

1 Supplementary Table S2. List of strains and plasmids used in this study.

Name in this paper	Genotype	Reference
<i>Bacteroides thetaiotaomicron</i>		
WT	VPI 5482 <i>_Atdk</i>	Koropatkin <i>et al.</i> , 2008
1C1	VPI 5482 <i>_Atdk</i> - BT1356::Tn	This study
2C7	VPI 5482 <i>_Atdk</i> - BT1342::Tn	This study
3B12	VPI 5482 <i>_Atdk</i> - BT1341::Tn	This study
1G11	VPI 5482 <i>_Atdk</i> - BT1353::Tn	This study
1F11	VPI 5482 <i>_Atdk</i> - BT1352::Tn	This study
$\Delta$ CPS4	VPI 5482 <i>_Atdk</i> $\Delta$ BT1356-38	This study
CPS1-only	VPI 5482 <i>_Atdk</i> $\Delta$ <i>cps2-8</i> <i>cps1</i> -lock	Porter <i>et al.</i> 2017
CPS2-only	VPI 5482 <i>_Atdk</i> $\Delta$ <i>cps1</i> $\Delta$ <i>cps3-8</i>	Porter <i>et al.</i> 2017
CPS3-only	VPI 5482 <i>_Atdk</i> $\Delta$ <i>cps1-2</i> $\Delta$ <i>cps4-8</i> <i>cps3</i> -lock	Porter <i>et al.</i> 2017
CPS4-only	VPI 5482 <i>_Atdk</i> $\Delta$ <i>cps1-3</i> $\Delta$ <i>cps5-8</i>	Porter <i>et al.</i> 2017
CPS5-only	VPI 5482 <i>_Atdk</i> $\Delta$ <i>cps1-4</i> $\Delta$ <i>cps6-8</i> <i>cps5</i> -lock	Porter <i>et al.</i> 2017
CPS6-only	VPI 5482 <i>_Atdk</i> $\Delta$ <i>cps1-5</i> $\Delta$ <i>cps7-8</i> <i>cps6</i> -lock	Porter <i>et al.</i> 2017
CPS7-only	VPI 5482 <i>_Atdk</i> $\Delta$ <i>cps1-6</i> $\Delta$ <i>cps8</i>	Porter <i>et al.</i> 2017
CPS8-only	VPI 5482 <i>_Atdk</i> $\Delta$ <i>cps1-7</i> <i>cps8</i> -lock	Porter <i>et al.</i> 2017
$\Delta$ CPS1-8	VPI 5482 <i>_Atdk</i> $\Delta$ <i>cps1-8</i>	Porter <i>et al.</i> 2017
$\Delta$ CPS4 $\Delta$ CPS7	VPI 5482 <i>_Atdk</i> $\Delta$ BT1356-38 $\Delta$ BT2886-62	This study
$\Delta$ CPS4 $\Delta$ CPS8	VPI 5482 <i>_Atdk</i> $\Delta$ BT1356-38 $\Delta$ BT0038-68	This study
1G8	VPI 5482 <i>_Atdk</i> $\Delta$ BT1356-38-BT1358::Tn	This study
23A12	VPI 5482 <i>_Atdk</i> $\Delta$ BT1356-38-BT1358-7 intergenic region::Tn	This study
42B5	VPI 5482 <i>_Atdk</i> $\Delta$ BT1356-38-BT1358::Tn	This study
38G6	VPI 5482 <i>_Atdk</i> $\Delta$ BT1356-38-BT1358::Tn	This study
41C9	VPI 5482 <i>_Atdk</i> $\Delta$ BT1356-38-BT1358::Tn	This study
34H5	VPI 5482 <i>_Atdk</i> $\Delta$ BT1356-38-BT2934::Tn	This study
$\Delta$ <i>upxZ</i> <sup>BT1357</sup> $\Delta$ CPS4	VPI 5482 <i>_Atdk</i> $\Delta$ BT1356-38 $\Delta$ BT1357	This study
<i>upxY</i> <sup>BT1358</sup> $\Delta$ CPS4	VPI 5482 <i>_Atdk</i> $\Delta$ BT1356-38 $\Delta$ BT1358	This study
$\Delta$ <i>upxY</i> <sup>BT1358</sup> - $\Delta$ <i>upxZ</i> <sup>BT1357</sup> $\Delta$ CPS4	VPI 5482 <i>_Atdk</i> $\Delta$ BT1356-38 $\Delta$ BT1358-7	This study
$\Delta$ <i>upxZ</i> <sup>BT1357</sup> $\Delta$ CPS4 $\Delta$ CPS2	VPI 5482 <i>_Atdk</i> $\Delta$ BT1356-38 $\Delta$ BT1357 $\Delta$ BT0463-82	This study
$\Delta$ <i>upxY</i> <sup>BT1358</sup> - $\Delta$ <i>upxZ</i> <sup>BT1357</sup> $\Delta$ CPS4 + vector	VPI 5482 <i>_Atdk</i> $\Delta$ BT1356-38 $\Delta$ BT1358-7 + pNBU2-bla-erm-p1311	This study
$\Delta$ <i>upxY</i> <sup>BT1358</sup> - $\Delta$ <i>upxZ</i> <sup>BT1357</sup> $\Delta$ CPS4 + <i>pupxZ</i> <sup>BT1357</sup>	VPI 5482 <i>_Atdk</i> $\Delta$ BT1356-38 $\Delta$ BT1358-7 + pNBU2-bla-erm-p1311-BT1357	This study

