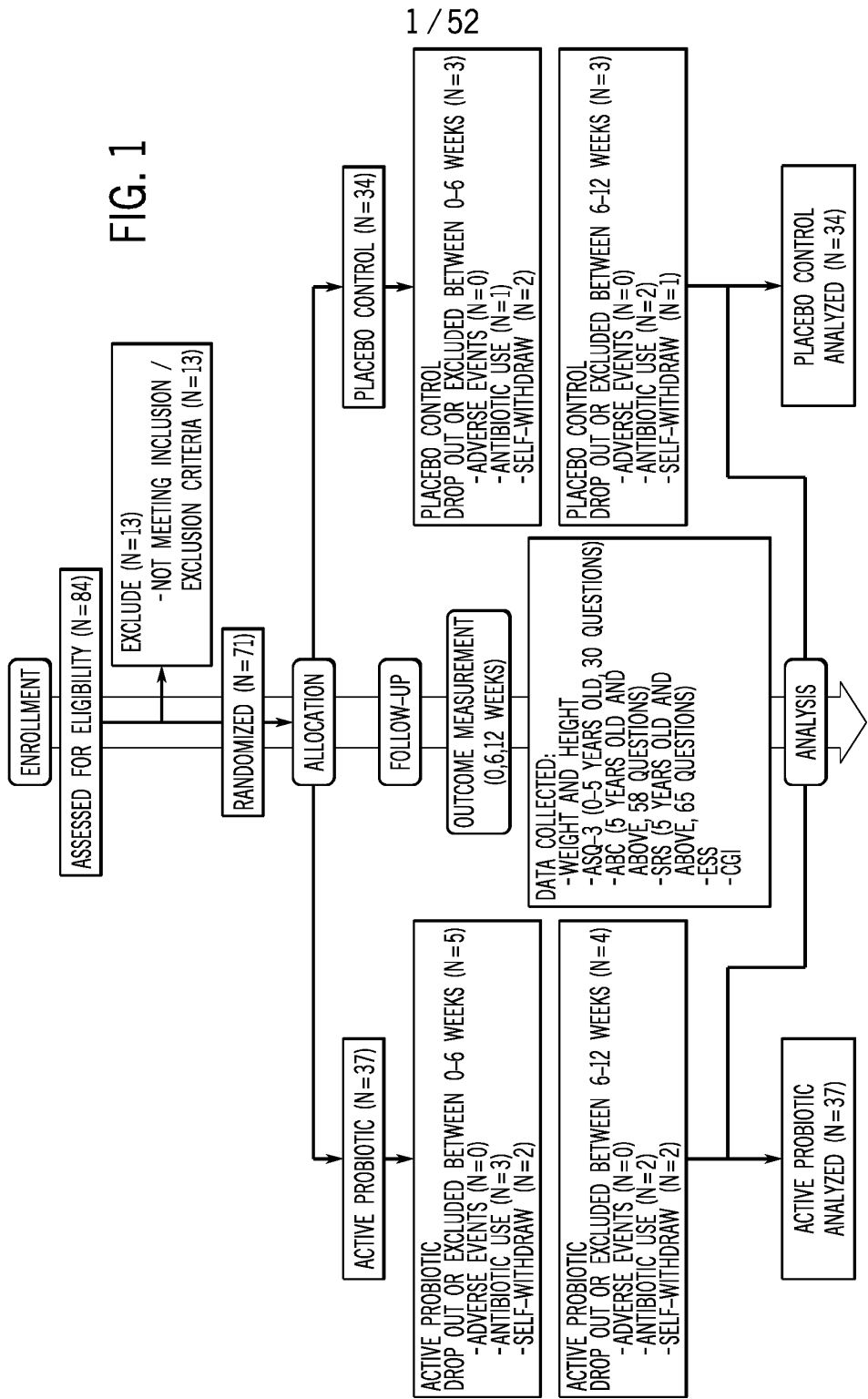




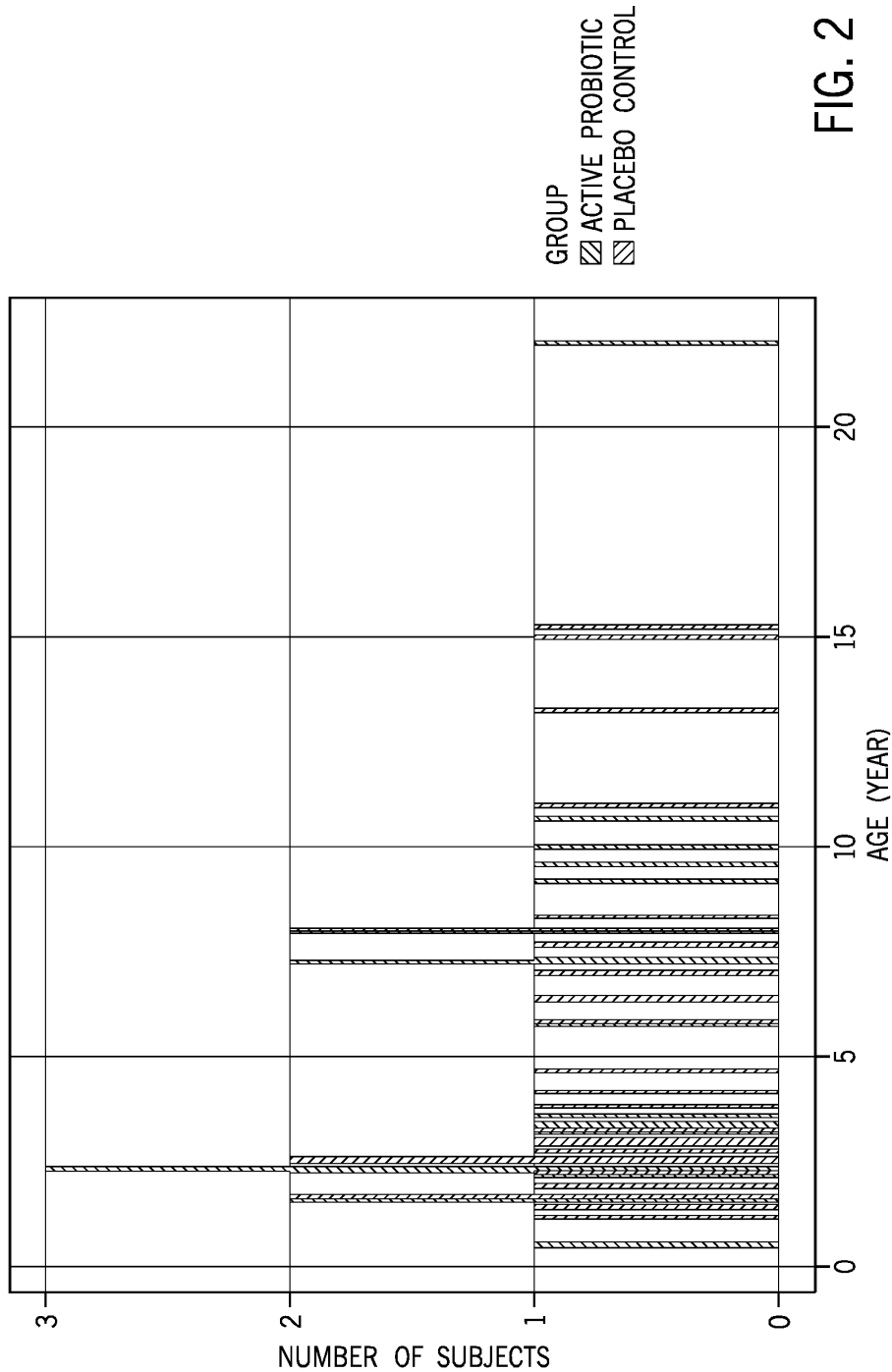


TABLE 2. ESTIMATED MARGINAL MEANS OF BMI AT EACH STUDY TIMEPOINT.

INTERVENTION	STUDY VISIT	ESTIMATED MEANS (95% CI)	STANDARD ERROR	DEGREES OF FREEDOM
ACTIVE PROBIOTIC	0-WEEKS	20.28 (18.347;22.212)	0.732	18.074
	6-WEEKS	19.300 (17.34;21.261)	0.754	21.041
	12-WEEKS	18.988 (17.049;20.928)	0.743	20.146
PLACEBO CONTROL	0-WEEKS	19.455 (15.751;23.159)	1.427	21.507
	6-WEEKS	21.908 (17.249;26.567)	1.838	30.166
	12-WEEKS	17.996 (13.252;22.739)	1.873	30.510

FIG. 3

TABLE 3. PAIRWISE COMPARISONS OF CHANGE IN BMI AT 6-WEEKS AND 12-WEEKS COMPARED TO BASELINE.

INTERVENTION	CONTRAST	MEAN DIFFERENCE	STANDARD ERROR	DEGREES OF FREEDOM	T-RATIO	P-VALUE
ACTIVE PROBIOTIC	12W-6W	-0.312	0.362	23.153	-0.863	1.000
	12W-0W	-1.291	0.366	30.012	-3.532	0.004
	6W-0W	-0.979	0.361	23.562	-2.710	0.037
PLACEBO CONTROL	12W-6W	-3.912	1.929	17.072	-2.028	0.175
	12W-0W	-1.459	1.782	20.078	-0.819	1.000
	6W-0W	2.453	1.734	18.679	1.414	0.521

FIG. 4

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	6-WEEKS				12-WEEKS			
	PLACEBO		ACTIVE		PLACEBO		ACTIVE	
	CONTROL		PROBIOTIC	P-VALUE	CONTROL		PROBIOTIC	P-VALUE
GARS-3								
		OVERALL SEVERITY	2.09 ± 0.54	2.08 ± 0.86	0.720	2.00 ± 0.47	1.92 ± 0.76	1.000
		COGNITIVE STYLE (CS)	9.36 ± 5.54	10.3 ± 4.17	0.647	8.55 ± 4.11	11.1 ± 5.59	0.120
		EMOTIONAL RESPONSES (ER)	14.0 ± 3.46	14.4 ± 6.14	0.703	14.9 ± 2.91	14.3 ± 4.50	0.849
		MALADAPTIVE SPEECH (MS)	6.00 ± 3.97	7.85 ± 5.47	0.426	5.09 ± 4.13	6.15 ± 4.86	0.819
		RESTRICTIVE / REPETITIVE BEHAVIORS (RRB)	17.8 ± 8.28	20.2 ± 7.63	0.623	18.1 ± 7.52	18.5 ± 9.81	0.820
		SOCIAL COMMUNICATION (SC)	17.8 ± 5.64	12.7 ± 4.96	0.088	18.8 ± 5.93	11.5 ± 6.01	0.007
		SOCIAL INTERACTION (SI)	14.9 ± 10.4	10.1 ± 10.0	0.095	13.1 ± 8.55	7.69 ± 5.57	0.037
ASQ-3								
		TOTAL	153 ± 53.4	178 ± 44.6	0.485	123 ± 33.3	193 ± 33.8	0.032
		COMMUNICATION	42.5 ± 10.8	41.3 ± 10.6	0.415	32.0 ± 15.2	45.0 ± 14.1	0.346
		FINE MOTOR	22.5 ± 15.4	24.4 ± 17.4	0.686	11.0 ± 8.22	25.0 ± 15.3	0.027
		GROSS MOTOR	28.3 ± 18.6	35.6 ± 14.7	1.000	24.0 ± 10.8	39.3 ± 15.1	0.245
		PERSONAL-SOCIAL	29.2 ± 11.6	39.4 ± 13.2	0.197	31.0 ± 12.4	40.7 ± 15.1	0.234
		PROBLEM SOLVING	30.8 ± 15.3	36.9 ± 14.1	1.000	25.0 ± 12.7	42.9 ± 8.09	0.051

