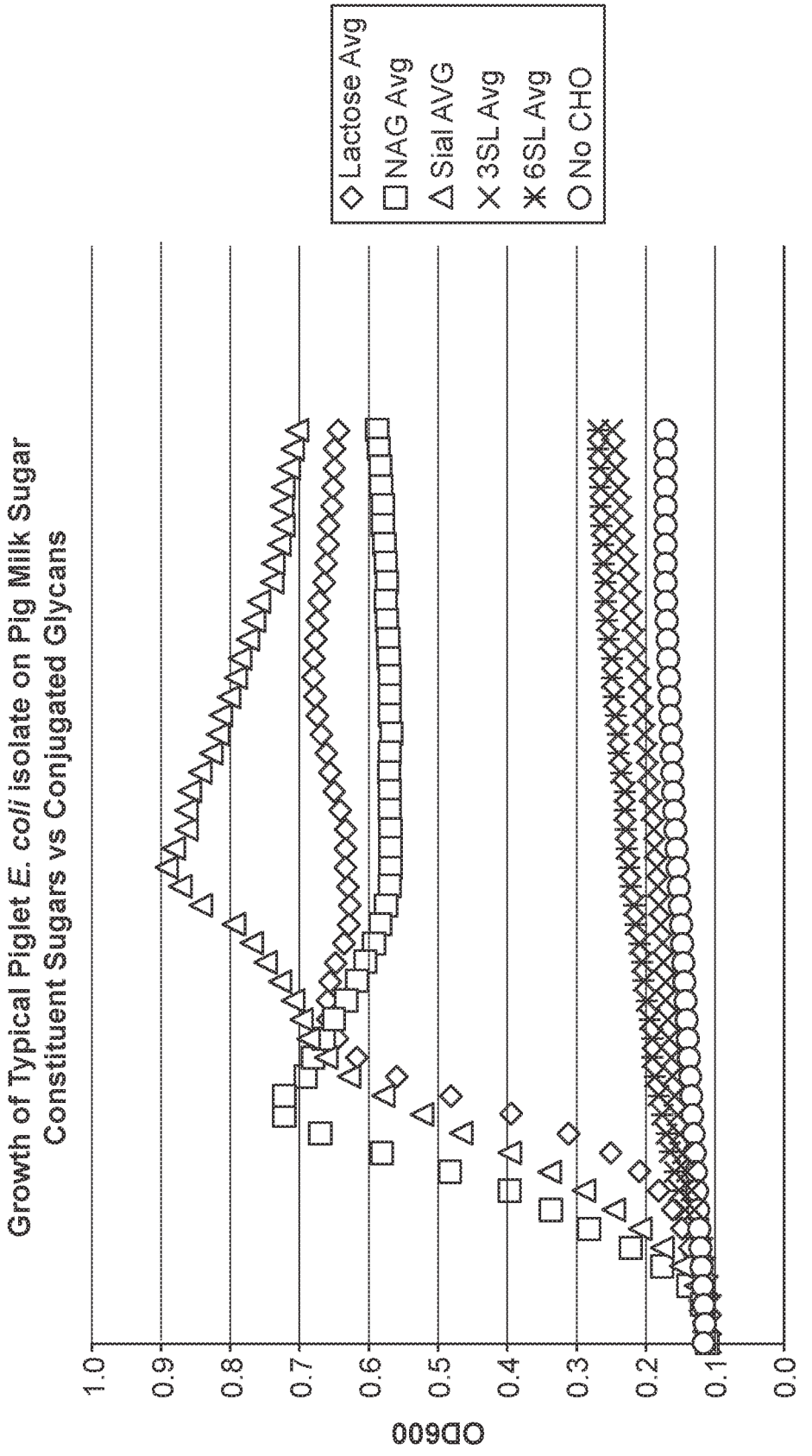

Growth of Typical Piglet E. coli isolate on Pig Milk Sugar
Constituent Sugars vs Conjugated Glycans
Lactose Avg
NAG Avg
Sial AVG
3SL Avg
6SL Avg
No CHO
OD600
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
Time (24 hrs)

