

| GSC Start | CDS Start | CDS End | GSC End | Protein ID | Product  |
|-----------|-----------|---------|---------|------------|--|
| 19813     | 20233     | 20508   | 20521   | AAC73133.1 | IS1 repressor TnpA   |
| 149634    | 149715    | 150953  | 152834  | AAC73246.1 | putative fimbrial-like adhesin protein                         |
| 149634    | 151003    | 151599  | 152834  | AAC73247.1 | putative fimbrial-like adhesin protein                         |
| 149634    | 151626    | 152231  | 152834  | AAC73248.1 | putative fimbrial-like adhesin protein                         |
| 149634    | 152243    | 152812  | 152834  | AAC73249.2 | putative fimbrial-like adhesin protein                         |
| 156214    | 156299    | 156883  | 157186  | AAC73252.1 | putative fimbrial-like adhesin protein                         |
| 238174    | 238257    | 238736  | 238983  | ABP93434.1 | lethality reduction protein, putative inner membrane protein   |
| 263069    | 263150    | 263212  | 267099  |            | pseudogene   |
| 263069    | 263328    | 263669  | 267099  | AAC73348.1 | CP4-6 prophage; toxin of the Ykfl-YafW toxin-antitoxin system  |
| 263069    | 263690    | 264007  | 267099  | AAC73349.1 | CP4-6 prophage; toxin of the Ykfl-YafW toxin-antitoxin system  |
| 263069    | 264026    | 264247  | 267099  | ABD18634.1 | uncharacterized protein  |
| 263069    | 264256    | 264732  | 267099  | AAC73350.1 | CP4-6 prophage; RadC-like JAB domain protein                   |
| 263069    | 264748    | 265206  | 267099  | AAC73351.1 | CP4-6 prophage; uncharacterized protein                        |
| 263069    | 265304    | 265543  | 267099  | AAC73352.1 | CP4-6 prophage; uncharacterized protein                        |
| 263069    | 265620    | 266087  | 267099  | AAC73353.1 | CP4-6 prophage; uncharacterized protein                        |
| 263069    | 266110    | 266553  | 267099  | AAC73354.2 | lipoprotein, inner membrane; degP regulator; CP4-6 prophage    |
| 263069    | 266553    | 266774  | 267099  |            | pseudogene   |
| 263069    | 266776    | 266967  | 267099  |            | pseudogene   |
| 268006    | 268097    | 268960  | 270133  | AAC73356.2 | CP4-6 prophage; putative GTP-binding protein                   |
| 273711    | 274101    | 275117  | 276821  | AAC73362.1 | IS5 transposase and trans-activator                            |
| 273711    | 275325    | 276728  | 276821  | AAC73363.2 | CP4-6 prophage; putative S-methylmethionine transporter        |
| 279165    | 279178    | 279681  | 280059  | AAC73367.1 | IS1 transposase B  |
| 279165    | 279600    | 279875  | 280059  | AAC73368.1 | IS1 repressor TnpA   |
| 280485    | 280829    | 281983  | 283515  | AAC73370.1 | CP4-6 prophage; putative DNA-binding transcriptional regulator |
| 280485    | 282278    | 283186  | 283515  | AAC73371.2 | 2-keto-3-deoxy gluconate (KDG) aldolase; CP4-6 prophage        |
| 286096    | 286789    | 288399  | 289297  | AAC73374.1 | CP4-6 prophage; putative xylosidase/arabinosidase              |
| 286096    | 288404    | 289162  | 289297  | AAC73375.1 | CP4-6 prophage; putative DNA-binding transcriptional regulator |
| 290339    | 290429    | 290633  | 297216  |            | pseudogene   |
| 290339    | 290649    | 291152  | 297216  | AAC73377.1 | IS1 transposase B  |
| 290339    | 291071    | 291346  | 297216  | AAC73378.1 | IS1 repressor TnpA   |

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| 290339  | 291404  | 292231  | 297216  |            | pseudogene   |
| 290339  | 292322  | 292948  | 297216  | AAC73380.1 | CP4-6 prophage; conserved protein                              |
