FIGURE 1

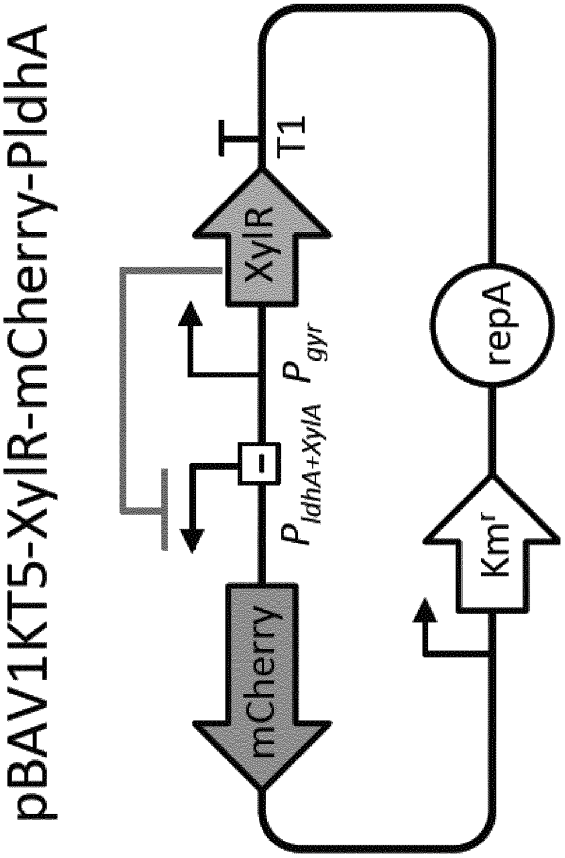

pBAV1KT5-XylR-mCherry-PldhA
XylR
T1
repA
mCherry
Km^r
P_gyr
P_ldhA+XylA

FIGURE 2

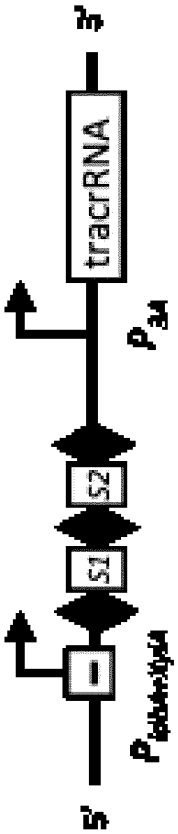


FIGURE 3

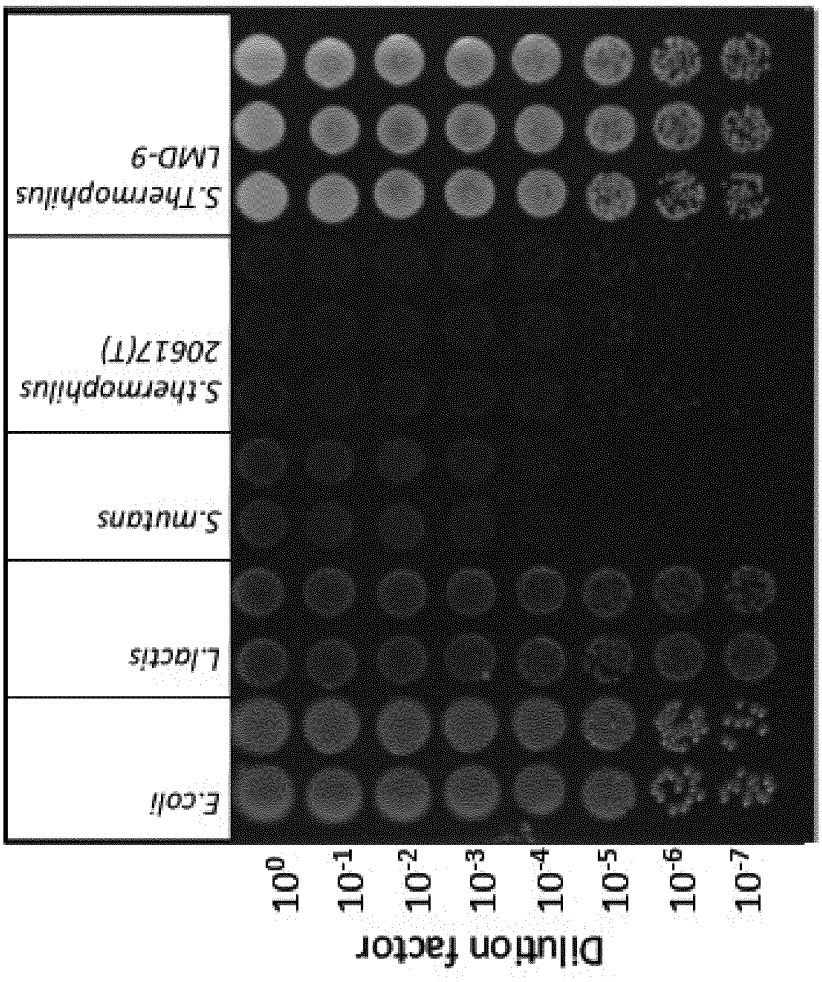

E.coli
L.lactis
S.mutans
S.thermophilus 20617(T)
S.Thermophilus LMD-9
Dilution factor
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
10^-7