FIG. 5

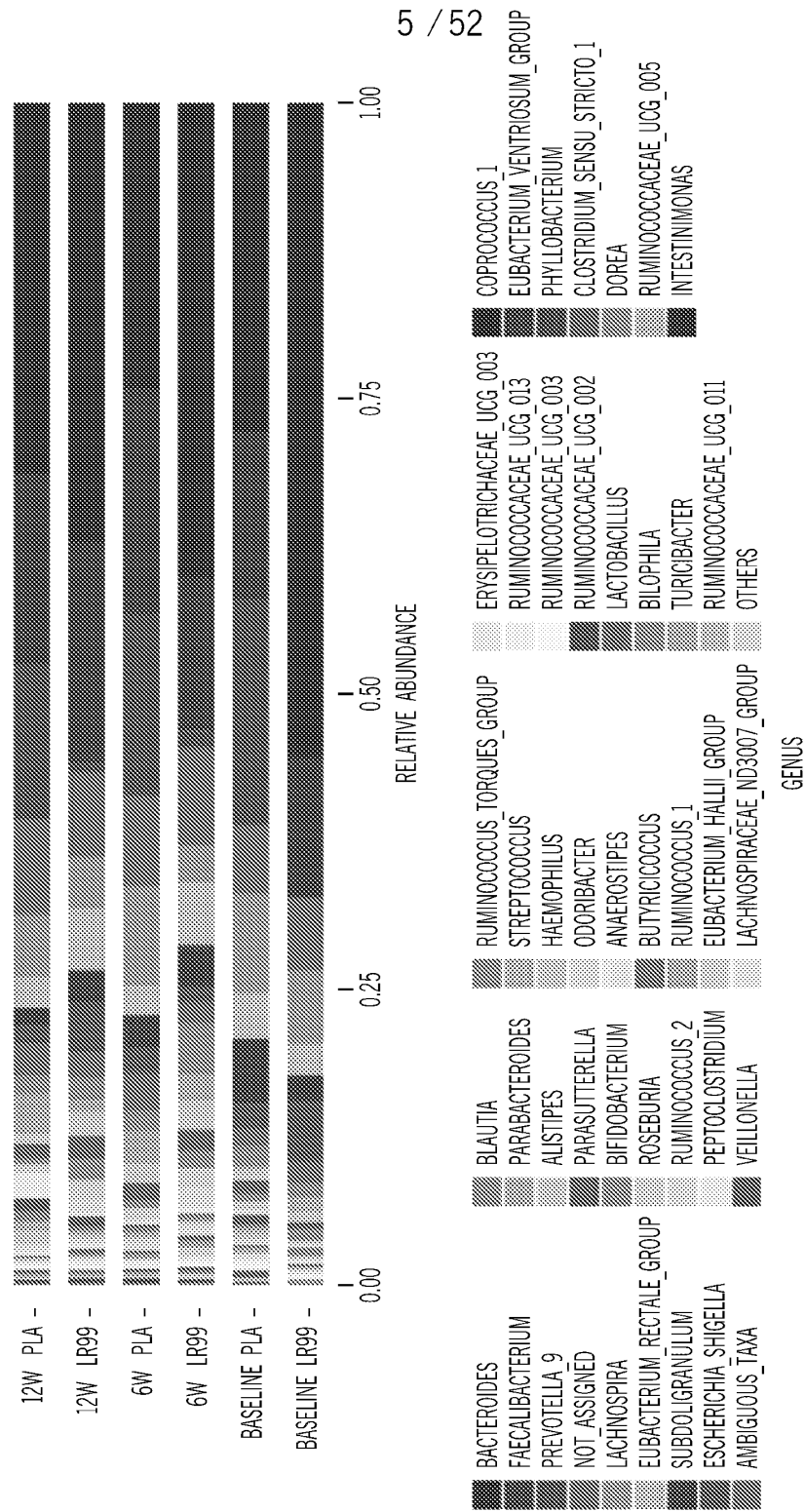


FIG. 6A

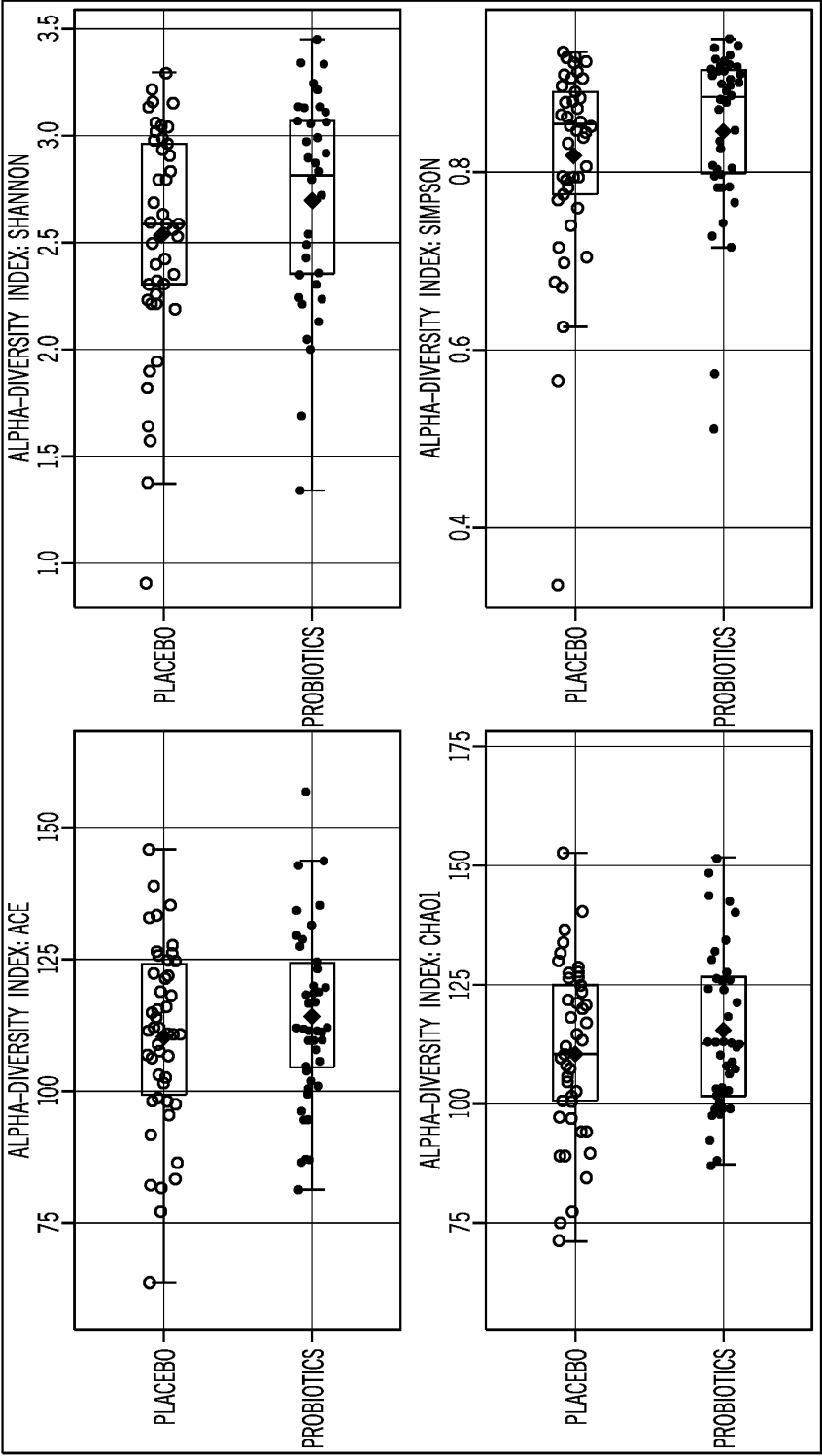


FIG. 6B

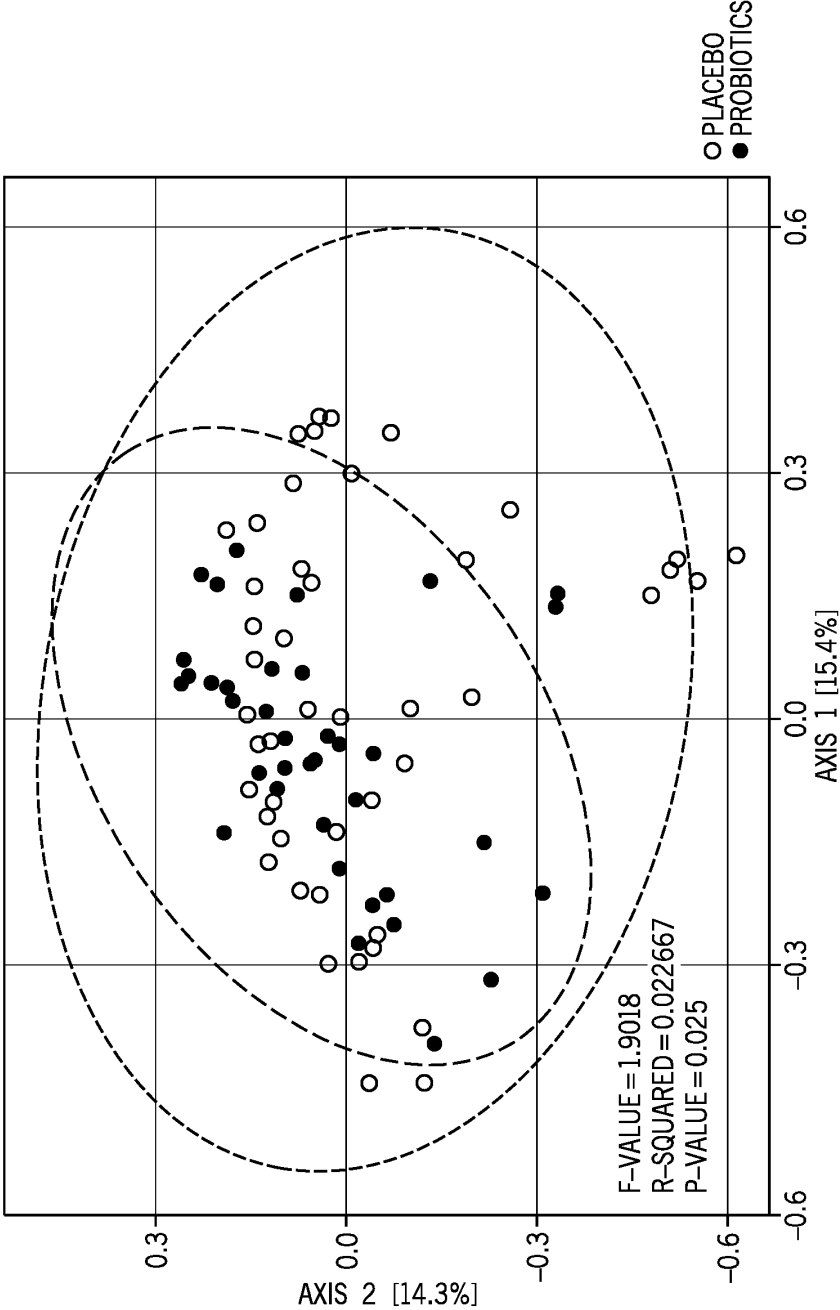


FIG. 6C

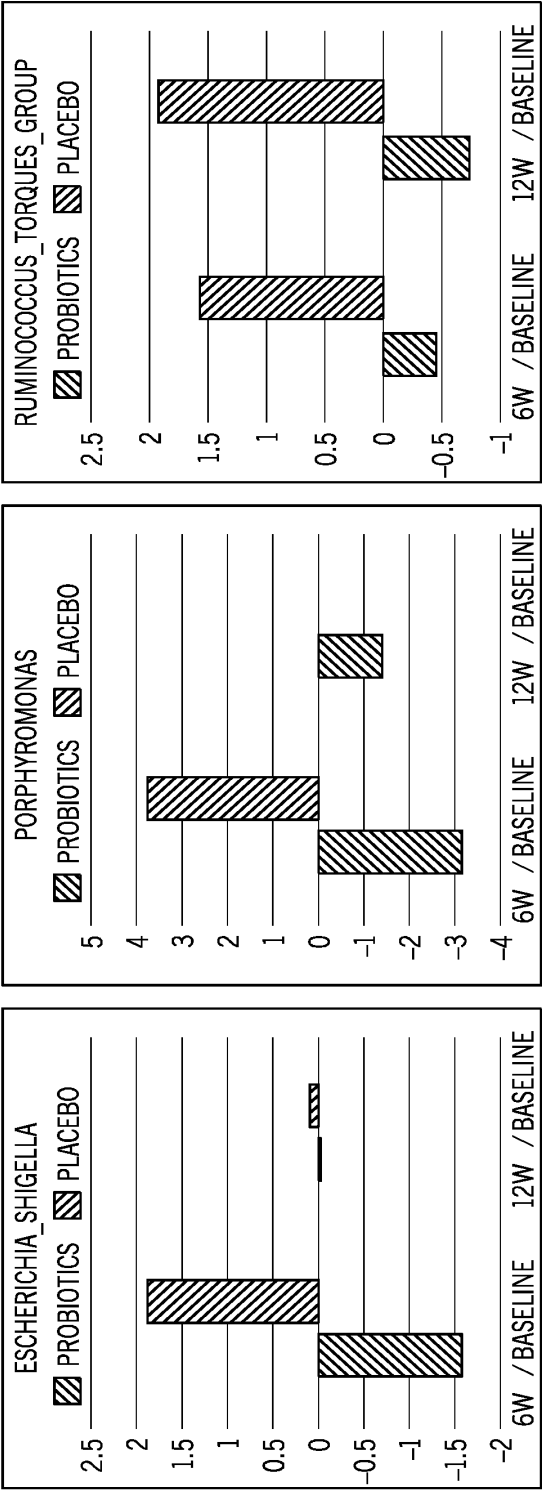


FIG. 7A

FIG. 7B

FIG. 7C

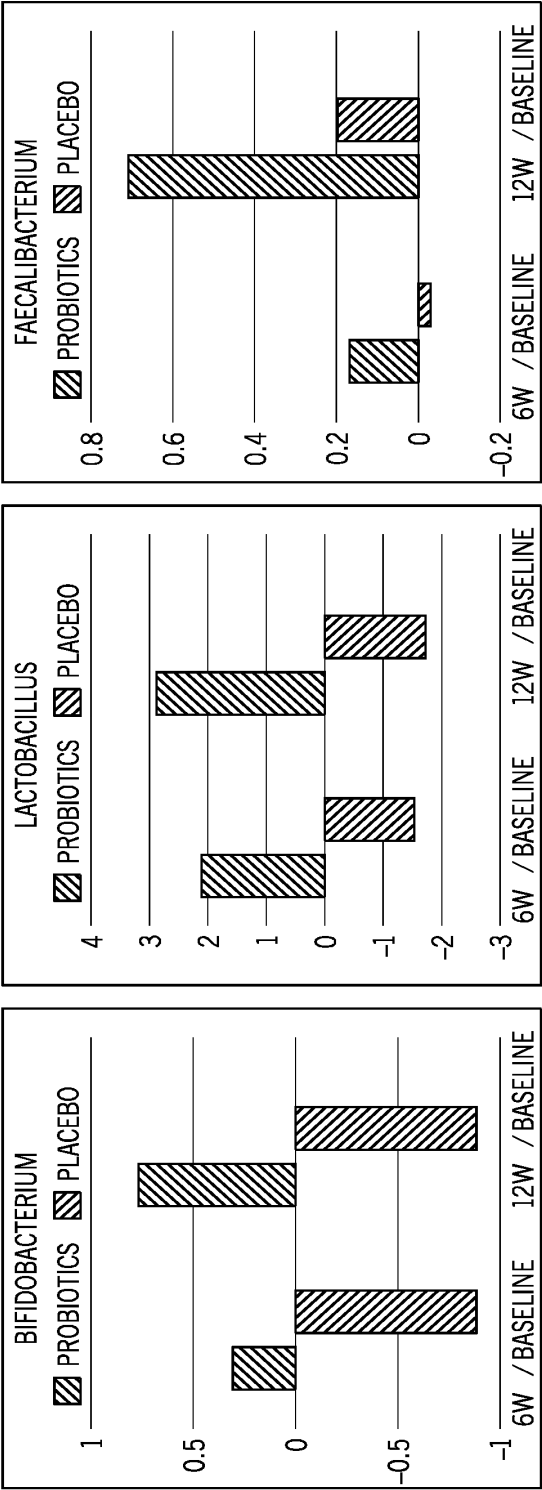


FIG. 7D

FIG. 7E

FIG. 7F

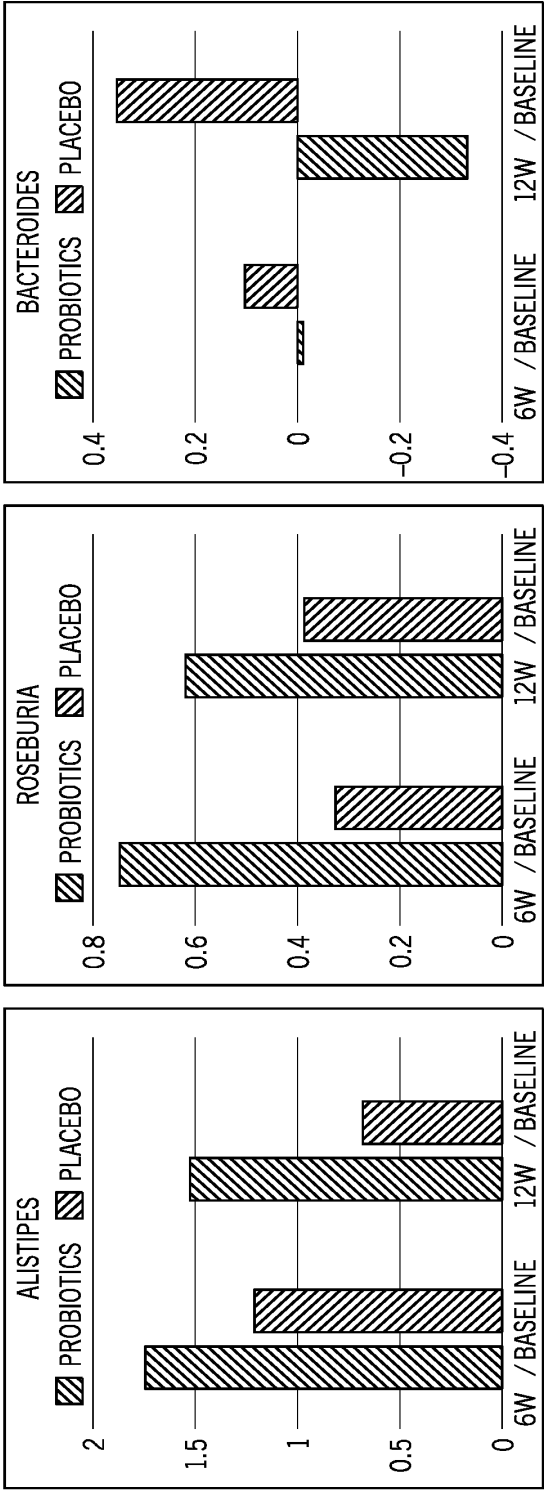


FIG. 7I

FIG. 7H

FIG. 7G

FEATURE	MEAN ABUNDANCE		MEAN DIFFERENCE e(A-C)	MEAN RATIO (A / C)	P-VALUE	Q-VALUE
	ACTIVE PROBIOTIC	PLACEBO CONTROL				
ARACHIDONIC ACID METABOLISM	218.946	360.134	-141.188	0.608	<0.001	0.0038
VALINE, LEUCINE, AND ISOLEUCINE BIOSYNTHESIS	7469.337	6922.962	546.3745	1.079	0.0002	0.0067
MEIOSIS (YEAST)	55.66	27.301	28.35896	2.039	0.0013	0.0410
FLAVONOID BIOSYNTHESIS	49.178	20.943	28.23494	2.348	<0.001	0.0038
CAROTENOID BIOSYNTHESIS	71.609	20.88	50.72969	3.430	<0.001	<0.001
STEROID BIOSYNTHESIS	14.106	2.167	11.93979	6.511	<0.001	0.0038
VARIOUS TYPES OF N-GLYCAN BIOSYNTHESIS	2.941	0.035	2.905789	84.023	<0.001	<0.001
PHOTOSYNTHESIS (ANTENNA PROTEINS)	90.51	0.47	90.04026	192.575	<0.001	<0.001
CALCIUM SIGNALING PATHWAY	5.321	0.025	5.295618	209.204	<0.001	<0.001

FIG. 8

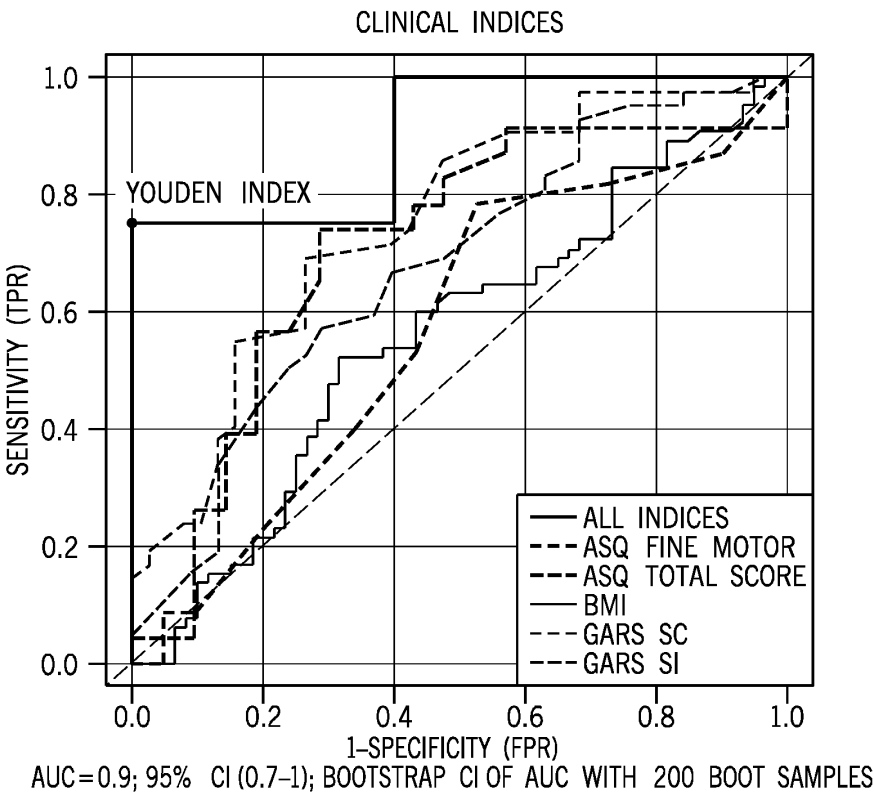


FIG. 9A

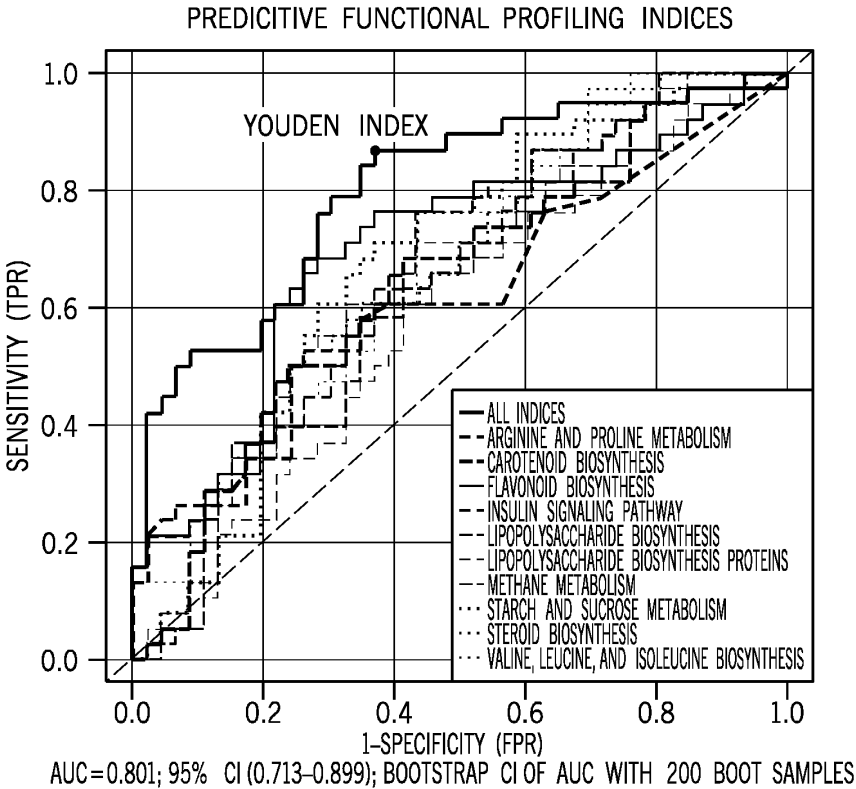


FIG. 9B

CLINICAL INDEX	ESTIMATE	STANDARD ERROR	Z-VALUE	P-VALUE
BMI	2.6988679	2.255	1.197	0.231
GARS - 3 SOCIAL COMMUNICATION	0.02712652	0.359	0.076	0.940
GARS - 3 SOCIAL INTERACTION	0.18394807	0.217	0.847	0.397
ASQ - 3 TOTAL SCORE	0.10223581	0.0864	1.184	0.236
ASQ - 3 FINE MOTOR	-0.3069883	0.263	-1.166	0.244

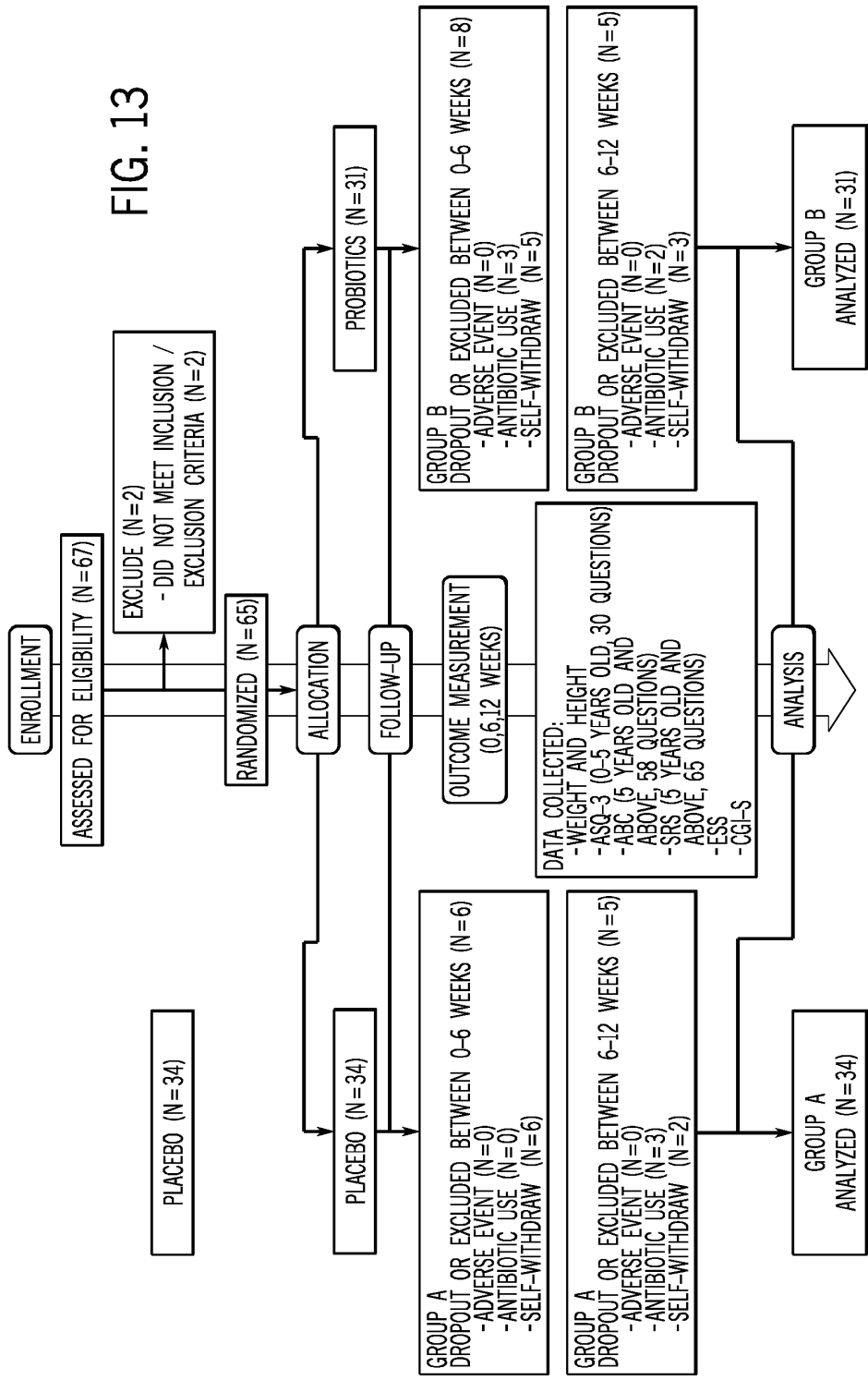
FIG. 10

METABOLIC PATHWAY	ESTIMATE	STANDARD ERROR	Z-VALUE	P-VALUE
ARGININE AND PROLINE METABOLISM	1.173E-05	4.019E-05	0.292	0.770
CAROTENOID BIOSYNTHESIS	-7.380E-04	1.362E-03	-0.542	0.588
FLAVONOID BIOSYNTHESIS	-1.331E-04	9.938E-04	-0.134	0.893
INSULIN SIGNALING PATHWAY	-7.032E-05	2.345E-04	-0.300	0.764
LIPOPOLYSACCHARIDE BIOSYNTHESIS	4.598E-05	9.611E-05	0.478	0.632
LIPOPOLYSACCHARIDE BIOSYNTHESIS PROTEINS	-8.925E-06	6.780E-05	-0.132	0.895
METHANE METABOLISM	7.245E-05	4.201E-05	1.725	0.085
STARCH AND SUCROSE METABOLISM	-4.026E-05	1.812E-05	-2.222	0.026
STEROID BIOSYNTHESIS	-4.805E-03	3.321E-03	-1.447	0.148
VALINE, LEUCINE, AND ISOLEUCINE BIOSYNTHESIS	-8.859E-05	5.710E-05	-1.551	0.121