| 290339  | 293220  | 293918  | 297216  | AAC73381.1 | CP4-6 prophage; DNA-binding protein                            |
| 290339  | 293945  | 294799  | 297216  | AAC73382.1 | CP4-6 prophage; uncharacterized protein                        |
| 290339  | 295139  | 295579  | 297216  | AAC73383.1 | CP4-6 prophage; uncharacterized protein                        |
| 290339  | 295696  | 297096  | 297216  | AAC73384.1 | CP4-6 prophage; putative phage integrase                       |
| 315297  | 315587  | 316453  | 316454  | AAC73402.1 | IS3 transposase B  |
| 382618  | 382739  | 383935  | 385087  | AAC73466.1 | putative family 2 glycosyltransferase                          |
| 382618  | 384059  | 384616  | 385087  | AAC73467.2 | putative PIG-L family deacetylase                              |
| 391709  | 391739  | 392605  | 392940  | AAC73475.1 | IS3 transposase B  |
| 391709  | 392602  | 392901  | 392940  | AAC73476.2 | IS3 transposase A  |
| 566811  | 566842  | 567141  | 567964  | AAC73641.2 | IS3 transposase A  |
| 574355  | 574737  | 575753  | 575784  | AAC73653.1 | IS5 transposase and trans-activator                            |
| 583167  | 583681  | 584430  | 584633  | AAC73665.1 | global transcriptional activator; DLP12 prophage               |
| 687904  | 687997  | 689013  | 689041  | AAC73757.1 | IS5 transposase and trans-activator                            |
| 715293  | 715412  | 715906  | 716874  | AAC73783.1 | lipoprotein  |
| 715293  | 715947  | 716597  | 716874  |            | pseudogene   |
| 715293  | 716721  | 716870  | 716874  |            | pseudogene   |
| 1049787 | 1049833 | 1050108 | 1050488 | ABD18646.1 | IS1 repressor TnpA   |
| 1094249 | 1094275 | 1095141 | 1095479 | AAC74111.1 | IS3 transposase B  |
| 1094249 | 1095138 | 1095437 | 1095479 | AAC74112.2 | IS3 transposase A  |
| 1180365 | 1180479 | 1181267 | 1181601 | AAC74205.1 | inner membrane protein   |
| 1196495 | 1196867 | 1197532 | 1199675 | AAC74221.1 | e14 prophage; putative SAM-dependent methyltransferase         |
| 1196495 | 1197533 | 1198237 | 1199675 | AAC74222.1 | e14 prophage; putative inner membrane protein                  |
| 1196495 | 1198695 | 1199588 | 1199675 | AAC74223.1 | T4 phage exclusion protein; cell death peptidase, e14 prophage |
| 1201505 | 1201776 | 1202084 | 1203065 | AAC74228.2 | e14 prophage; uncharacterized protein                          |
| 1201505 | 1202259 | 1202933 | 1203065 | AAC74229.1 | e14 prophage; repressor protein phage e14                      |
|         |         |         |         |            | putative 5-methylcytosine/5-hydroxymethylcytosine-specific     |
| 1210313 | 1210346 | 1211179 | 1211377 | AAC74243.1 | restriction nuclease; 5-methylcytosine DNA binding protein     |
| 1245087 | 1245160 | 1245600 | 1245648 | AAC74280.1 | uncharacterized protein  |
| 1351181 | 1351407 | 1351760 | 1351808 | AAC74371.1 | DUF559 family endonuclease-related protein                     |
| 1423650 | 1423782 | 1425239 | 1427245 | AAC74445.1 | Rac prophage; potassium transporter subunit                    |

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| 1423650 | 1425377 | 1425640 | 1427245 | AAC74447.1 | Rac prophage; conserved protein                                    |
| 1423650 | 1425630 | 1426082 | 1427245 |            | pseudogene   |
| 1432973 | 1433084 | 1433674 | 1434737 | AAC74456.1 | Rac prophage; putative site-specific recombinase                   |
| 1432973 | 1433991 | 1434224 | 1434737 | AAC74457.2 | cold shock protein, Rac prophage                                   |
| 1446232 | 1446378 | 1447283 | 1467907 | AAC74466.1 | transcriptional activator for tynA and feaB                        |