FIGURE 4

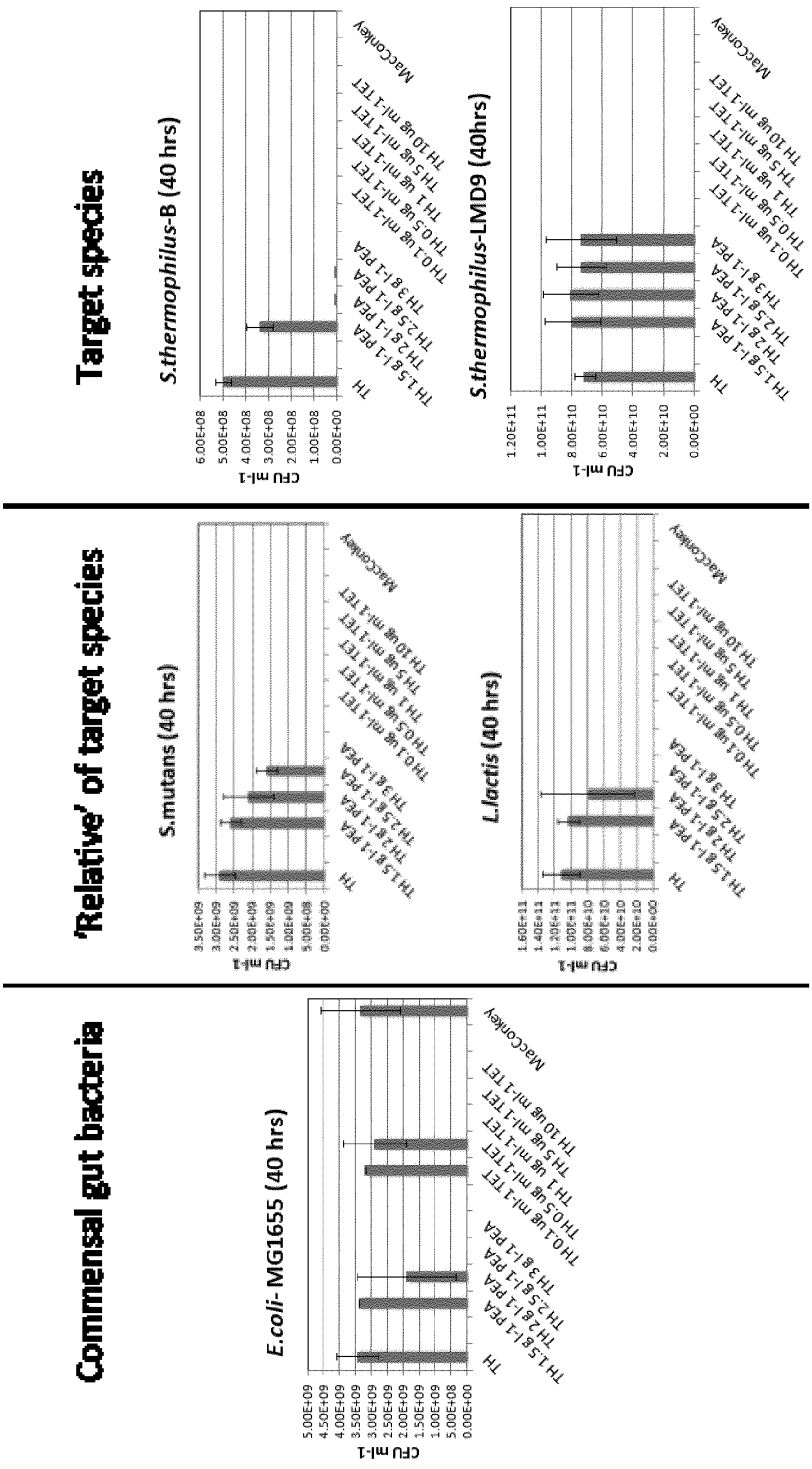

Commensal gut bacteria
'Relative' of target species
Target species
E.coli- MG1655 (40 hrs)
S.mutans (40 hrs)
L.lactis (40 hrs)
S.thermophilus-B (40 hrs)
S.thermophilus-LMD9 (40hrs)
CFU ml-1
TH
TH 1.5 g l-1 PEA
TH 2 g l-1 PEA
TH 2.5 g l-1 PEA
TH 3 g l-1 PEA
TH 0.1 ug ml-1 TET
TH 0.5 ug ml-1 TET
TH 1 ug ml-1 TET
TH 5 ug ml-1 TET
TH 10 ug ml-1 TET
MacConkey