FIG. 1

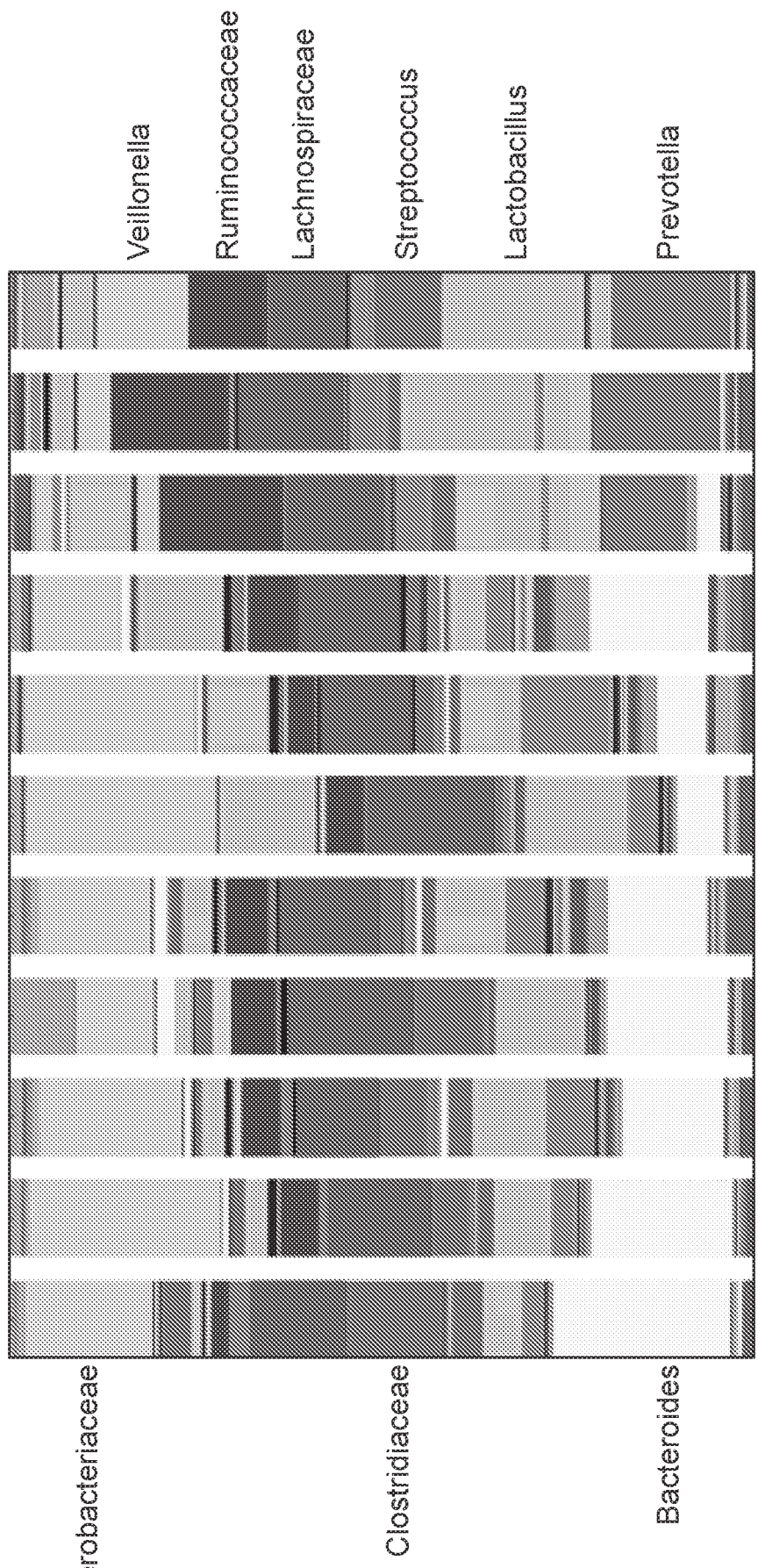

Veillonella
Ruminococcaceae
Lachnospiraceae
Streptococcus
Lactobacillus
Prevotella
Enterobacteriaceae
Clostridiaceae
Bacteroides
1
3
5
6
7
8
14
21
28
35
42
Sample Day