FIG. 11

MICROBIOTA	CLINICAL FEATURE	COEFFICIENT	STANDARD ERROR	P-VALUE	Q-VALUE
BIFIDOBACTERIACEAE (F)	BMI	-0.431	0.12685	0.00433	0.06707
ERYSIPELOTRICHACEAE (F)	BMI	0.261	0.07384	0.00329	0.06707
ALISTIPES (G)	ER	-0.644	0.11926	0.00043	0.01217
ALISTIPES (G)	RRB	-0.595	0.14462	0.00262	0.07335
FAECALIBACTERIUM (G)	BMI Z-SCORE	-0.546	0.16112	0.00438	0.09727
SUBDOLIGRANULUM (G)	BMI Z-SCORE	0.641	0.2027	0.00695	0.09727

FIG. 12



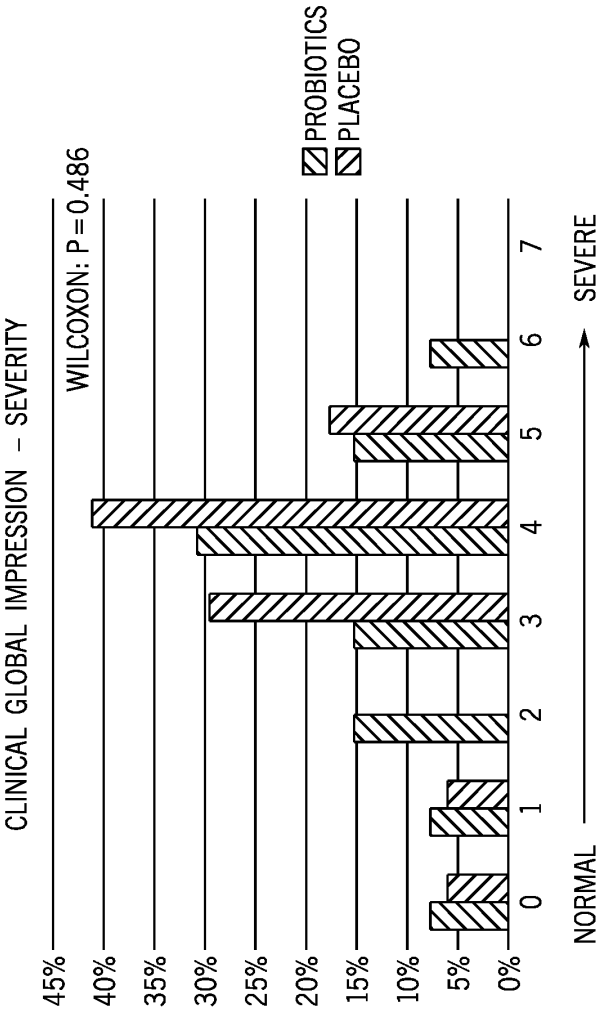
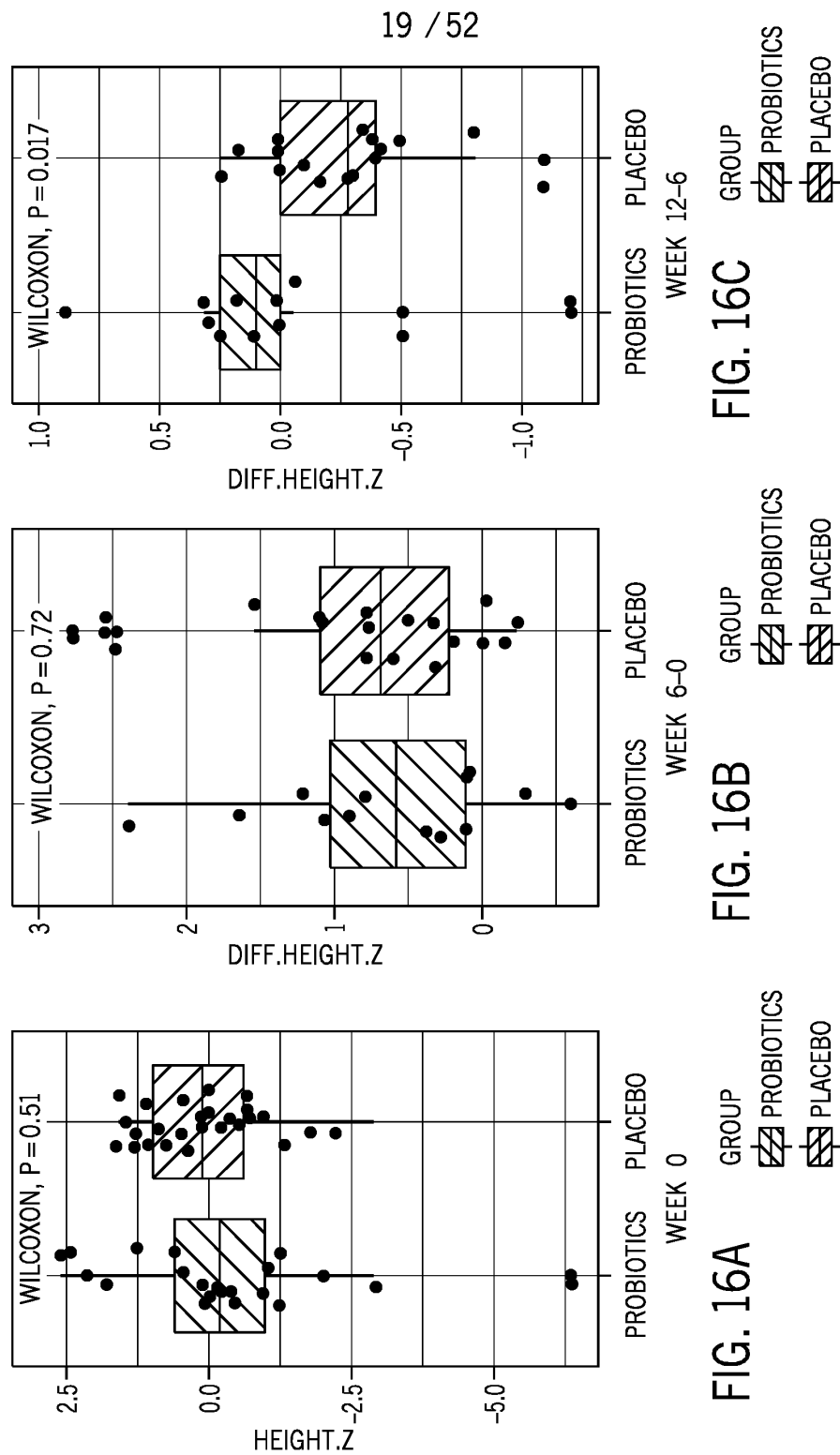
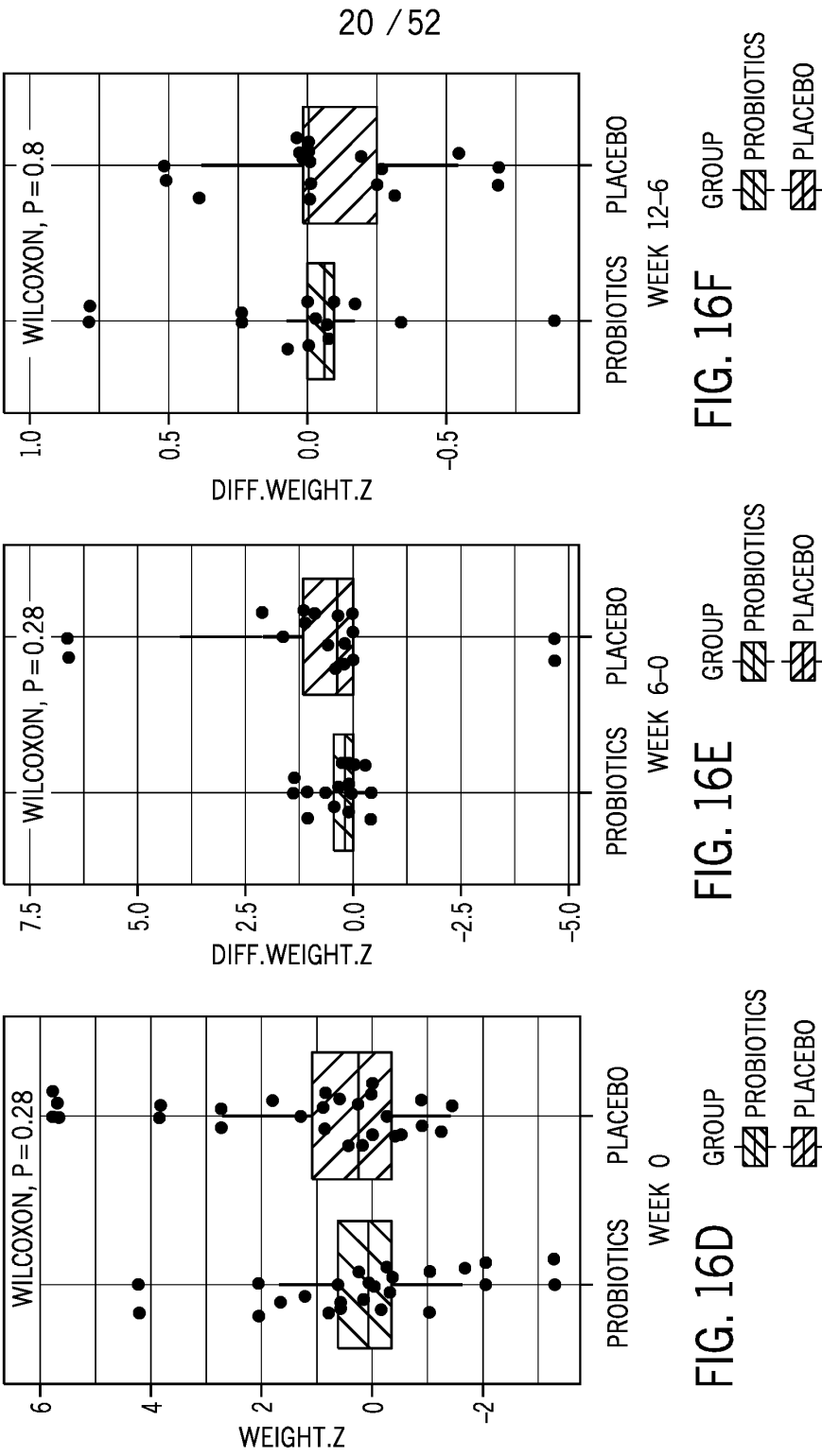


FIG. 14

	PROBIOTIC	PLACEBO	P-VALUE*
GI SYMPTOMS (N=41, 47.5% HAS ≥ 1)	0.87 ± 1.63	1.39 ± 1.75	0.24
ALLERGIES (N=41, 78.5% HAS ≥ 1)	1.78 ± 1.59	1.83 ± 1.25	0.74
RRB (N=41, 100% ≥ 1)	19.2 ± 10.3	16.7 ± 6.61	0.56
SLEEP APNEA (N=65)	27%	20%	0.48
SCOLIOSIS (N=65)	33%	17%	0.12
UNDESCENDED TESTICLE (N=65)	58%	51%	0.61

FIG. 15





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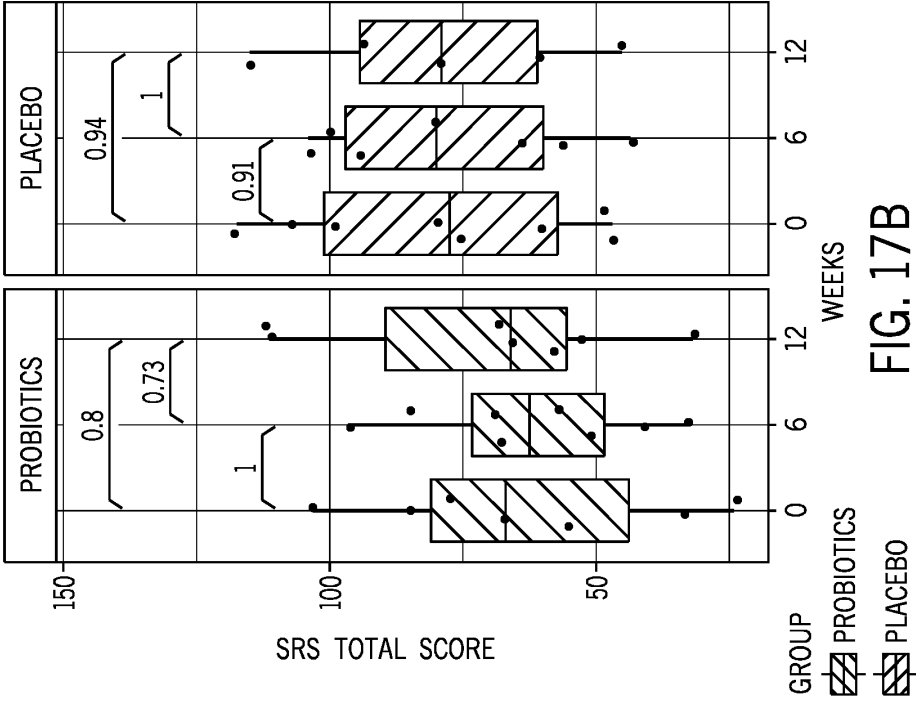