FIGURE 5

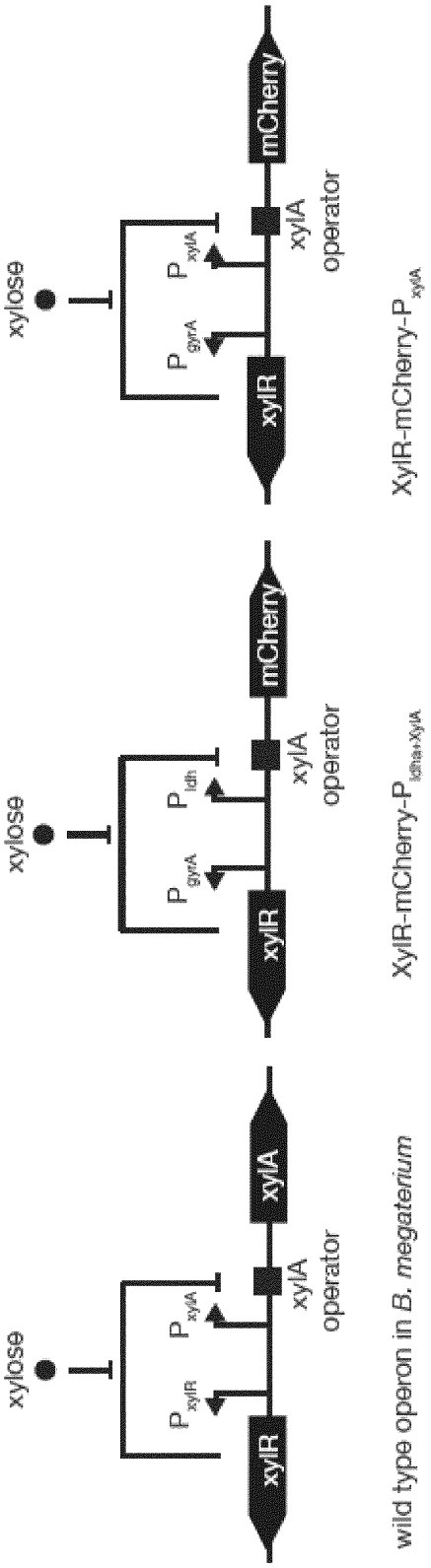

xylose
xylR
P xylR
P xylA
xylA
xylA operator
wild type operon in B. megaterium
xylose
xylR
P gyrA
P ldh
mCherry
xylA operator
XylR-mCherry-P ldhA-xylA
xylose
xylR
P gyrA
P xylA
mCherry
xylA operator
XylR-mCherry-P xylA

FIGURE 6

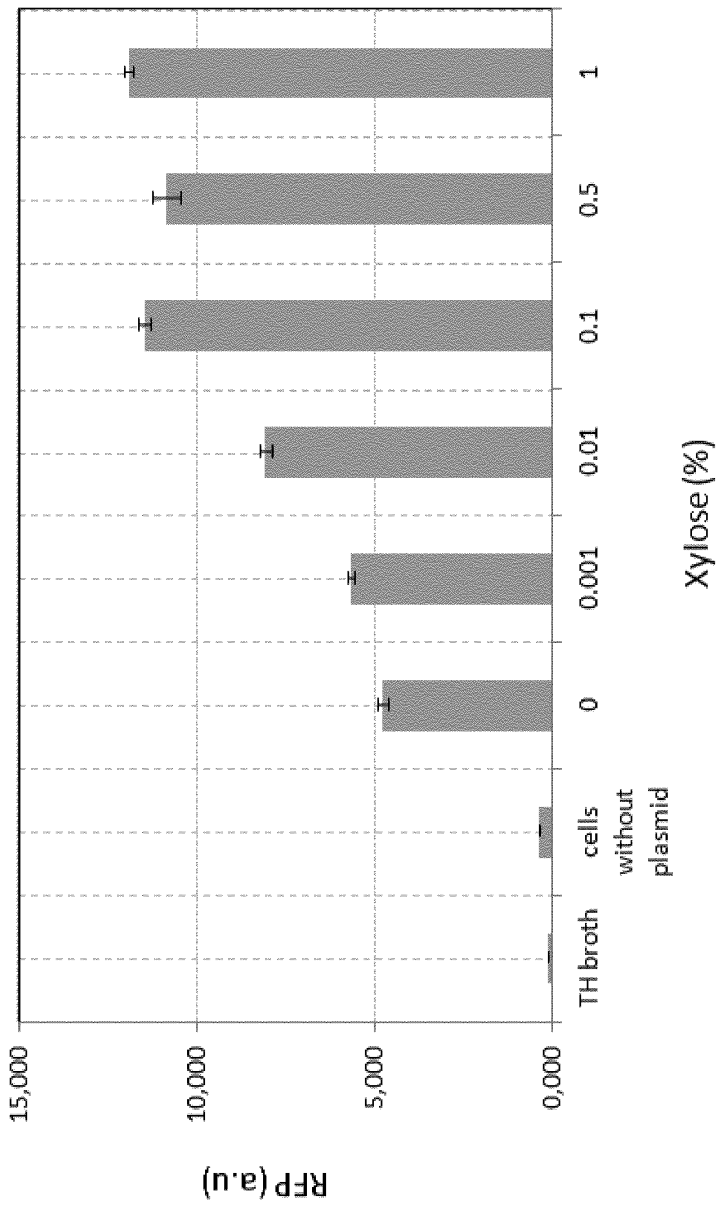

RFP (a.u)
15,000
10,000
5,000
0,000
TH broth
cells without plasmid
0
0.001
0.01
0.1
0.5
1
Xylose (%)

