

FIGURE 1A

Germ-free mice – refined, sugary diet

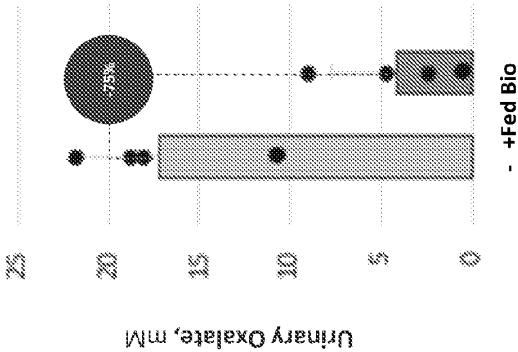


FIGURE 1B

Germ-free mice – complex, grain-based diet

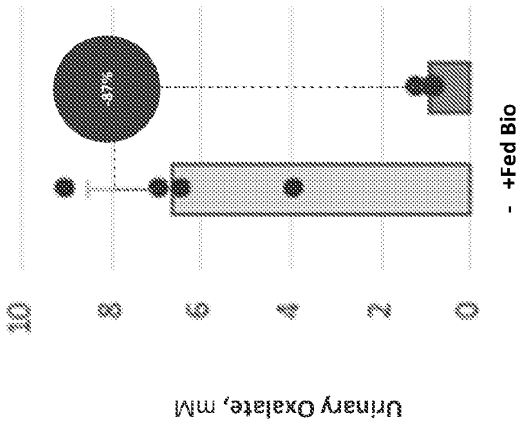
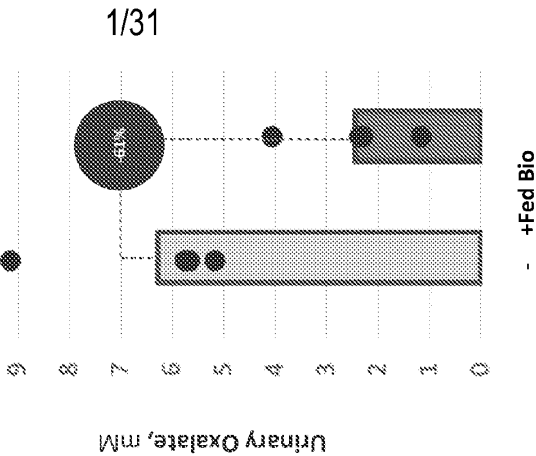


FIGURE 1C

Germ-free mice colonized with human FMT – complex, grain-based diet



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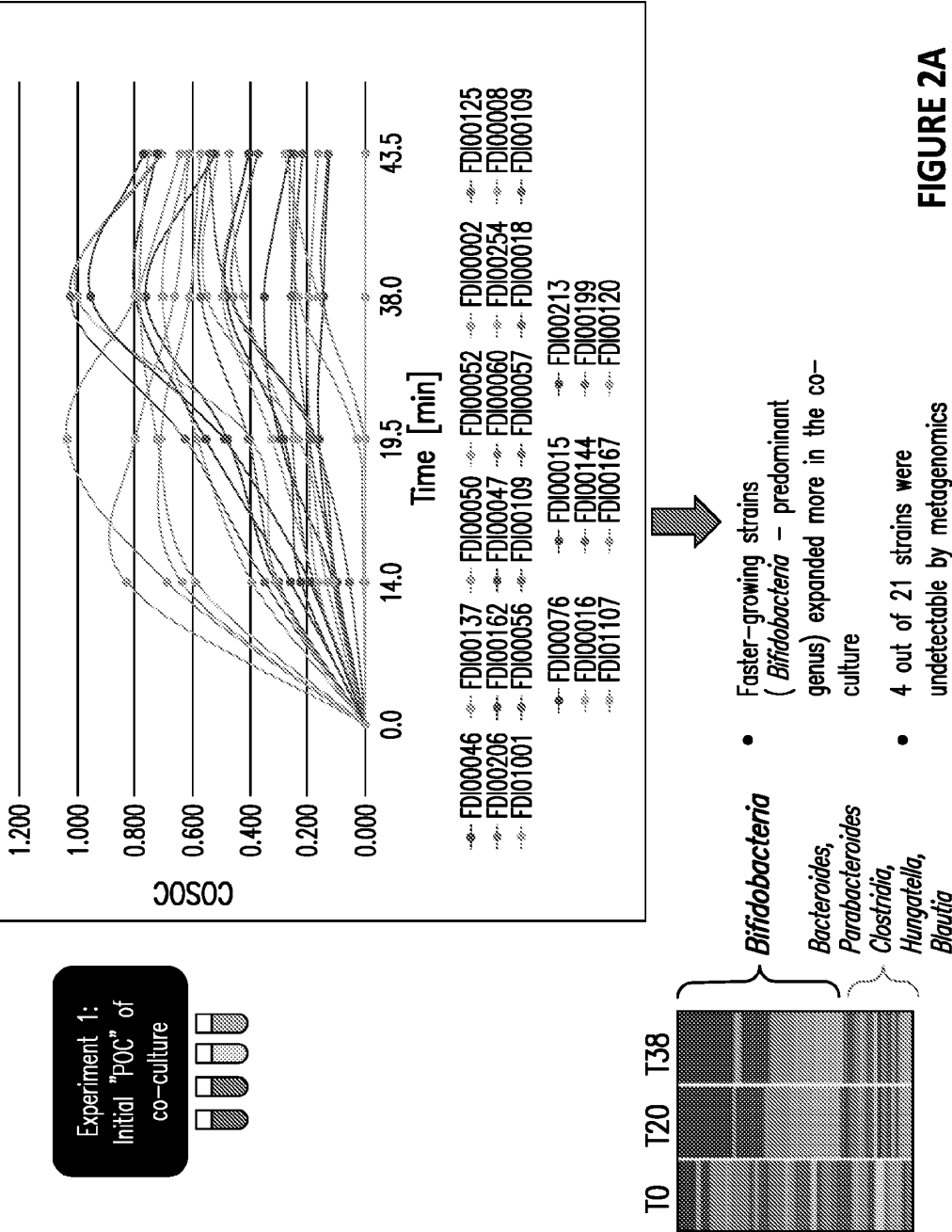


FIGURE 2A

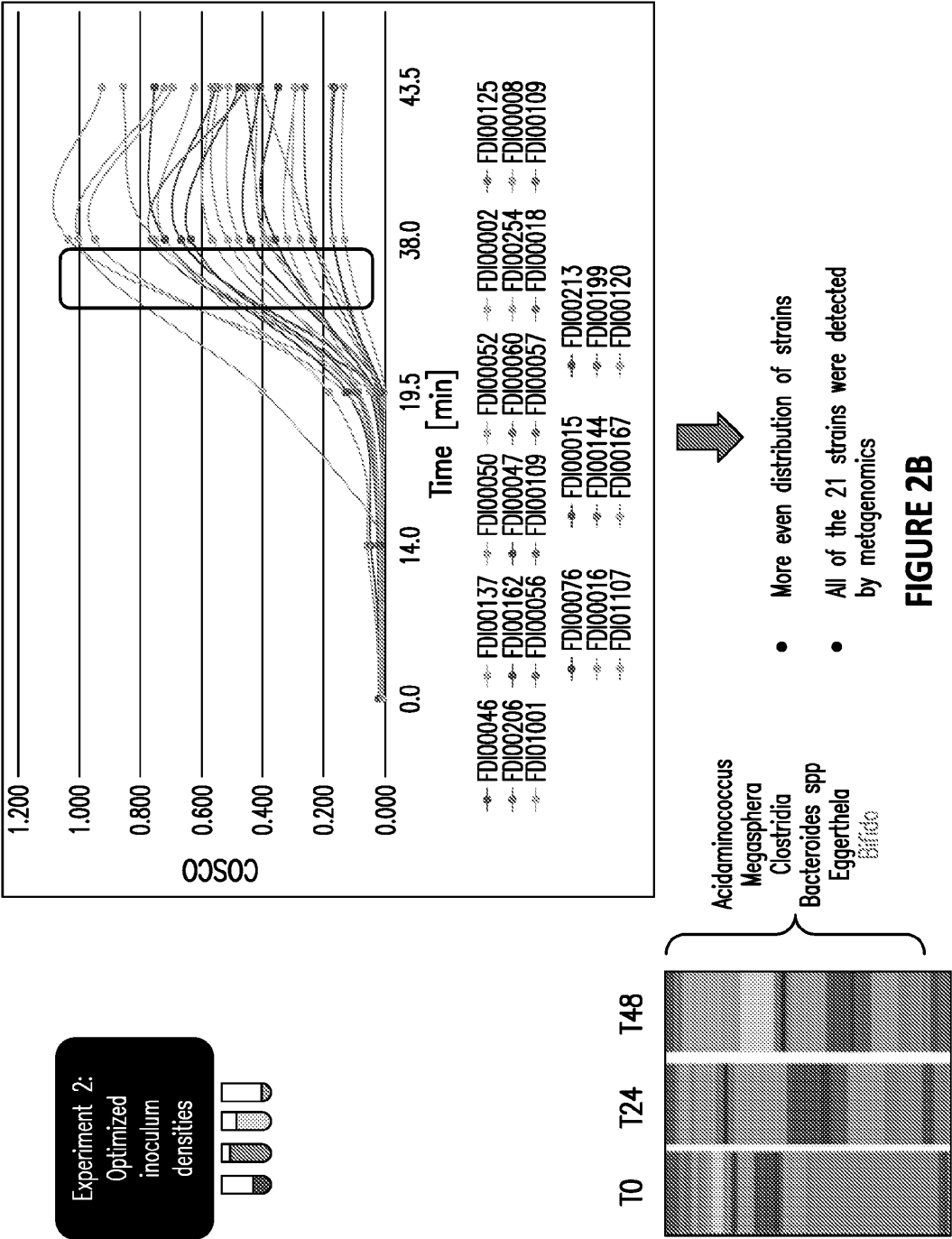


FIGURE 2B

FIGURE 3A

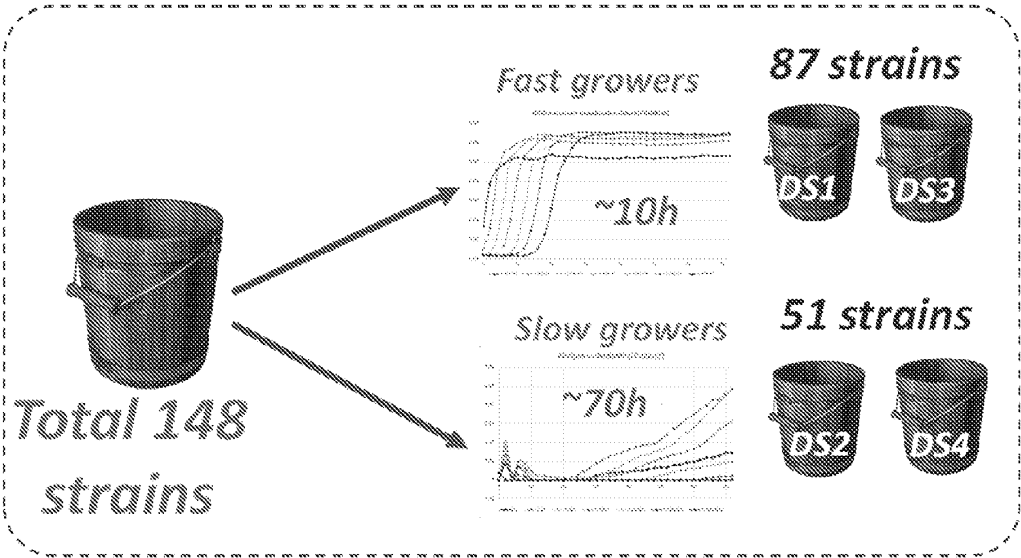
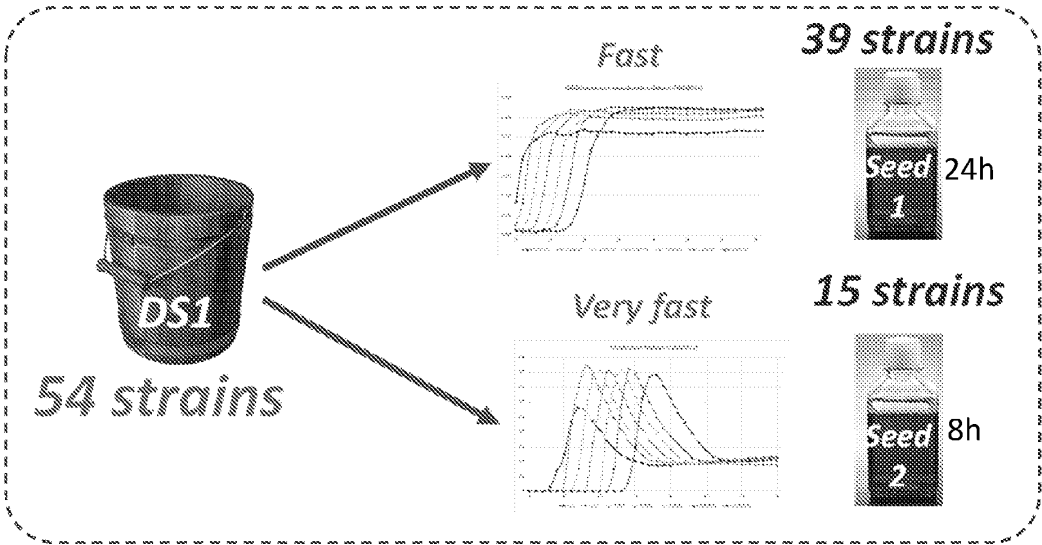


