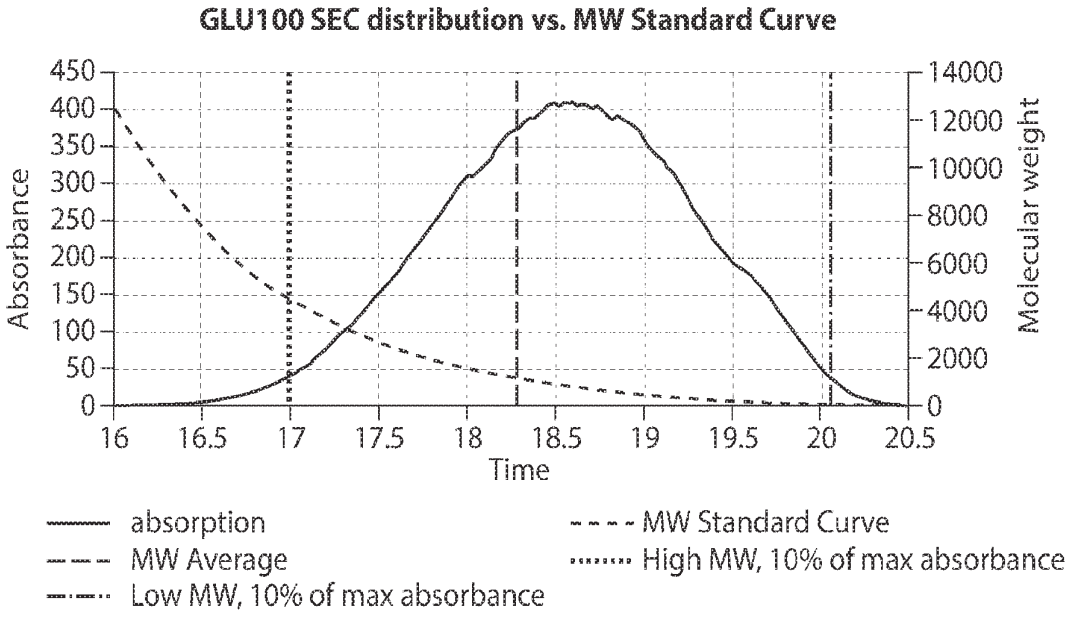

GLU100 SEC distribution vs. MW Standard Curve
Absorbance
Molecular weight
Time
450
400
350
300
250
200
150
100
50
0
14000
12000
10000
8000
6000
4000
2000
0
16
16.5
17
17.5
18
18.5
19
19.5
20
20.5
absorption
MW Standard Curve
MW Average
High MW, 10% of max absorbance
Low MW, 10% of max absorbance

Fig. 1

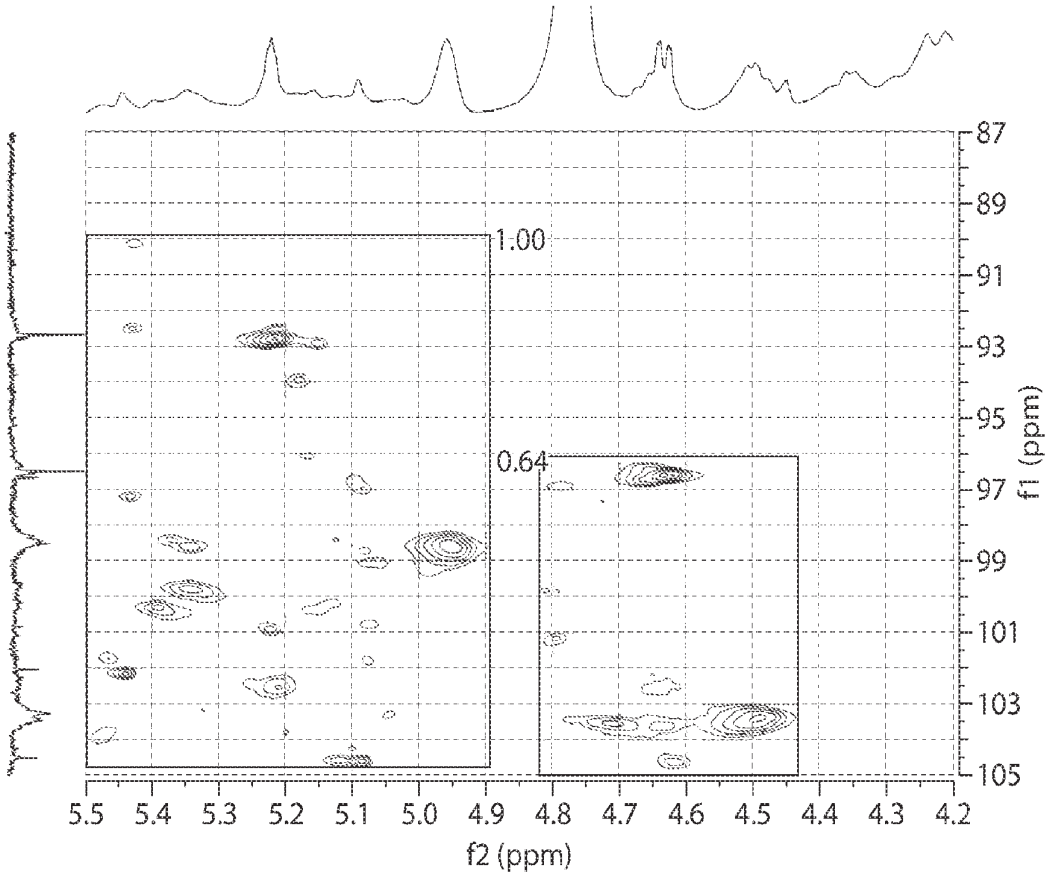

1.00
0.64
87
89
91
93
95
97
99
101
103
105
f1 (ppm)
5.5
5.4
5.3
5.2
5.1
5.0
4.9
4.8
4.7
4.6
4.5
4.4
4.3
4.2
f2 (ppm)

Fig. 2

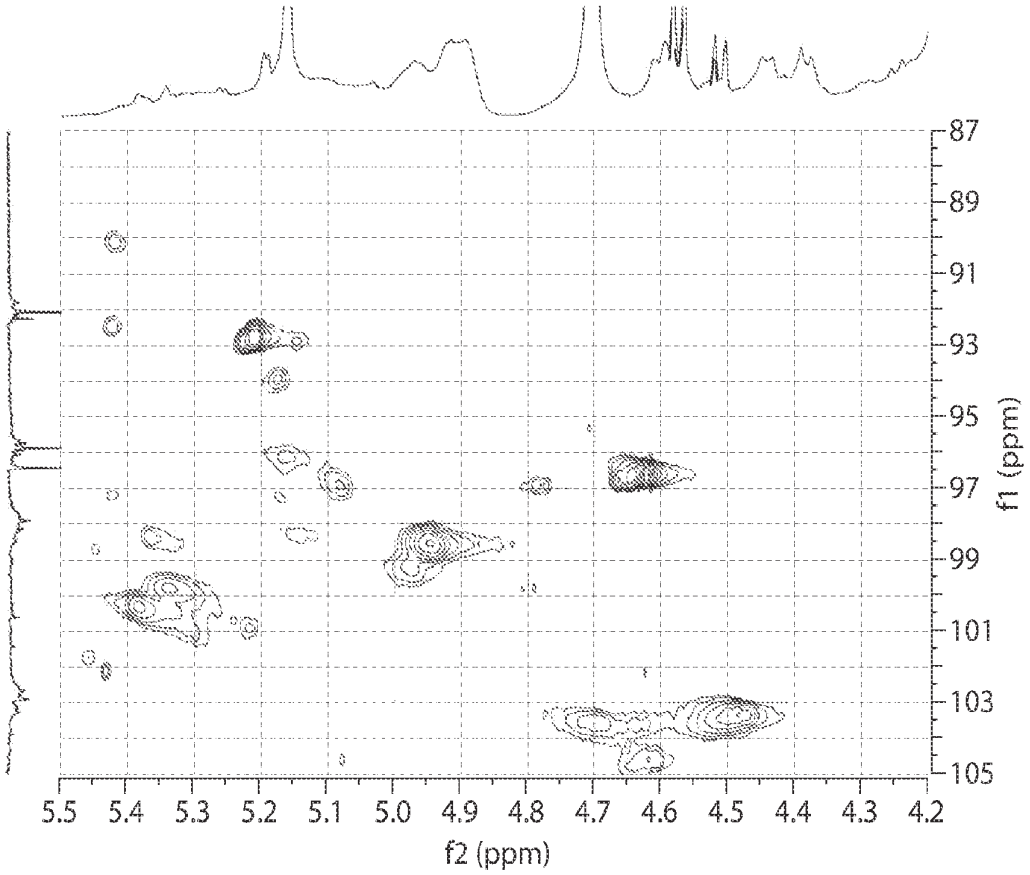

87
89
91
93
95
97
99
101
103
105
f1 (ppm)
5.5
5.4
5.3
5.2
5.1
5.0
4.9
4.8
4.7
4.6
4.5
4.4
4.3
4.2
f2 (ppm)