FIG. 17B

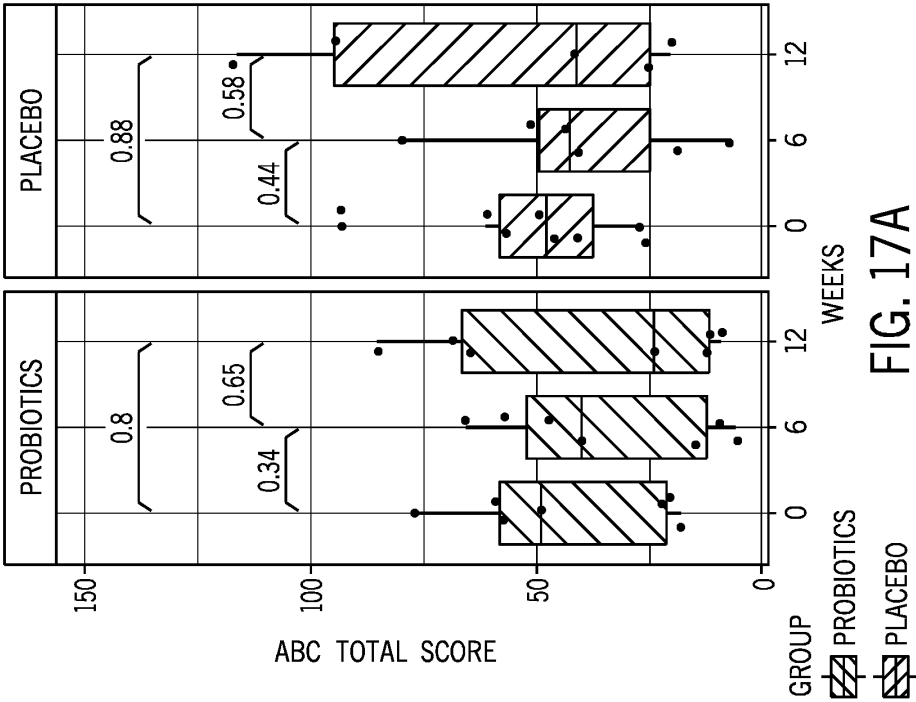


FIG. 17A

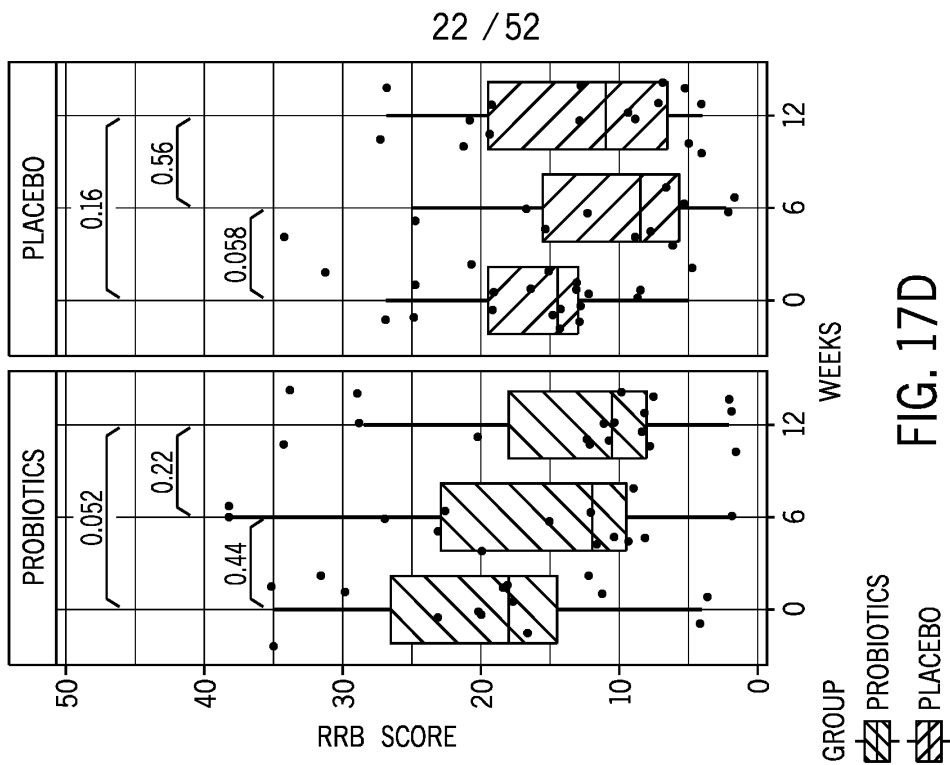


FIG. 17D

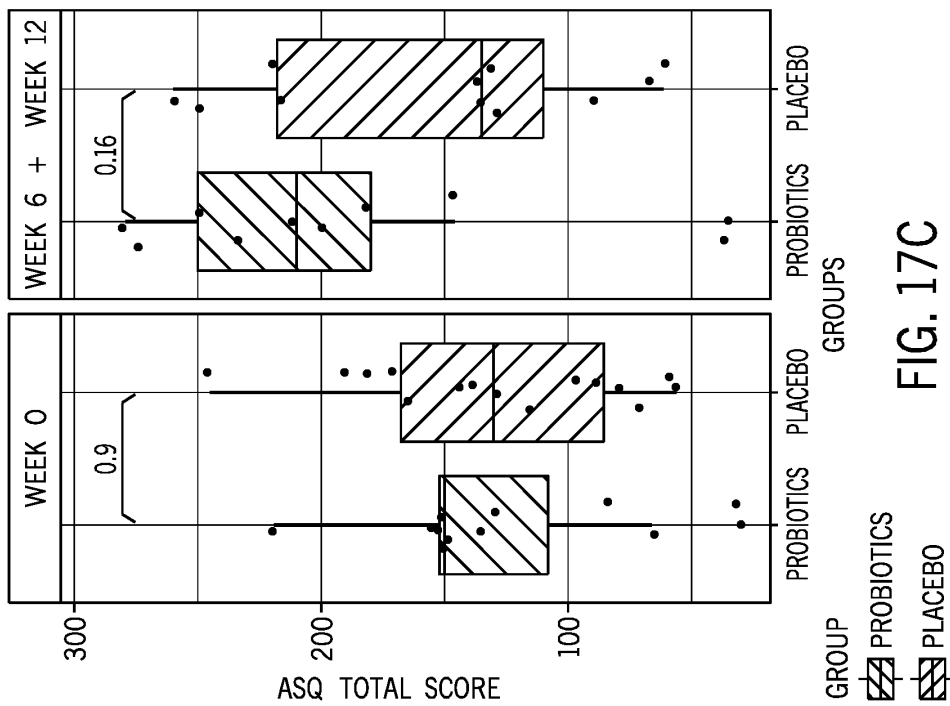


FIG. 17C

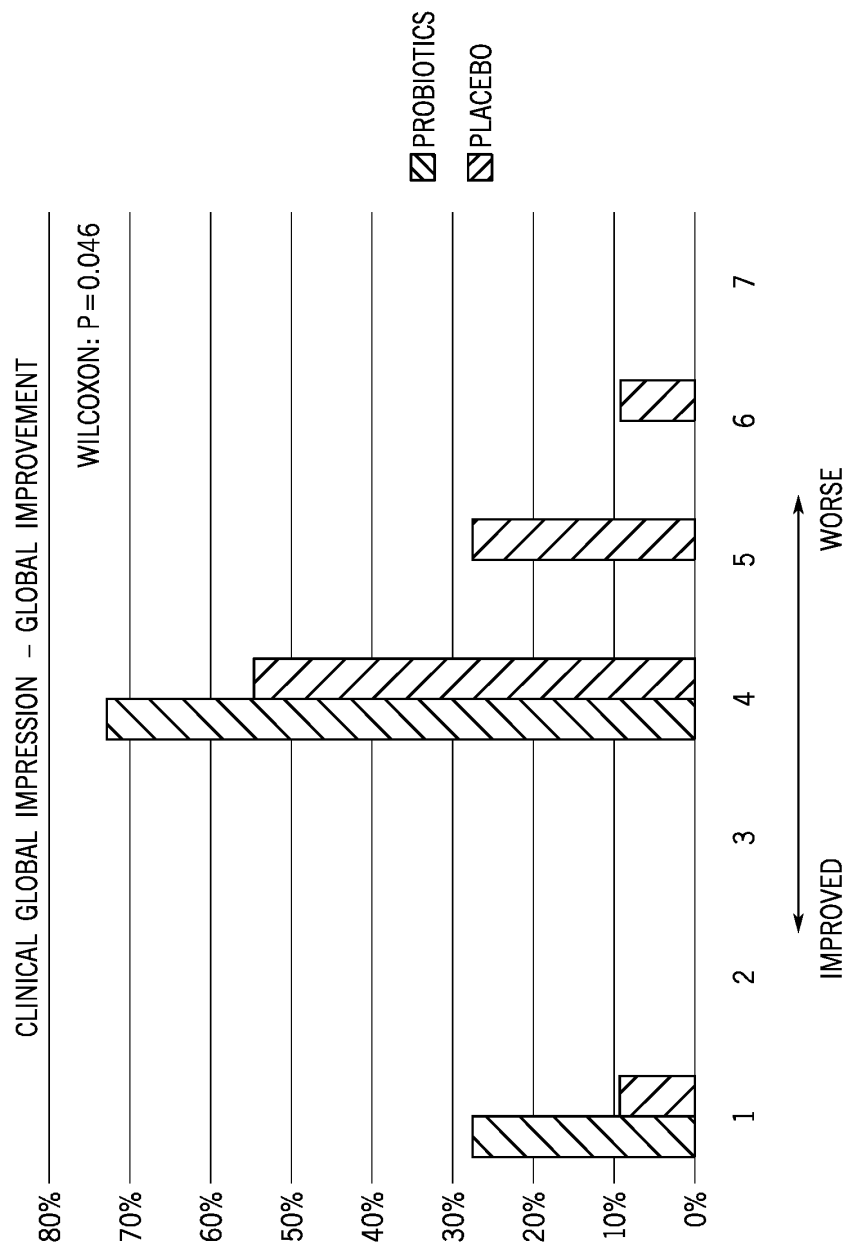


FIG. 18

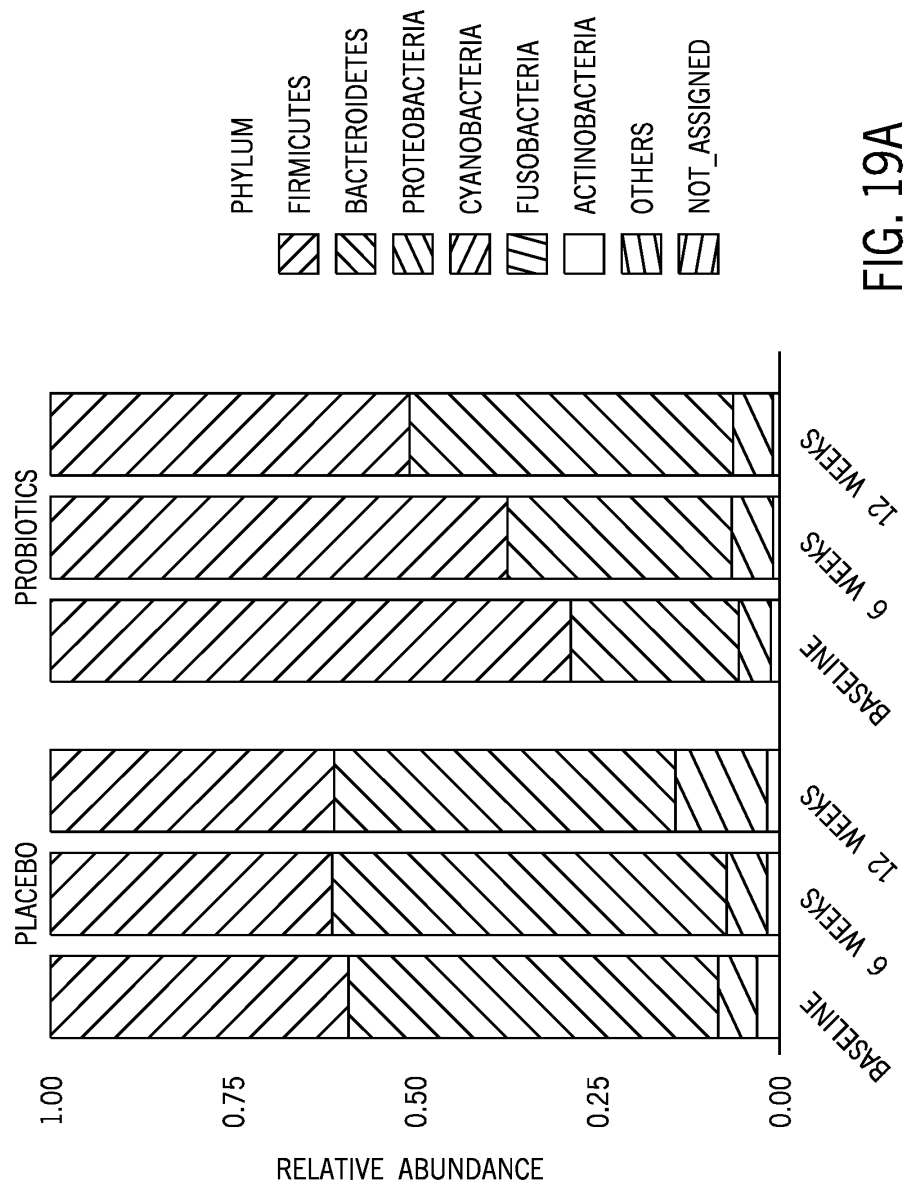


FIG. 19A

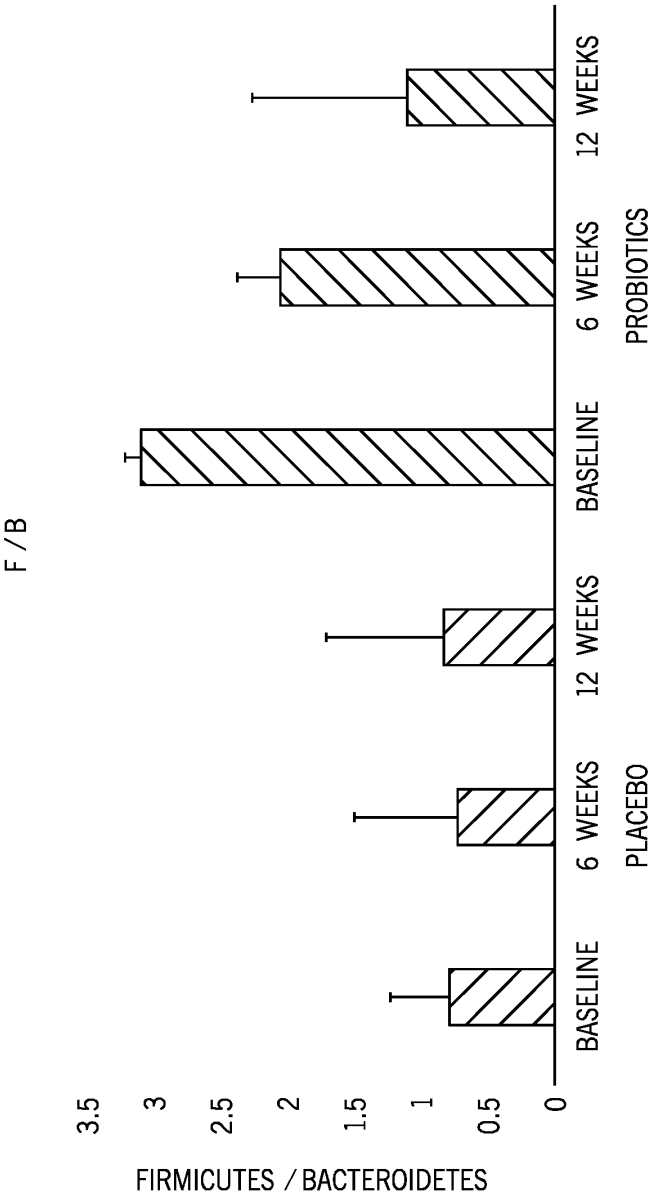
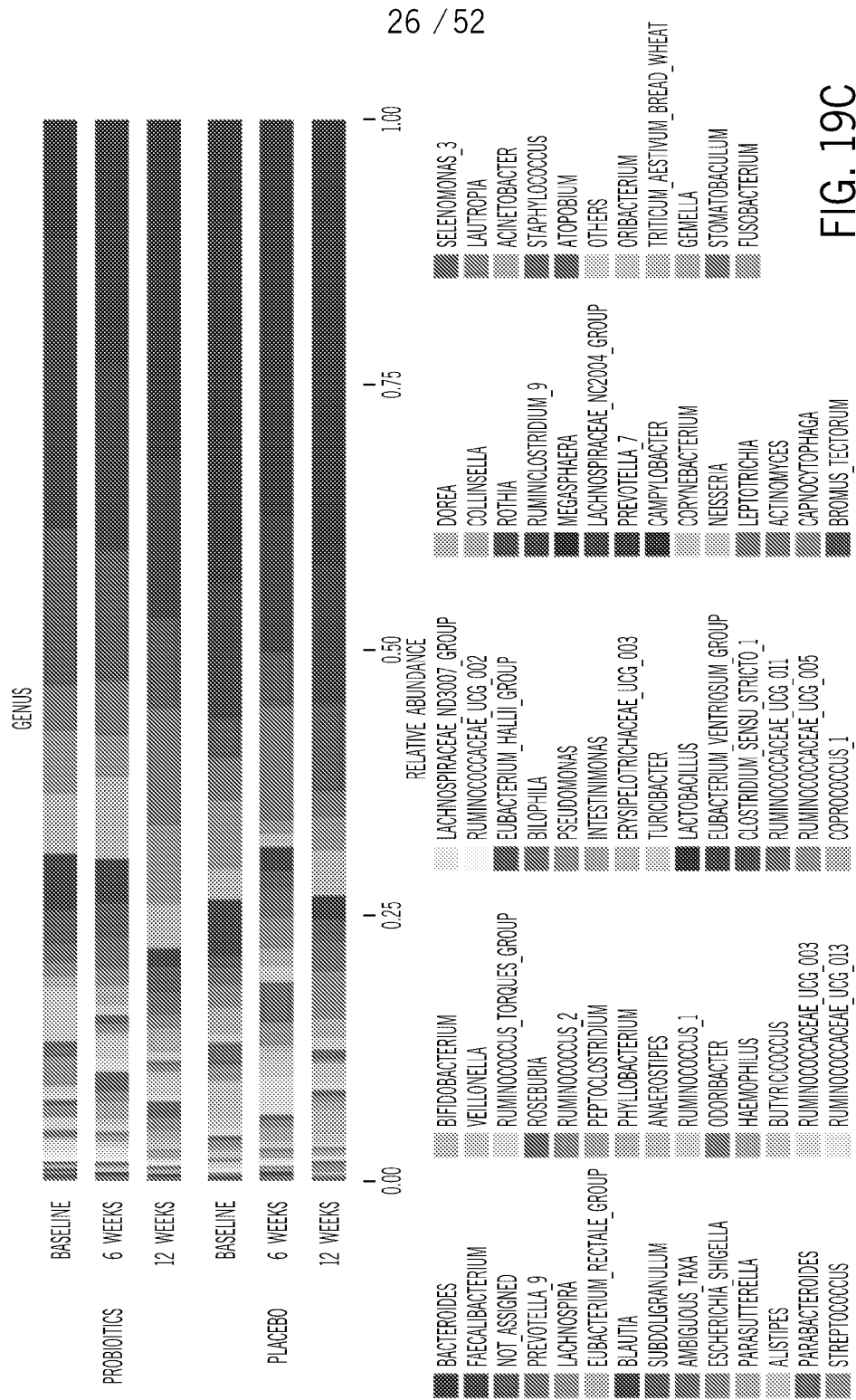
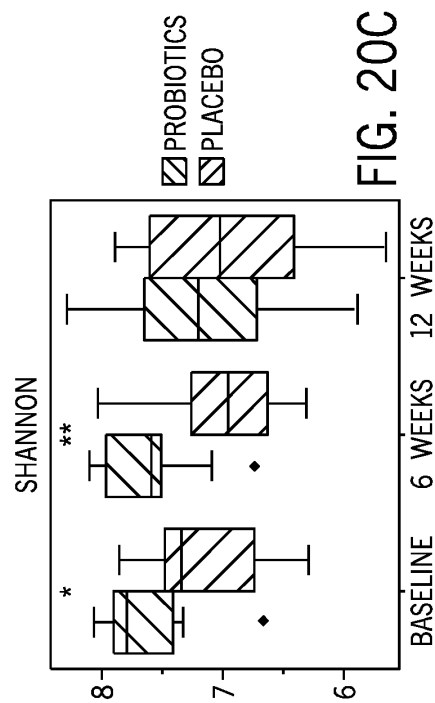
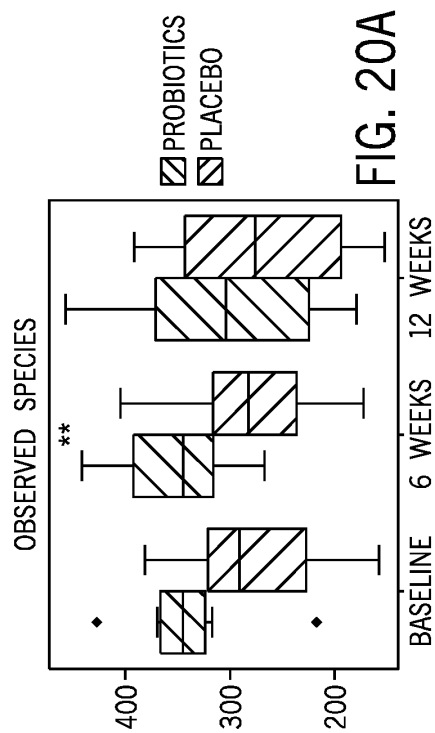
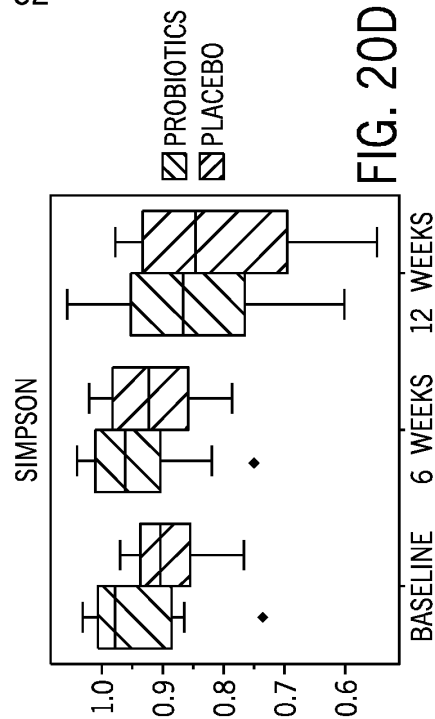
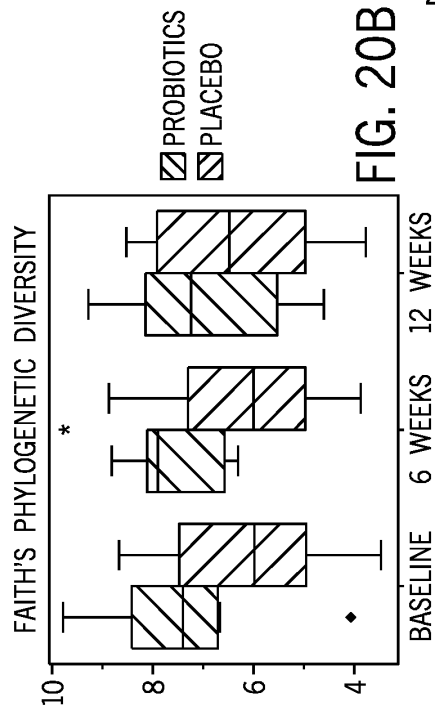
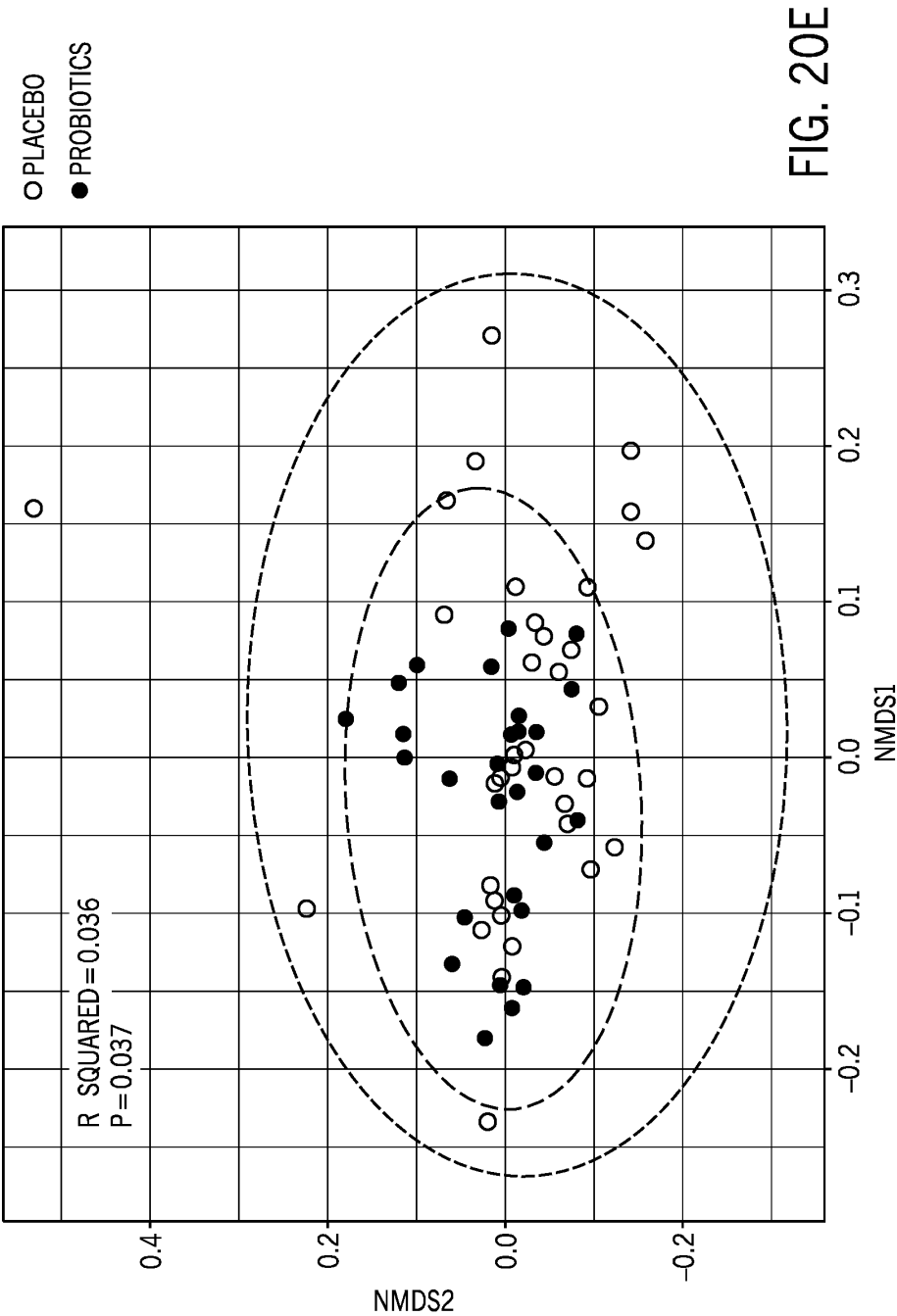