| 1446232 | 1447519 | 1449018 | 1467907 | AAC74467.2 | phenylacetaldehyde dehydrogenase                                   |
| 1446232 | 1449076 | 1451349 | 1467907 | AAC74468.1 | tyramine oxidase, copper-requiring                                 |
|         |         |         |         |            | oxepin-CoA hydrolase and 3-oxo-5,6-dehydrosuberyl-CoA              |
| 1446232 | 1451597 | 1453642 | 1467907 | AAC74469.1 | semialdehyde dehydrogenase   |
| 1446232 | 1453927 | 1454856 | 1467907 | AAC74470.1 | ring 1,2-phenylacetyl-CoA epoxidase subunit                        |
| 1446232 | 1454868 | 1455155 | 1467907 | AAC74471.1 | putative ring 1,2-phenylacetyl-CoA epoxidase subunit               |
| 1446232 | 1455164 | 1455910 | 1467907 | AAC74472.1 | ring 1,2-phenylacetyl-CoA epoxidase subunit                        |
| 1446232 | 1455925 | 1456422 | 1467907 | AAC74473.4 | ring 1,2-phenylacetyl-CoA epoxidase subunit                        |
|         |         |         |         |            | ring 1,2-phenylacetyl-CoA epoxidase, NAD(P)H oxidoreductase        |
| 1446232 | 1456430 | 1457500 | 1467907 | AAC74474.1 | component  |
| 1446232 | 1457497 | 1458264 | 1467907 | AAC74475.1 | 2,3-dehydroadipyl-CoA hydratase                                    |
| 1446232 | 1458264 | 1459052 | 1467907 | AAC74476.1 | 1,2-epoxyphenylacetyl-CoA isomerase, oxepin-CoA-forming            |
| 1446232 | 1459054 | 1460481 | 1467907 | AAC74477.1 | 3-hydroxyadipyl-CoA dehydrogenase, NAD <sup>+</sup> -dependent     |
| 1446232 | 1460471 | 1460893 | 1467907 | AAC74478.1 | hydroxyphenylacetyl-CoA thioesterase                               |
| 1446232 | 1460893 | 1462098 | 1467907 | AAC74479.1 | 3-oxoadipyl-CoA/3-oxo-5,6-dehydrosuberyl-CoA thiolase              |
| 1446232 | 1462125 | 1463438 | 1467907 | AAC74480.1 | phenylacetyl-CoA ligase  |
|         |         |         |         |            | transcriptional repressor of phenylacetic acid degradation paa     |
| 1446232 | 1463539 | 1464489 | 1467907 | AAC74481.1 | operon, phenylacetyl-CoA inducer                                   |
|         |         |         |         |            | thioesterase required for phenylacetic acid degradation; trimeric; |
|         |         |         |         |            | phenylacetate regulatory and detoxification protein; hexapeptide   |
| 1446232 | 1464471 | 1465061 | 1467907 | AAC74482.1 | repeat protein   |
| 1446232 | 1465165 | 1465230 | 1467907 | ACO59992.1 | uncharacterized protein  |
| 1469243 | 1469358 | 1470509 | 1470518 | AAC74486.1 | IS30 transposase   |
| 1632476 | 1633072 | 1633305 | 1634243 | AAC74617.2 | cold shock protein, function unknown, Qin prophage                 |
| 1632476 | 1633622 | 1634212 | 1634243 | AAC74618.1 | Qin prophage; putative site-specific recombinase                   |
| 1637077 | 1637609 | 1637782 | 1638255 | AAC74623.2 | Qin prophage; multicopy suppressor of secG(Cs) and fabA6(Ts)       |
| 1637077 | 1637954 | 1638109 | 1638255 | AAC74624.2 | Qin prophage; cold shock-induced protein                           |

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| 1638517 | 1639080 | 1639334 | 1639419 | ACO59993.1 | putative Rz1-like lipoprotein, Qin prophage                      |
| 1640619 | 1641339 | 1641554 | 1642322 | AAC74630.1 | Qin prophage; cold shock protein                                 |
| 1640619 | 1641855 | 1642067 | 1642322 | AAC74631.1 | Qin prophage; cold shock protein                                 |
| 1645392 | 1645633 | 1645872 | 1647298 | AAC74636.1 | Qin prophage; toxin of the RelE-RelB toxin-antitoxin system      |