Fig. 3A

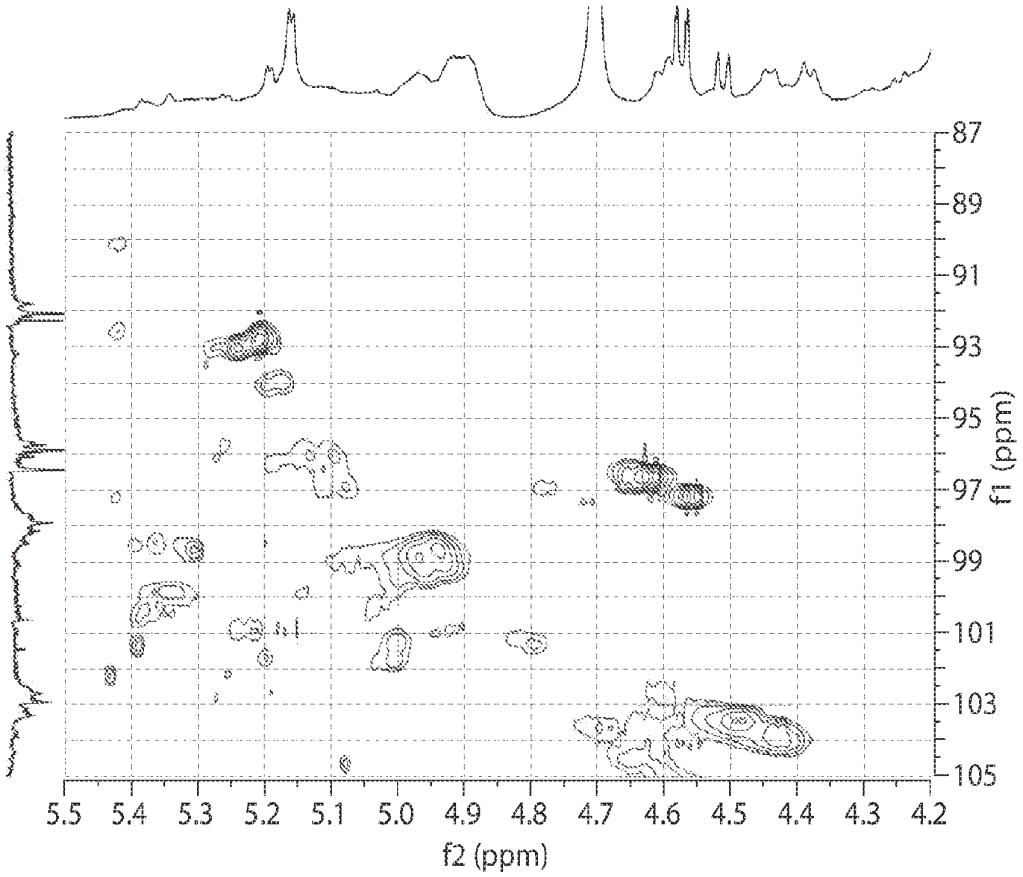

87
89
91
93
95
97
99
101
103
105
f1 (ppm)
5.5
5.4
5.3
5.2
5.1
5.0
4.9
4.8
4.7
4.6
4.5
4.4
4.3
4.2
f2 (ppm)

Fig. 3B

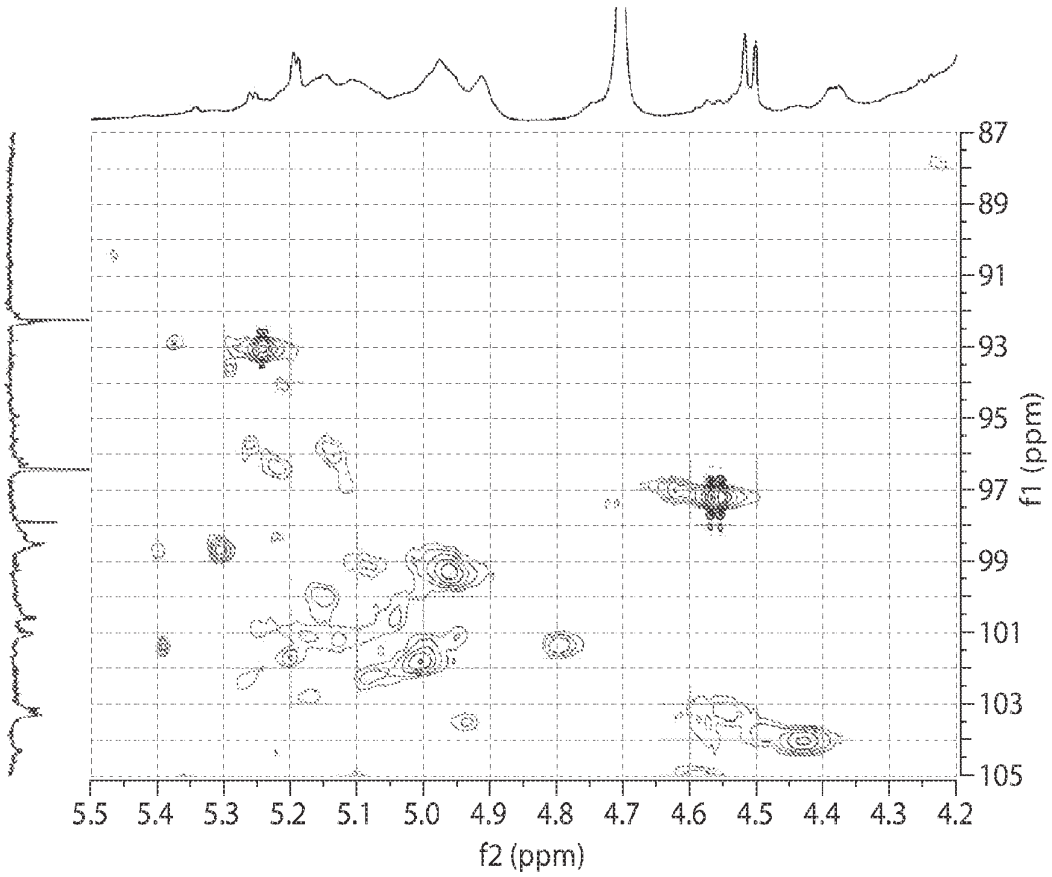

87
89
91
93
95
97
99
101
103
105
f1 (ppm)
5.5 5.4 5.3 5.2 5.1 5.0 4.9 4.8 4.7 4.6 4.5 4.4 4.3 4.2
f2 (ppm)