FIGURE 7

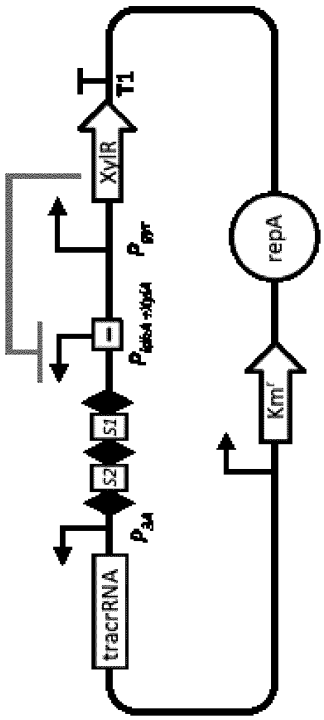


FIGURE 8

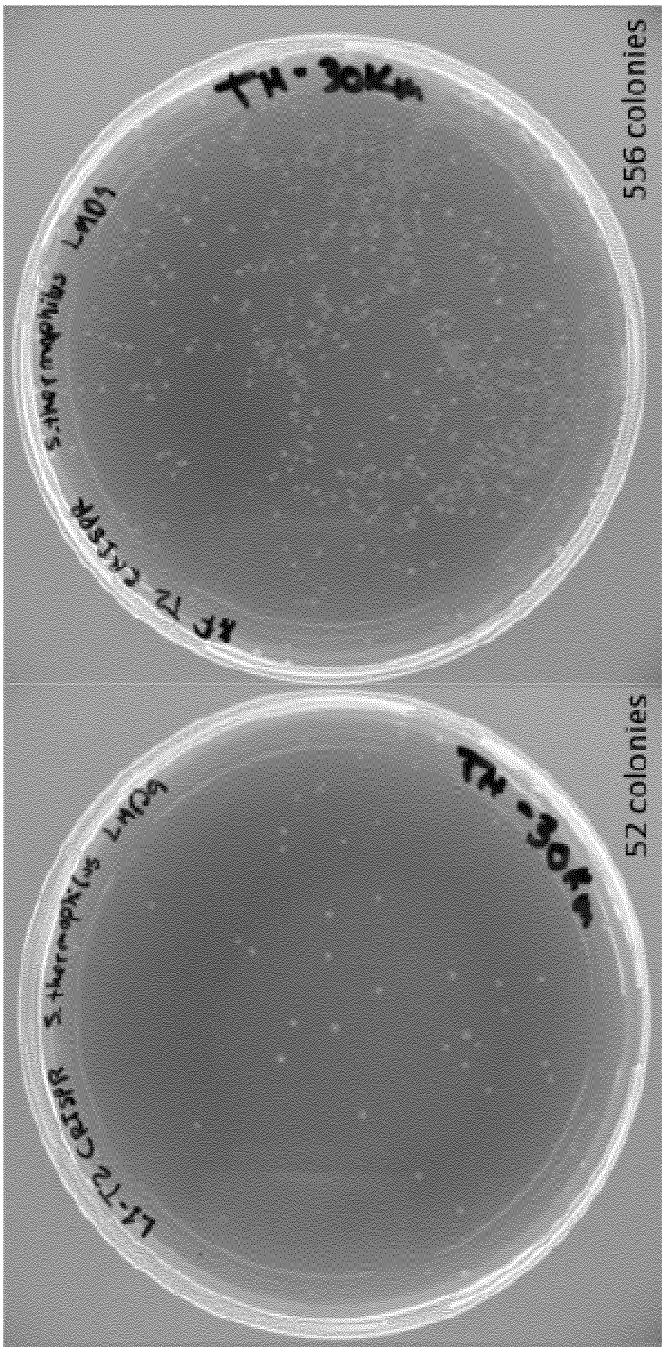


FIGURE 9

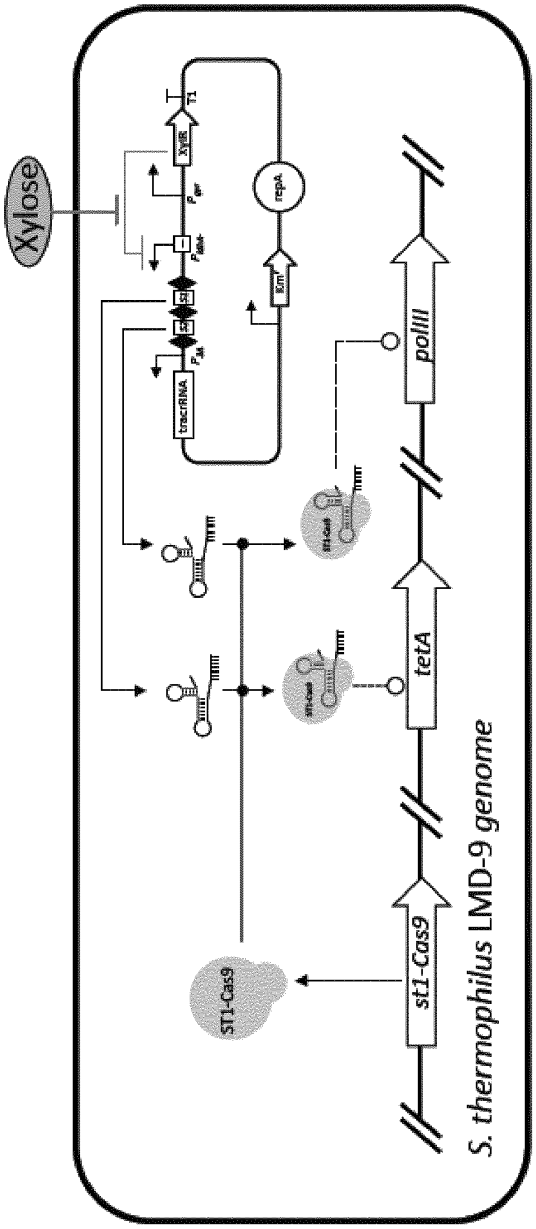

Xylose
T1
XylR
repA
Km
tracrRNA
polIII
tetA
st1-Cas9
ST1-Cas9
S. thermophilus LMD-9 genome