FIG. 2

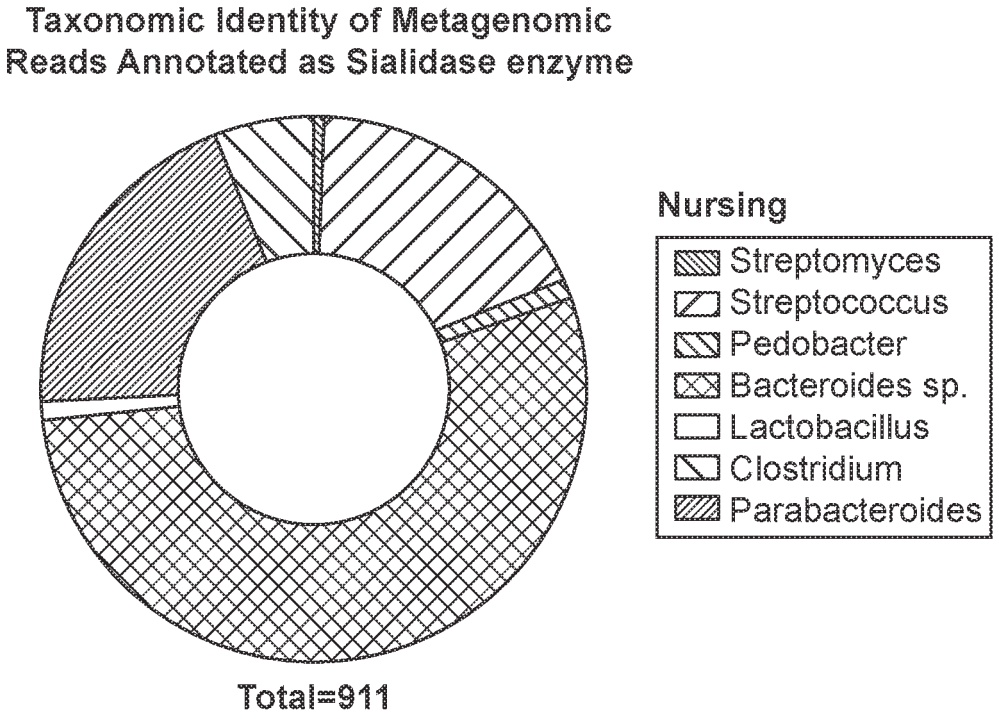

Taxonomic Identity of Metagenomic Reads Annotated as Sialidase enzyme
Nursing
Streptomyces
Streptococcus
Pedobacter
Bacteroides sp.
Lactobacillus
Clostridium
Parabacteroides
Total=911

FIG. 3A

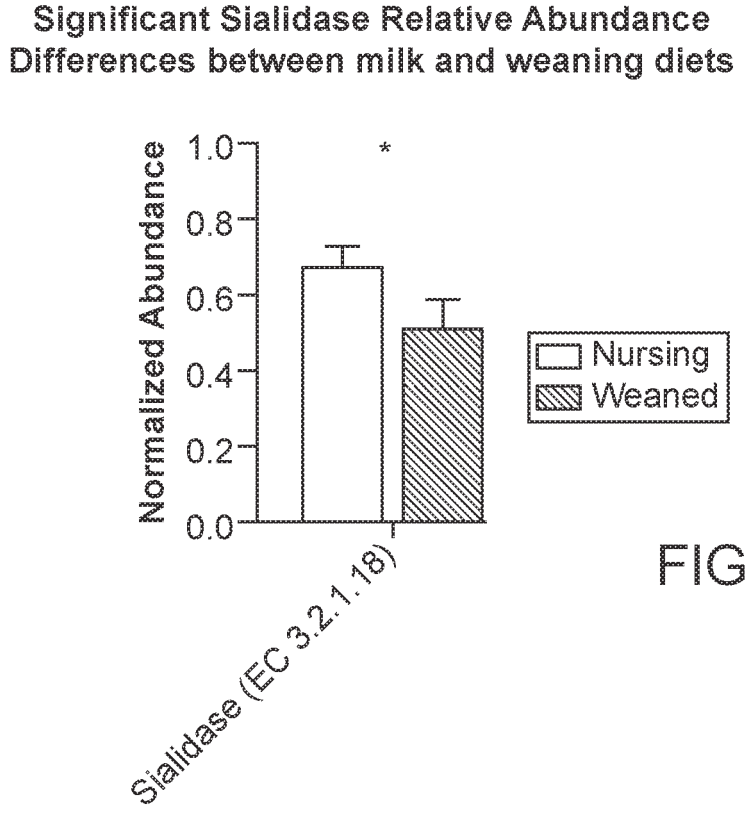

Significant Sialidase Relative Abundance Differences between milk and weaning diets
Normalized Abundance
1.0
0.8
0.6
0.4
0.2
0.0
*
Nursing
Weaned
Sialidase (EC 3.2.1.18)

