110	S117; S140				0	4	
				Prevotallaceae					S134									0	1	
	Proteobacteria	*Gamma-proteobacteria*	*Enterobacteriales*	***Enterobacteriaceae***	S112									S156; S154	S152			1	3	
	Total number of subjecs with longitudinal paired samples																	**11**	**12**	

2c. Taxonomic level = Order

Key	
🟦 LGG	🟥 PLC

				Taxonomy at Baseline (Order level)							
	Phylum	Class	Order	*Bifidobacteriales*	*Clostridiales*	*Lactobacillales*	*Bacteroidales*	*Enterobacteriales*	LGG	PLC	*P*
Taxonomy after 12-months of Treatment	*Actinobacteria*	*Actinobacteria*	***Bifidobacteriales***	🟦 S103; S108	🟦 S148 🟥 S121		🟦 S133		4	***1***	0.02
			Coriobacteriales				🟦 S100 🟥 S151		1	1	
	Firmicutes	*Clostridia*	***Clostridiales***	🟥 S115	🟦 S129; S104		🟦 S126	🟦 S119; S122	5	1	
		Bacilla	***Lactobacilliales***					🟥 S111	0	1	
	Bacteroidetes	*Bacteroidia*	***Bacteroidales***	🟥 S149	🟥 S134	🟥 S110	🟥 S117; S140		0	5	
	Proteobacteria	*Gamma-proteobacteria*	***Enterobacteriales***	🟥 S112			🟥 S156; S154 🟦 S152		1	3	
	Total number of subjecs with longitudinal paired samples								**11**	**12**	

2 d. Taxonomic level = Class

Key	
🟦 LGG	🟥 PLC

			Taxonomy at Baseline (Class level)							
	Phylum	Class	***Actinobacteria***	***Clostridia***	***Bacilla***	***Bacteroidia***	***Gamma-proteobacteria***	LGG	PLC	*P*
Taxonomy after 12-months of Treatment	*Actinobacteria*	***Actinobacteria***	🟦 S103; S108	🟦 S148 🟥 S121		🟦 S133;S100	🟥 S151	5	2	0.016
	Firmicutes	***Clostridia***	🟥 S115	🟦 S129; S104		🟦 S126	🟦 S119; S122	5	1	
		Bacilla					🟥 S111	0	1	
	Bacteroidetes	***Bacteroidia***	🟥 S149	🟥 S134	🟥 S110	🟥 S117; S140		0	5	
	Proteobacteria	***Gamma-proteobacteria***	🟥 S112			🟥 S156; S154 🟦 S152		1	3	
	Total number of subjecs with longitudinal paired samples							**11**	**12**	

2e. Taxonomic level = Phylum

Key	
🟦 LGG	🟥 PLC

Taxonomy at Baseline (Phylum level)

Taxonomy after 12-months of Treatment	Phylum	*Actinobacteria*	*Firmicutes*	*Bacteroidetes*	*Proteobacteria*	LGG	PLC	*P*
	Actinobacteria	🟦 S103; S108	🟦 S148 🟥 S121	🟦 S133; S100	🟥 S151	5	2	0.03
	Firmicutes	🟥 S115	🟦 S129; S104	🟦 S126	🟦 S119; S122 🟥 S111	5	2	
	Bacteroidetes	🟥 S149	🟥 S134; S110 🟥	🟥 S117; S140 🟥		0	5	
	Proteobacteria	🟥 S112		🟥 S156; S154 🟦 S152		1	3	
Total number of subjecs with longitudinal paired samples						**11**	**12**	

Supplemental Figure 2a-e. Shift table showing composition of gut microbiota of patients (n=23) having paired samples at baseline (displayed horizontally) and 12-month visit (displayed vertically) are shown at each taxonomic level. Red shading represents patients treated with LGG probiotics (*N*=11), blue shading represents patient's treated with placebo (*N*=12). Patients with undefined taxonomy at either visit were excluded from the analysis.

In the 23 patients (that had samples sequenced at baseline and 12-months), there was a statistically significant difference between the distribution of dominant taxa by treatment arms found in the microbiome after 12 months of treatment at the genera (*P*=0.005), order (P=0.02), class(*P*=0.016), and phylum (P=0.03) levels, but not at the family level (*P*=0.11) . All ranks were tested to account for any questions about undefined taxonomic levels within samples. No difference in the distribution of dominant genus was evident at baseline prior to treatment indicating the randomization held for this subset of patients that had fecal samples at 12-months at the genera (*P* =1), family (*P*=1), order (*P*=1), class (*P*=1), and phylum(*P*=0.7)