Fig. 3C

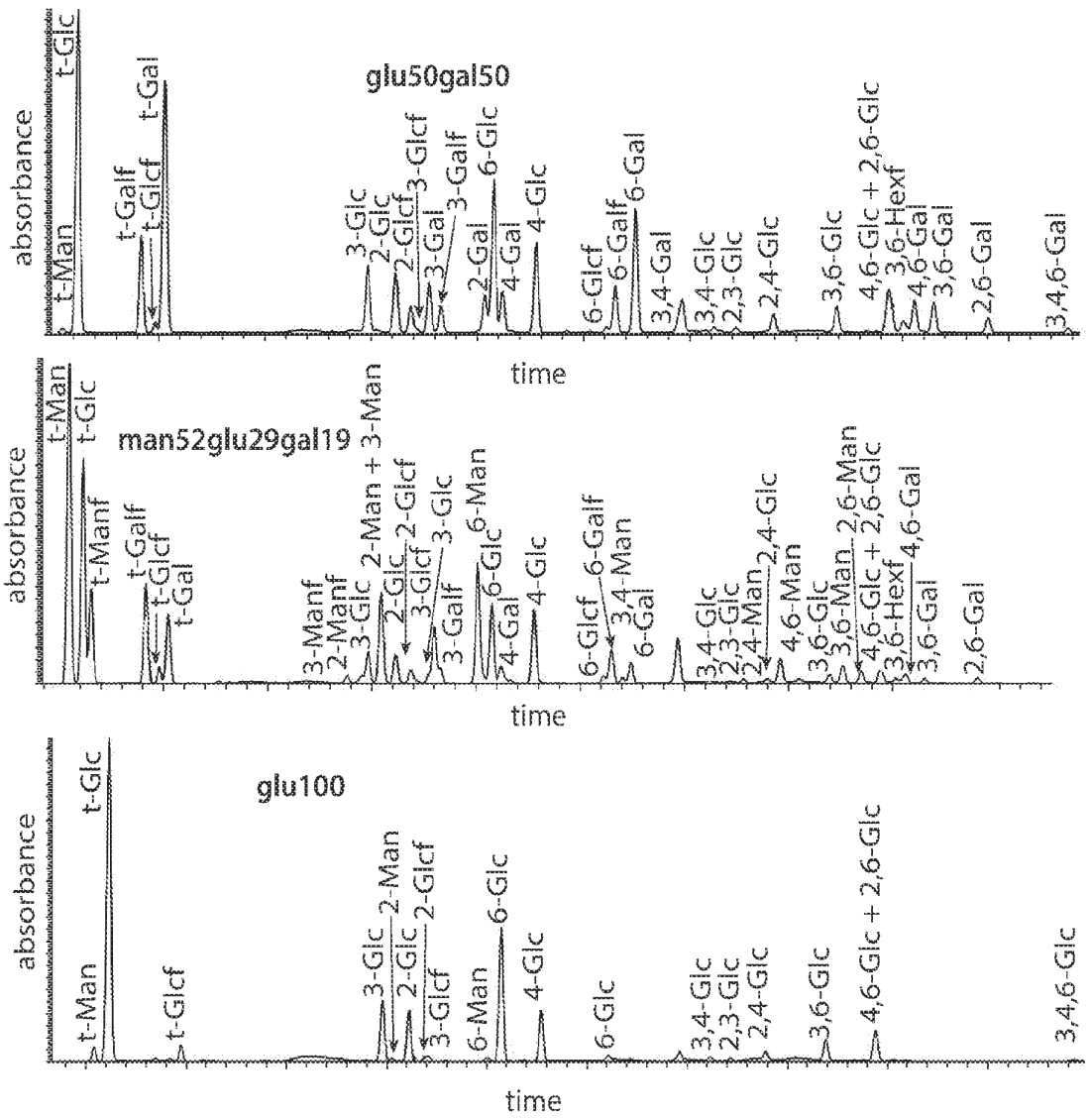

glu50gal50
absorbance
time
t-Man
t-Glc
t-Galf
t-Glcf
t-Gal
3-Glc
2-Glc
2-Glcf
3-Glcf
3-Gal
3-Galf
2-Gal
6-Glc
4-Gal
4-Glc
6-Glcf
6-Galf
6-Gal
3,4-Gal
3,4-Glc
2,3-Glc
2,4-Glc
3,6-Glc
4,6-Glc + 2,6-Glc
3,6-Hexf
4,6-Gal
3,6-Gal
2,6-Gal
3,4,6-Gal
man52glu29gal19
absorbance
time
t-Man
t-Glc
t-Manf
t-Galf
t-Glcf
t-Gal
3-Manf
2-Manf
3-Glc
2-Man + 3-Man
2-Glc
2-Glcf
3-Glcf
3-Glc
3-Galf
6-Man
6-Glc
4-Gal
4-Glc
6-Glcf
6-Galf
3,4-Man
6-Gal
3,4-Glc
2,3-Glc
2,4-Man
2,4-Glc
4,6-Man
3,6-Glc
3,6-Man
2,6-Man
4,6-Glc + 2,6-Glc
3,6-Hexf
4,6-Gal
3,6-Gal
2,6-Gal
glu100
absorbance
time
t-Man
t-Glc
t-Glcf
3-Glc
2-Man
2-Glc
2-Glcf
3-Glcf
6-Man
6-Glc
4-Glc
6-Glc
3,4-Glc
2,3-Glc
2,4-Glc
3,6-Glc
4,6-Glc + 2,6-Glc
3,4,6-Glc

Fig. 4

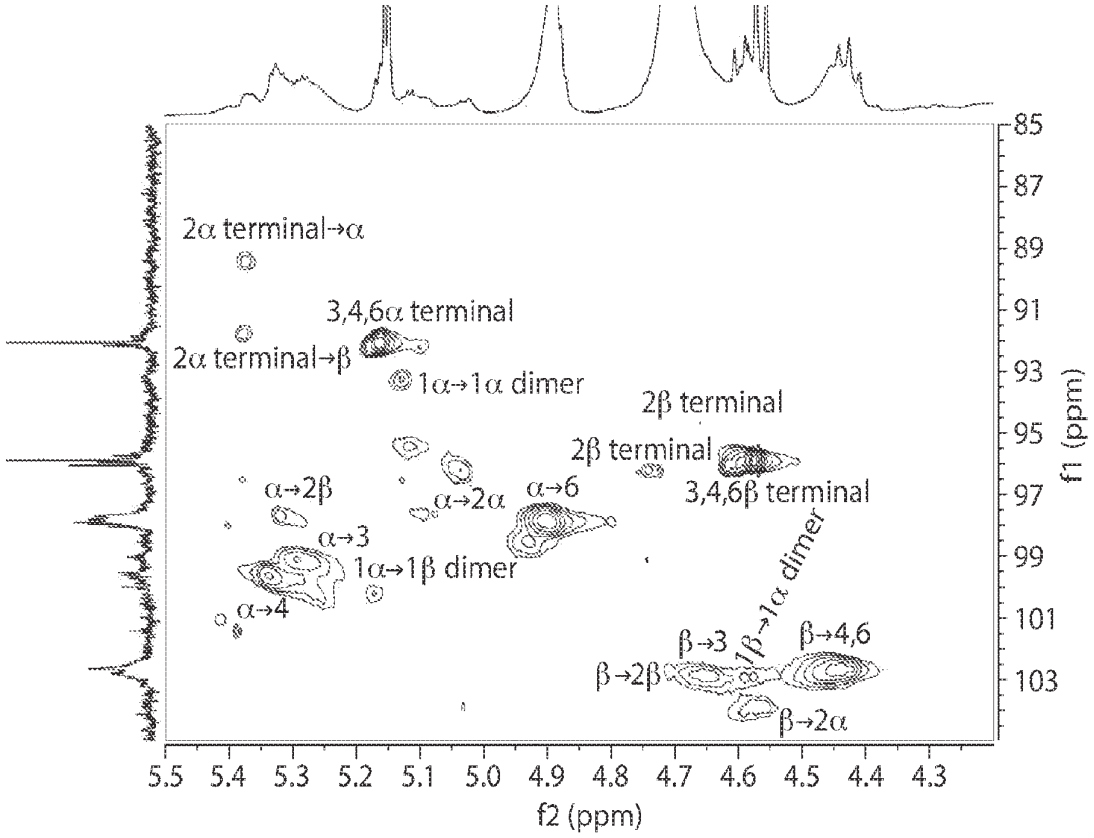

2α terminal→α
3,4,6α terminal
2α terminal→β
1α→1α dimer
2β terminal
2β terminal
3,4,6β terminal
α→2β
α→2α
α→6
α→3
1α→1β dimer
α→4
β→3
β→1α dimer
β→4,6
β→2β
β→2α
85
87
89
91
93
95
97
99
101
103
f1 (ppm)
5.5 5.4 5.3 5.2 5.1 5.0 4.9 4.8 4.7 4.6 4.5 4.4 4.3
f2 (ppm)