FIGURE 3B



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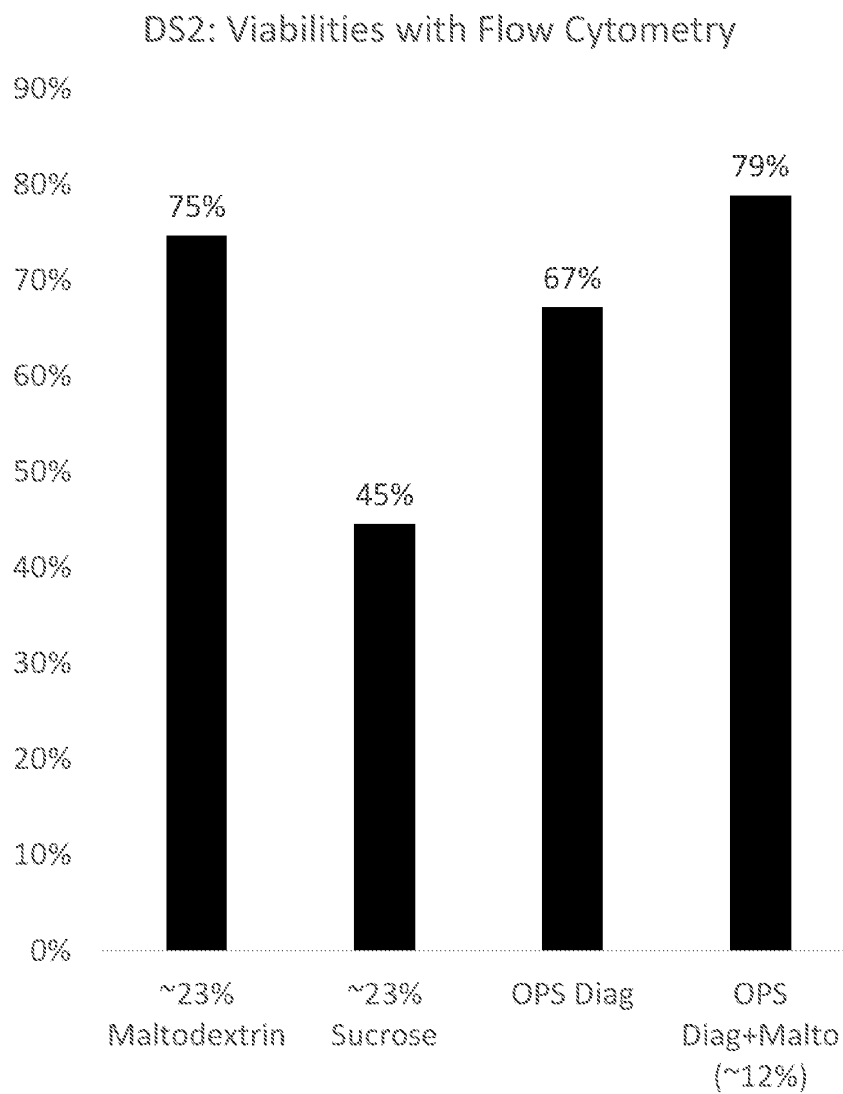
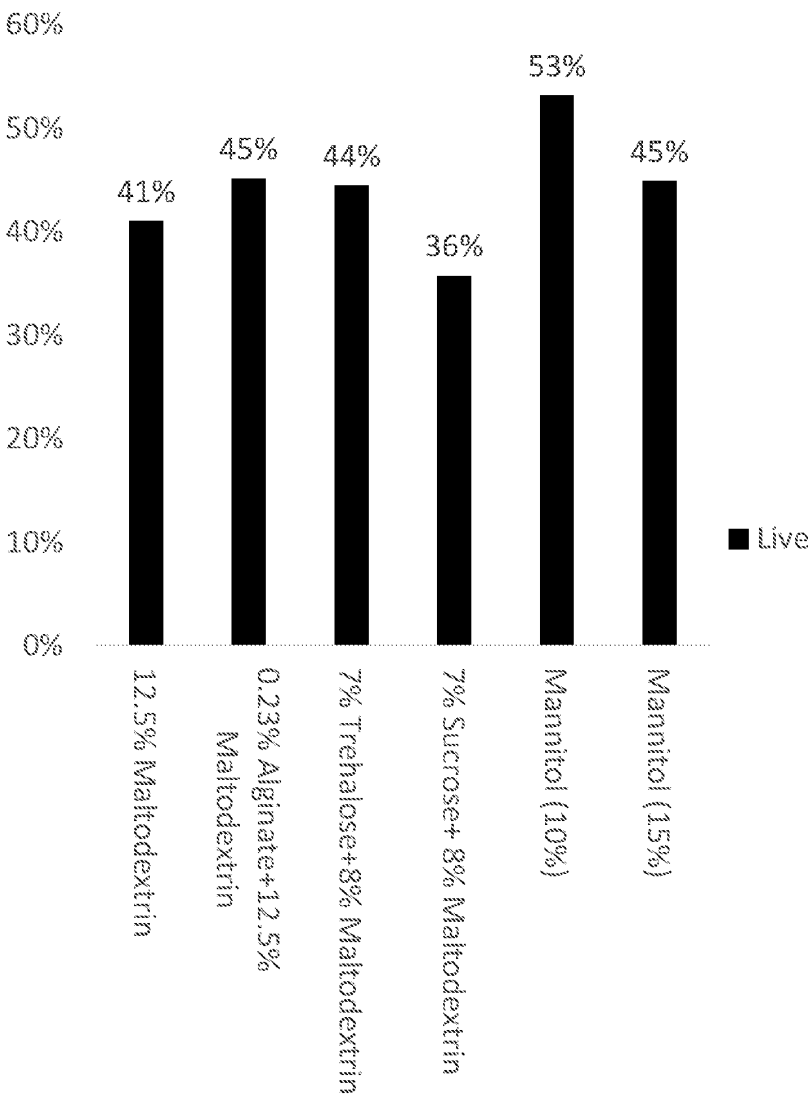
FIGURE 4A

FIGURE 4B

DS1: Viabilities by Flow



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FIGURE 5A

DS2: Impact of Reducing Agents on
Freeze Thaw

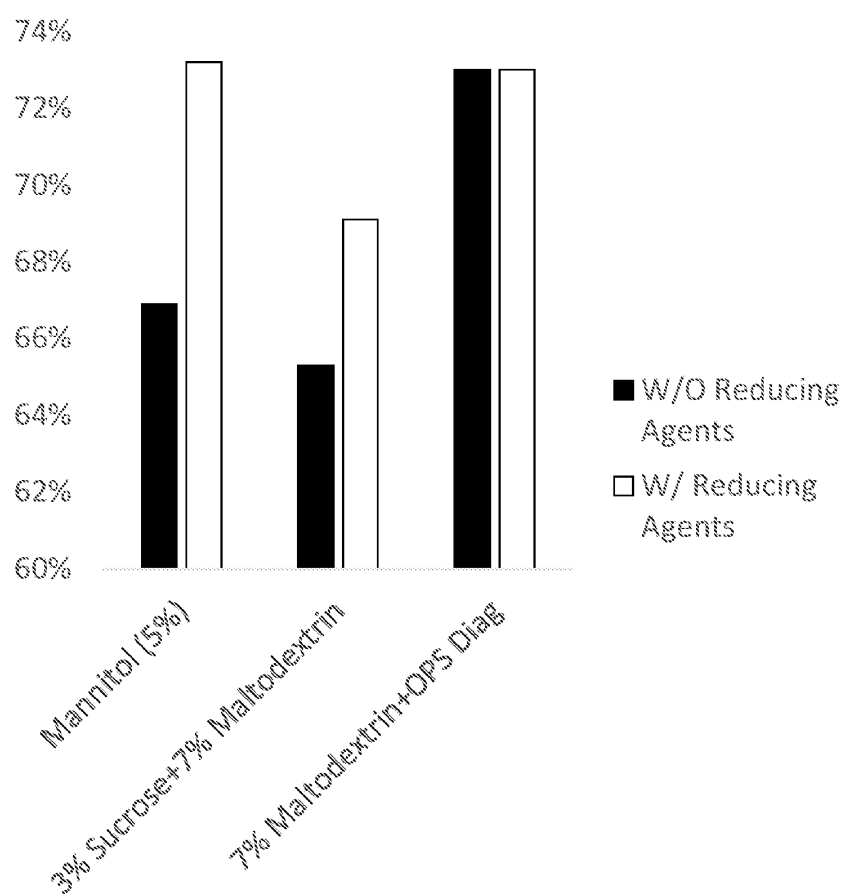
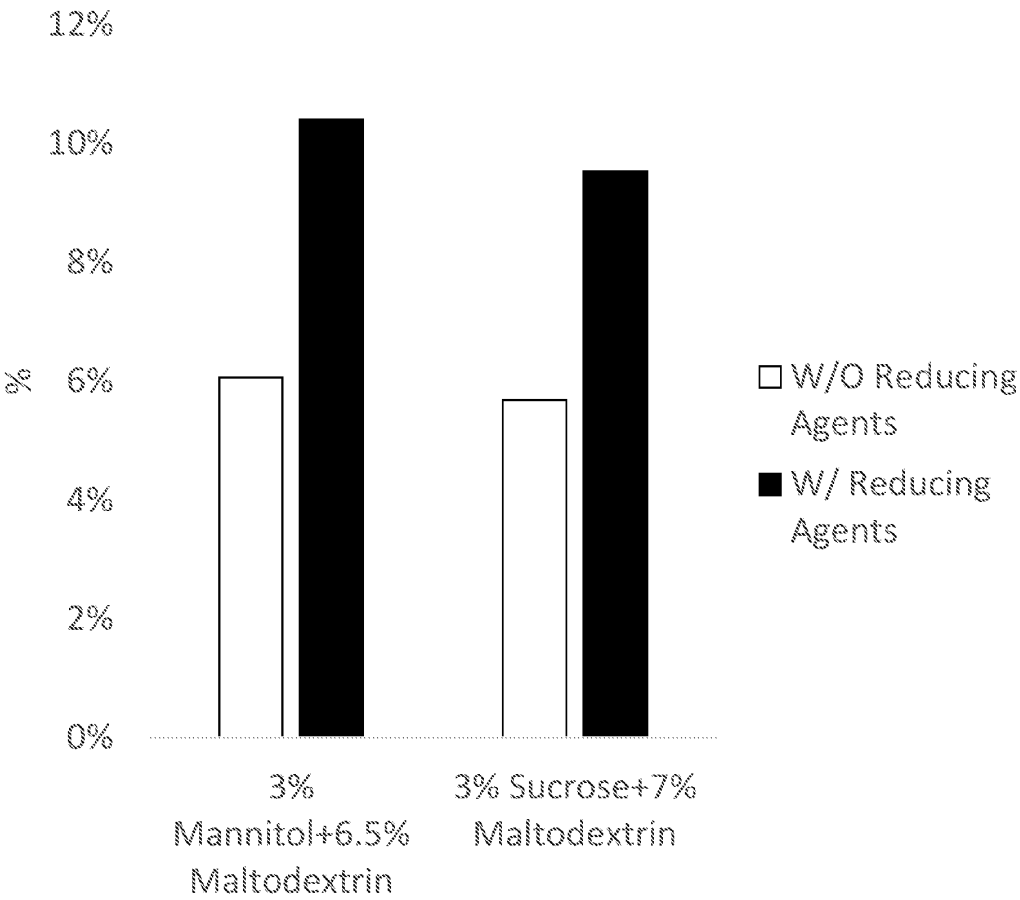


FIGURE 5B

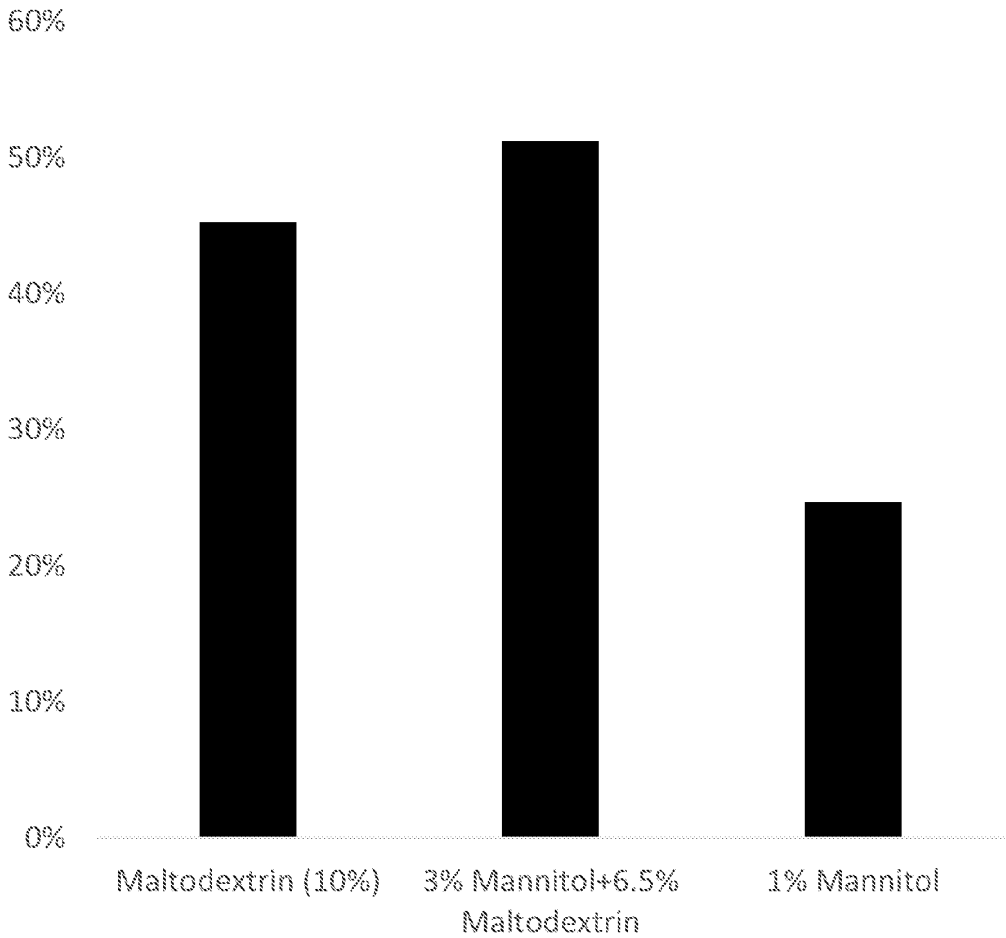
DS1: Impact of Reducing Agents on Freeze Drying



