

Supplementary table 5. *M. morganii* genes involved in lipopolysaccharide or enterobacterial common antigen biosynthesis

Gene#	Name	Description
MM0018	<i>wzzE</i>	lipopolysaccharide biosynthesis protein WzzE
MM0023	<i>rffC</i>	putative acyl-CoA N-acyltransferase, lipopolysaccharide biosynthesis protein
MM0024	<i>rffA</i>	TDP-4-oxo-6-deoxy-D-glucose transaminase
MM0025	<i>wzxE</i>	O-antigen translocase
MM0477	<i>pagP</i>	palmitoyl transferase
MM0566	<i>arnT</i>	4-amino-4-deoxy-L-arabinose transferase
MM0569	<i>arnT</i>	4-amino-4-deoxy-L-arabinose transferase
MM0905	<i>msbA</i>	lipid transporter ATP-binding/permease
MM0906	<i>lpxK</i>	tetraacyldisaccharide 4'-kinase
MM0909	<i>kdsB</i>	CTP:CMP-3-deoxy-D-manno-octulosonate transferase
MM1310	<i>kdsC</i>	3-deoxy-D-manno-octulosonate 8-phosphate phosphatase
MM1461	<i>fepE/wzz</i>	ferric enterobactin transport protein FepE
MM1593		methyltransferase
MM1813	<i>htrB/waaM</i>	lipid A biosynthesis lauroyl acyltransferase
MM1602	<i>rfaD/waaD</i>	ADP-L-glycero-D-mannoheptose-6-epimerase
MM1603	<i>rfaF/waaF</i>	ADP-heptose
MM1604	<i>rfaC/waaC</i>	ADP-heptose:LPS heptosyl transferase I
MM1605		lipopolysaccharide core biosynthesis protein
MM1606	<i>wabH</i>	lipopolysaccharide core biosynthesis glycosyl transferase
MM1607	<i>wabG</i>	lipopolysaccharide core biosynthesis glycosyl transferase

MM1608	<i>waaQ/rfaQ</i>	lipopolysaccharide core biosynthesis glycosyl transferase
MM1609	<i>waaA</i>	3-deoxy-D-manno-octulosonic-acid transferase
MM1610	<i>waaE</i>	lipopolysaccharide core biosynthesis glycosyl transferase
MM1611	<i>coaD</i>	phosphopantetheine adenylyltransferase
MM1613	<i>rfaL</i>	O-antigen ligase
MM1614		glycosyltransferase
MM2021	<i>hldE/rfaE</i>	bifunctional heptose 7-phosphate kinase/heptose 1-phosphate adenylyltransferase
MM2099	<i>lpxD</i>	UDP-3-O-[3-hydroxymyristoyl] glucosamine N-acyltransferase
MM2101	<i>lpxA</i>	UDP-N-acetylglucosamine acyltransferase
MM2102	<i>lpxB</i>	lipid-A-disaccharide synthase
MM2144	<i>msbB</i>	lipid A biosynthesis (KDO)2-(lauroyl)-lipid IVA acyltransferase
MM2175	<i>kdsA</i>	3-deoxy-D-manno-octulosonic acid 8-P synthetase
MM2266		lipopolysaccharide core biosynthesis protein RfaQ
MM2292	<i>rfaB</i>	UDP-D-galactose:(glucosyl)lipopolysaccharide-1,6-D-galactosyltransferase
MM2467	<i>lpxH</i>	UDP-2,3-diacylglucosamine hydrolase
MM2978	<i>pgi</i>	glucose-6-phosphate isomerase
MM2920	<i>galU</i>	glucose-1-phosphate uridylyltransferase
MM3182	<i>lpxC</i>	UDP-3-O-[3-hydroxymyristoyl] N-acetylglucosamine deacetylase
MM3398	<i>galE</i>	UDP-galactose 4-epimerase

Enterobacterial common antigen

MM0017	<i>wecA</i>	undecaprenyl-phosphate alpha-N-acetylglucosaminyltransferase
MM0019	<i>rffE</i>	UDP-N-acetyl glucosamine-2-epimerase
MM0020	<i>wecC</i>	UDP-N-acetyl-D-mannosamine dehydrogenase
MM0021	<i>rffG</i>	dTDP-D-glucose-4,6-dehydratase
MM0022	<i>rffH</i>	glucose-1-phosphate thymidylyltransferase
MM0026	<i>rffT</i>	4-alpha-L-fucosyltransferase
MM0027	<i>wzyE</i>	putative common antigen polymerase
MM0028	<i>rffM</i>	UDP-N-acetyl-D-mannosaminuronic acid transferase