Fig. 5

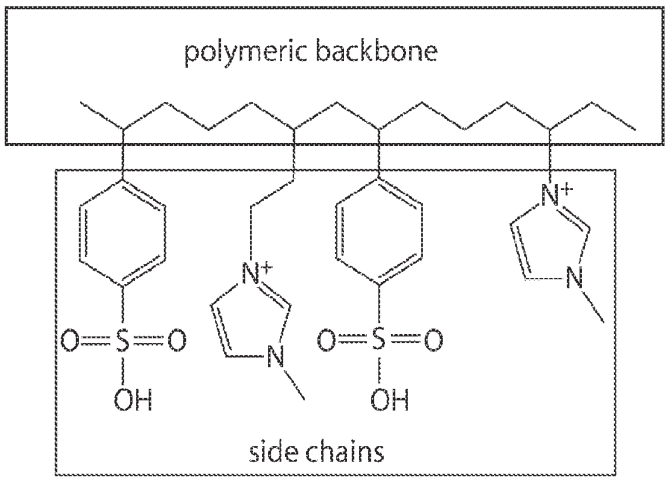

polymeric backbone
side chains

Fig. 6A

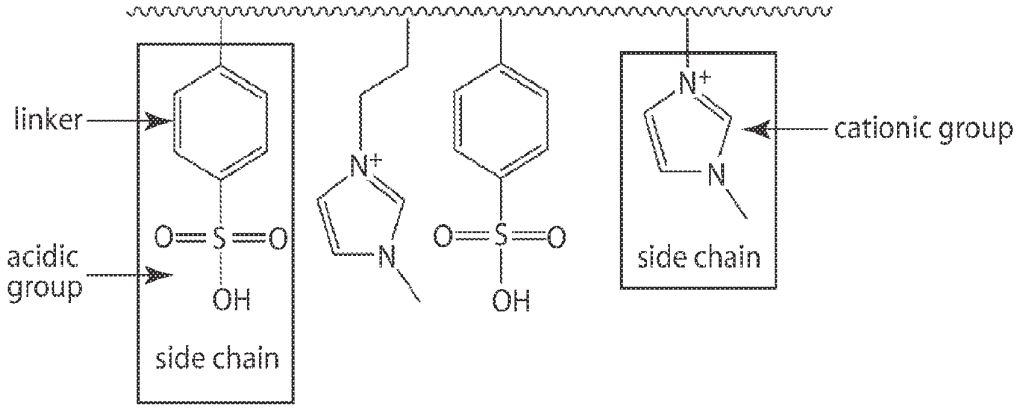

linker
acidic group
side chain
side chain
cationic group

Fig. 6B

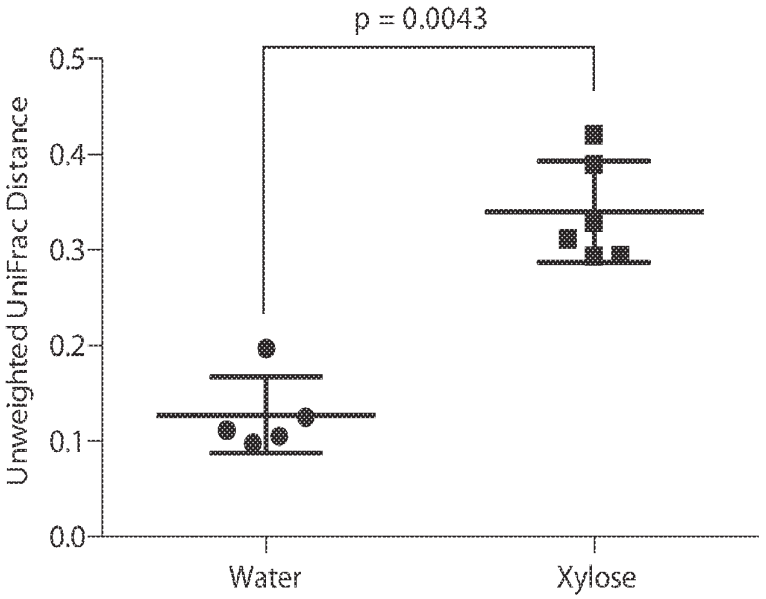

p = 0.0043
Unweighted UniFrac Distance
0.5
0.4
0.3
0.2
0.1
0.0
Water
Xylose

Fig. 7

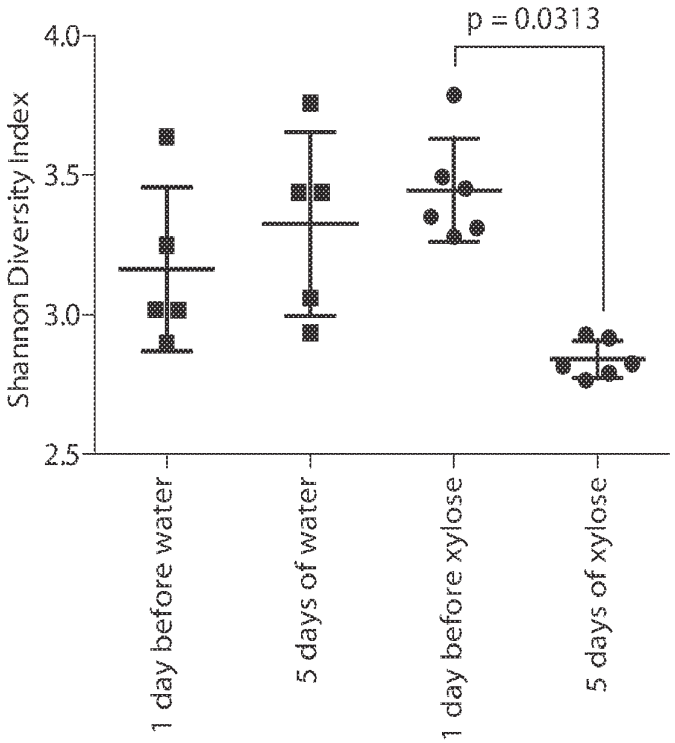

p = 0.0313
Shannon Diversity Index
4.0
3.5
3.0
2.5
1 day before water
5 days of water
1 day before xylose
5 days of xylose

Fig. 8

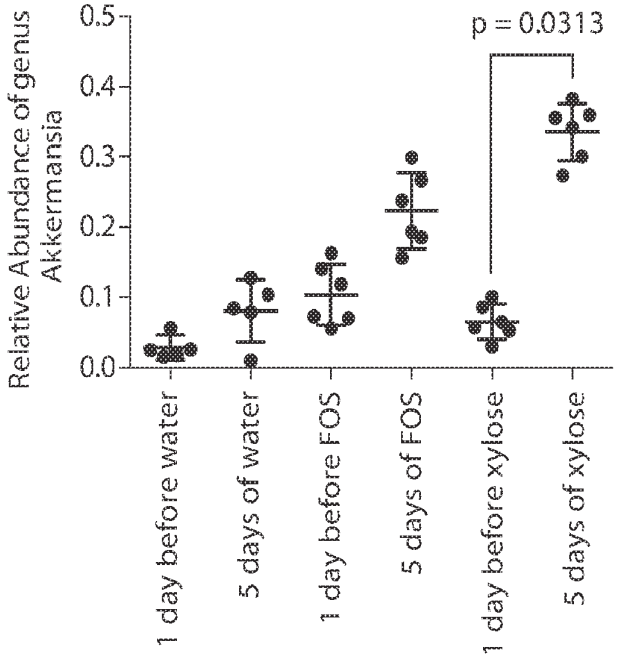

Relative Abundance of genus Akkermansia
0.5
0.4
0.3
0.2
0.1
0.0
p = 0.0313
1 day before water
5 days of water
1 day before FOS
5 days of FOS
1 day before xylose
5 days of xylose

Fig. 9A

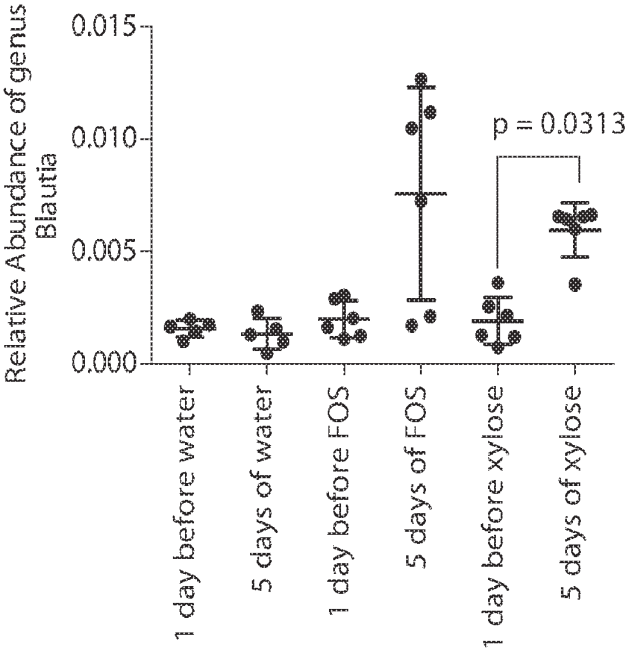

Relative Abundance of genus Blautia
0.015
0.010
0.005
0.000
p = 0.0313
1 day before water
5 days of water
1 day before FOS
5 days of FOS
1 day before xylose
5 days of xylose

Fig. 9B

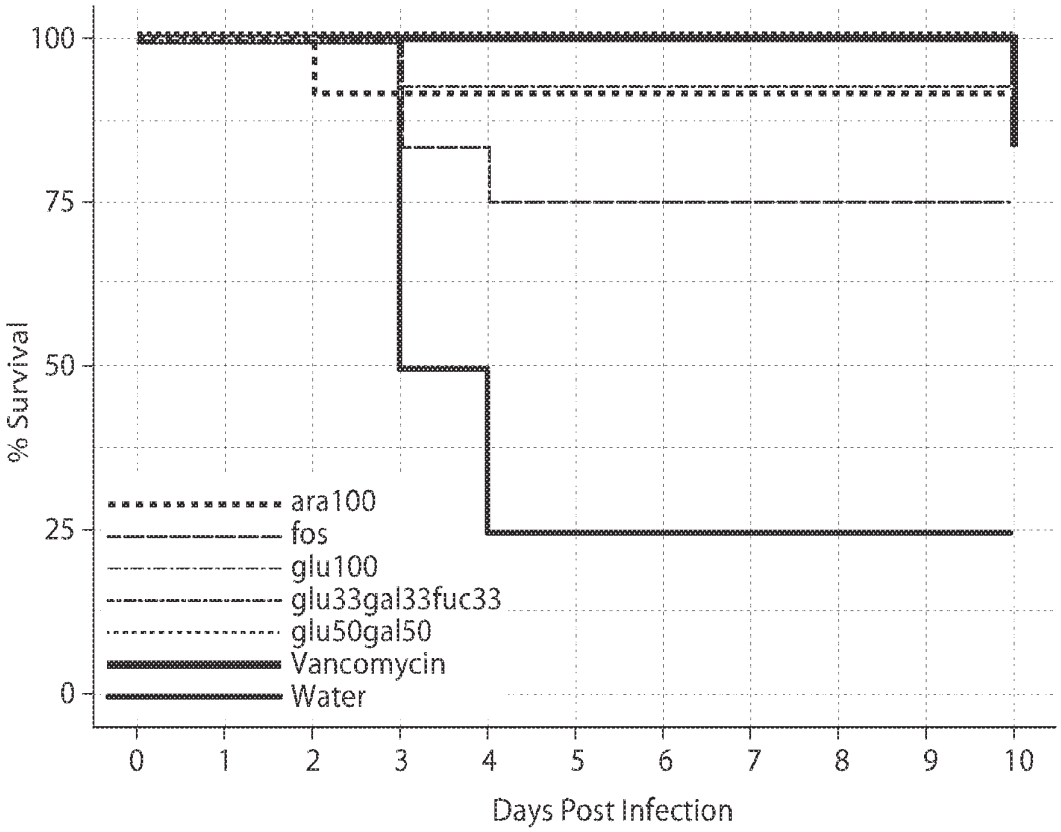

100
75
50
25
0
% Survival
ara100
fos
glu100
glu33gal33fuc33
glu50gal50
Vancomycin
Water
0
1
2
3
4
5
6
7
8
9
10
Days Post Infection