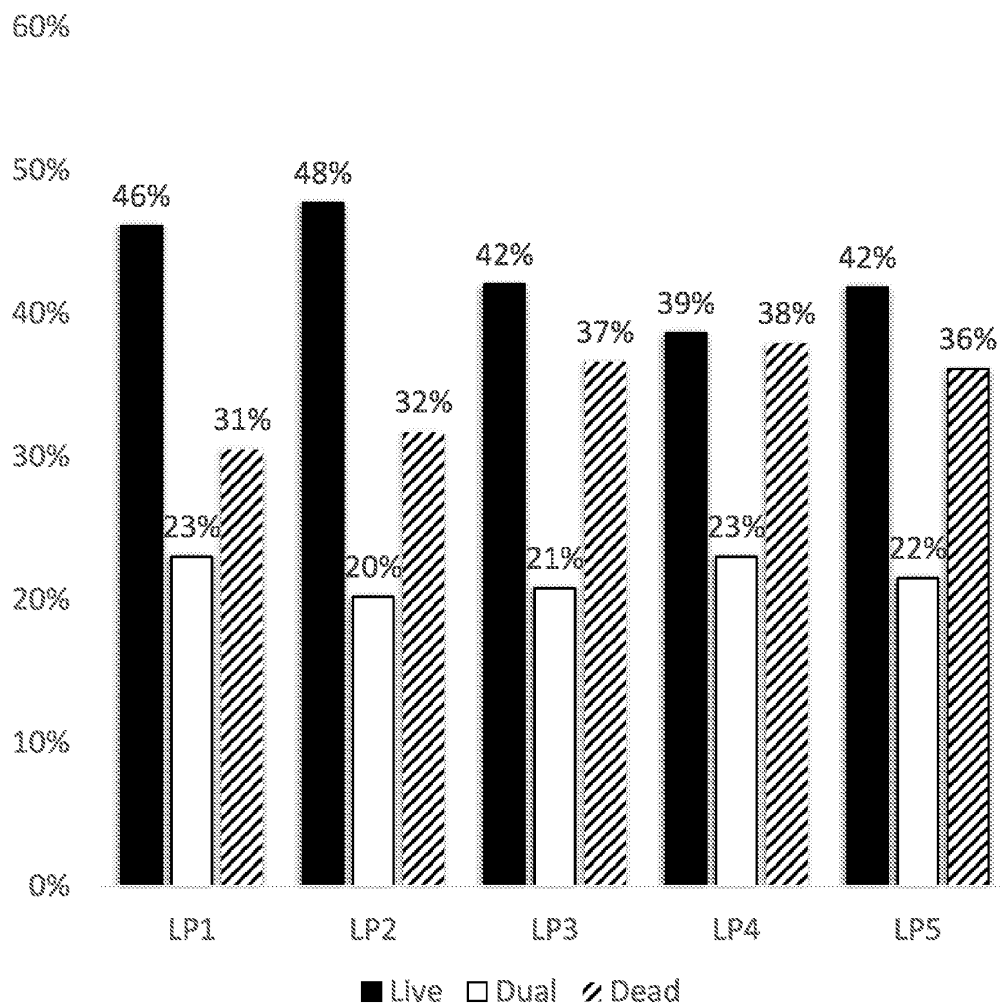
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FIGURE 6A

DS2: Flow Viability



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FIGURE 6B

Formulation #	Formulation
LP1	8% Maltodextrin + 0.5% Inulin
LP2	7% Trehalose + 8% Maltodextrin
LP3	3% Sucrose + 5% Maltodextrin + 0.5% Inulin
LP4	3% Mannitol + 6.5% Maltodextrin
LP5	3% Sucrose + 7% Maltodextrin

FIGURE 7B

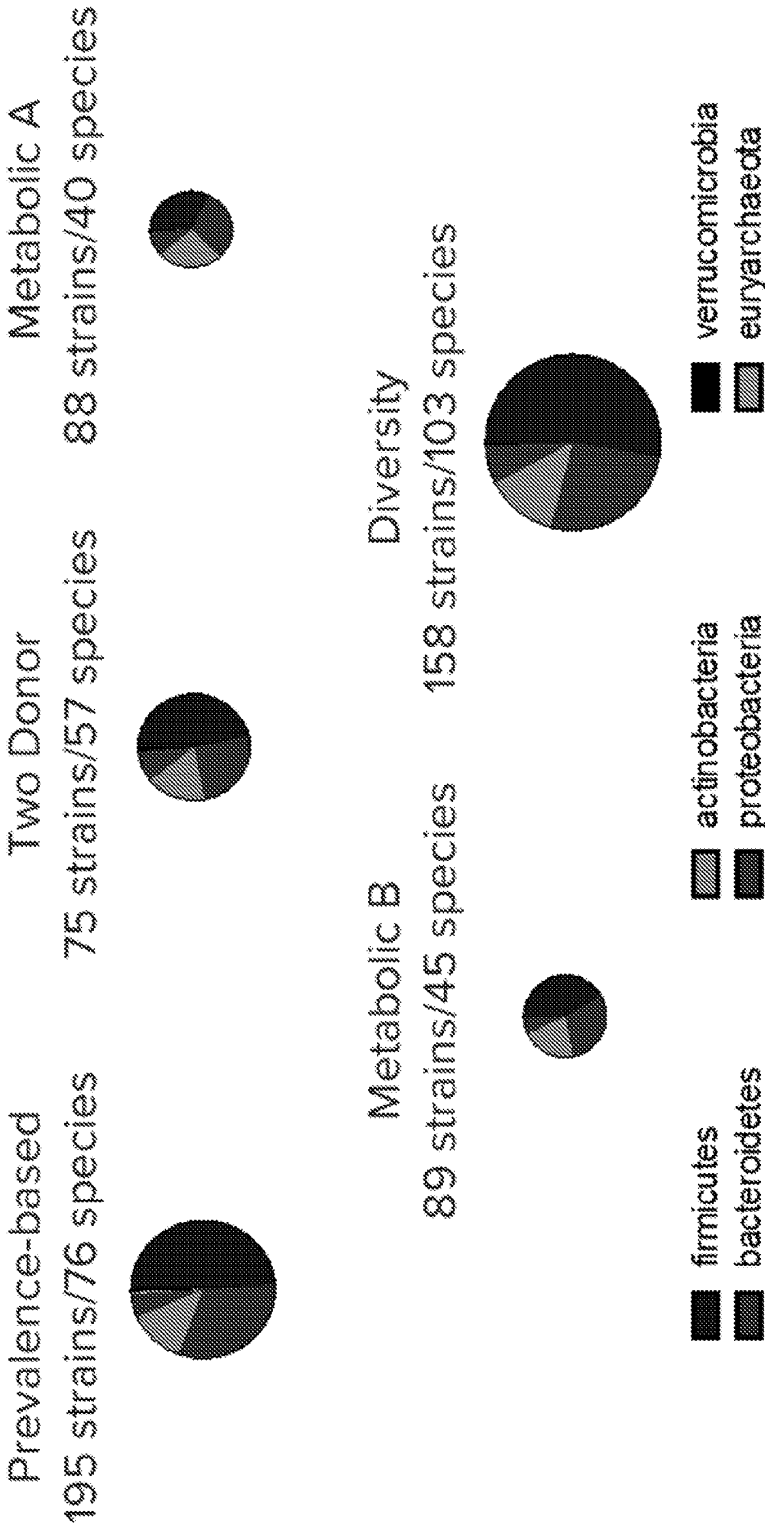


FIGURE 8B

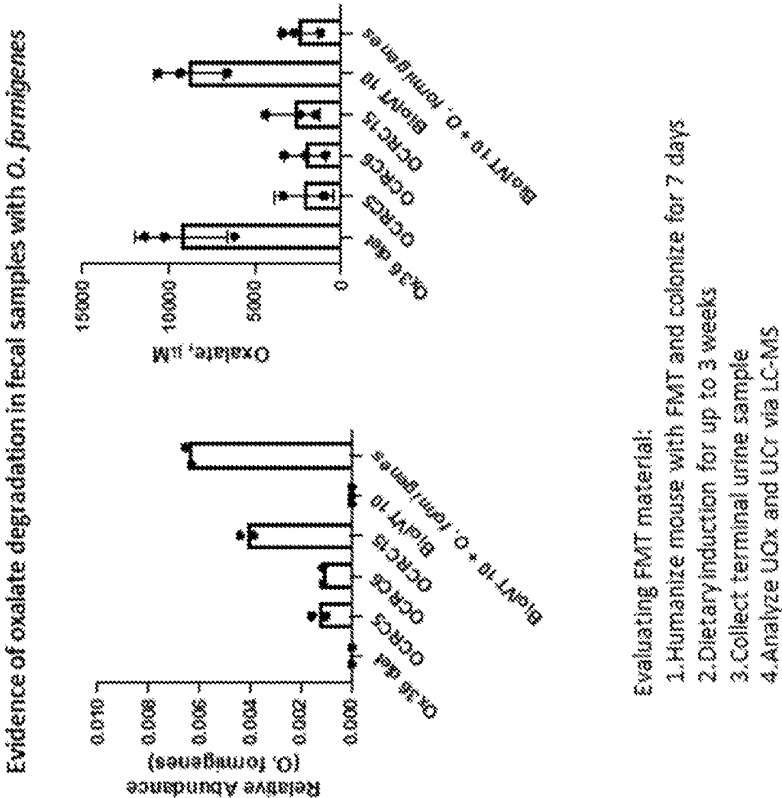


FIGURE 8A

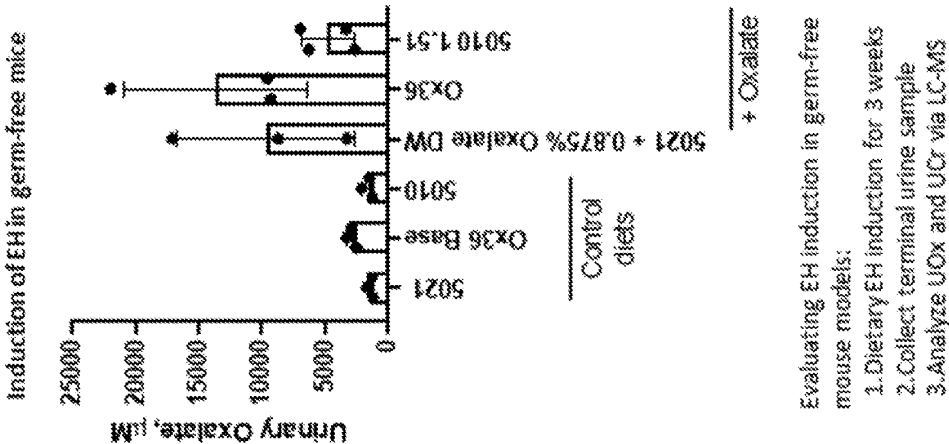
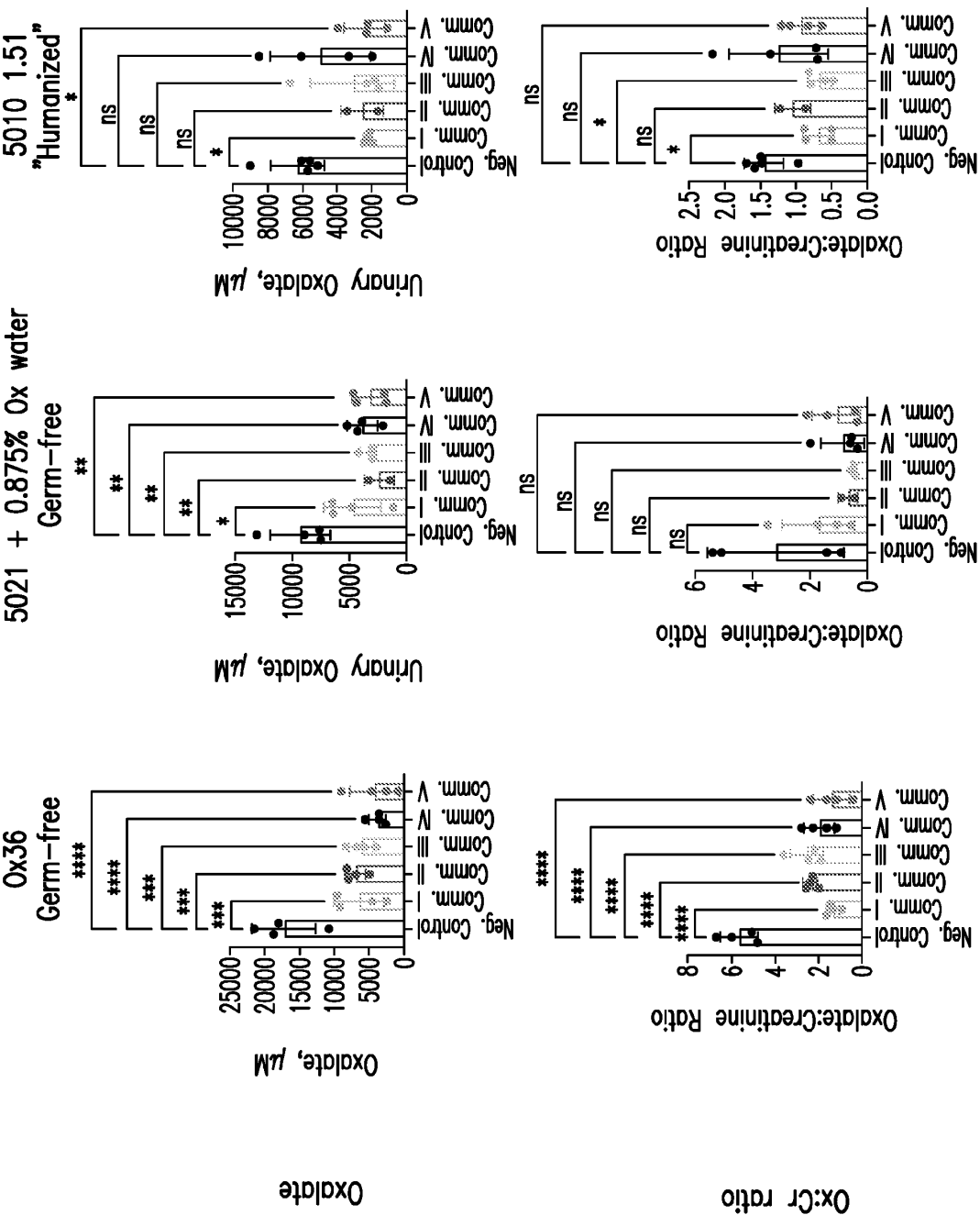