FIG. 3B

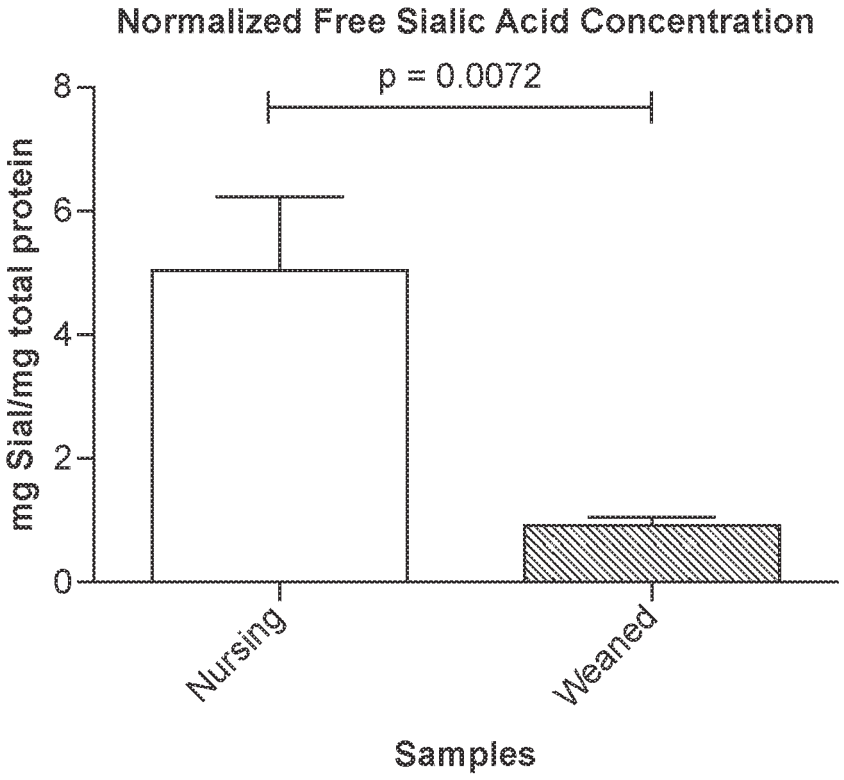

Normalized Free Sialic Acid Concentration
p = 0.0072
mg Sial/mg total protein
8
6
4
2
0
Nursing
Weaned
Samples