FIGURE 10

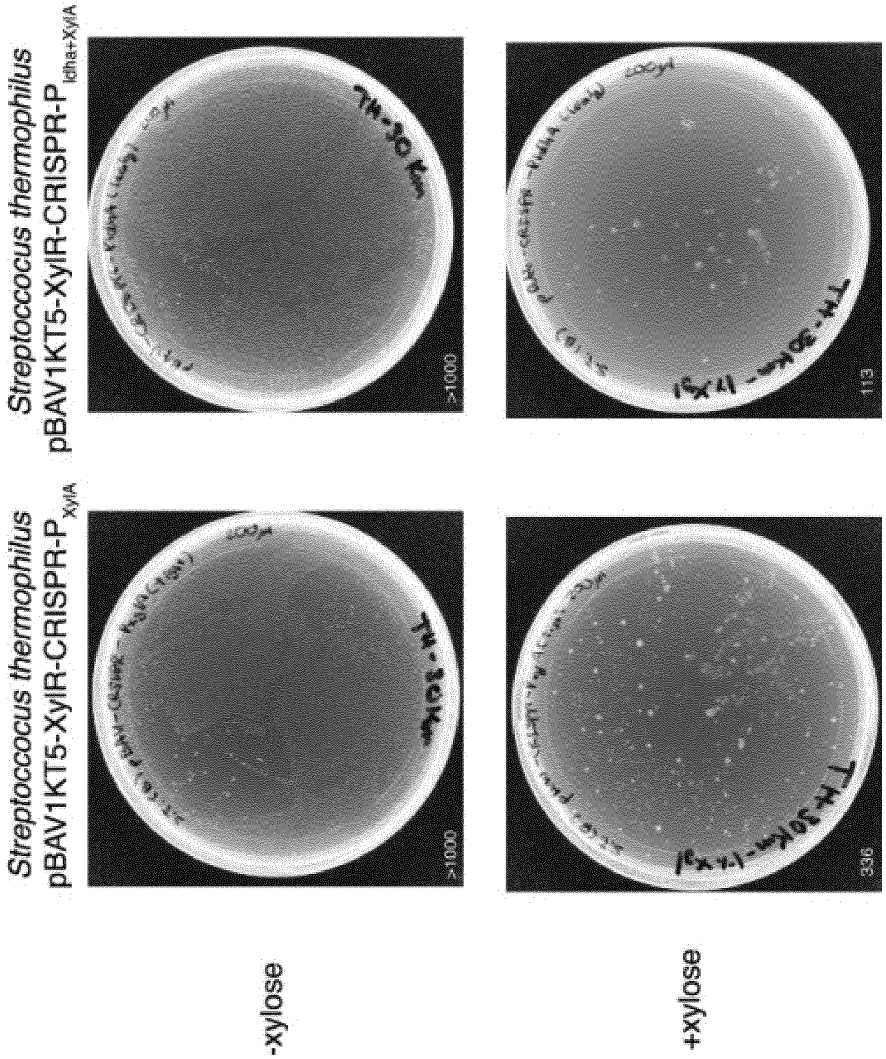

Streptococcus thermophilus
pBAV1KT5-XylR-CRISPR-P XylA
Streptococcus thermophilus
pBAV1KT5-XylR-CRISPR-P Idha+XylA
-xylose
+xylose
>1000
>1000
336
113

FIGURE 11

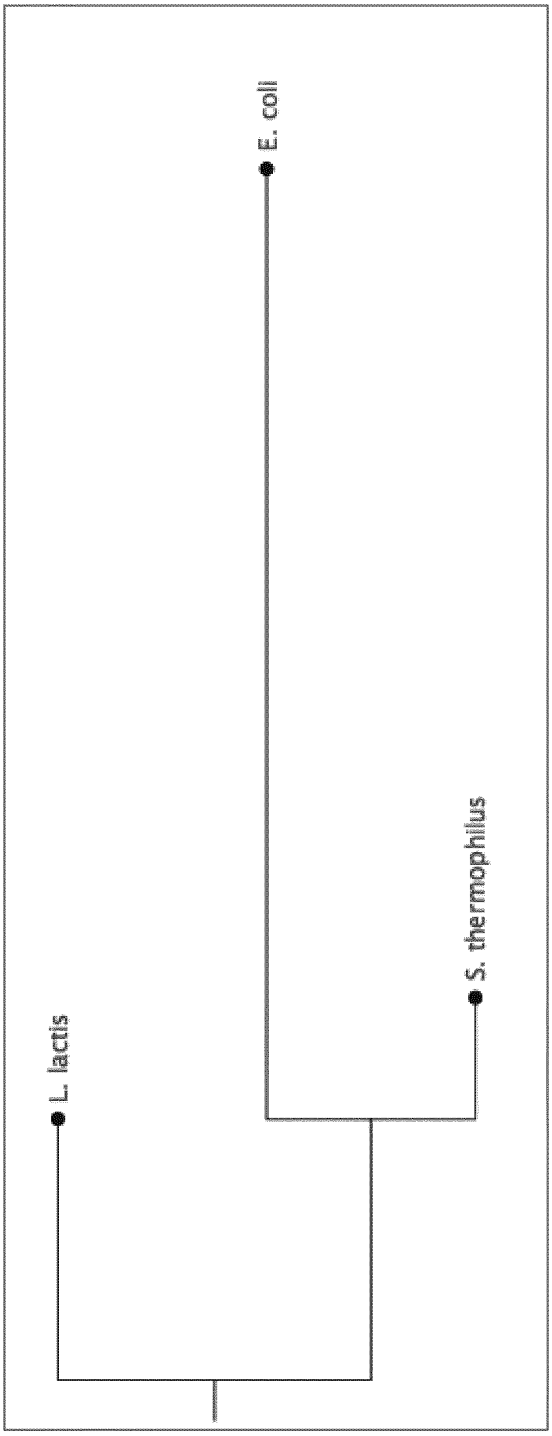
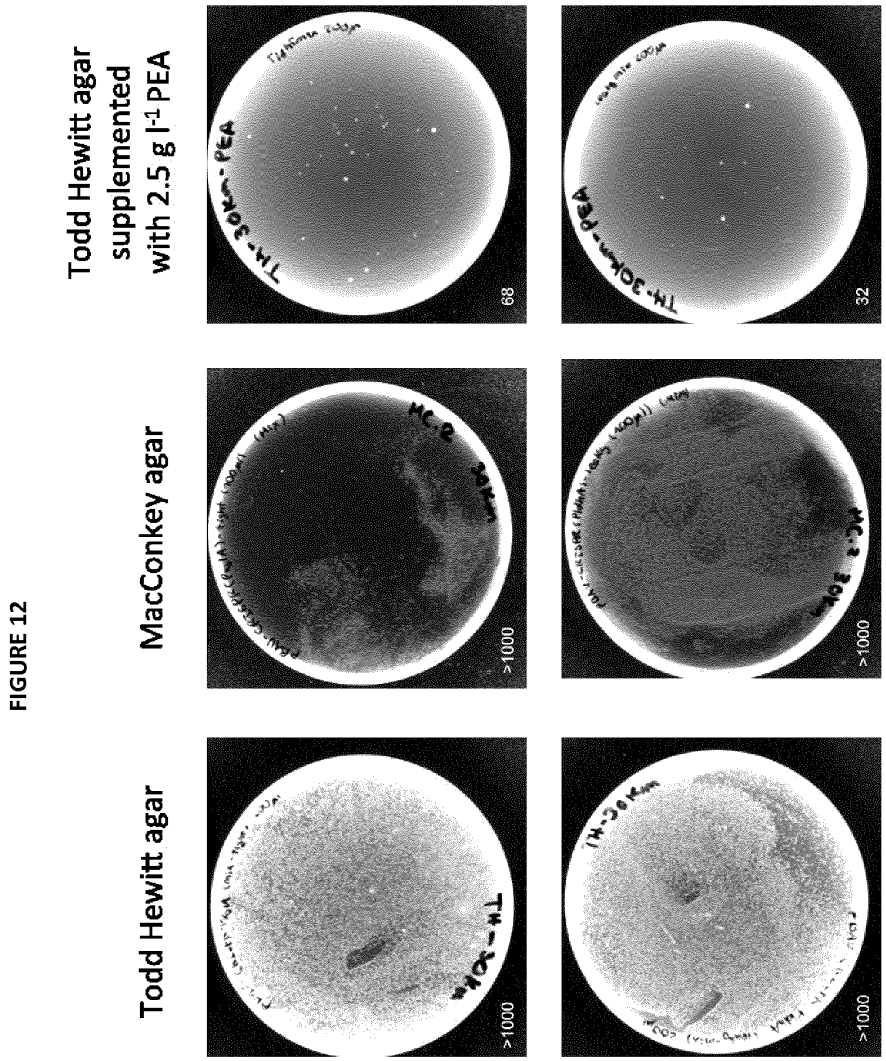