FIG. 19B







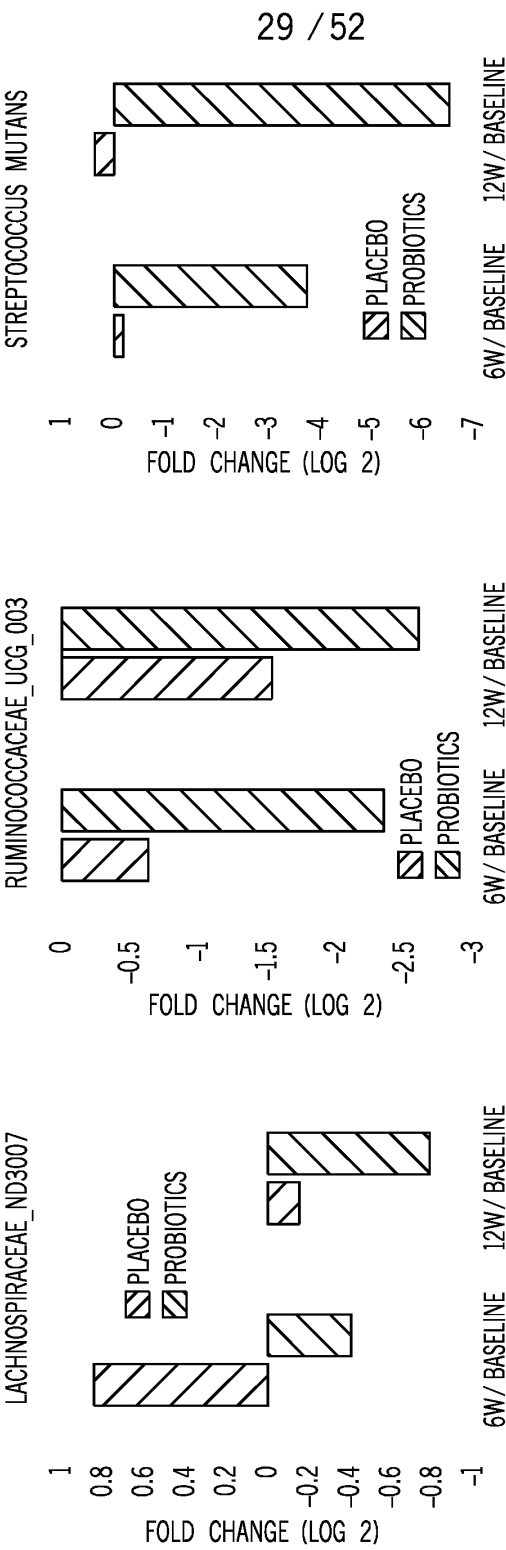


FIG. 21C

FIG. 21B

FIG. 21A

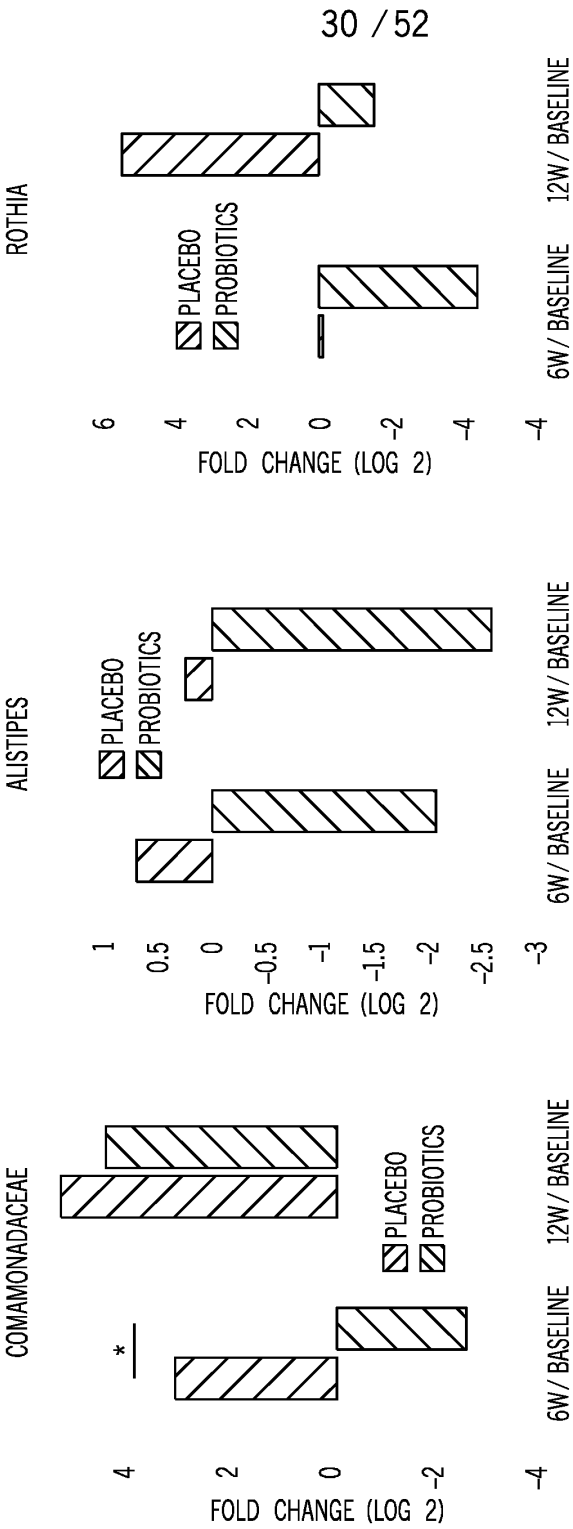


FIG. 21D

FIG. 21E

FIG. 21F

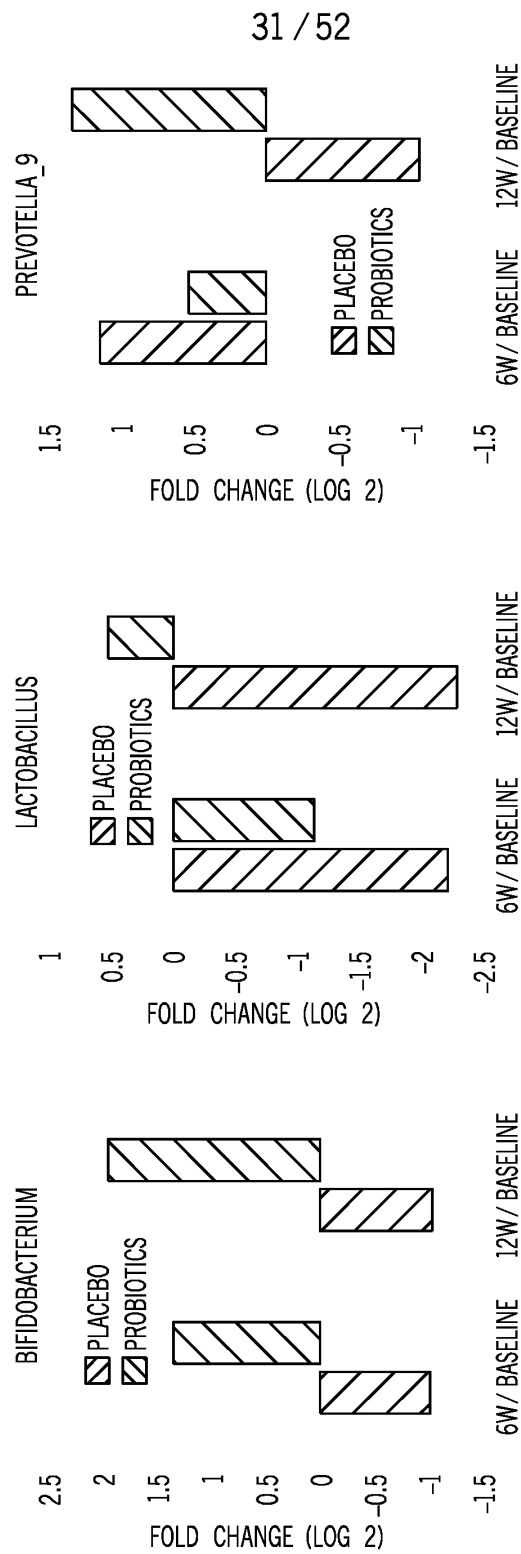


FIG. 21I

FIG. 21H

FIG. 21G

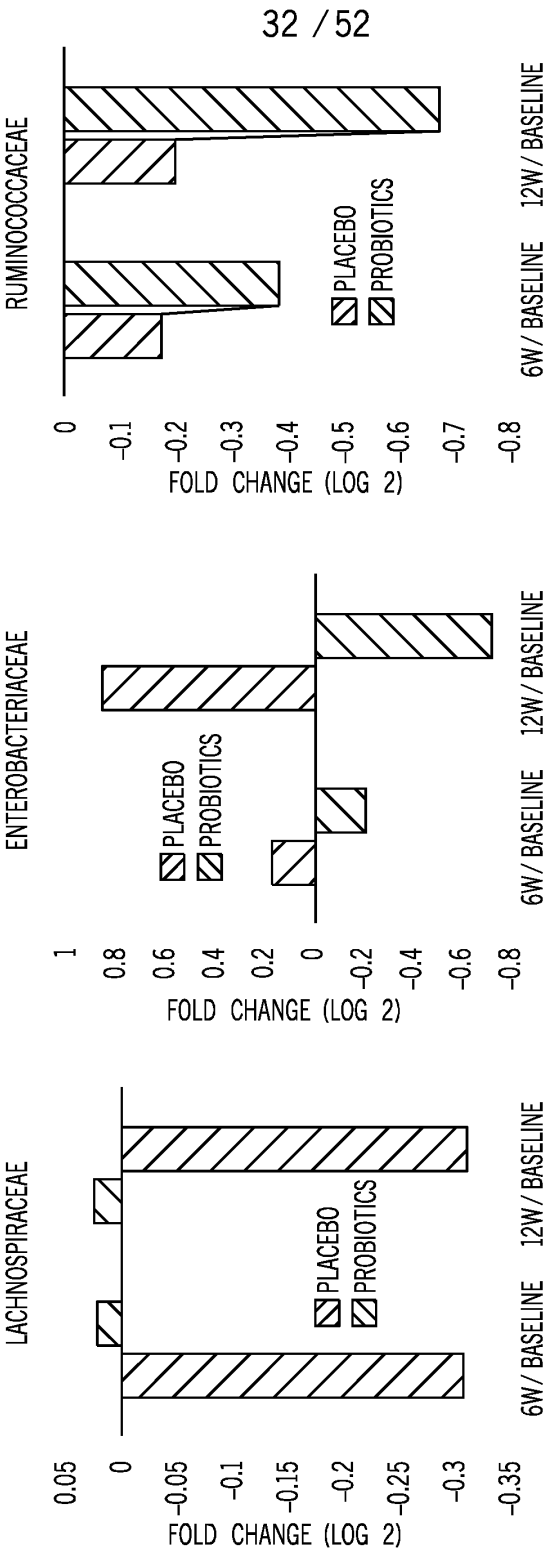


FIG. 22C

FIG. 22B

FIG. 22A

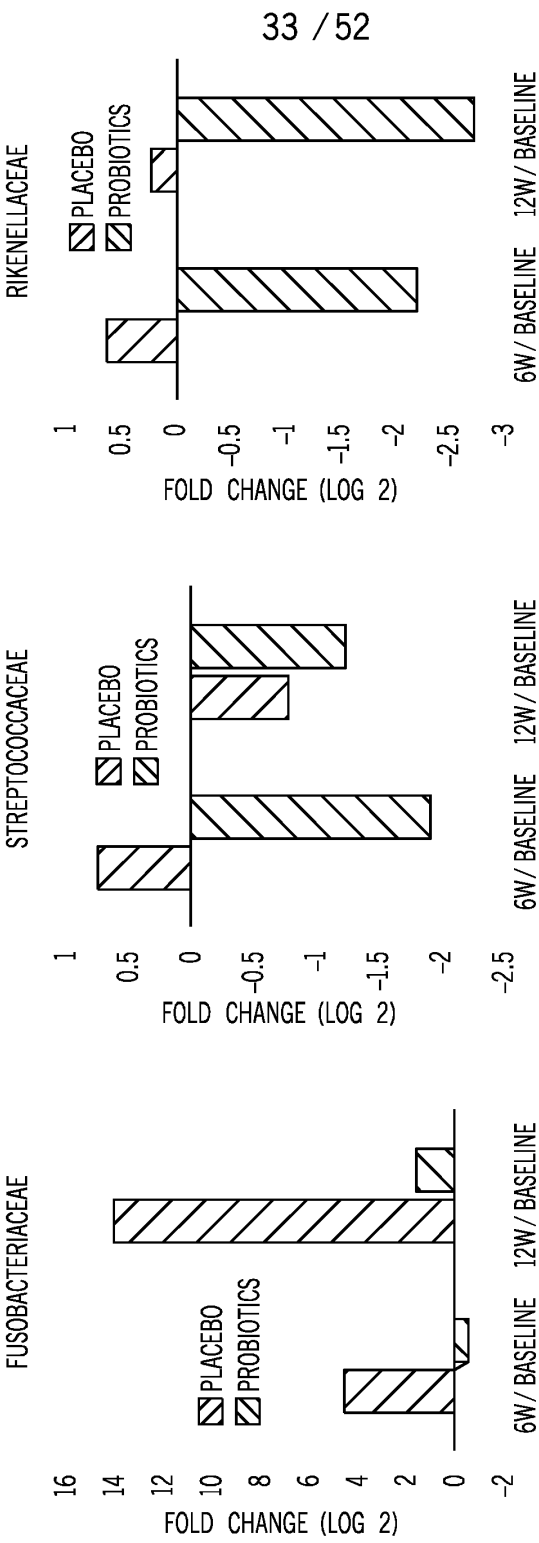


FIG. 22F

FIG. 22E

FIG. 22D