FIGURE 9



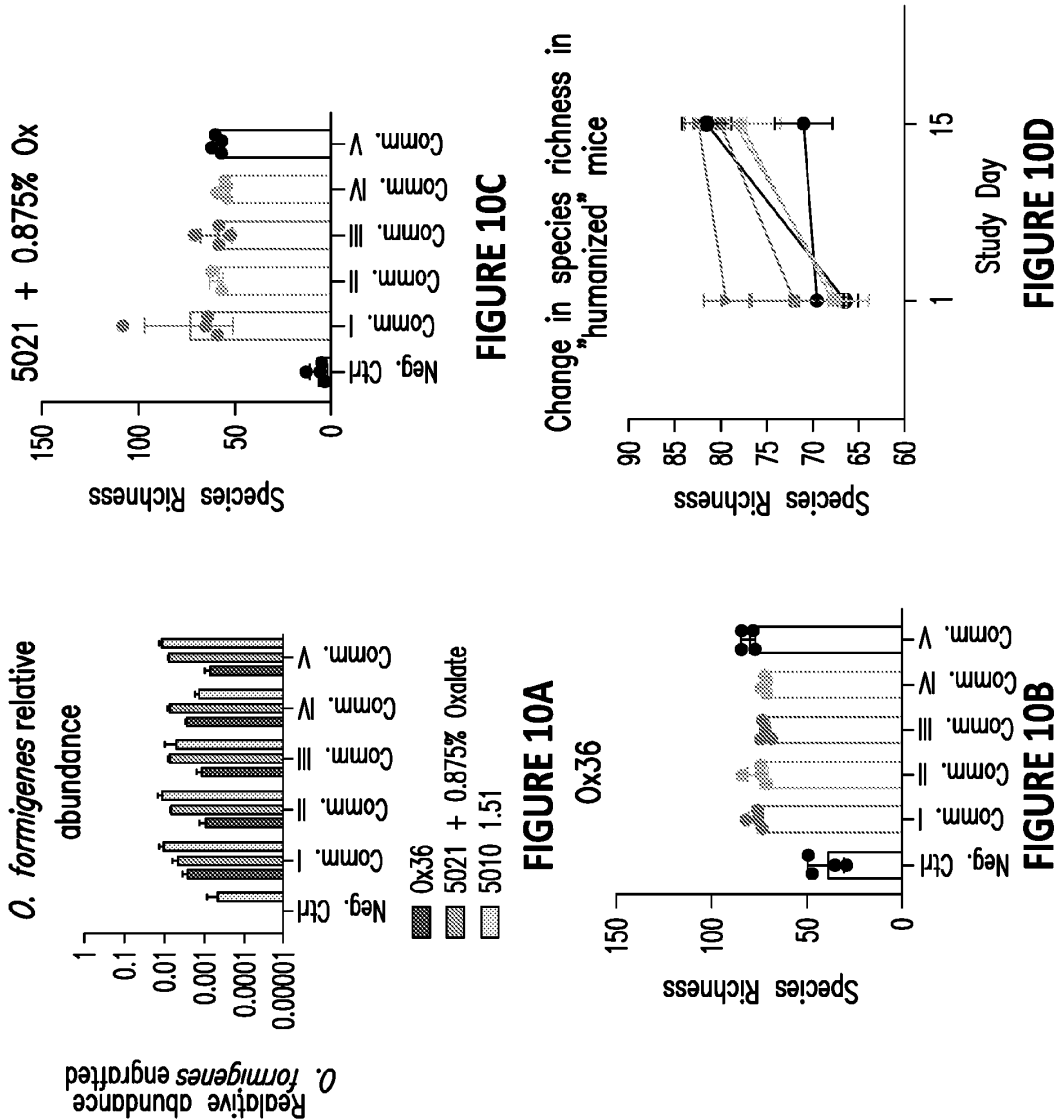
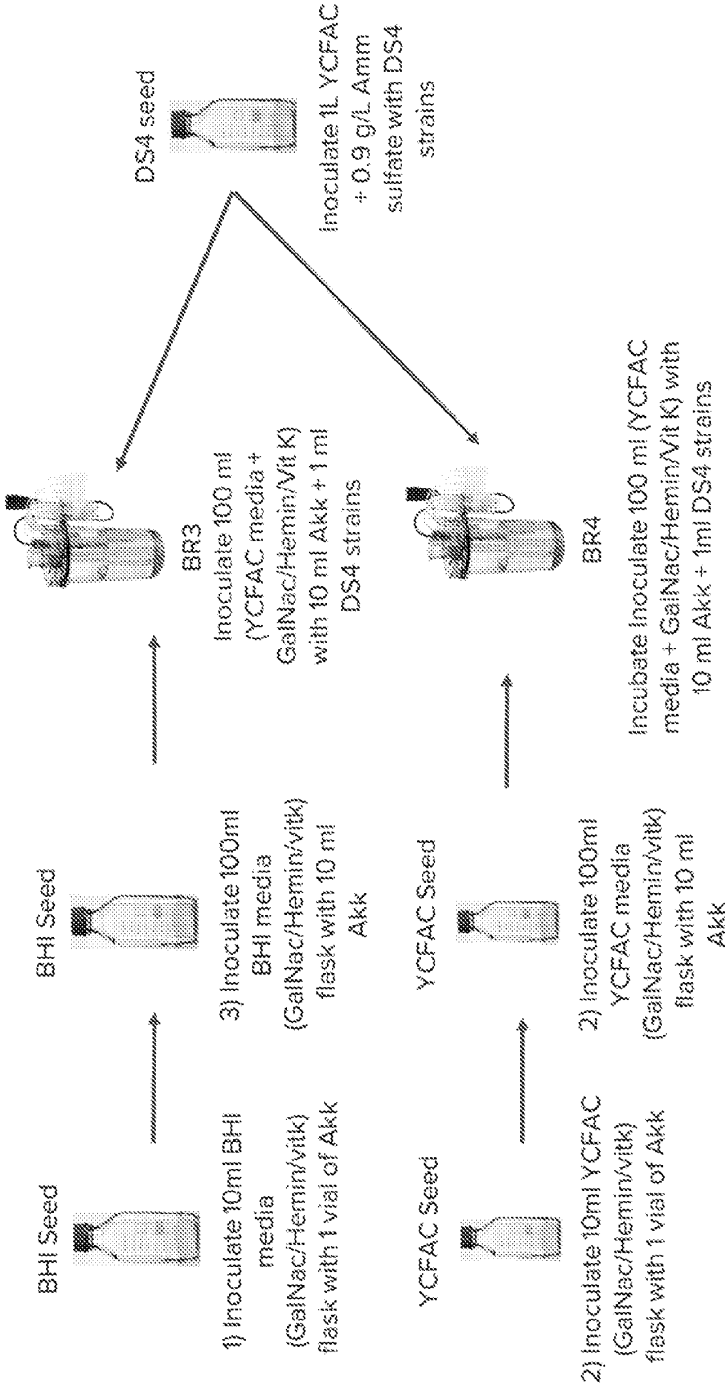


FIGURE 11A



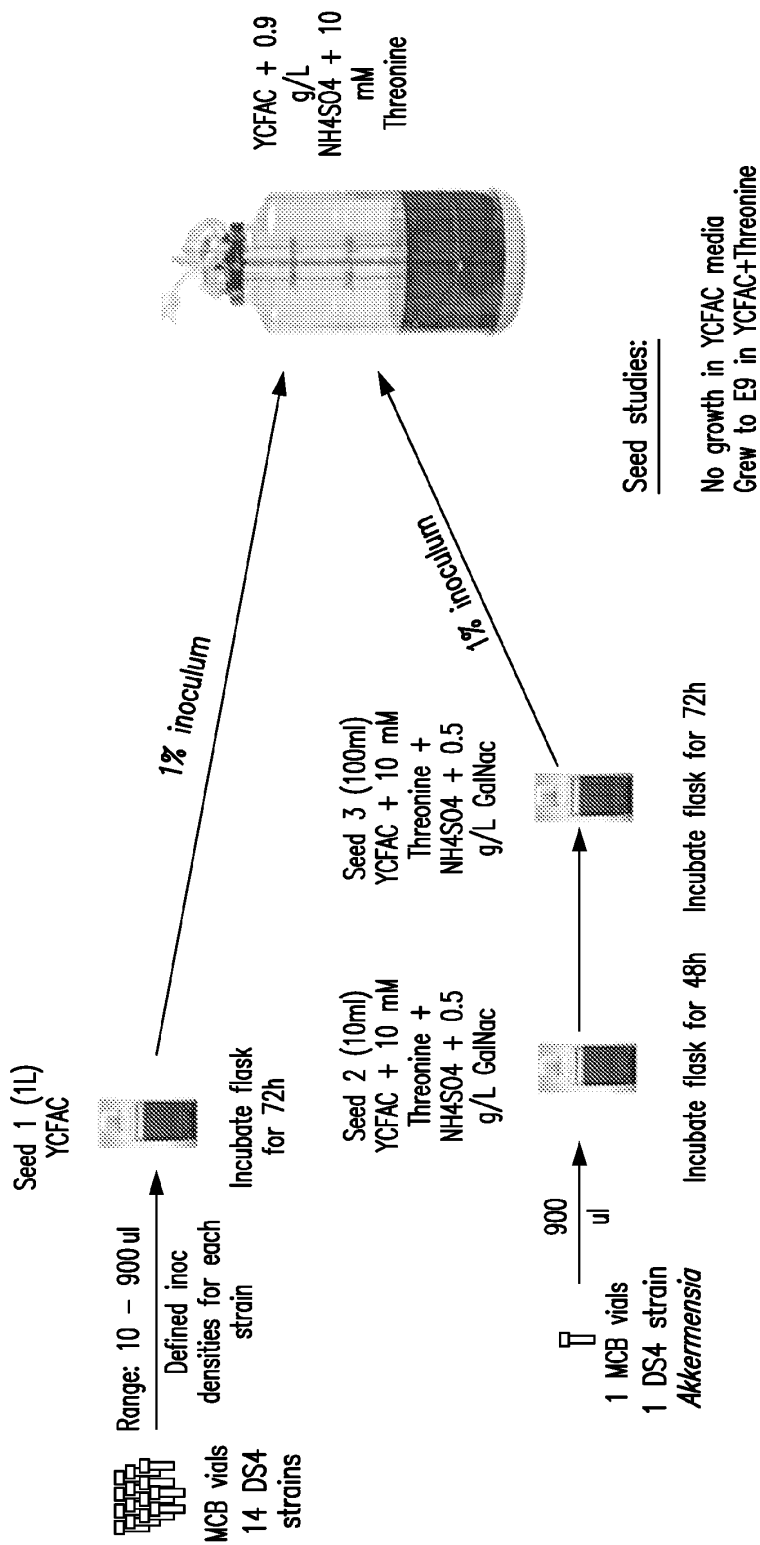


FIGURE 11B

NANOSTRING
RELATIVE
ABUNDANCE

DS4 STRAIN	BR3T48	BR3T72	BR3T90	BR4T48	BR4T72	BR4T90
FB100022 <i>Alistipes putredinis</i>	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
FB100049 <i>Dialister succinatiphilus</i>	6.0203%	10.7471%	12.1404%	5.8967%	14.4136%	8.9135%
FB100068 <i>Akkermansia muciniphila</i>	0.1516%	0.1863%	0.2363%	0.0000%	0.0000%	0.0000%
FB100069 <i>Ruminococcus bromii</i>	19.7318%	22.0480%	27.3751%	13.9406%	28.0888%	20.5477%
FB100152 <i>Dialister invisus</i>	0.1503%	0.3182%	0.4098%	0.0458%	0.3170%	0.1409%
FB100165 <i>Bacteroides massiliensis</i>	57.6641%	45.3157%	29.7861%	65.8948%	32.1252%	56.3528%
FB100171 <i>Blifiphila wadsworthia</i>	0.0062%	0.0312%	0.0900%	0.0108%	0.1157%	0.0262%
FB100175 <i>Holdemanella bififormis</i>	3.7748%	5.4483%	7.5784%	2.4523%	8.4432%	4.3293%
FB100177 <i>Parasutterella excrementihominis</i>	9.3095%	10.4827%	14.4244%	9.6927%	8.7491%	6.0595%
FB100180 <i>Alistipes</i> sp. FB100180	0.0000%	0.0000%	0.0378%	0.0000%	0.0000%	0.0000%
FB100182 <i>Bacteroides coprocola</i>	0.0000%	0.0010%	0.0000%	0.0042%	0.0021%	0.0019%
FB100238 <i>Alistipes</i> sp. FB100238	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
FB100269 <i>Alistipes putredinis</i>	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
FB100274 <i>Eubacterium xylanophilum</i>	2.8232%	4.6403%	6.6726%	1.8814%	6.4812%	3.1532%
FB100281 <i>Senegalimassilia anaerobia</i>	0.3680%	0.7813%	1.2491%	0.1807%	1.2641%	0.4751%
Strains Present (>0)	10	11	11	10	10	10
	BHI seed (GalNac/Hemin/vitk) YCFAC media (GalNac/Hemin/vitk)			YCFAC seed (GalNac/Hemin/vitk) YCFAC media (GalNac/Hemin/vitk)		