$\Delta upxZ^{BT1357}\Delta CPS4$ + vector	VPI 5482 $\Delta tdk \Delta BT1356-38 \Delta BT1357$ + pNBU2-bla-erm-p1311	This study
$\Delta upxZ^{BT1357}\Delta CPS4$ + $pupxZ^{BT1357}$	VPI 5482 $\Delta tdk \Delta BT1356-38 \Delta BT1357$ + pNBU2-bla-erm-p1311-BT1357	This study
$\Delta CPS4\Delta BT2934-2938$	VPI 5482 $\Delta tdk \Delta BT1356-38 \Delta BT2934-8$	This study
$\Delta CPS4\Delta BT2935-2938$	VPI 5482 $\Delta tdk \Delta BT1356-38 \Delta BT2935-8$	This study
$\Delta CPS4\Delta BT2934-2938$ + Vector	VPI 5482 $\Delta tdk \Delta BT1356-38 \Delta BT2934-8+$ pNBU2-bla-tet-p1311	This study
$\Delta CPS4\Delta BT2934-2938$ + pBT2934	VPI 5482 $\Delta tdk \Delta BT1356-38 \Delta BT2934-8+$ pNBU2-bla-tet-p1311-BT2934	This study
34H5 + Vector	VPI 5482 $\Delta tdk \Delta BT1356-38 \Delta BT2934::Tn+$ pNBU2-bla-tet-p1311	This study
34H5 + pBT2934	VPI 5482 $\Delta tdk \Delta BT1356-38 \Delta BT2934::Tn+$ pNBU2-bla-tet-p1311-BT2934	This study
WT-ery	VPI 5482 $\Delta tdk+$ pNBU2-bla-ery-p1311	This study
WT-tet	VPI 5482 $\Delta tdk+$ pNBU2-bla-tet-p1311	This study
$\Delta CPS4-ery$	VPI 5482 $\Delta tdk \Delta BT1356-38+$ pNBU2-bla-ery-p1311	This study
$\Delta CPS4-tet$	VPI 5482 $\Delta tdk \Delta BT1356-38+$ pNBU2-bla-tet-p1311	This study
$\Delta BT2934-2938$	VPI 5482 $\Delta tdk \Delta BT2934-8$	This study
$\Delta BT2934-2938$ tet	VPI 5482 $\Delta tdk \Delta BT2934-8$ + pNBU2-bla-tet-p1311	This study
$\Delta CPS4\Delta BT2934-2938$ tet	VPI 5482 $\Delta tdk \Delta BT1356-38 \Delta BT2934-8+$ pNBU2-bla-tet-p1311	This study
CPS1-only+pBT2934	VPI 5482 $\Delta tdk \Delta cps2-8 cps1-lock+$ pNBU2-bla-tet-p1311-BT2934	This study
CPS2-only+pBT2934	VPI 5482 $\Delta tdk \Delta cps1 \Delta cps3-8+$ pNBU2-bla-tet-p1311-BT2934	This study
CPS3-only+pBT2934	VPI 5482 $\Delta tdk \Delta cps1-2 \Delta cps4-8 cps3-lock+$ pNBU2-bla-tet-p1311-BT2934	This study
CPS4-only+pBT2934	VPI 5482 $\Delta tdk \Delta cps1-3 \Delta cps5-8+$ pNBU2-bla-tet-p1311-BT2934	This study
CPS5-only+pBT2934	VPI 5482 $\Delta tdk \Delta cps1-4 \Delta cps6-8 cps5-lock+$ pNBU2-bla-tet-p1311-BT2934	This study
CPS6-only+pBT2934	VPI 5482 $\Delta tdk \Delta cps1-5 \Delta cps7-8 cps6-lock+$ pNBU2-bla-tet-p1311-BT2934	This study
CPS8-only+pBT2934	VPI 5482 $\Delta tdk \Delta cps1-7 cps8-lock+$ pNBU2-bla-tet-p1311-BT2934	This study
<b>Escherichia coli</b>		
S17 $\lambda$ pir_pSAM-bt	S17 $\lambda$ pir_pSAM-bt	This study
S17 $\lambda$ pir_pExchange-tdk	S17 $\lambda$ pir_pExchange-tdk	This study
S17 $\lambda$ pir_pExchange-BT1356-38	S17 $\lambda$ pir_pExchange-BT1356-38	This study
S17 $\lambda$ pir_pExchange-BT2886-62	S17 $\lambda$ pir_pExchange-BT2886-62	This study
S17 $\lambda$ pir_pExchange-BT0038-68	S17 $\lambda$ pir_pExchange-BT0038-68	This study
S17 $\lambda$ pir_pExchange-BT1357	S17 $\lambda$ pir_pExchange-BT1357	This study
S17 $\lambda$ pir_pExchange-BT1358	S17 $\lambda$ pir_pExchange-BT1358	This study
S17 $\lambda$ pir_pExchange-BT1358-7	S17 $\lambda$ pir_pExchange-BT1358-7	This study
S17 $\lambda$ pir_pExchange-BT0463-82	S17 $\lambda$ pir_pExchange-BT0463-82	This study