Fig. 10

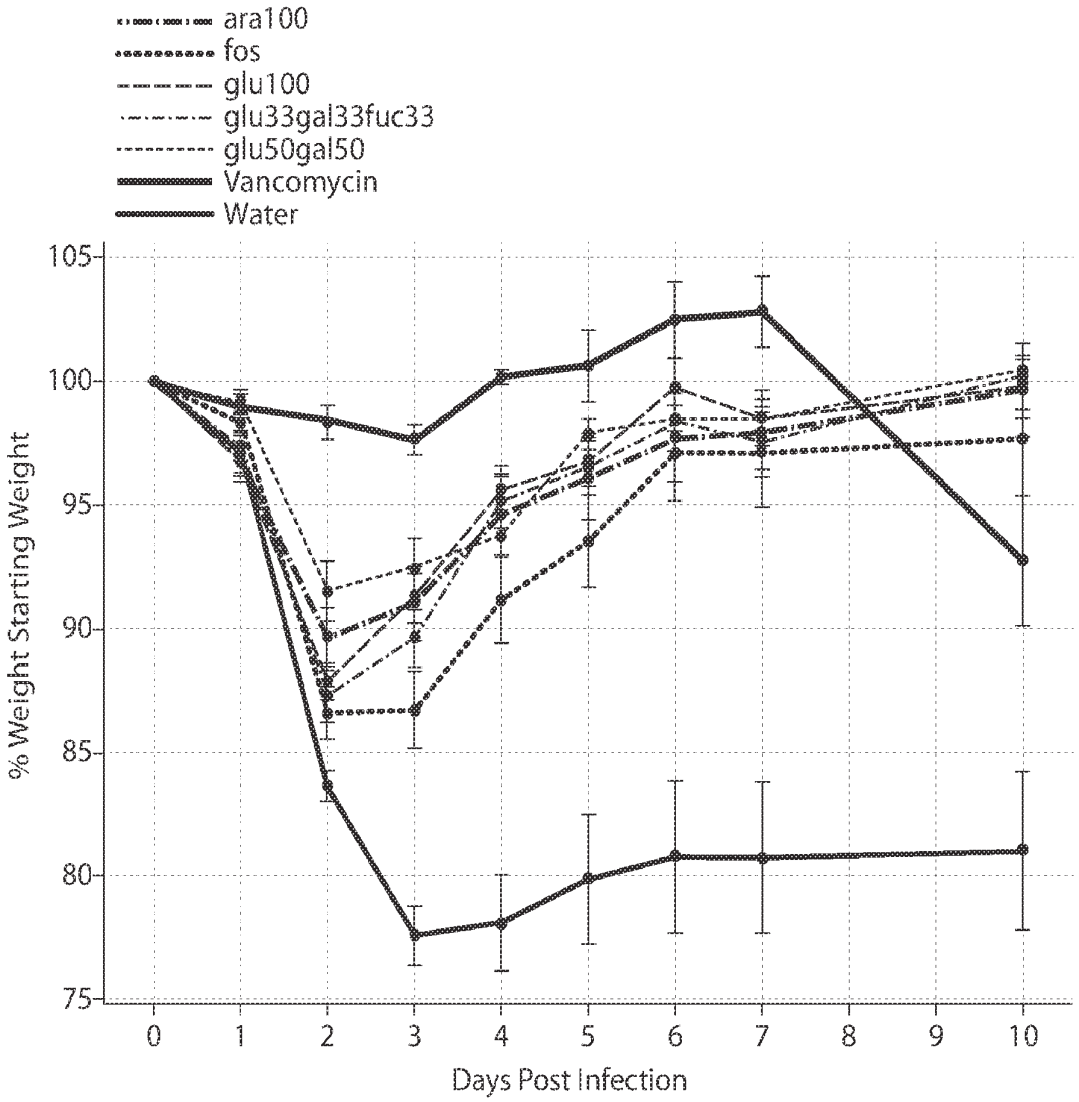

ara100
fos
glu100
glu33gal33fuc33
glu50gal50
Vancomycin
Water
% Weight Starting Weight
105
100
95
90
85
80
75
0
1
2
3
4
5
6
7
8
9
10
Days Post Infection

Fig. 11

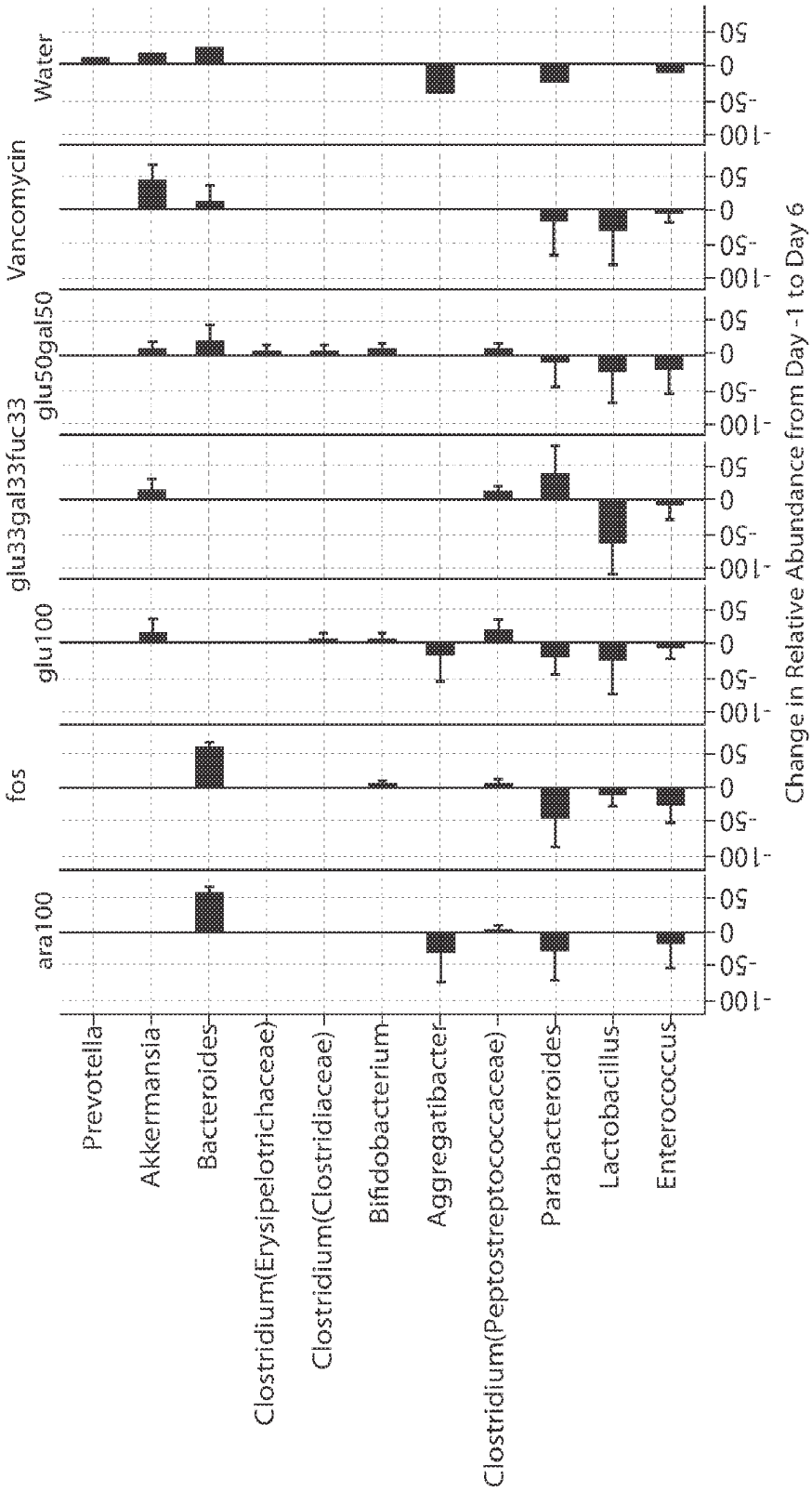

Water
Vancomycin
glu50gal50
glu33gal33fuc33
glu100
fos
ara100
50
0
-50
-100
Change in Relative Abundance from Day -1 to Day 6
Prevotella
Akkermansia
Bacteroides
Clostridium(Erysipelotrichaceae)
Clostridium(Clostridiaceae)
Bifidobacterium
Aggregatibacter
Clostridium(Peptostreptococcaceae)
Parabacteroides
Lactobacillus
Enterococcus