FIG. 4

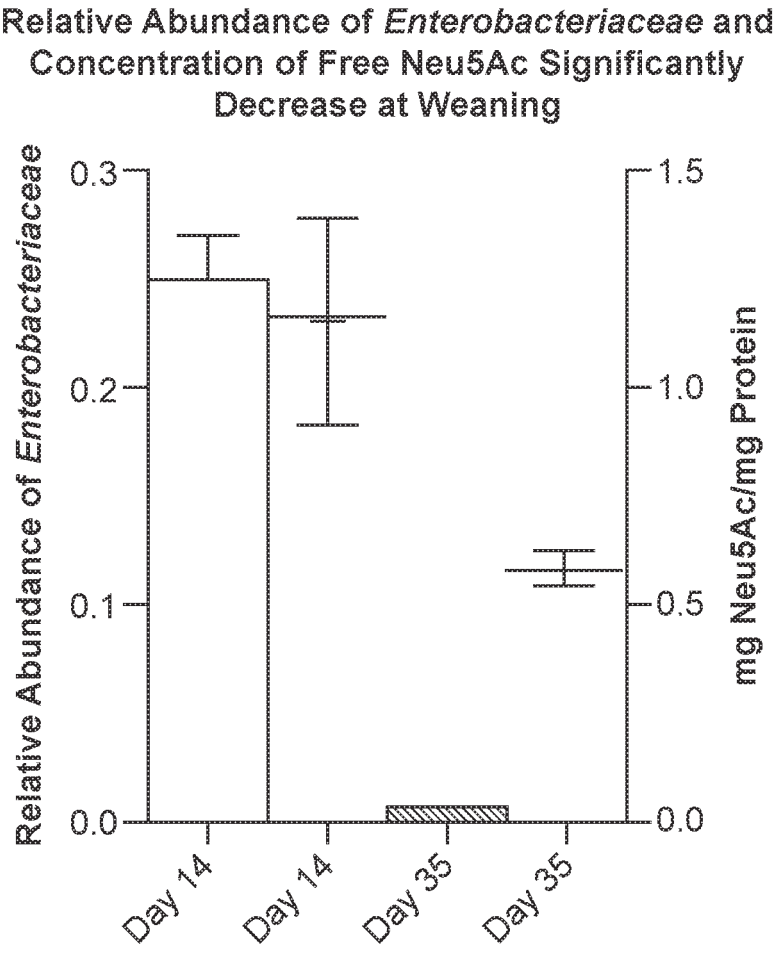

Relative Abundance of Enterobacteriaceae and Concentration of Free Neu5Ac Significantly Decrease at Weaning
Relative Abundance of Enterobacteriaceae
0.3
0.2
0.1
0.0
1.5
1.0
0.5
0.0
mg Neu5Ac/mg Protein
Day 14
Day 14
Day 35
Day 35

FIG. 5

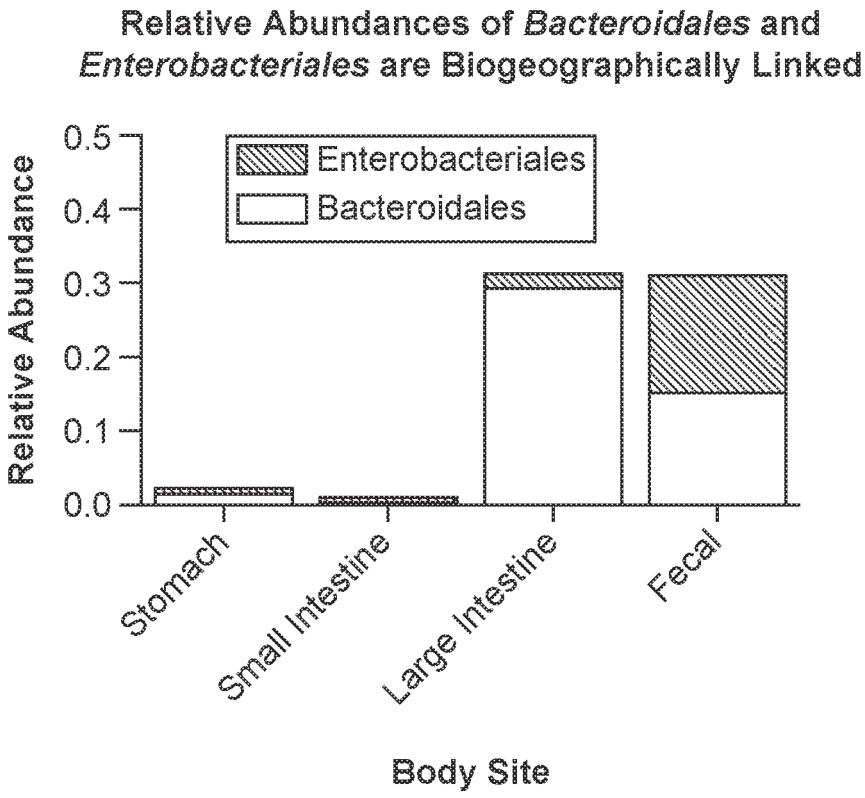

Relative Abundances of *Bacteroidales* and *Enterobacteriales* are Biogeographically Linked
Relative Abundance
0.5
0.4
0.3
0.2
0.1
0.0
Enterobacteriales
Bacteroidales
Stomach
Small Intestine
Large Intestine
Fecal
Body Site