FIGURE 12

NANOSTRING
RELATIVE
ABUNDANCE

DS4 STRAIN

	F3T72	BR2T24	BR2T48	BR2T72	BR3T24	BR3T48	BR3T72
FBI00022 <i>Alistipes putredinis</i>	0.2680%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
FBI00049 <i>Dialister succinatiphilus</i>	6.0489%	4.7056%	4.5772%	4.5504%	4.6033%	3.9458%	4.3316%
FBI00068 <i>Akkermansia muciniphila</i>	0.0000%	0.4547%	0.1216%	0.0639%	0.5503%	0.2105%	0.1094%
FBI00069 <i>Ruminococcus bromii</i>	27.8276%	34.5134%	32.6548%	33.6378%	37.5228%	34.3687%	33.1256%
FBI00152 <i>Dialister invisus</i>	2.2633%	0.1890%	0.2837%	0.3185%	0.1737%	0.2313%	0.2638%
FBI00165 <i>Bacteroides massiliensis</i>	0.5155%	0.0000%	0.0000%	0.1674%	0.0066%	0.1881%	0.2469%
FBI00171 <i>Blifphila wadsworthia</i>	0.6048%	0.2618%	0.5216%	1.3761%	0.2024%	0.3801%	1.1367%
FBI00175 <i>Holdemanella biformis</i>	23.4680%	0.6758%	5.2108%	5.8173%	1.0380%	4.6662%	5.1955%
FBI00177 <i>Parasutterella excrementihominis</i>	10.5772%	9.7958%	9.1025%	9.5811%	10.3329%	8.8915%	10.1557%
FBI00180 <i>Alistipes</i> sp. FBI00180	0.4292%	5.5722%	8.1571%	8.6443%	4.7327%	8.0730%	8.8422%
FBI00182 <i>Bacteroides coprocola</i>	19.5120%	40.6707%	34.0359%	30.8886%	38.0707%	34.5246%	31.7445%
FBI00238 <i>Alistipes</i> sp. FBI00238	0.2890%	0.6323%	1.0360%	0.6129%	0.5181%	0.9280%	0.6106%
FBI00269 <i>Alistipes putredinis</i>	0.4646%	0.0713%	0.0531%	0.0371%	0.0442%	0.0338%	0.0387%
FBI00274 <i>Eubacterium xylanophilum</i>	1.2962%	1.3367%	3.0236%	3.0618%	1.2028%	2.6391%	3.1805%
FBI00281 <i>Senegalimassilia anaerobia</i>	6.4355%	1.1094%	1.2222%	1.2627%	0.9904%	0.9194%	1.0182%
Strains Present (>0)	14	13	13	14	14	14	14
Percent of Strains Present	93.33%	86.67%	86.67%	93.33%	93.33%	93.33%	93.33%
Percent of Positive Probe Signal	100.00%	99.99%	100.00%	100.00%	100.00%	100.00%	100.00%

FIGURE 13

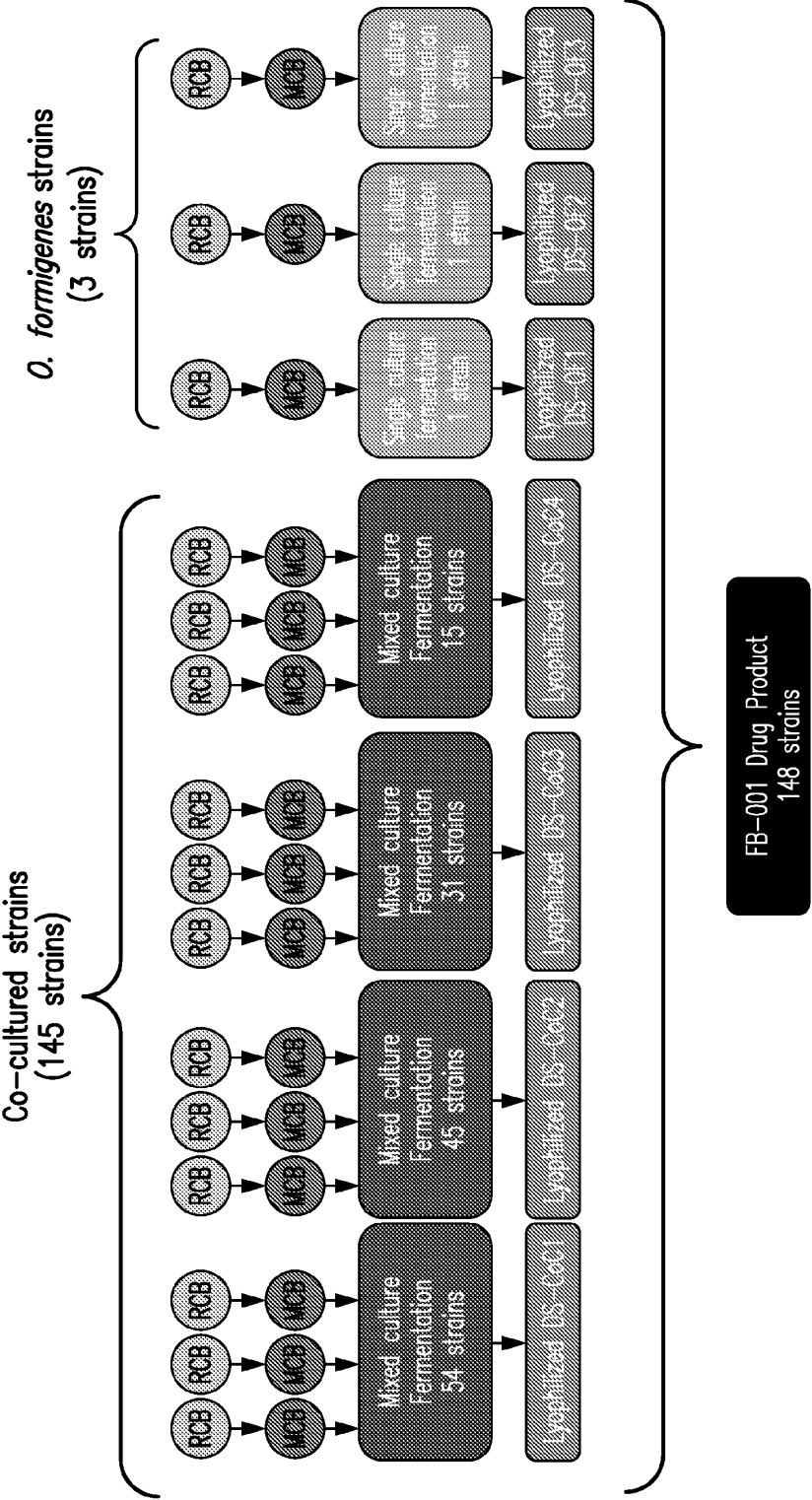
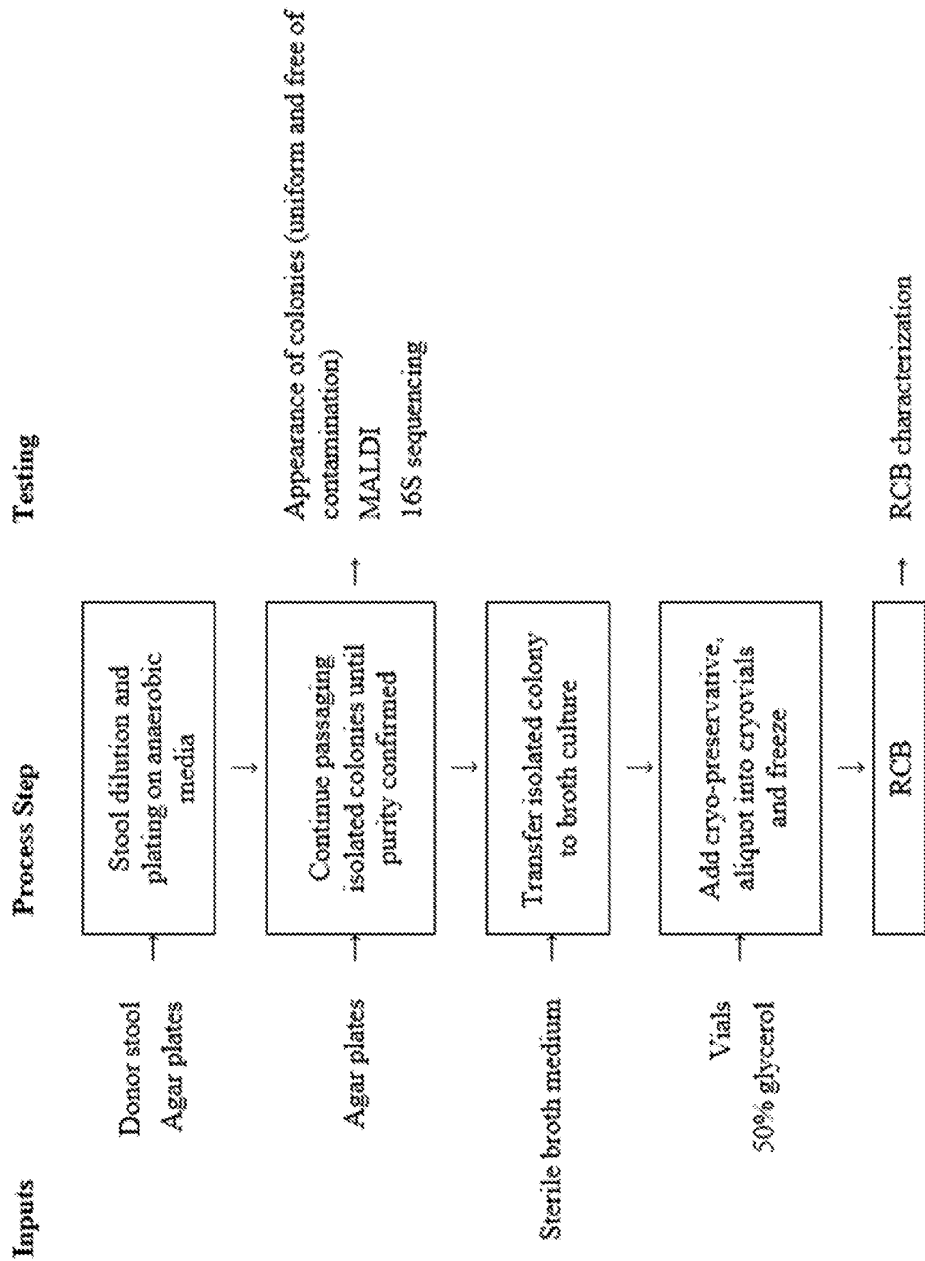