FIGURE 12


Todd Hewitt agar
MacConkey agar
Todd Hewitt agar supplemented with 2.5 g l-1 PEA
S.thermophilus, L.lactis and E.coli with plasmid pBAV1KT5-PXylA
S.thermophilus, L.lactis and E.coli with plasmid pBAV1KT5-PldhA
>1000
>1000
68
>1000
>1000
32

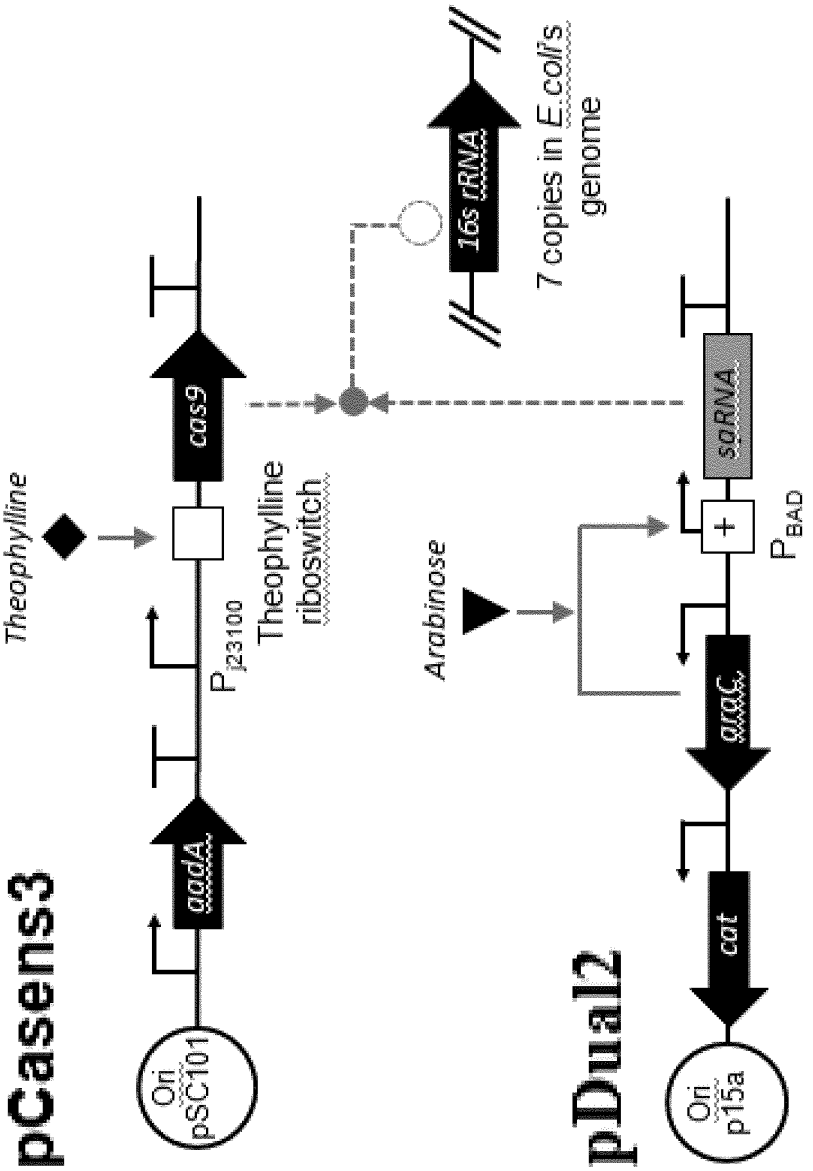

pCasens3
Ori pSC101
aadA
P j23100
Theophylline riboswitch
cas9
Theophylline
pDual2
Ori p15a
cat
araC
P BAD
Arabinose
sgRNA
16s rRNA
7 copies in E.coli's genome