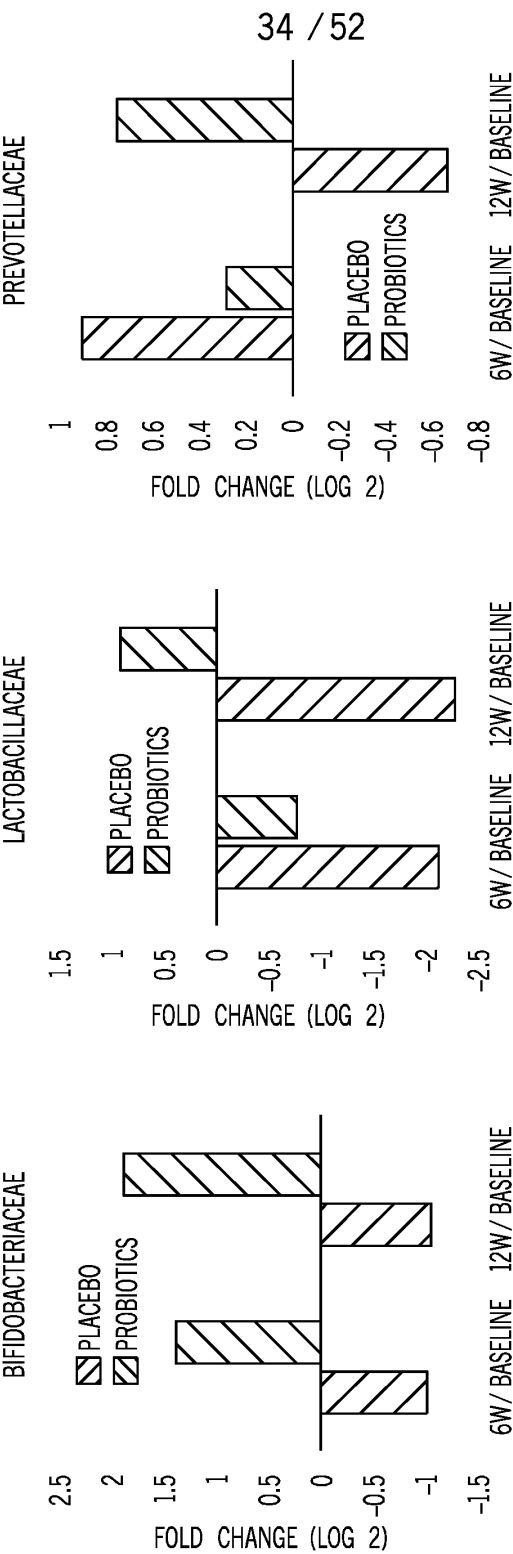


FIG. 22I

FIG. 22H

FIG. 22G

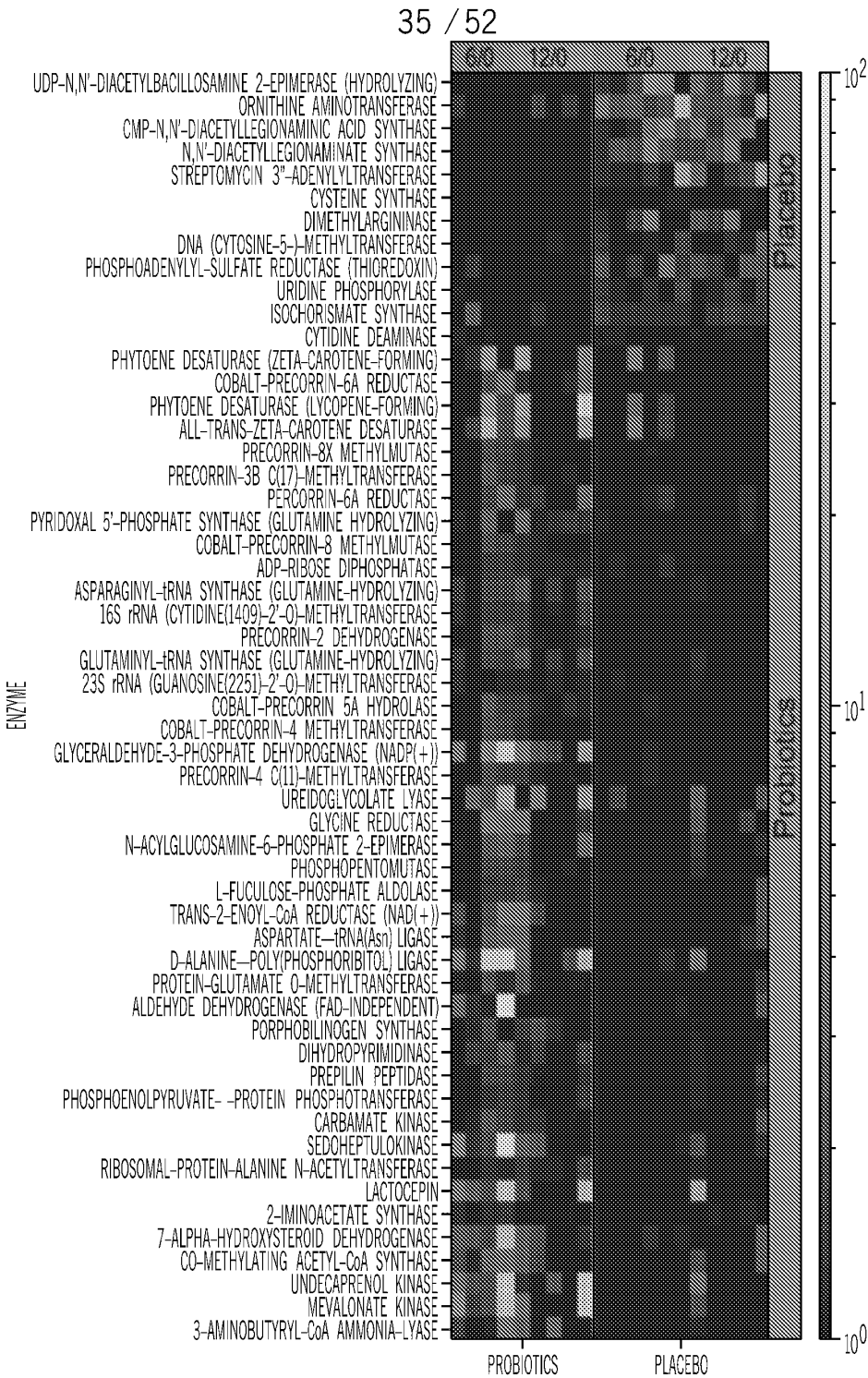


FIG. 23

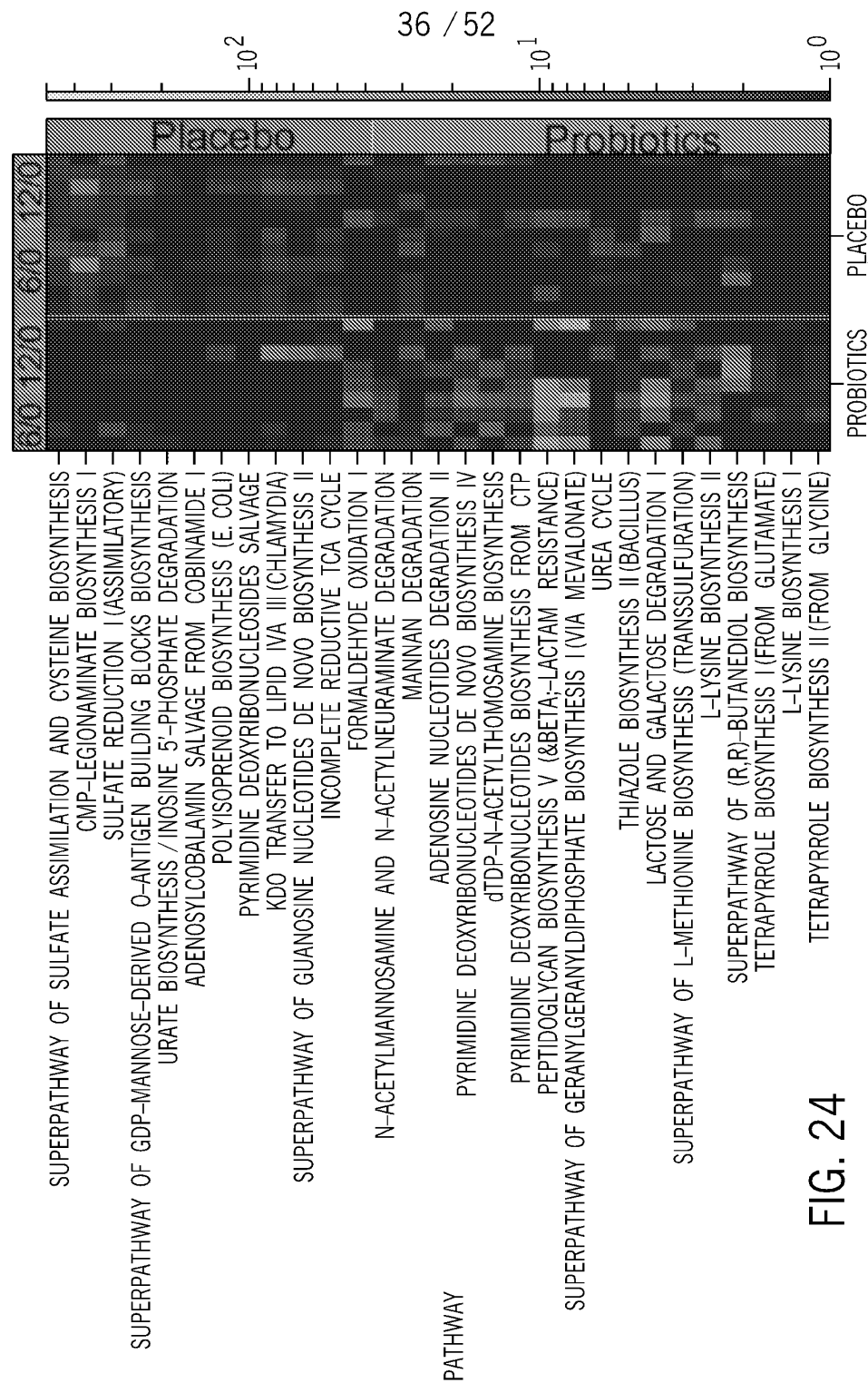


FIG. 24

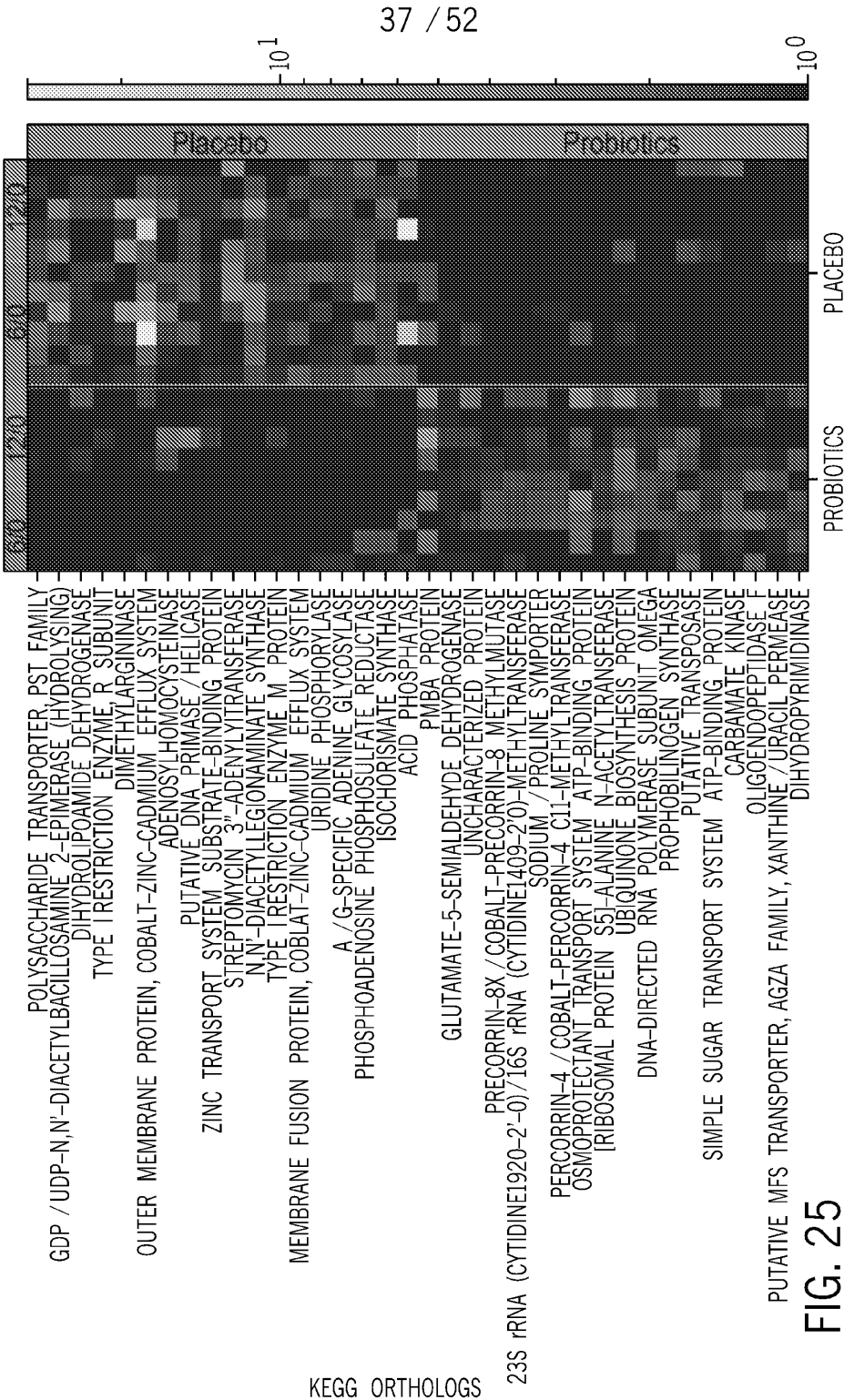


FIG. 25

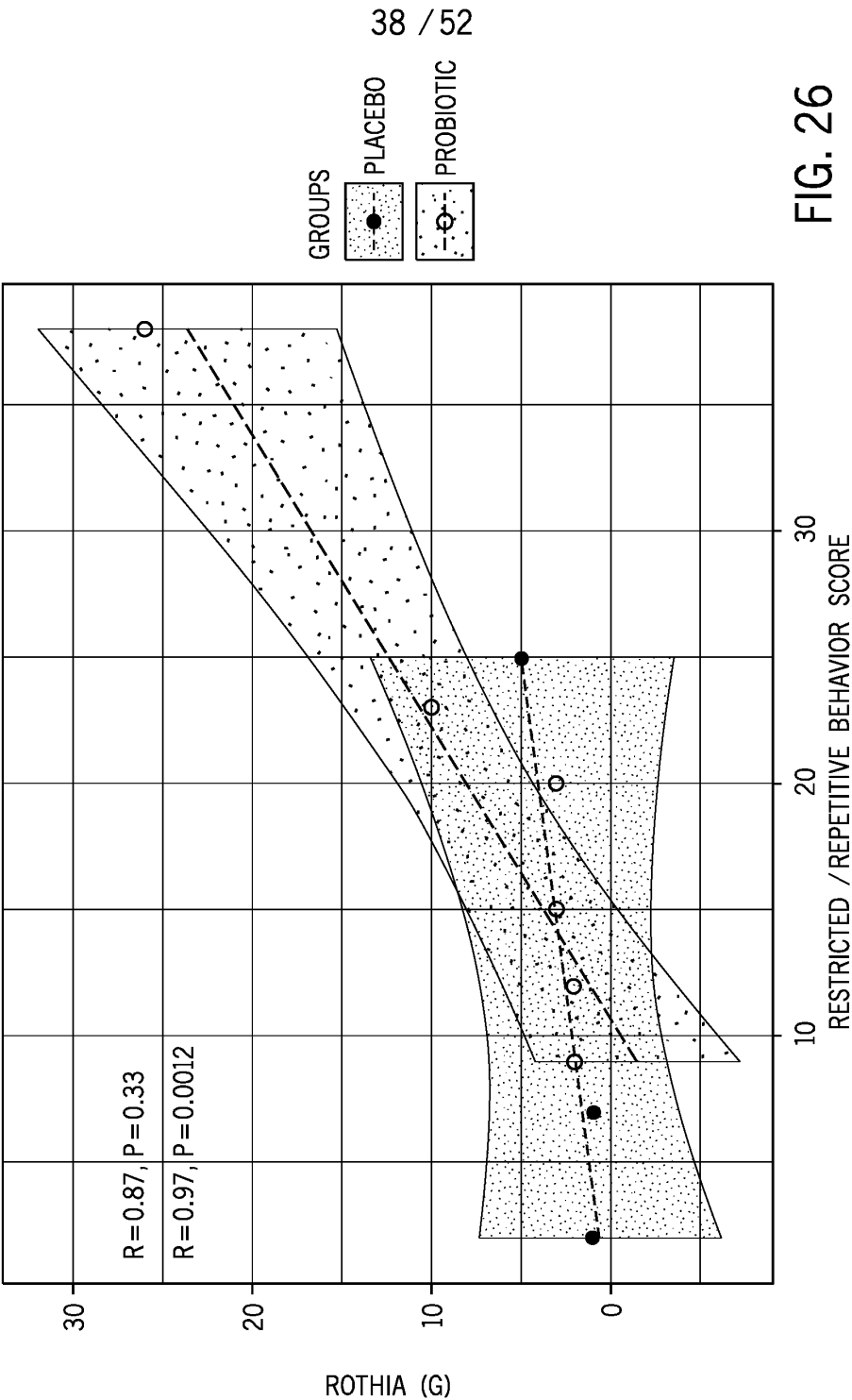


FIG. 26

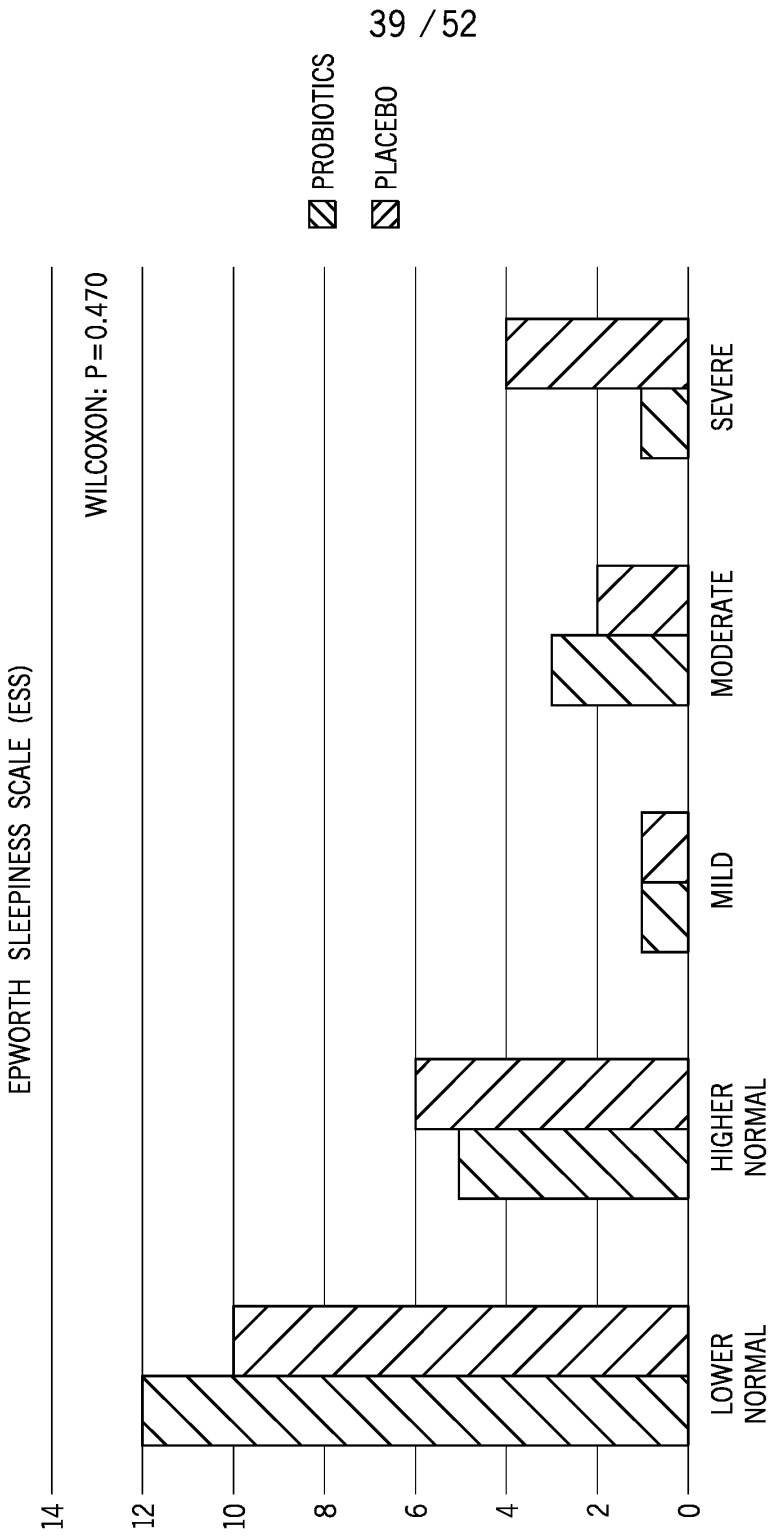


FIG. 27

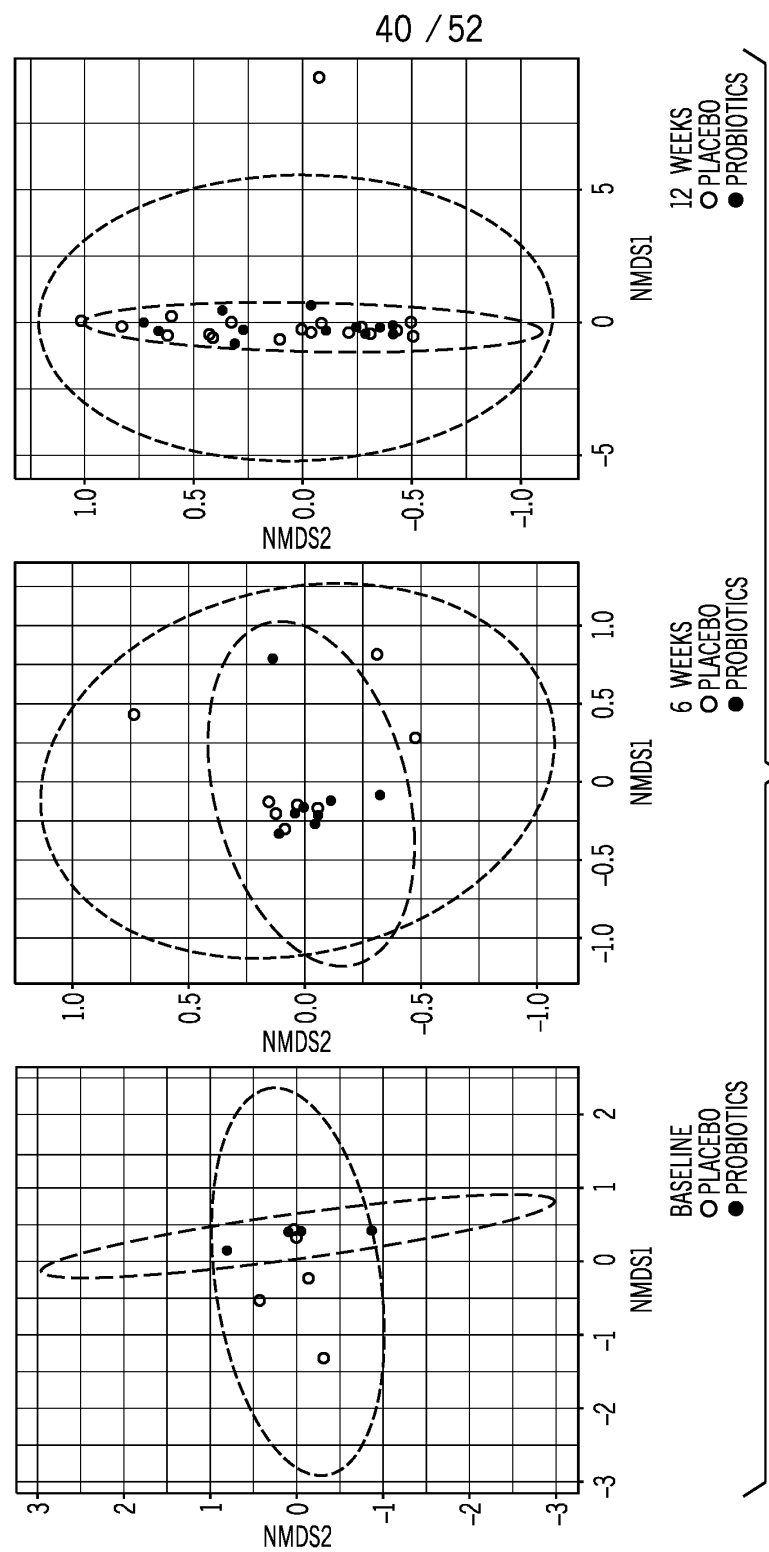


FIG. 28

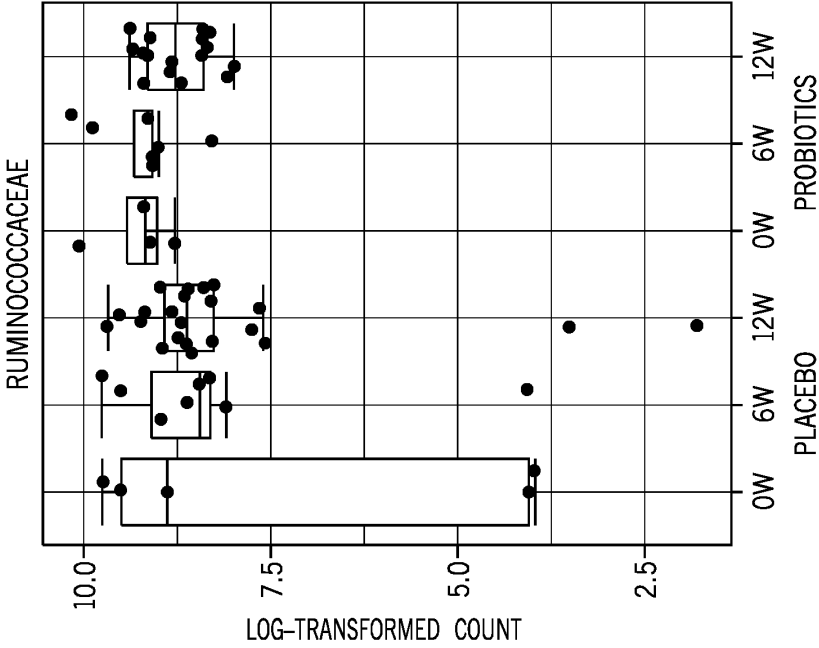