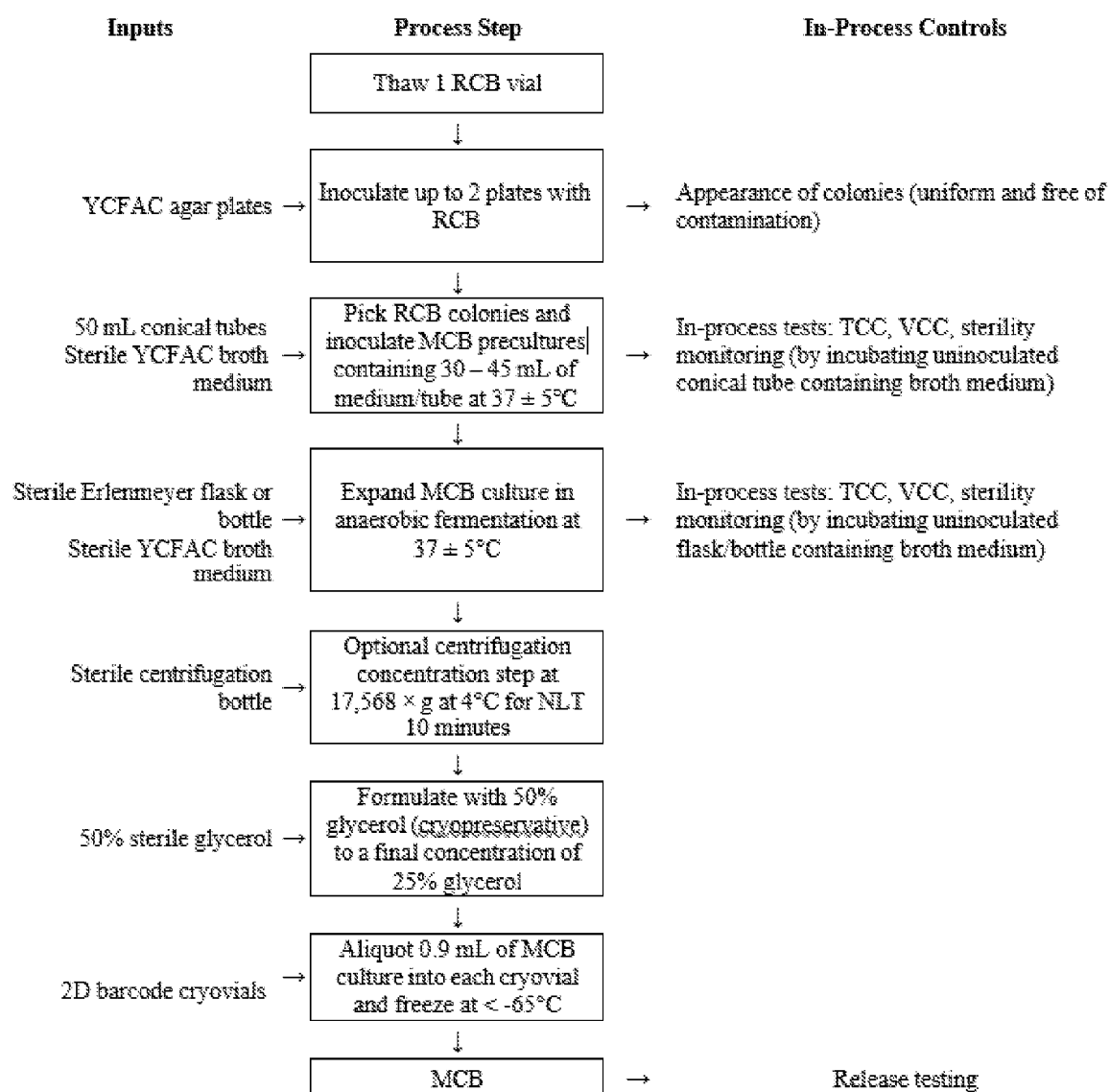
FIGURE 14

FIGURE 15



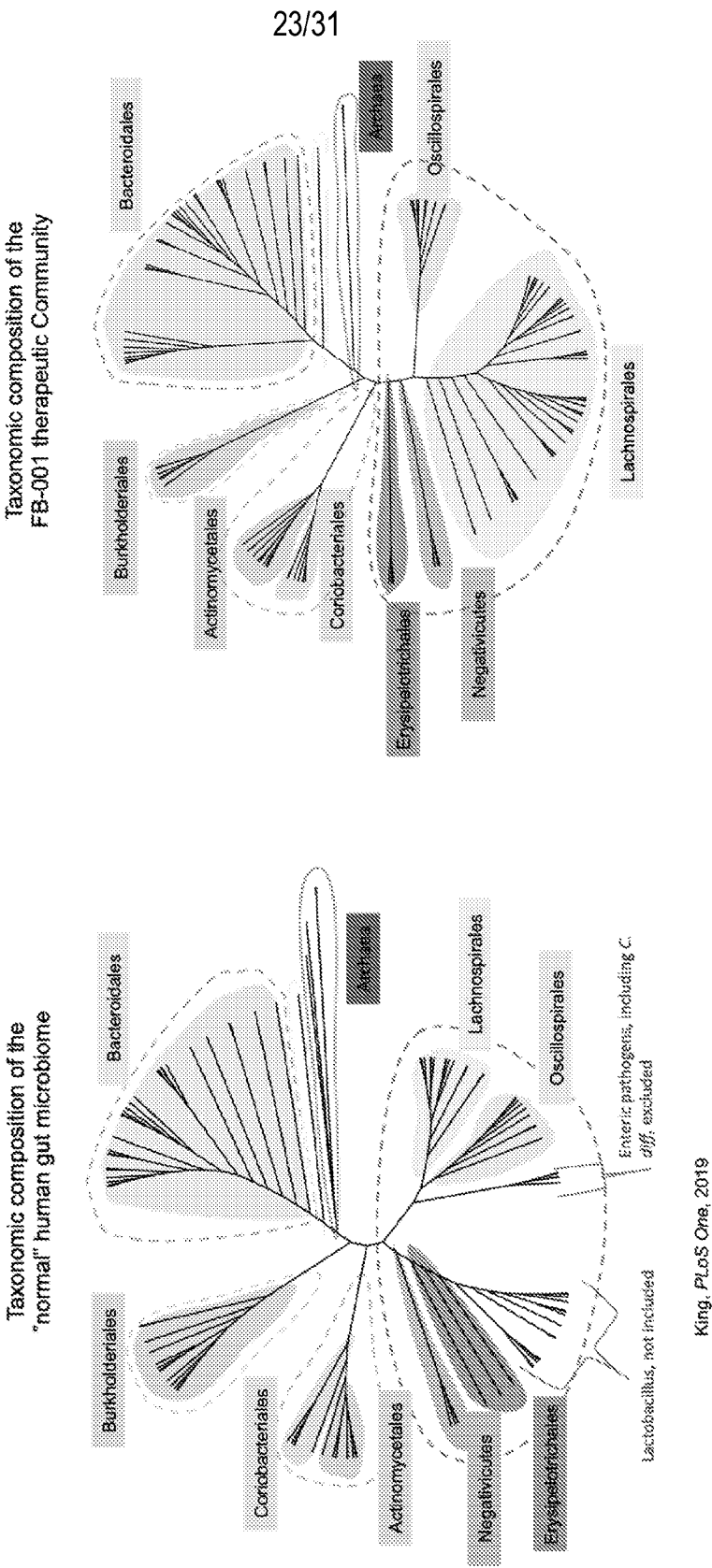
Abbreviations: MALDI = matrix-assisted laser desorption ionization; RCB = research cell bank

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FIGURE 16

Abbreviations: MCB = master cell bank; NLT = not less than; RCB = research cell bank; TCC = total cell counts; VCC = viable cell counts; YCFAC = yeast casing, fatty acids with carbohydrates

FIGURE 17



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FIGURE 18A

SEQ ID NO	Strain No.	Species	SEQ ID NO	Strain No.	Species
1	FB100001	Clostridium citroniae	26	FB100044	Blautia wexlerae
2	FB100002	Bacteroides salyersiae	27	FB100046	Bacteroides caccae
3	FB100004	Acutalibacter timonensis	28	FB100047	Eubacterium eligens
4	FB100009	Bifidobacterium adolescentis	29	FB100048	Fusicatenibacter saccharivorans
5	FB100010	Blautia obeum	30	FB100049	Dialister succinatiphilus
6	FB100011	Bifidobacterium longum	31	FB100050	Bacteroides nordii
7	FB100012	Alistipes onderdonkii	32	FB100051	Dorea formicigenerans
8	FB100013	Parabacteroides merdae	33	FB100052	Bacteroides xylanisolvens
9	FB100015	Bacteroides uniformis	34	FB100053	Lactobacillus rogosae
10	FB100016	Bifidobacterium pseudocatenulatum	35	FB100056	Clostridium citroniae
11	FB100018	Eubacterium rectale	36	FB100057	Dorea longicatena
12	FB100019	Alistipes timonensis	37	FB100059	Bacteroides stercorisoris
13	FB100020	Bacteroides thetaiotaomicron	38	FB100060	Bifidobacterium longum
14	FB100021	Bacteroides kribbi	39	FB100061	Alistipes shahii
15	FB100022	Alistipes putredinis	40	FB100062	Collinsella aerofaciens
16	FB100025	Coprococcus comes	41	FB100066	Parasutterella excrementihominis
17	FB100027	Fusicatenibacter saccharivorans	42	FB100067	Oxalobacter formigenes
18	FB100029	Parabacteroides distasonis	43	FB100068	Akkermansia muciniphila
19	FB100030	Eggerthella lenta	44	FB100069	Ruminococcus bromii
20	FB100032	Anaerostipes hadrus	45	FB100070	Bacteroides kribbi
21	FB100033	Lachnospiraceae sp. FB100033	46	FB100071	Lachnospiraceae sp. FB100071
22	FB100034	Eubacterium eligens	47	FB100075	Paraprevotella clara
23	FB100038	Coprococcus eutactus	48	FB100076	Bacteroides thetaiotaomicron
24	FB100040	Bilophila wadsworthia	49	FB100077	Sutterella wadsworthensis
25	FB100043	Bifidobacterium dentium	50	FB100078	Blautia obeum

FIGURE 18B

SEQ ID NO	Strain No.	Species	SEQ ID NO	Strain No.	Species
51	FBI00079	Clostridium clostridioforme	76	FBI00127	Collinsella aerofaciens
52	FBI00080	Sutterella massiliensis	77	FBI00128	Hungatella effluvii
53	FBI00081	Porphyromonas asaccharolytica	78	FBI00132	Gordonibacter pamelaee
54	FBI00085	Ruminococcus bromii	79	FBI00133	Oxalobacter formigenes
55	FBI00087	Clostridium scindens	80	FBI00135	Bifidobacterium pseudocatenulatum
56	FBI00092	Monoglobus pectinilyticus	81	FBI00137	Bacteroides fragilis
57	FBI00093	Roseburia hominis	82	FBI00140	Phascolarctobacterium faecium
58	FBI00096	Eggerthella lenta	83	FBI00145	Bifidobacterium adolescentis
59	FBI00097	Ruminococcaceae sp. FBI00097	84	FBI00147	Clostridium bolteae
60	FBI00099	Gordonibacter pamelaee	85	FBI00149	Monoglobus pectinilyticus
61	FBI00102	Clostridium fessum	86	FBI00151	Clostridium aldenense
62	FBI00104	Blautia wexlerae	87	FBI00152	Dialister invisus
63	FBI00109	Coprococcus comes	88	FBI00159	Eisenbergiella tayi
64	FBI00110	Lachnoclostridium pacaense	89	FBI00162	Bifidobacterium catenulatum
65	FBI00111	Bacteroides vulgatus	90	FBI00165	Bacteroides massiliensis
66	FBI00112	Bacteroides uniformis	91	FBI00167	Dorea longicatena
67	FBI00113	Parabacteroides merdae	92	FBI00170	Eggerthella lenta
68	FBI00115	Dorea formicigenerans	93	FBI00171	Bifidobacterium wadsworthia
69	FBI00116	Ruminococcus faecis	94	FBI00174	Lactobacillus rogosae
70	FBI00117	Blautia faecis	95	FBI00175	Holdemanella bififormis
71	FBI00120	Hungatella hathewayi	96	FBI00176	Ruthenibacterium lactatiformans
72	FBI00123	Roseburia hominis	97	FBI00177	Parasutterella excrementihominis
73	FBI00124	Anaerostipes hadrus	98	FBI00180	Alistipes sp. FBI00180
74	FBI00125	Bacteroides stercoris	99	FBI00182	Bacteroides coprocola
75	FBI00126	Bifidobacterium adolescentis	100	FBI00184	Bacteroides faecis

FIGURE 18C

SEQ ID NO	Strain No.	Species	SEQ ID NO	Strain No.	Species
101	FBI00189	Bacteroides ovatus	125	FBI00238	Alistipes sp. FBI00238
102	FBI00190	Bacteroides finegoldii	126	FBI00243	Eubacterium siraeum
103	FBI00191	Clostridiaceae sp. FBI00191	127	FBI00244	Faecalibacterium prausnitzii
104	FBI00194	Ruminococcus faecis	128	FBI00245	Acidaminococcus intestini
105	FBI00197	Bifidobacterium bifidum	129	FBI00248	Emergencia timonensis
106	FBI00198	Lachnospirillum pacaense	130	FBI00251	Bifidobacterium pseudocatenulatum
107	FBI00199	Clostridium bolteae	131	FBI00254	Eubacterium hallii
108	FBI00200	Longicatena caecimuris	132	FBI00255	Hungatella hathewayi
109	FBI00201	Eggerthella lenta	133	FBI00258	Turicibacter sanguinis
110	FBI00205	Blautia massiliensis	134	FBI00260	Eubacterium rectale
111	FBI00206	Bacteroides xylanisolvens	135	FBI00263	Bacteroides caccae
112	FBI00208	Anaerotruncus massiliensis	136	FBI00267	Anaerofustis stercorihominis
113	FBI00211	Bacteroides vulgatus	137	FBI00269	Alistipes putredinis
114	FBI00212	Clostridium aldenense	138	FBI00270	Methanobrevibacter smithii
115	FBI00220	Megasphaera massiliensis	139	FBI00271	Bacteroides xylanisolvens
116	FBI00221	Butyrivibrio faecihominis	140	FBI00273	Barnesiella intestinihominis
117	FBI00224	Sutterella wadsworthensis	141	FBI00274	Eubacterium xylanophilum
118	FBI00226	Catabacter hongkongensis	142	FBI00277	Alistipes onderdonkii
119	FBI00229	Alistipes senegalensis	143	FBI00278	Eubacterium ventriosum
120	FBI00232	Bacteroides stercoris	144	FBI00281	Senegalimassilia anaerobia
121	FBI00233	Ruminococcaceae sp. FBI00233	145	FBI00288	Blautia hydrogenotrophica
122	FBI00235	Alistipes shahii	146	FBI00289	Oxalobacter formigenes
123	FBI00236	Eisenbergiella tayi	147	FBI00290	Lachnospiraceae sp. FBI00290
124	FBI00237	Dielma fastidiosa	148	FBI00292	Methanobrevibacter smithii