FIGURE 13

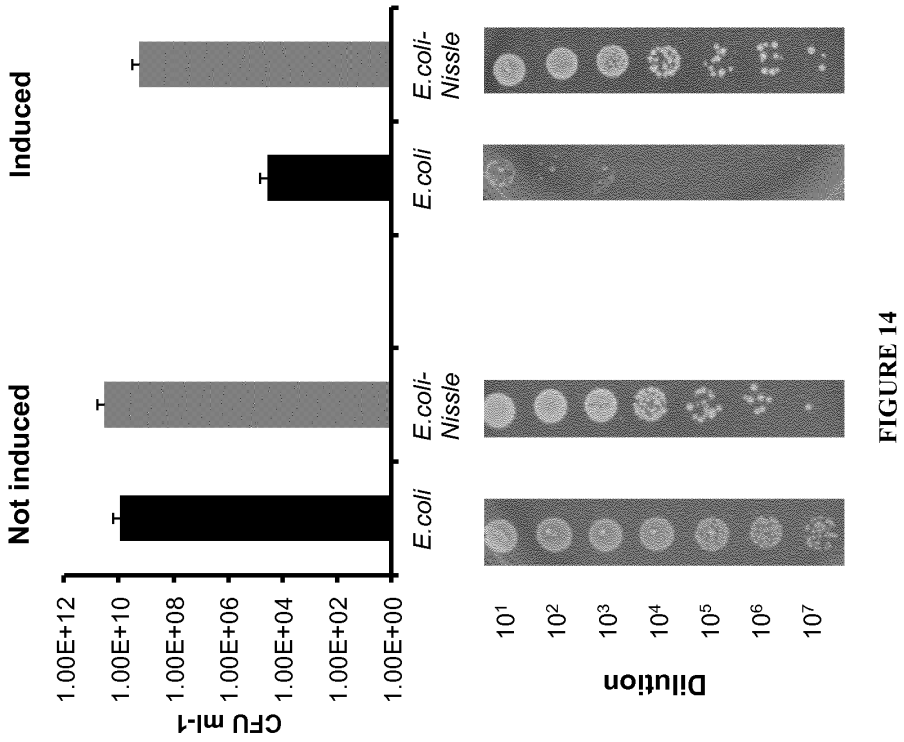

Not induced
Induced
E.coli
E.coli-Nissle
E.coli
E.coli-Nissle
CFU ml-1
1.00E+12
1.00E+10
1.00E+08
1.00E+06
1.00E+04
1.00E+02
1.00E+00
Dilution
10¹
10²
10³
10⁴
10⁵
10⁶
10⁷

FIGURE 14

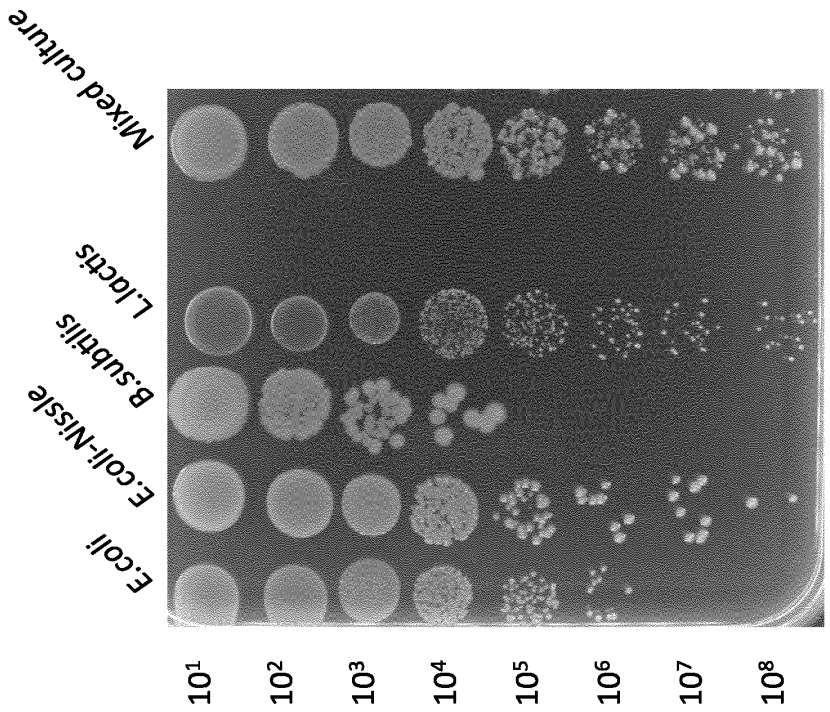

Mixed culture
L.lactis
B.subtilis
E.coli-Nissle
E.coli
10^1
10^2
10^3
10^4
10^5
10^6
10^7
10^8