FIG. 6

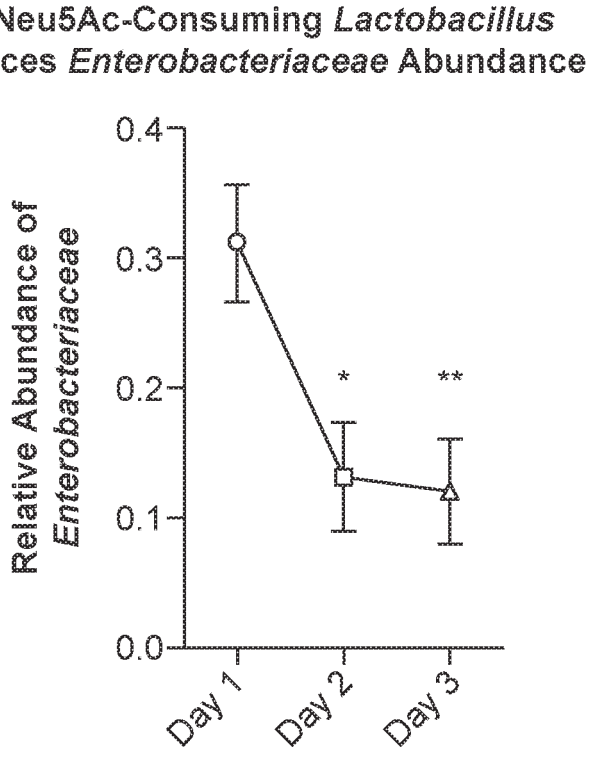

A Neu5Ac-Consuming *Lactobacillus* reduces *Enterobacteriaceae* Abundance
Relative Abundance of *Enterobacteriaceae*
0.4
0.3
0.2
0.1
0.0
*
**
Day 1
Day 2
Day 3

FIG. 7

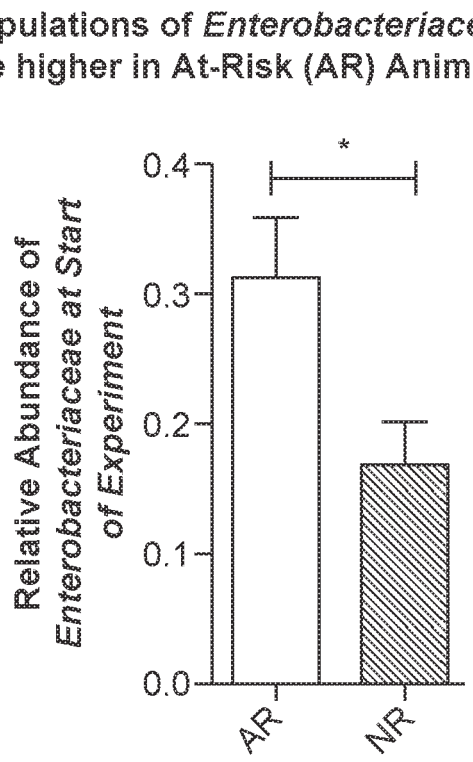

Populations of *Enterobacteriaceae* are higher in At-Risk (AR) Animals
Relative Abundance of *Enterobacteriaceae at Start of Experiment*
0.4
0.3
0.2
0.1
0.0
*
AR
NR

FIG. 8

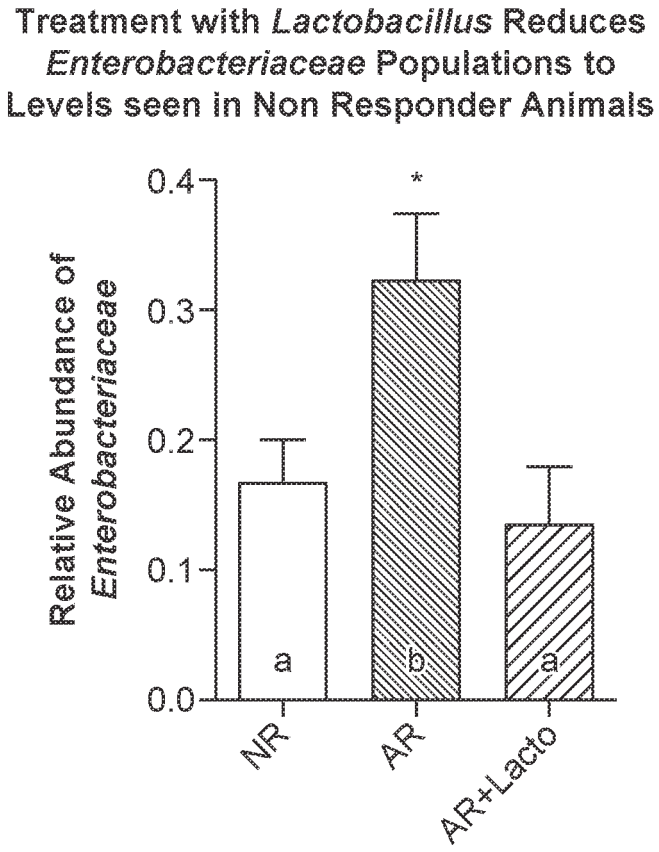

Treatment with *Lactobacillus* Reduces
Enterobacteriaceae Populations to
Levels seen in Non Responder Animals
Relative Abundance of
Enterobacteriaceae
0.4
0.3
0.2
0.1
0.0
*
a
b
a
NR
AR
AR+Lacto