FIGURE 19A

Supportive strains produce butyrate at a comparable level to a normal gut

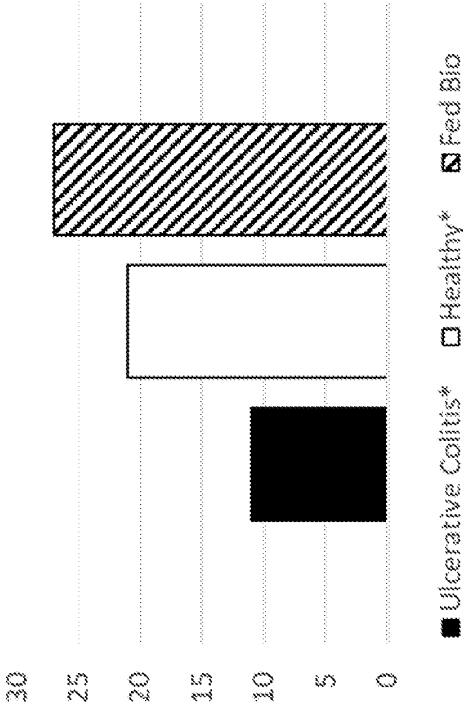
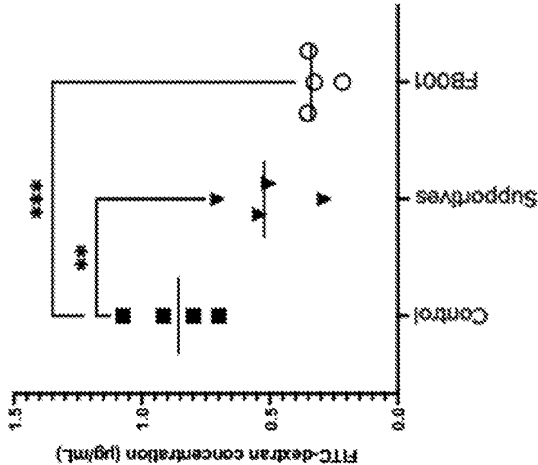


FIGURE 19B

FB-001 improves gut permeability in germ-free mice



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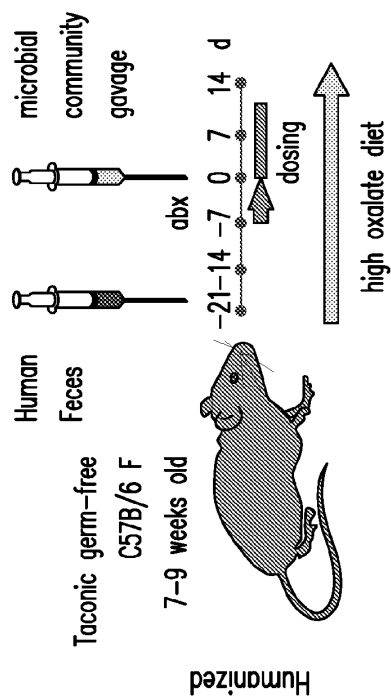
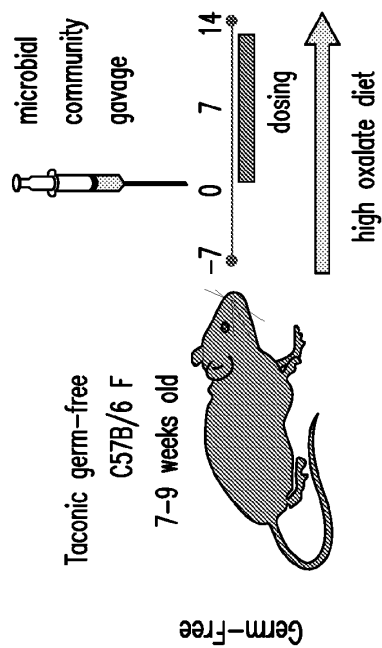
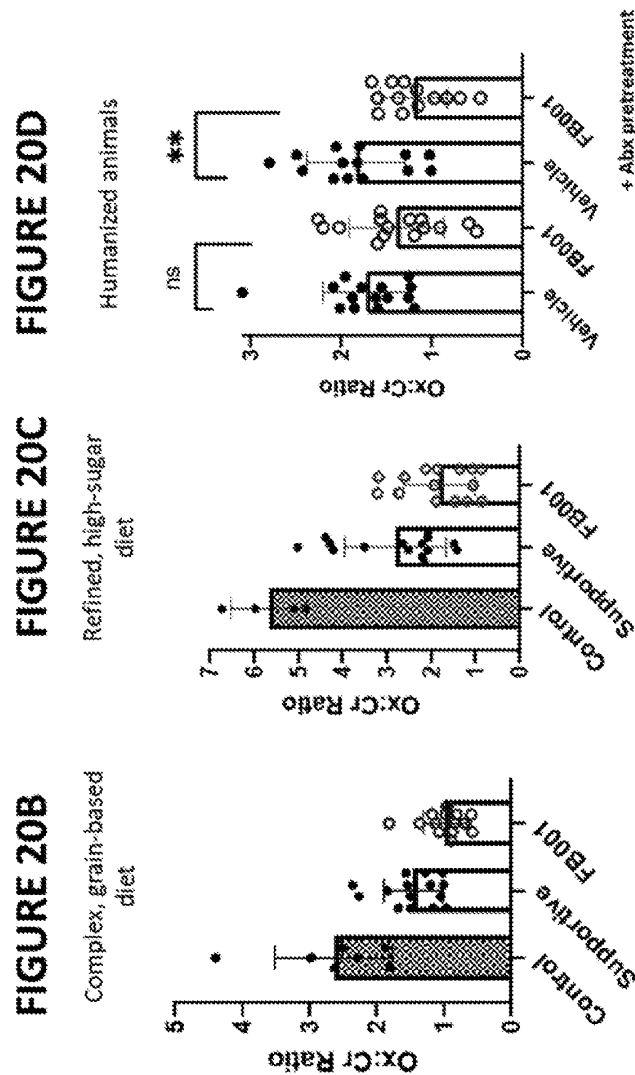


FIGURE 20A



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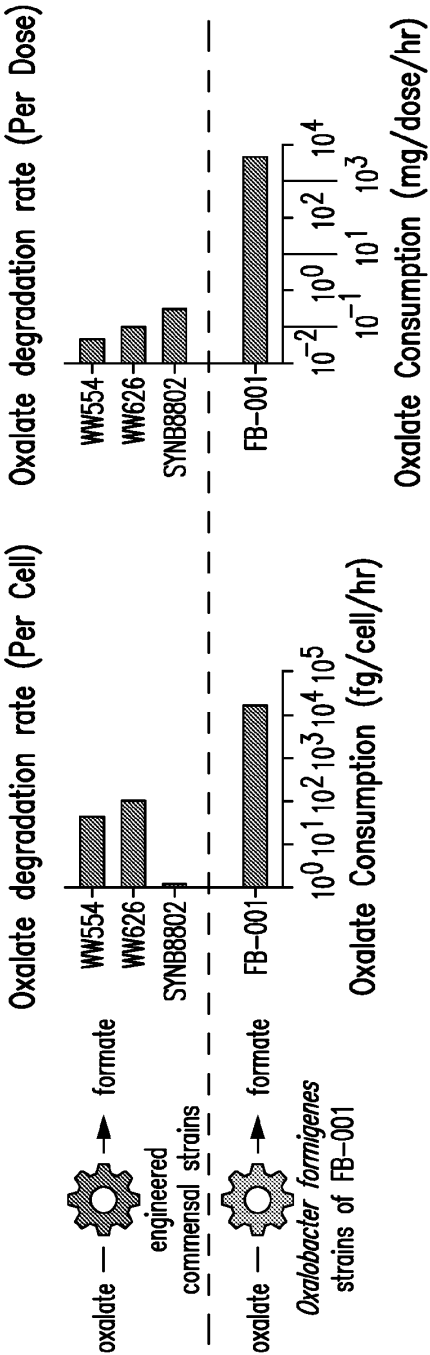


FIGURE 21

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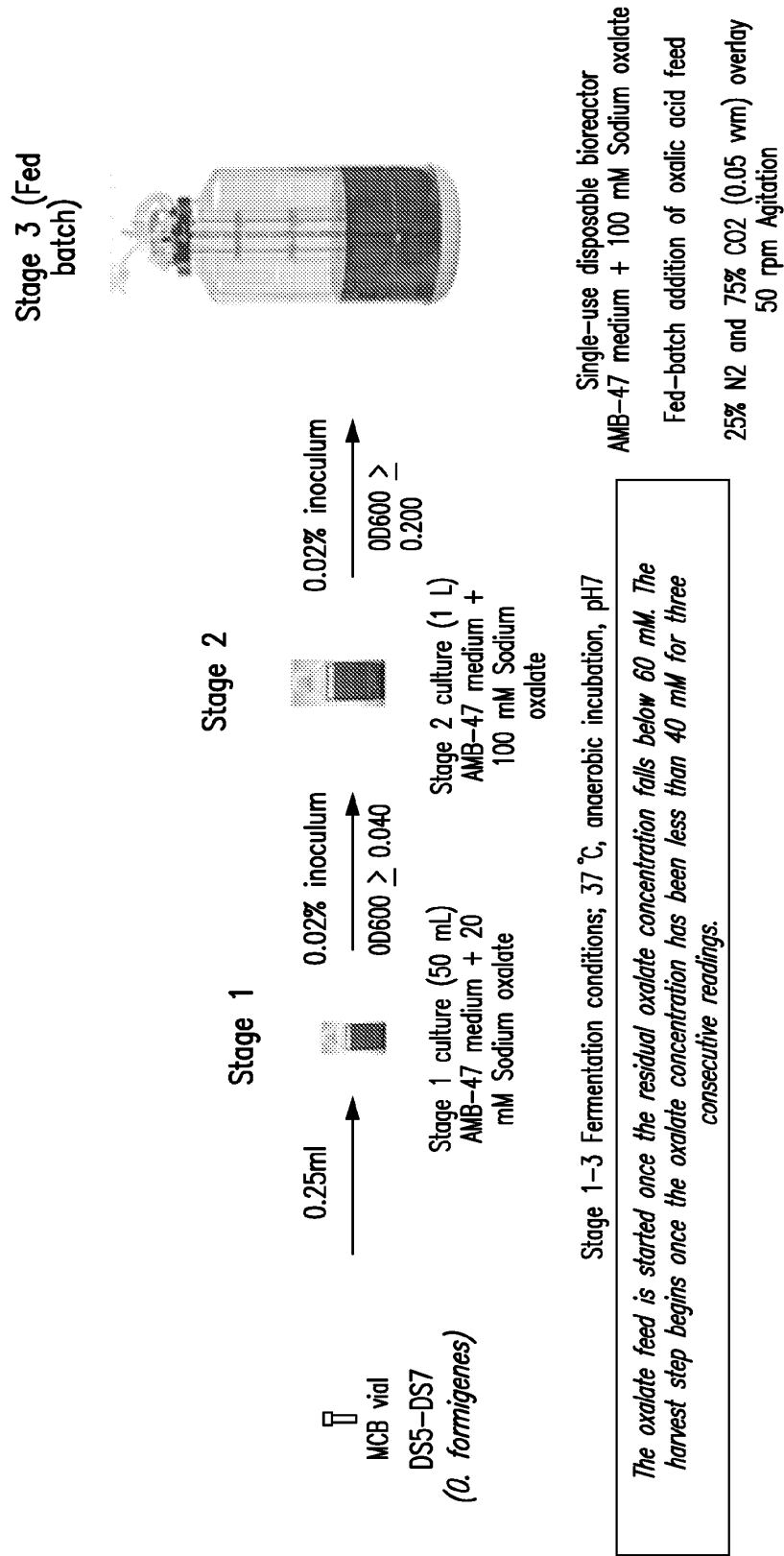
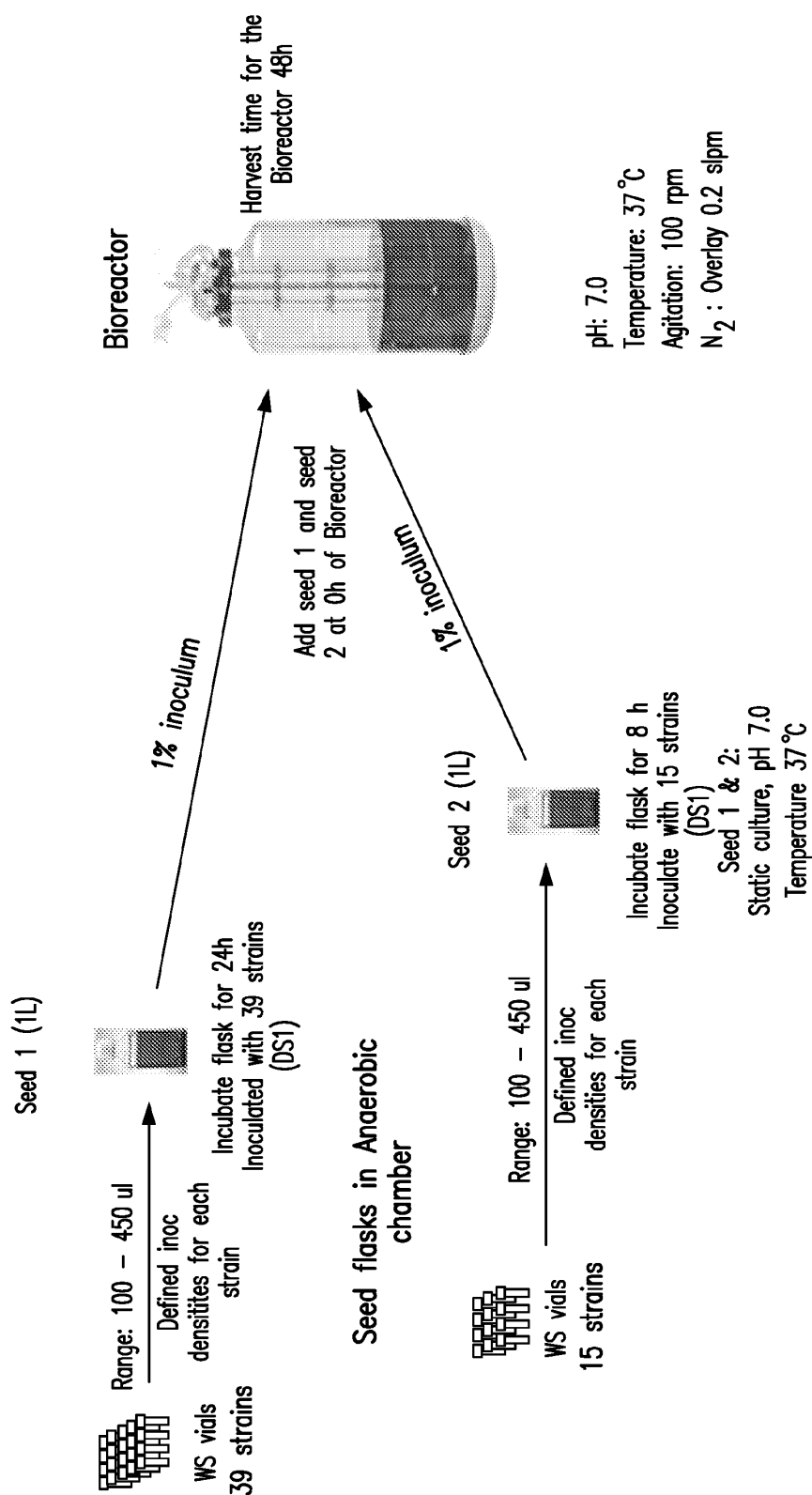