FIGURE 15

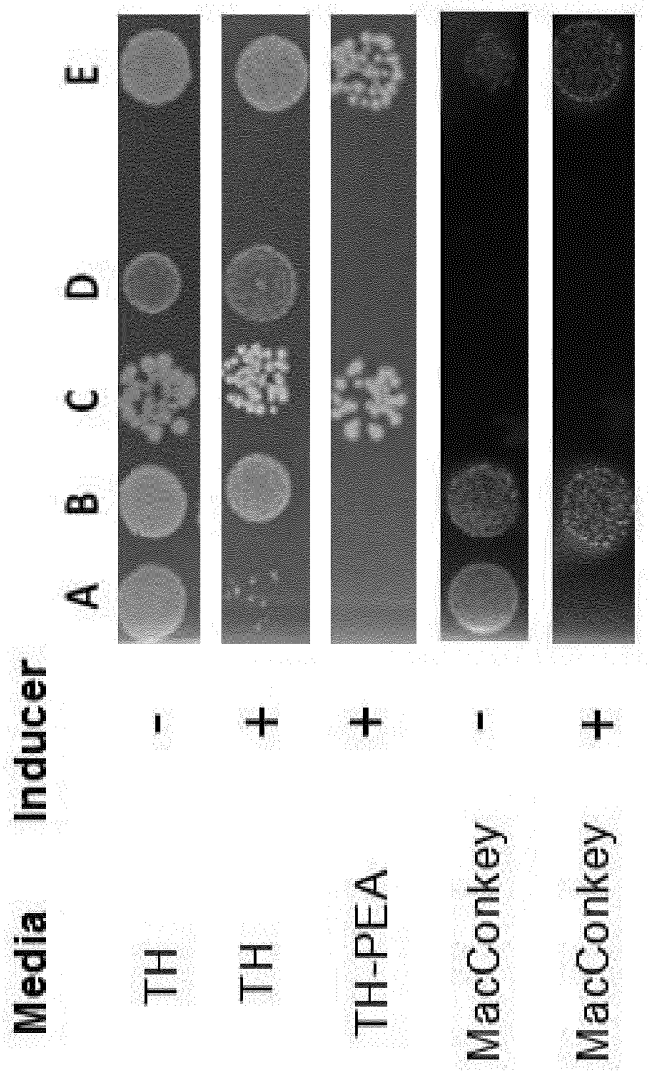


FIGURE 16

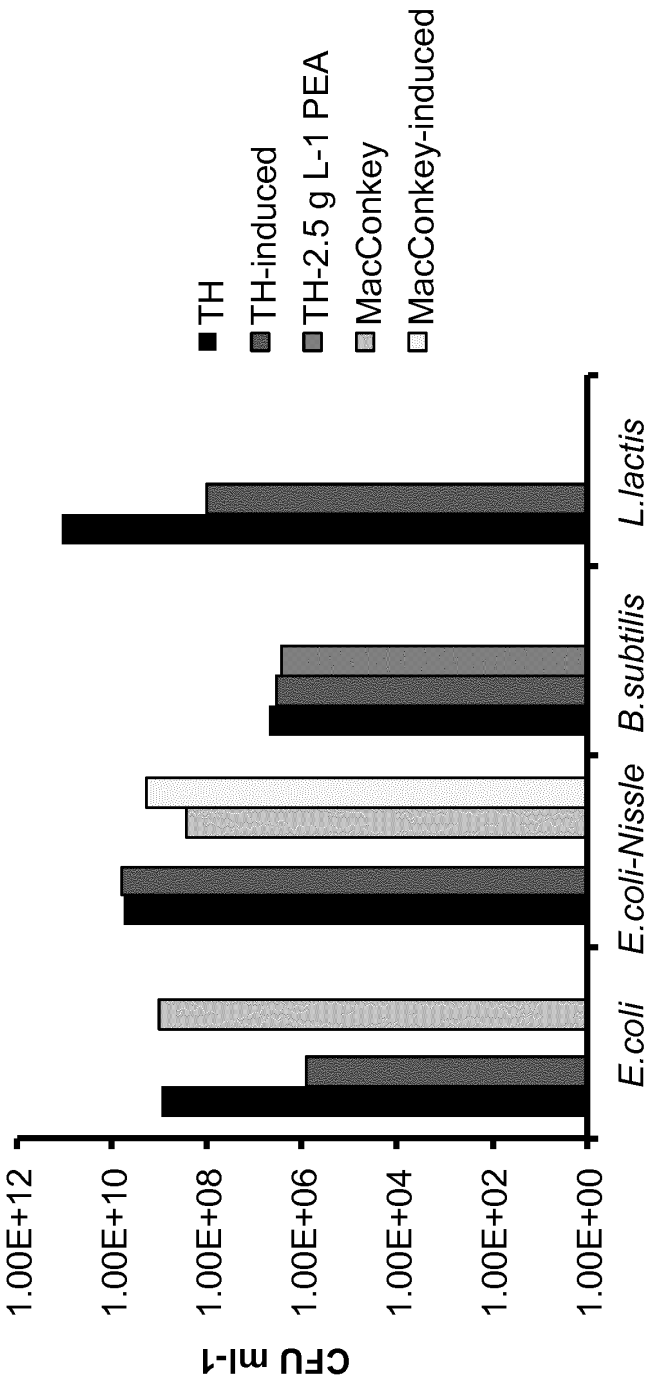

TH
TH-induced
TH-2.5 g L-1 PEA
MacConkey
MacConkey-induced
CFU ml-1
1.00E+12
1.00E+10
1.00E+08
1.00E+06
1.00E+04
1.00E+02
1.00E+00
E.coli
E.coli-Nissle
B.subtilis
L.lactis

FIGURE 17