Fig. 12

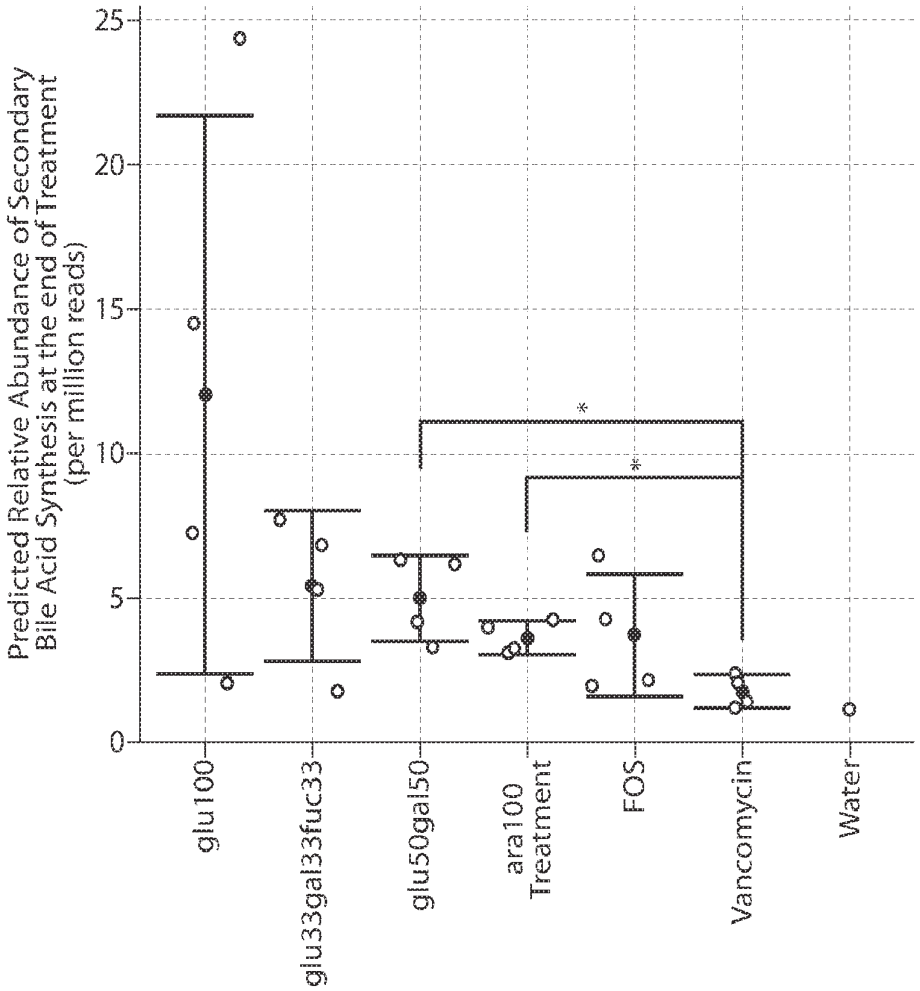

Predicted Relative Abundance of Secondary Bile Acid Synthesis at the end of Treatment (per million reads)
25
20
15
10
5
0
*
*
glu100
glu33gal33fuc33
glu50gal50
ara100
FOS
Vancomycin
Water
Treatment

Fig. 13

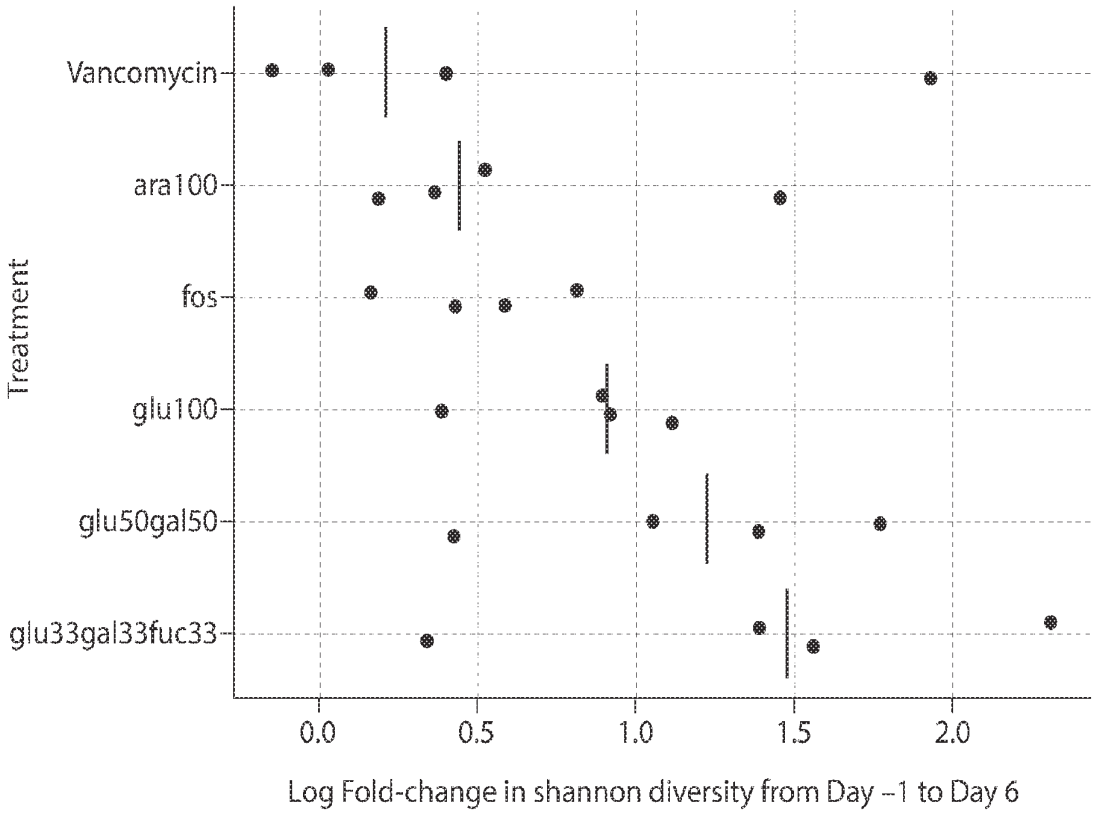

Vancomycin
ara100
fos
glu100
glu50gal50
glu33gal33fuc33
Treatment
0.0
0.5
1.0
1.5
2.0
Log Fold-change in shannon diversity from Day −1 to Day 6

Fig. 14

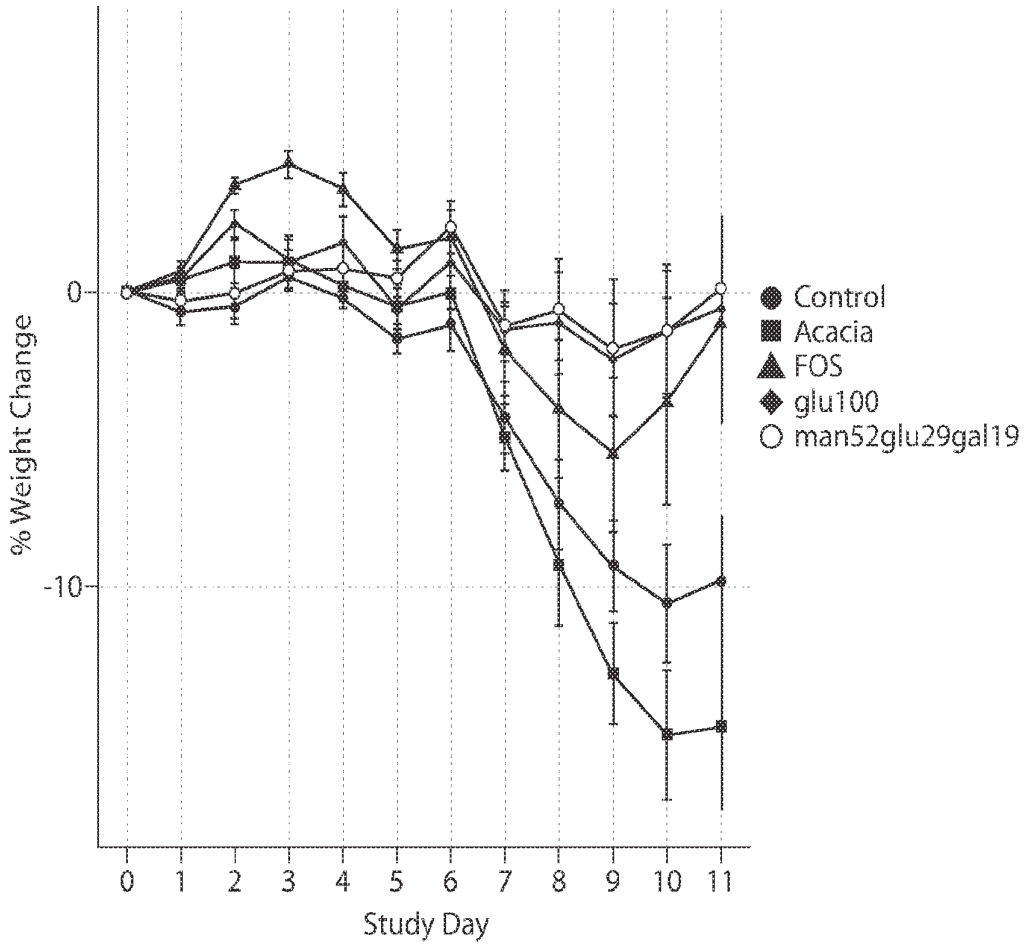

% Weight Change
0
-10
0 1 2 3 4 5 6 7 8 9 10 11
Study Day
Control
Acacia
FOS
glu100
man52glu29gal19