FIG. 29B

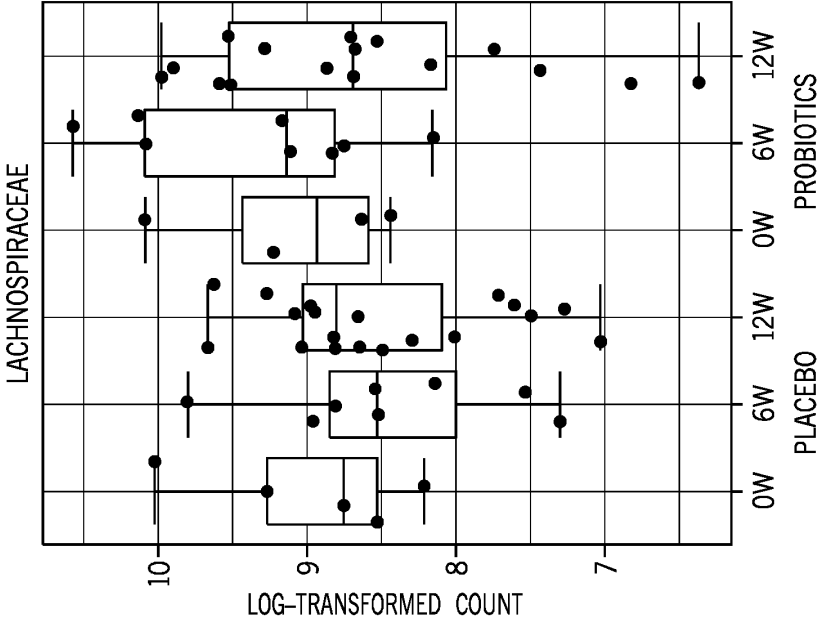


FIG. 29A

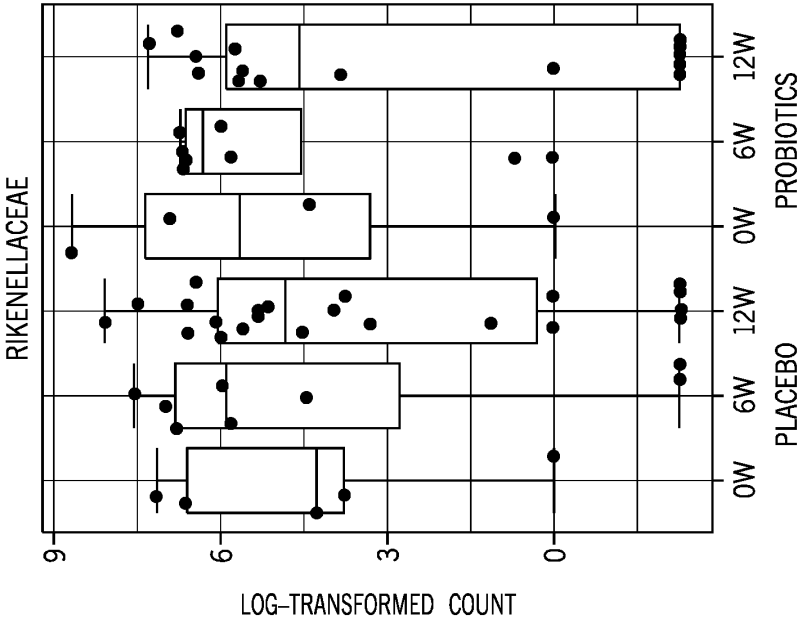


FIG. 29D

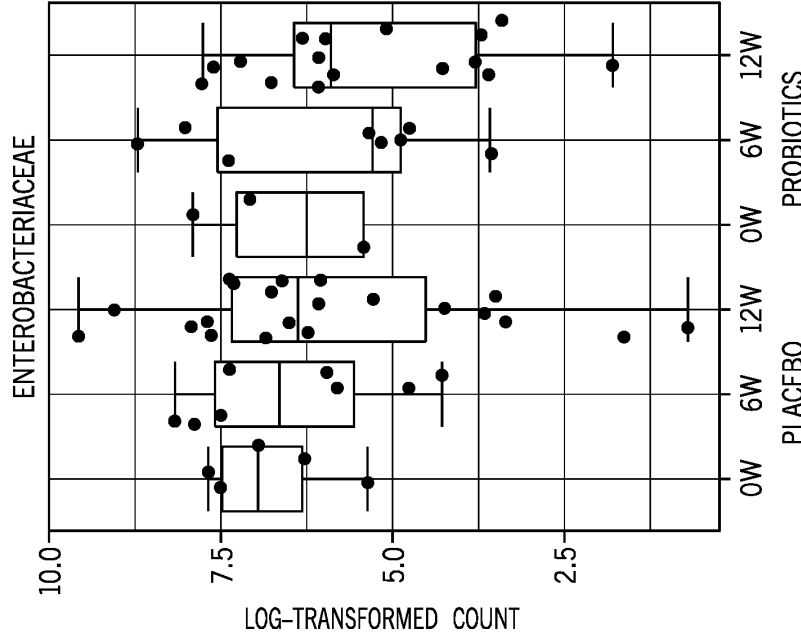


FIG. 29C

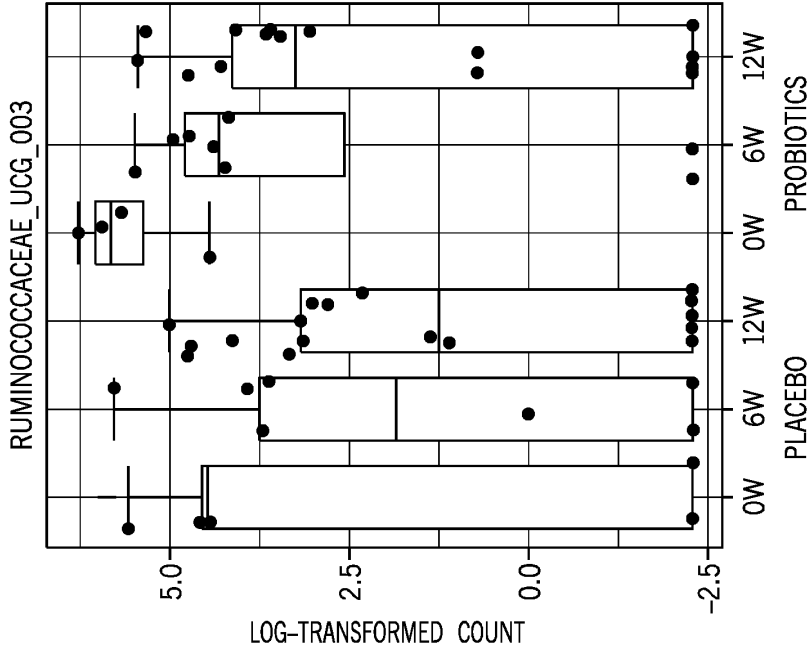


FIG. 29F

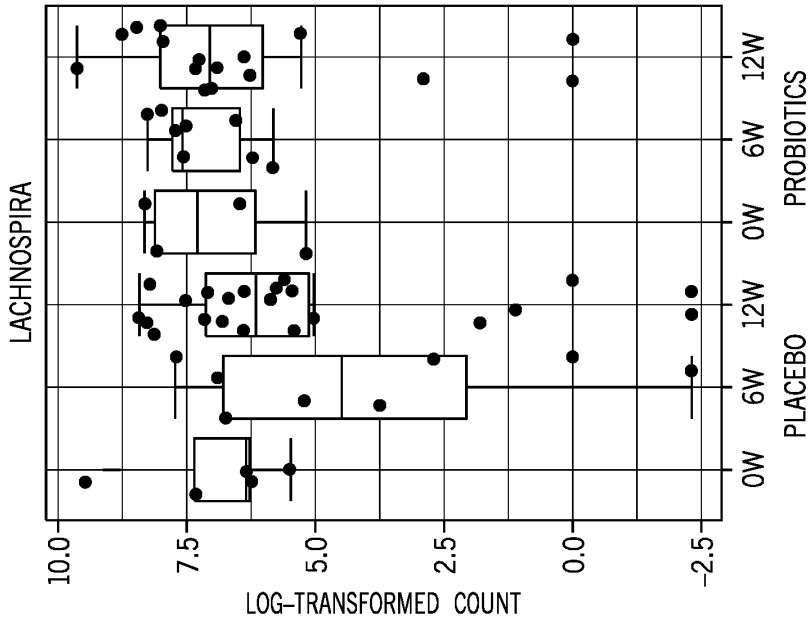


FIG. 29E

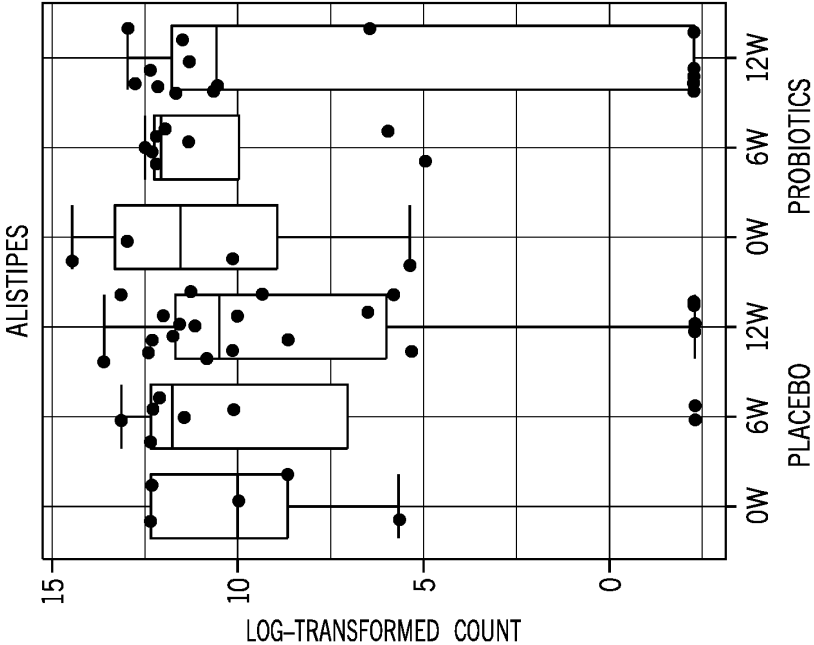


FIG. 29H

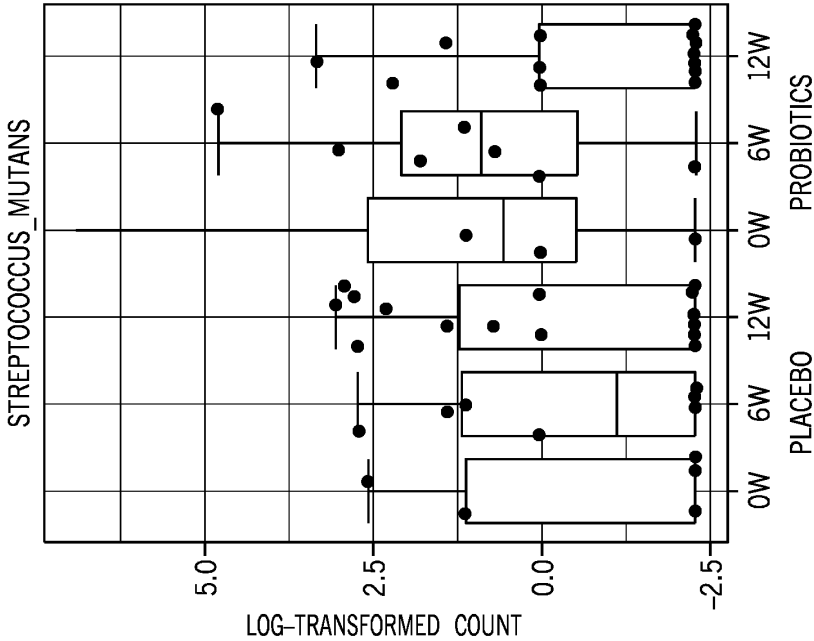


FIG. 29G