FIGURE 22

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pH: 7.0

Temperature: 37°C

Agitation: 100 rpm

N₂ : Overlay 0.2 slpm

Harvest time for the
Bioreactor 48h

1% inoculum

Add seed 1 and seed 2 at 0h of Bioreactor

inoculum

Seed 2 (1L)

Incubate flask for 8 h
Inoculate with 15 strains
(DS1)

Seed 1 & 2:

Static culture, pH 7.0

Temperature 37°C

Seed 1 (1L)

Range: 100 – 450 ul

Defined inoc

nsites for each

strain

Incubate flask for 24h
inoculated with 39 strains
(DS1)

Seed flasks in Anaerobic chamber

Range: 100 – 450 ul

Defined inoc

densities for each

strain

10

History

FIGURE 23

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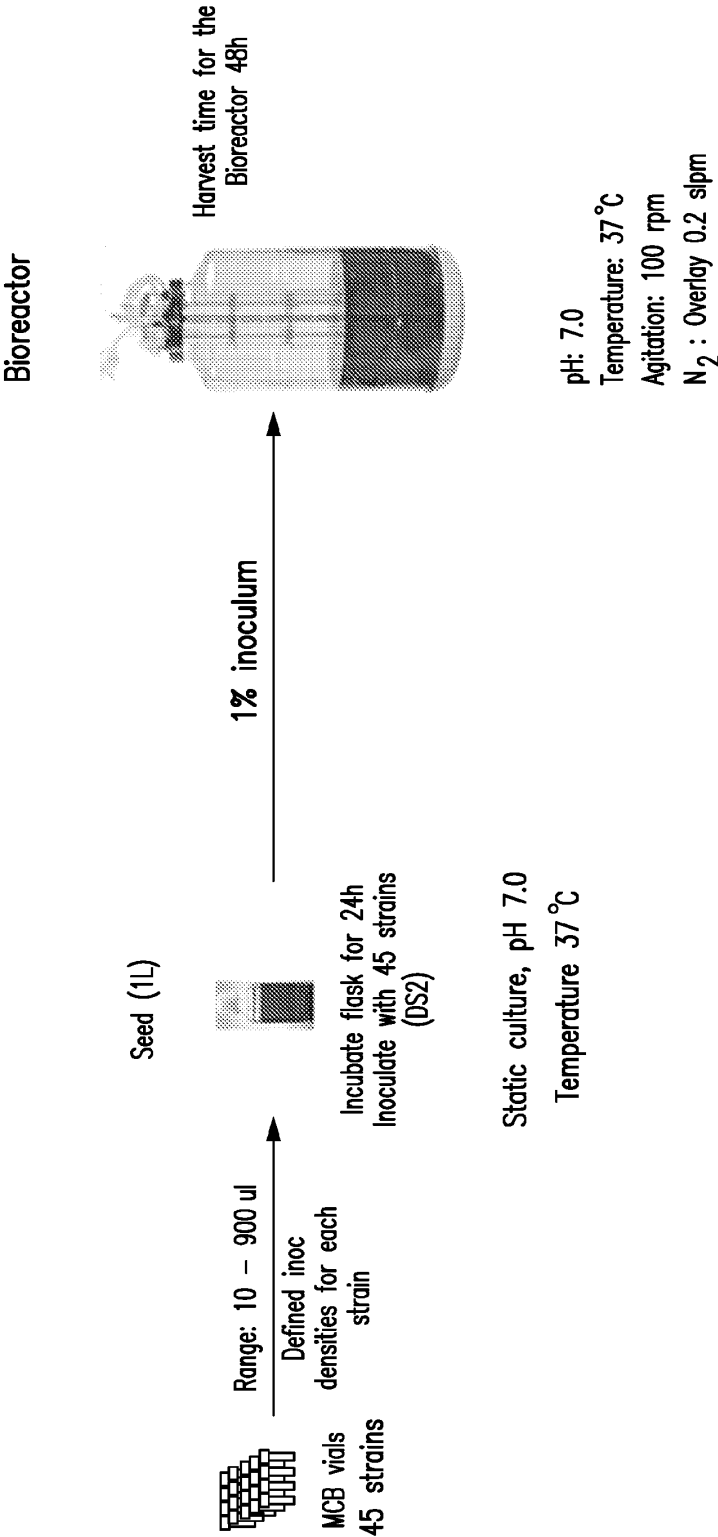


FIGURE 24

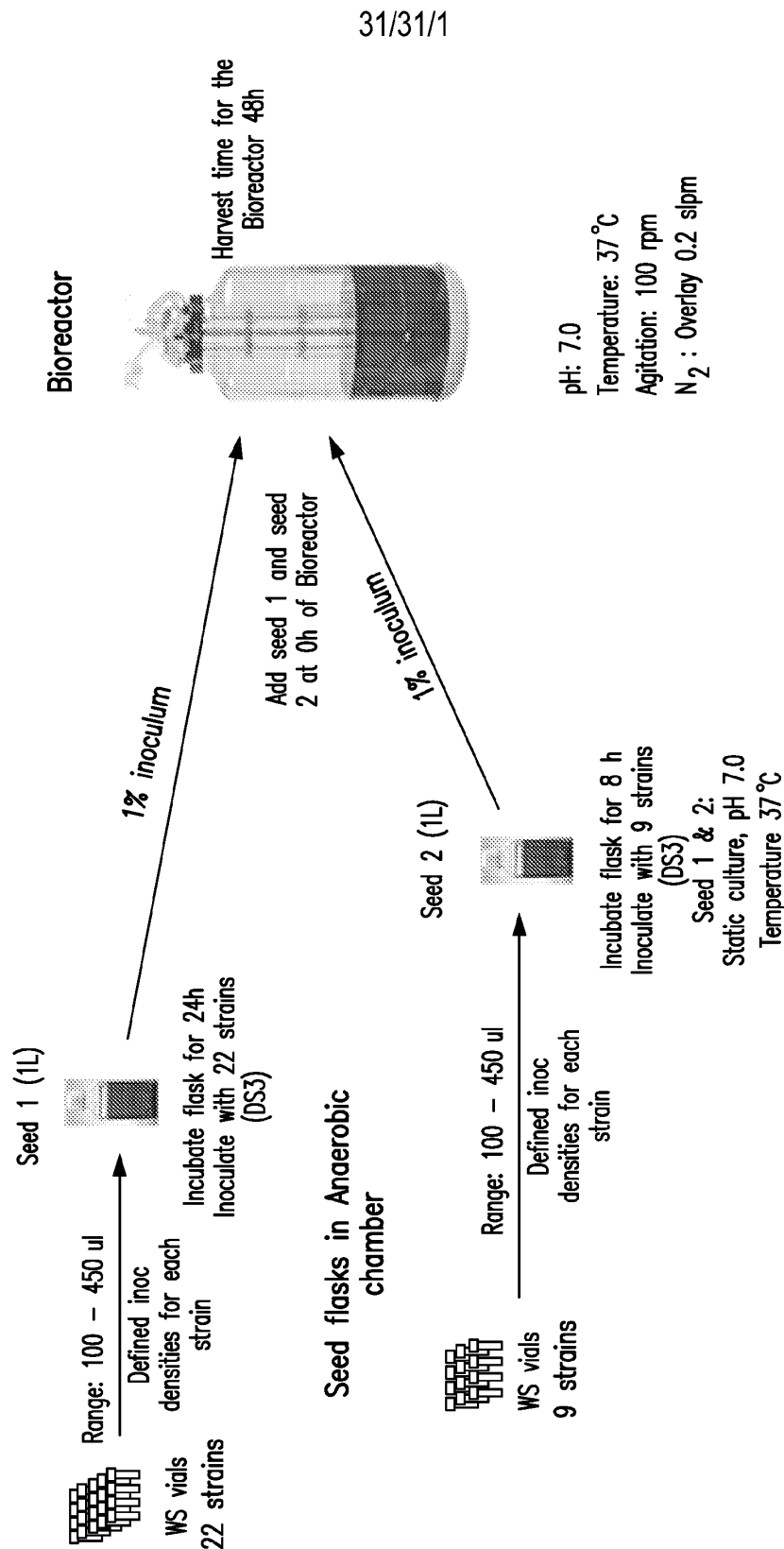


FIGURE 25

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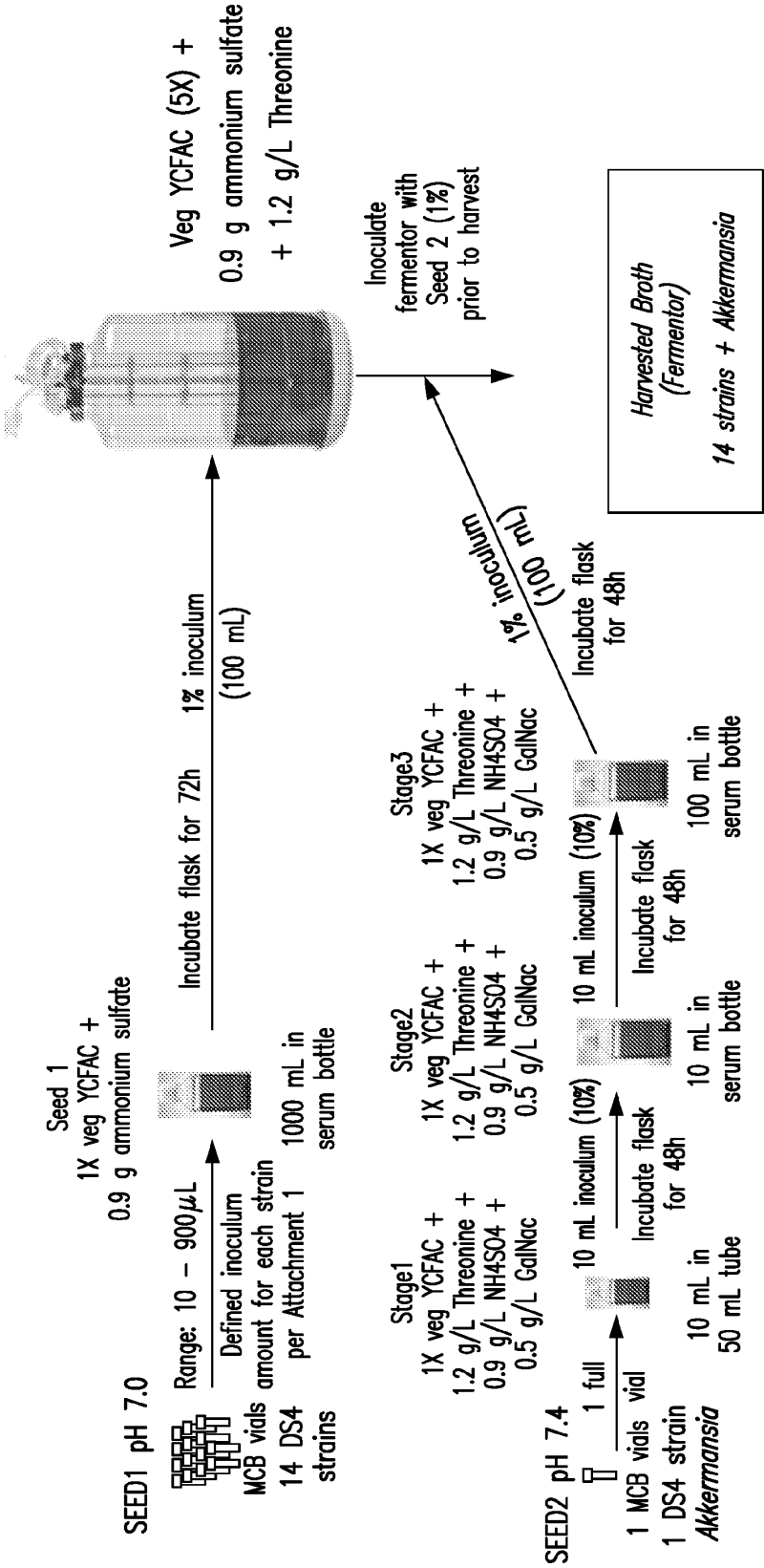


FIGURE 26