FIG. 9

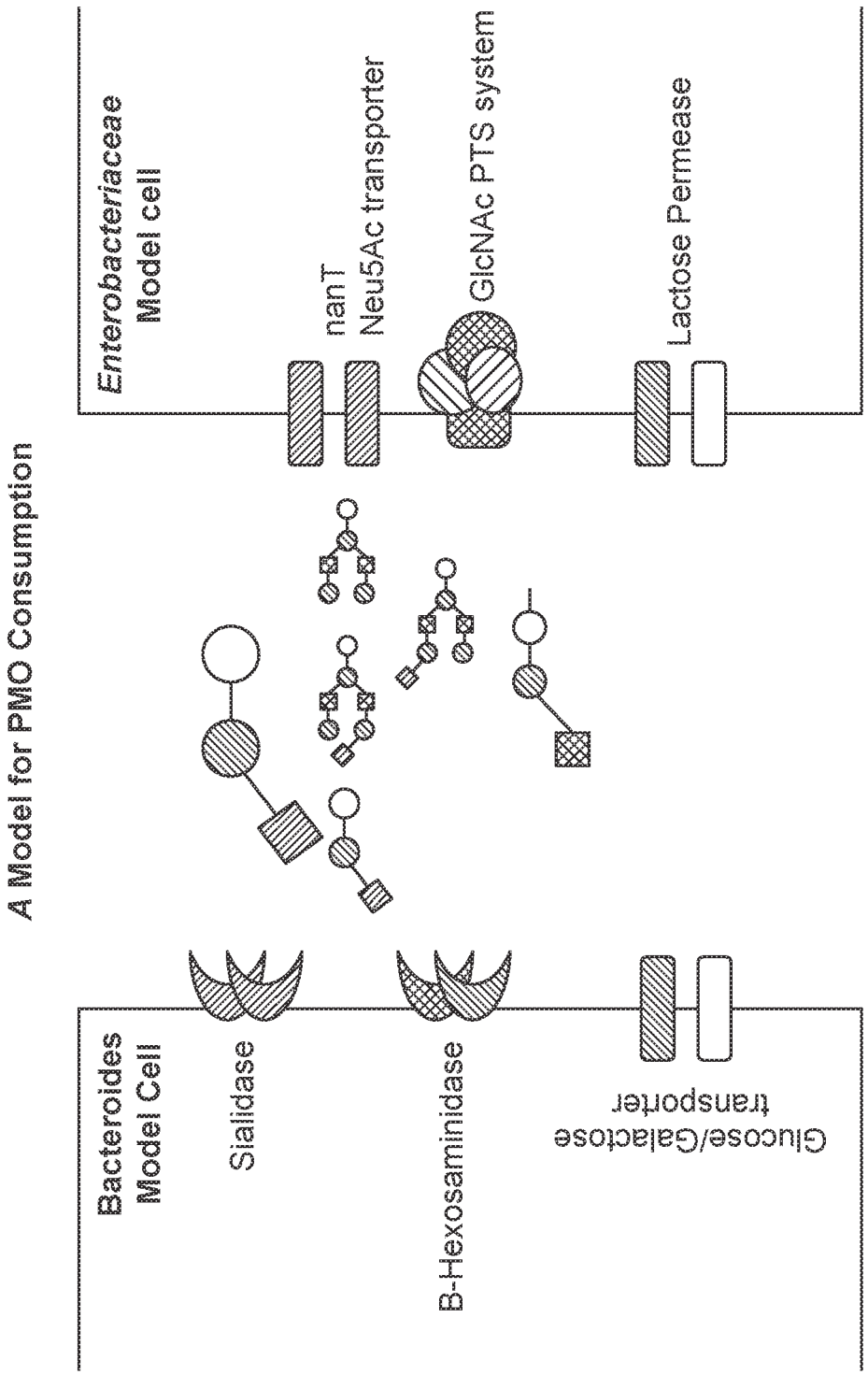

A Model for PMO Consumption
Enterobacteriaceae
Model cell
nanT
Neu5Ac transporter
GlcNAc PTS system
Lactose Permease
Bacteroides
Model Cell
Sialidase
B-Hexosaminidase
Glucose/Galactose
transporter

FIG. 10