Fig. 15

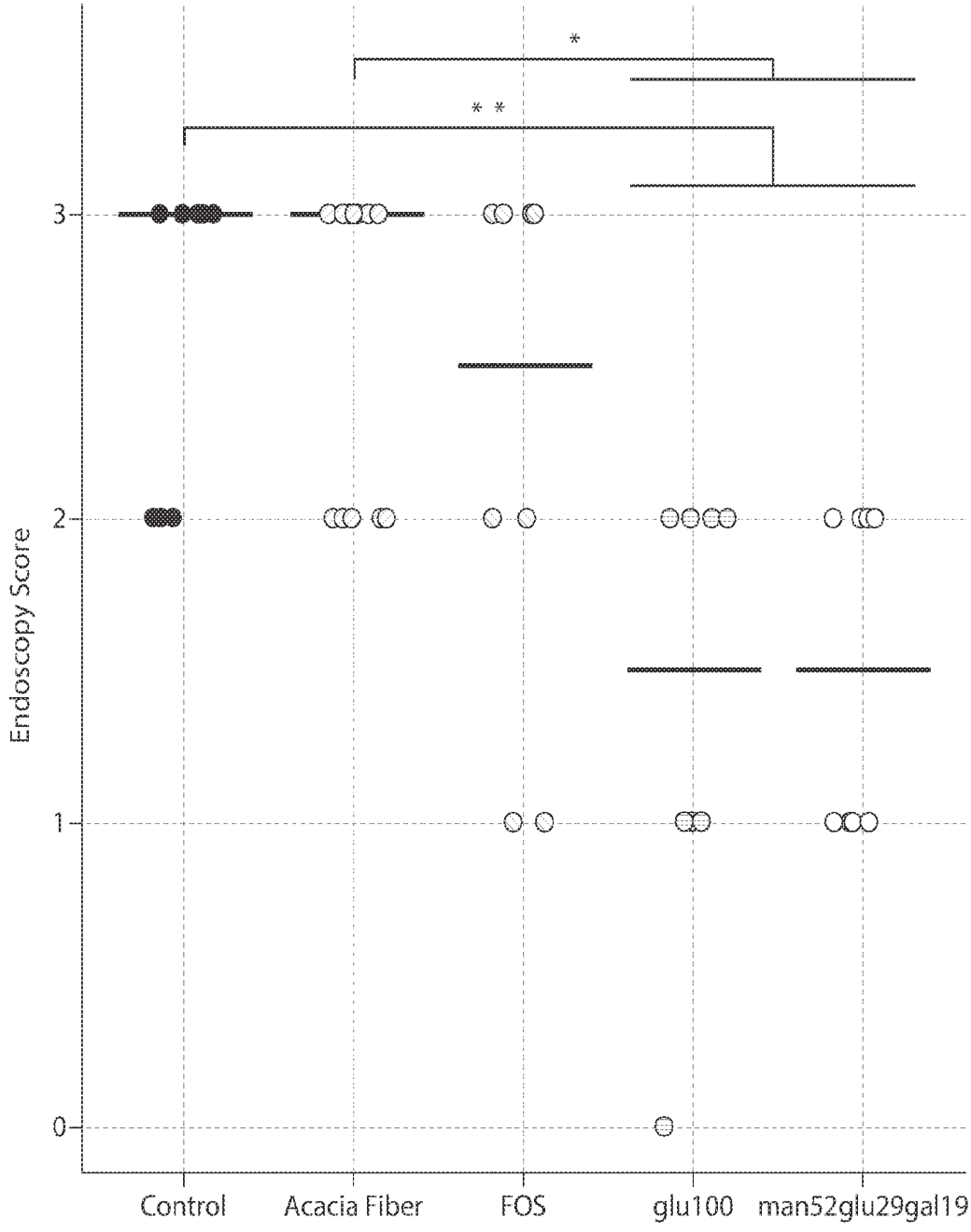

*
* *
3
2
1
0
Endoscopy Score
Control
Acacia Fiber
FOS
glu100
man52glu29gal19

Fig. 16

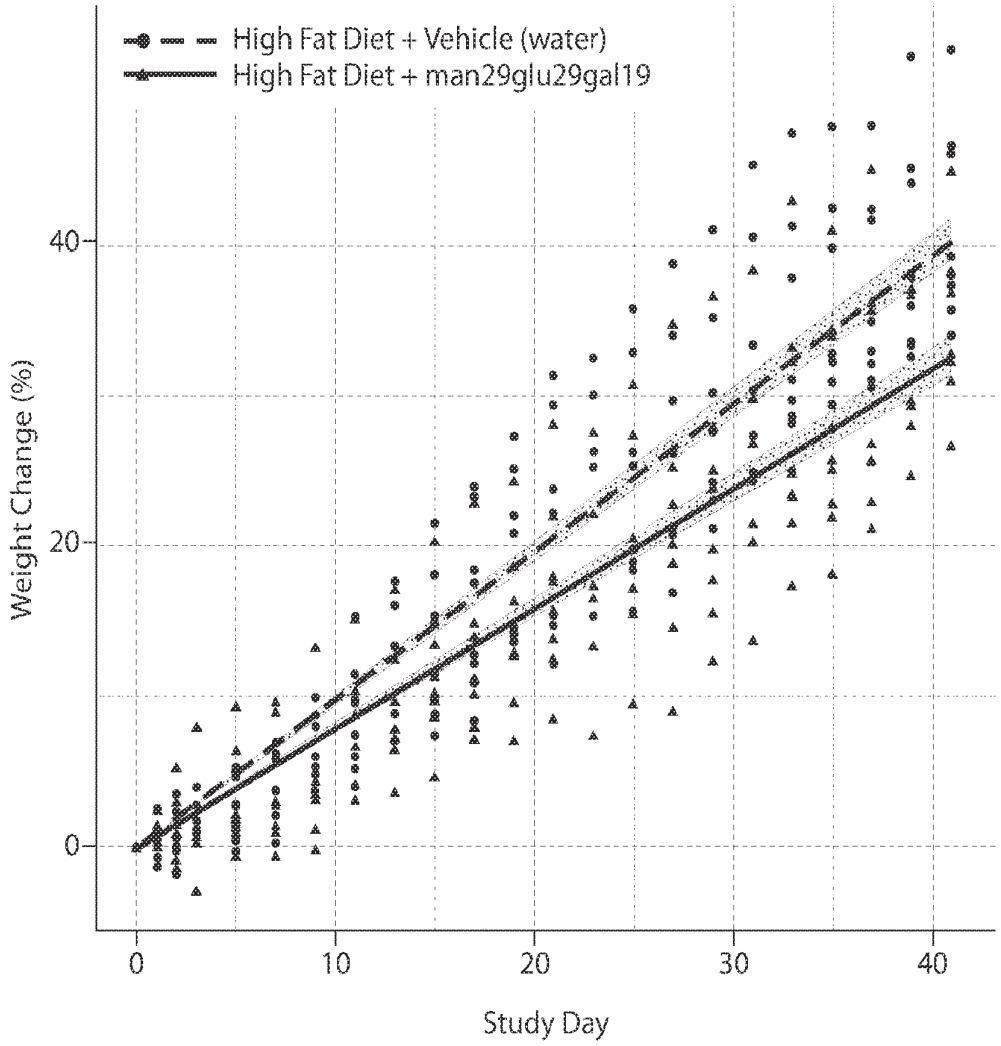

High Fat Diet + Vehicle (water)
High Fat Diet + man29glu29gal19
Weight Change (%)
0
20
40
0
10
20
30
40
Study Day