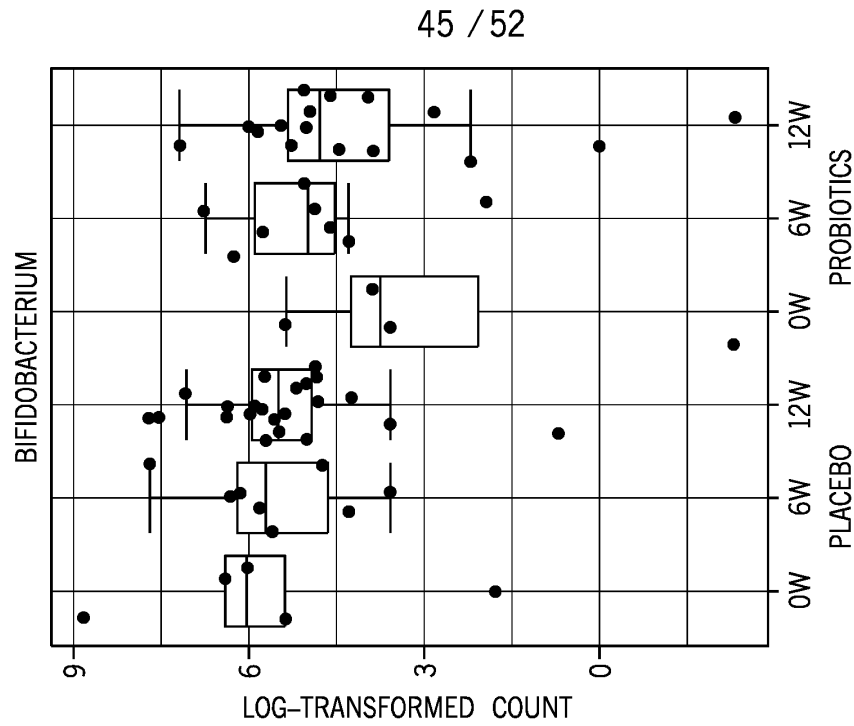


FIG. 29J

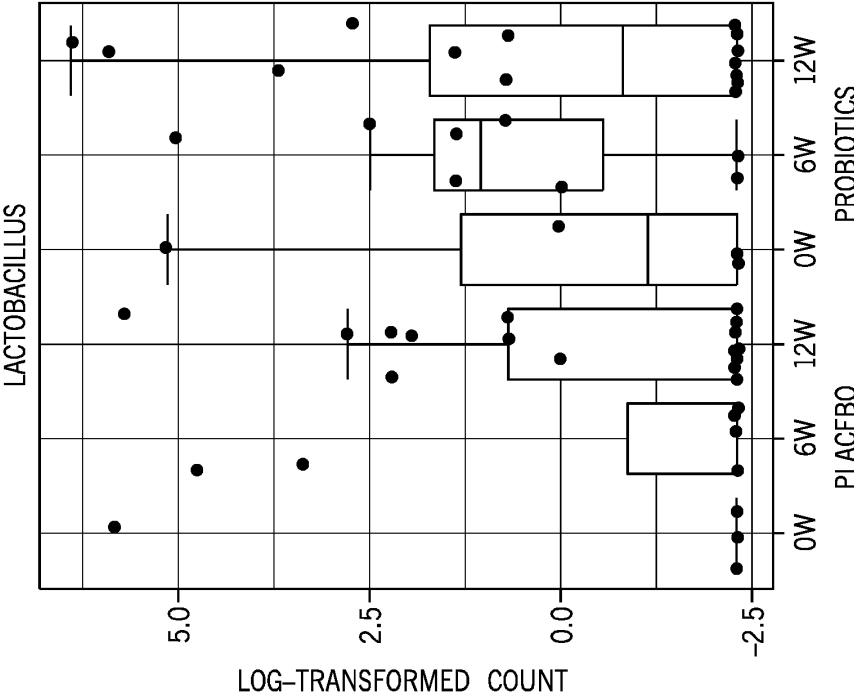


FIG. 29I

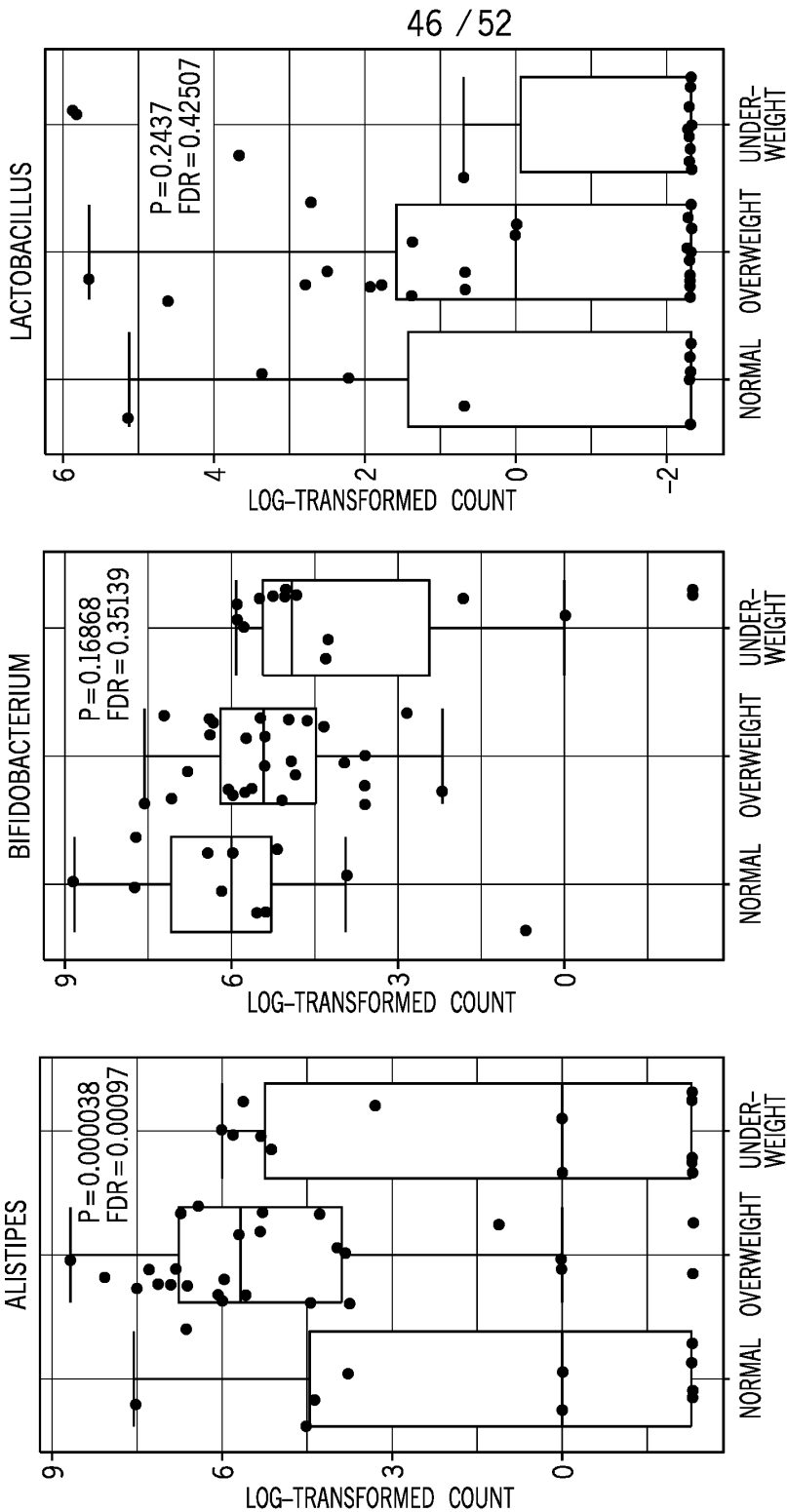


FIG. 30A

FIG. 30B

FIG. 30C

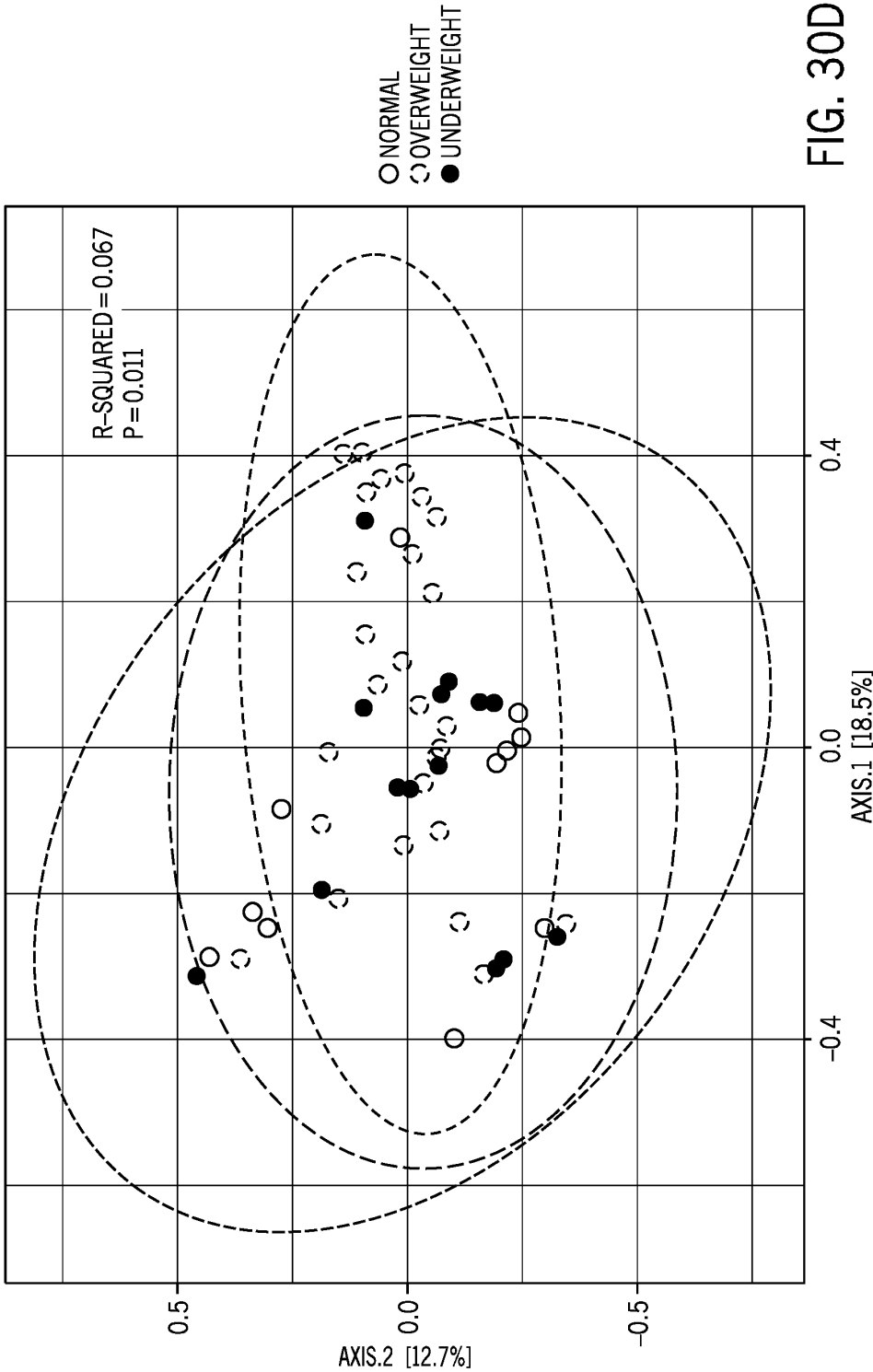


FIG. 30D

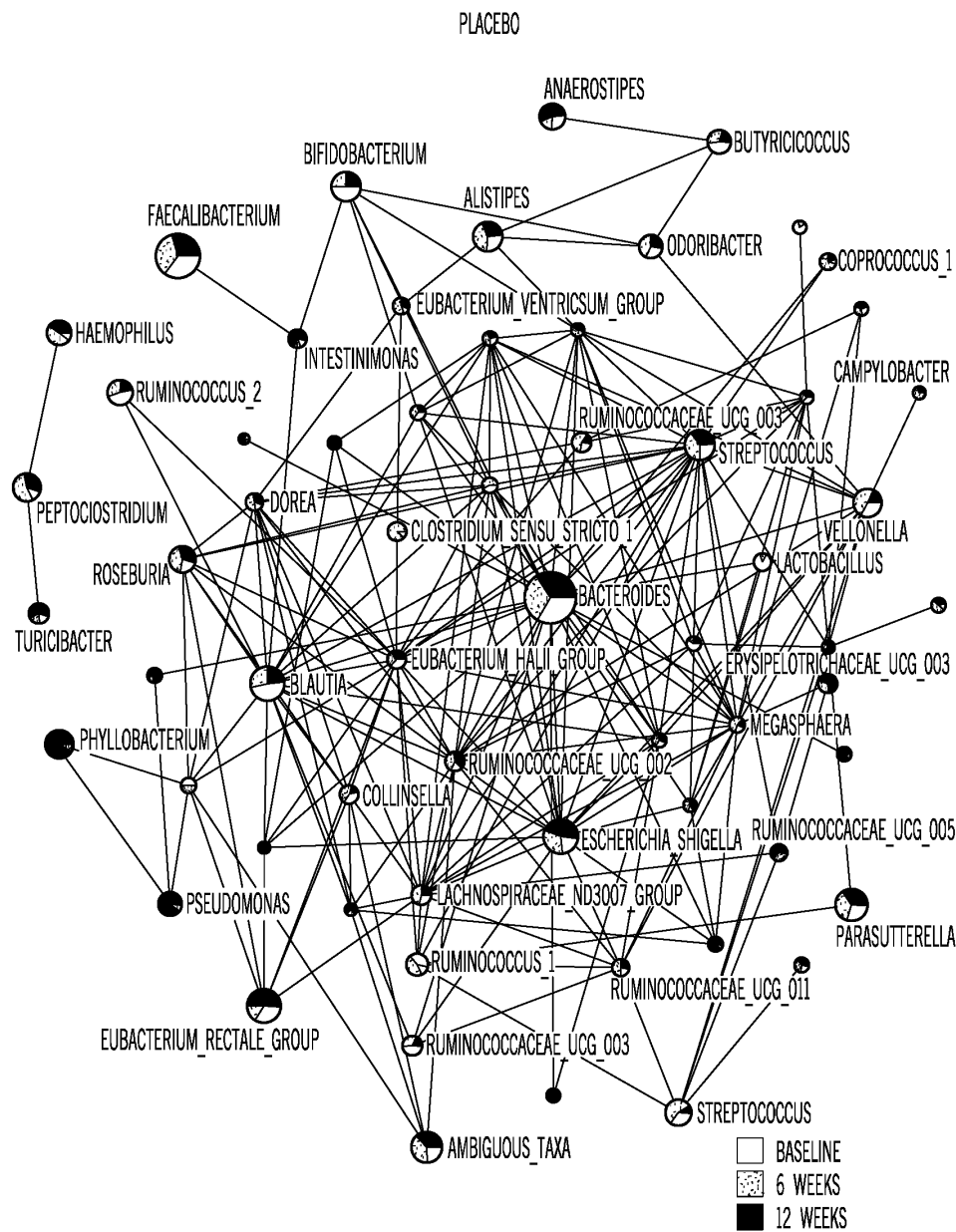


FIG. 31A

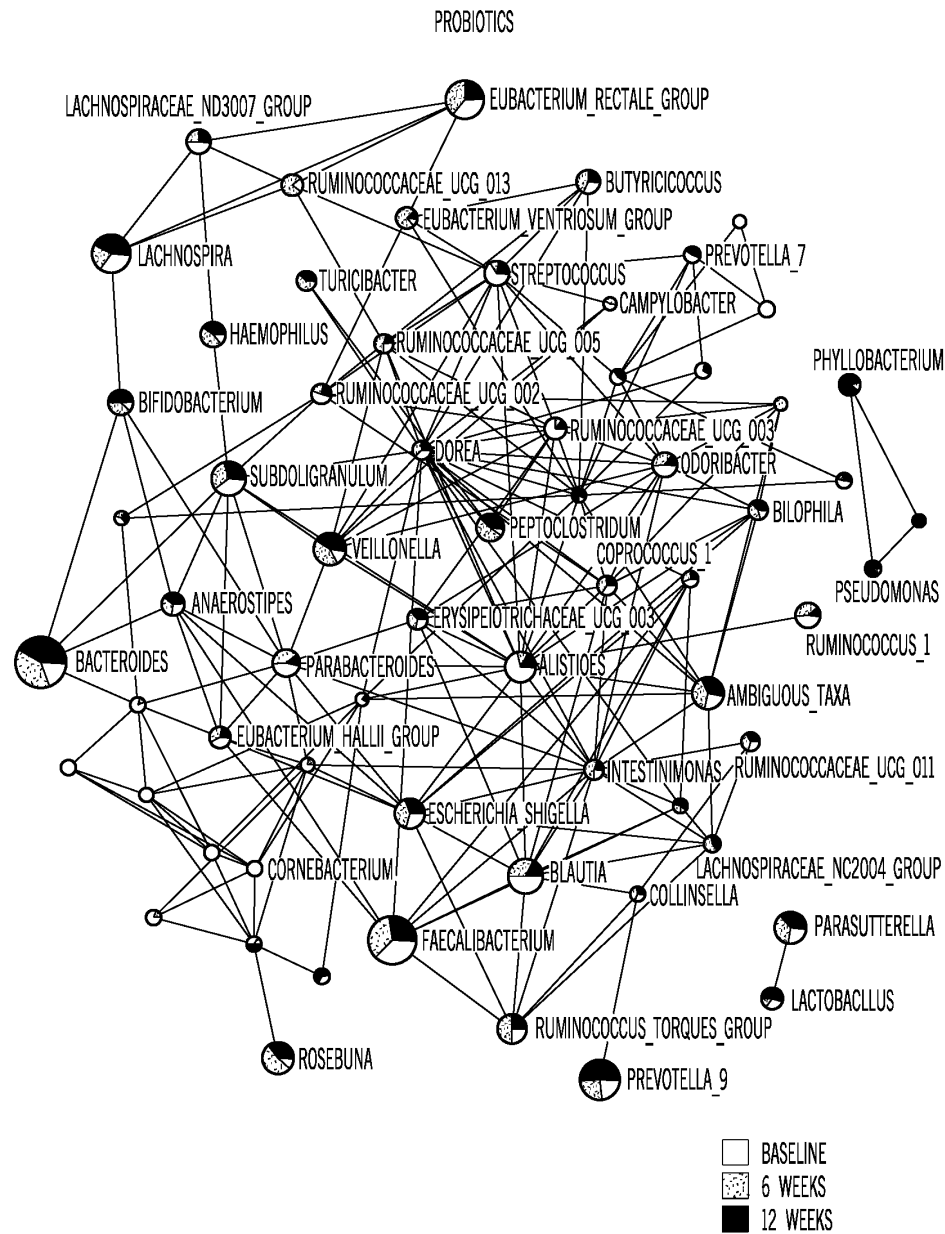


FIG. 31B

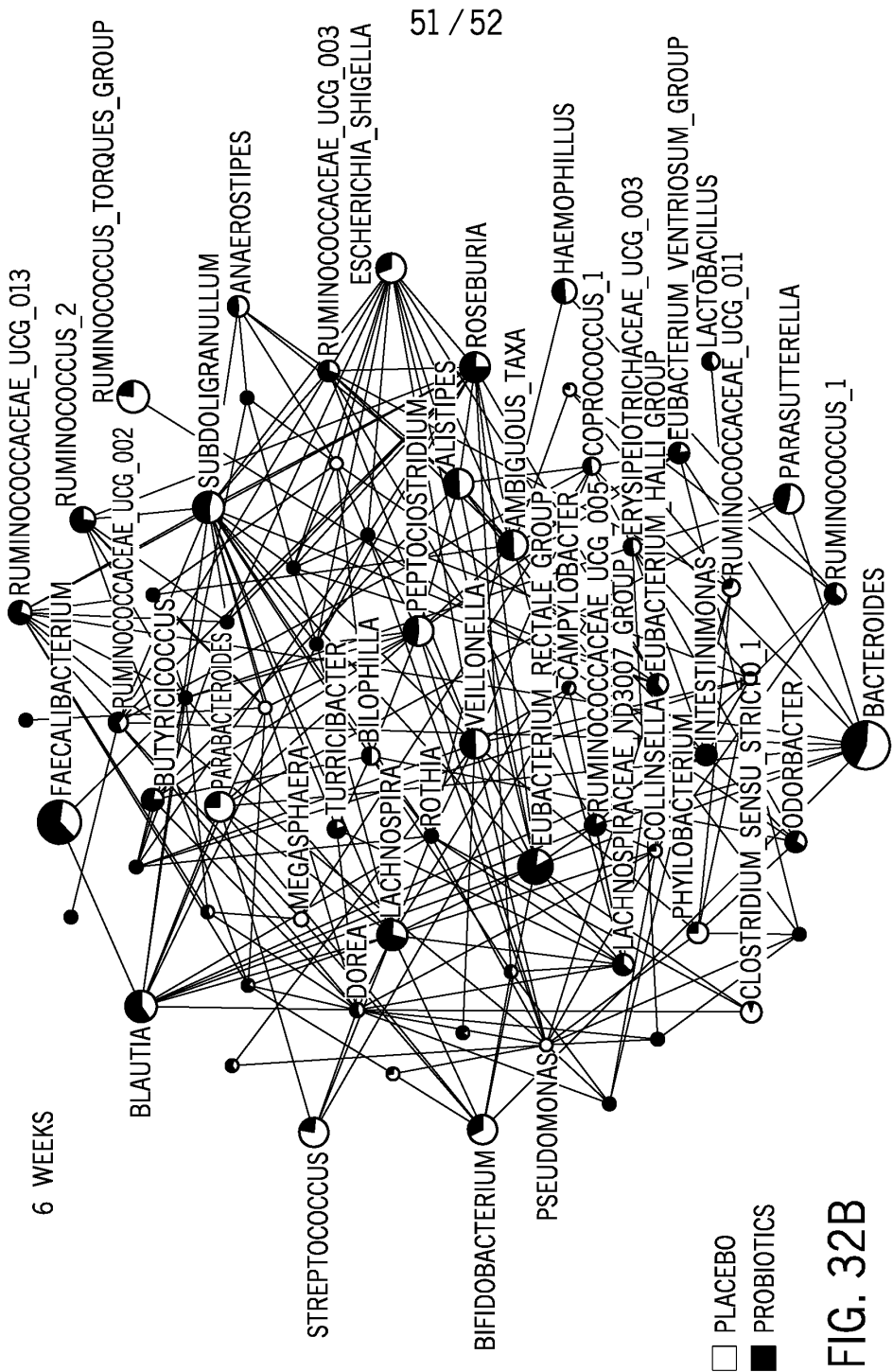


FIG. 32B