S17λpir_pExchange-BT2934-8	S17λpir_pExchange-BT2934-8	This study
S17λpir_pExchange-BT2935-8	S17λpir_pExchange-BT2935-8	This study
S17λpir_pNBU2-bla-erm-p1311	S17λpir_pNBU2-bla-erm-p1311	This study
S17λpir_pNBU2-bla-erm-p1311-BT1357	S17λpir_pNBU2-bla-erm-p1311-BT1357	This study
S17λpir_pNBU2-bla-tet-p1311	S17λpir_pNBU2-bla-tet-p1311	This study
S17λpir_pNBU2-bla-tet-p1311-BT2934	S17λpir_pNBU2-bla-tet-p1311-BT2934	This study
<b>Name</b>	<b>Description</b>	<b>Reference</b>
<b>Plasmids</b>		
pSAM-bt	Random transposon mutagenesis	Goodman <i>et al.</i> , 2009
pExchange-tdk	Site-directed unmarked gene deletion	Martens <i>et al.</i> , 2008
pExchange-BT1356-38	Site-directed unmarked gene deletion of BT1356-38	This study
pExchange-BT2886-62	Site-directed unmarked gene deletion of BT2882-62	This study
pExchange-BT0038-68	Site-directed unmarked gene deletion of BT0038-68	This study
pExchange-BT1357	Site-directed unmarked gene deletion of BT1357	This study
pExchange-BT1358	Site-directed unmarked gene deletion of BT1358	This study
pExchange-BT1358-7	Site-directed unmarked gene deletion of BT1358-7	This study
pExchange-BT0463-82	Site-directed unmarked gene deletion of BT0463-82	This study
pExchange-BT2934-8	Site-directed unmarked gene deletion of BT2934-8	This study
pExchange-BT2935-8	Site-directed unmarked gene deletion of BT2935-8	This study
pNBU2-bla-erm	Complementation	Wang et al 2000
Vector (erm)	Complementation	This study
pupxZ <sup>BT1357</sup>	Complementation with BT1357	This study
Vector (tet)	Complementation	This study
pBT2934	Complementation with BT2934	This study

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