Fig. 17A

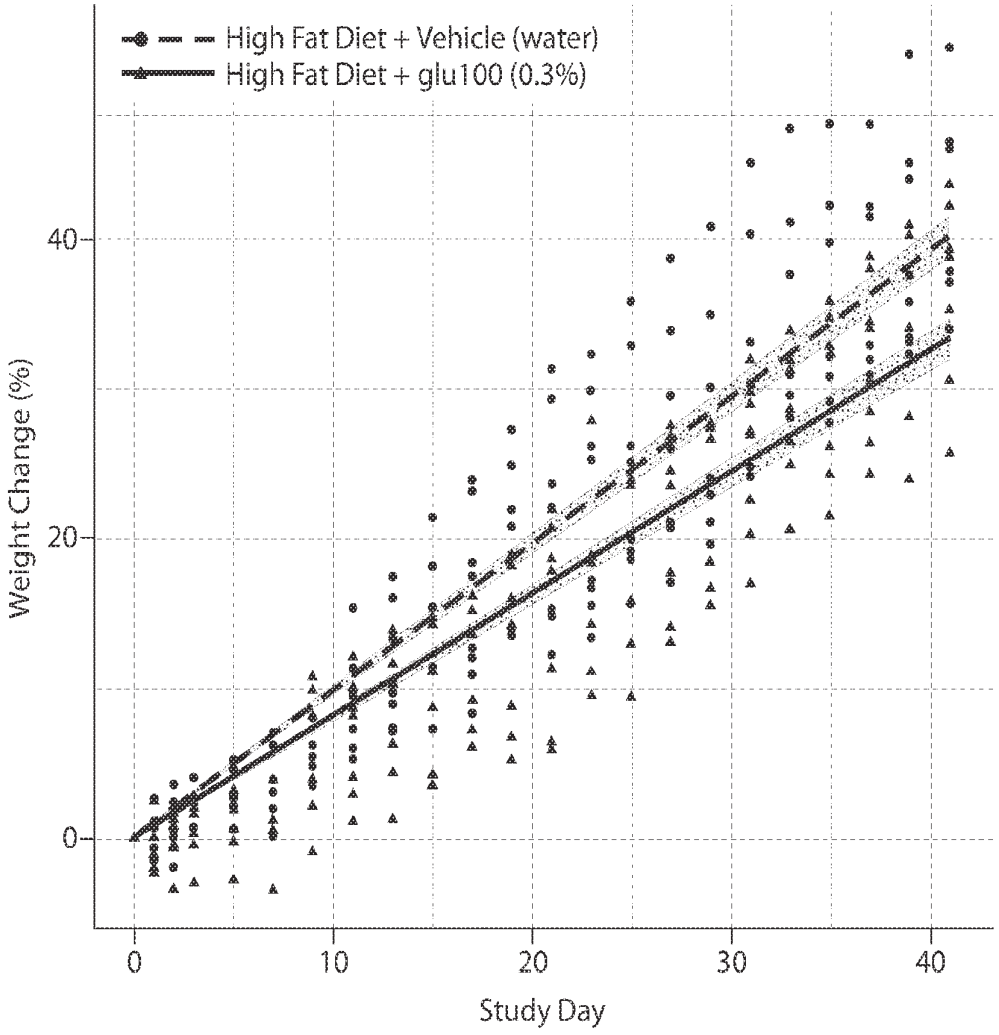

High Fat Diet + Vehicle (water)
High Fat Diet + glu100 (0.3%)
Weight Change (%)
0
20
40
0
10
20
30
40
Study Day

Fig. 17B

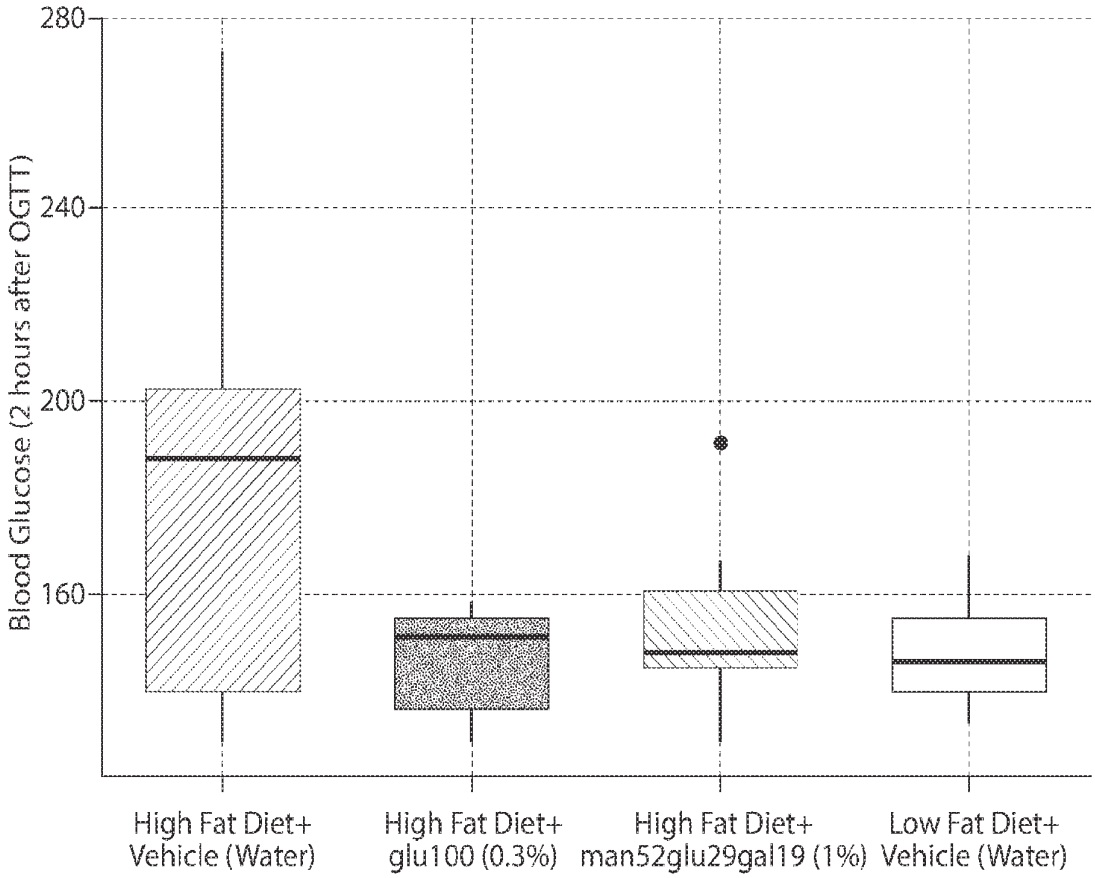

280
240
200
160
Blood Glucose (2 hours after OGTT)
High Fat Diet+ Vehicle (Water)
High Fat Diet+ glu100 (0.3%)
High Fat Diet+ man52glu29gal19 (1%)
Low Fat Diet+ Vehicle (Water)

Fig. 18

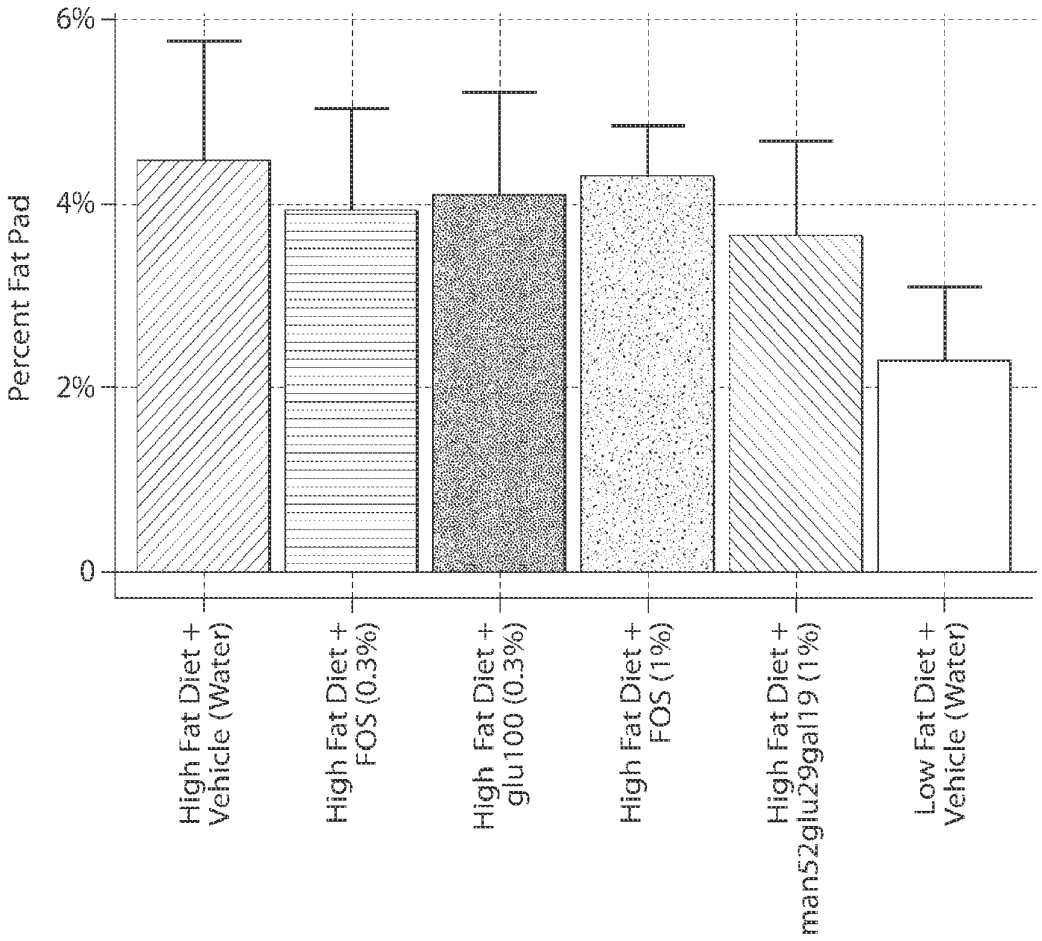

6%
4%
2%
0
Percent Fat Pad
High Fat Diet + Vehicle (Water)
High Fat Diet + FOS (0.3%)
High Fat Diet + glu100 (0.3%)
High Fat Diet + FOS (1%)
High Fat Diet + man52glu29gal19 (1%)
Low Fat Diet + Vehicle (Water)

Fig. 19