| 1645392 | 1645897 | 1646202 | 1647298 | AAC74638.1 | Qin prophage; uncharacterized protein                            |
| 1645392 | 1646405 | 1646737 | 1647298 | AAC74639.1 | Qin prophage; uncharacterized protein                            |
| 2066170 | 2066305 | 2067321 | 2067325 | AAC75055.1 | IS5 transposase and trans-activator                              |
| 2068960 | 2069815 | 2070180 | 2070243 | AAT48140.2 | IS2 repressor TnpA   |
| 2089210 | 2089211 | 2089465 | 2089815 | ABD18681.1 | toxin of the YoeB-YefM toxin-antitoxin system                    |
| 2089210 | 2089462 | 2089713 | 2089815 | AAC75078.2 | antitoxin of the YoeB-YefM toxin-antitoxin system                |
| 2101377 | 2101396 | 2103389 | 2113344 |            | pseudogene   |
| 2101377 | 2101895 | 2102911 | 2113344 | AAC75091.1 | IS5 transposase and trans-activator                              |
| 2101377 | 2103391 | 2104509 | 2113344 | AAC75093.1 | lipopolysaccharide biosynthesis protein                          |
| 2101377 | 2104494 | 2105084 | 2113344 | AAC75094.1 | putative lipopolysaccharide biosynthesis O-acetyl transferase    |
| 2101377 | 2105065 | 2106057 | 2113344 | AAC75095.1 | d-Galf:alpha-d-Glc beta-1,6-galactofuranosyltransferase          |
| 2101377 | 2106060 | 2107226 | 2113344 | AAC75096.1 | O-antigen polymerase   |
| 2101377 | 2107226 | 2108329 | 2113344 | AAC75097.1 | UDP-galactopyranose mutase, FAD/NAD(P)-binding                   |
| 2101377 | 2108337 | 2109584 | 2113344 | AAC75098.1 | putative polisoprenol-linked O-antigen transporter               |
| 2101377 | 2109581 | 2110138 | 2113344 | AAC75099.1 | dTDP-4-deoxyrhamnose-3,5-epimerase                               |
| 2101377 | 2110138 | 2111019 | 2113344 | AAC75100.1 | glucose-1-phosphate thymidyltransferase                          |
|         |         |         |         |            | dTDP-L-rhamnose synthase, NAD(P)-dependent dTDP-4-               |
| 2101377 | 2111077 | 2111976 | 2113344 | AAC75101.1 | dehydrorhamnose reductase subunit                                |
| 2101377 | 2111976 | 2113061 | 2113344 | AAC75102.1 | dTDP-glucose 4,6 dehydratase, NAD(P)-binding                     |
| 2150968 | 2151185 | 2151646 | 2151709 | AAC75132.1 | uncharacterized protein  |
| 2170178 | 2170236 | 2170535 | 2171410 | AAC75149.2 | IS3 transposase A  |
| 2170178 | 2170532 | 2171398 | 2171410 | AAC75150.1 | IS3 transposase B  |
|         |         |         |         |            | sensory histidine kinase in two-component regulatory system with |
| 2320001 | 2320043 | 2321869 | 2327339 | AAC75279.1 | AtoC   |
|         |         |         |         |            | used response regulator of ato operon, in two-component system   |
| 2320001 | 2321866 | 2323251 | 2327339 | AAC75280.1 | with AtoS: response regulator/sigma54 interaction protein        |
| 2320001 | 2323447 | 2324109 | 2327339 | AAC75281.1 | acetyl-CoA:acetoacetyl-CoA transferase, alpha subunit            |

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| 2320001 | 2324109 | 2324759 | 2327339 | AAC75282.1 | acetyl-CoA:acetoacetyl-CoA transferase, beta subunit            |
| 2320001 | 2324756 | 2326078 | 2327339 | AAC75283.1 | short chain fatty acid transporter                              |
| 2320001 | 2326109 | 2327293 | 2327339 | AAC75284.1 | acetyl-CoA acetyltransferase                                    |
| 2387468 | 2387710 | 2388426 | 2389888 | AAC75333.1 | uncharacterized protein   |
| 2387468 | 2388635 | 2389057 | 2389888 | AAC75334.2 | uncharacterized protein   |
| 2449229 | 2450051 | 2450590 | 2451518 | AAC75393.1 | putative fimbrial-like adhesin protein                          |
| 2449229 | 2450587 | 2451075 | 2451518 | AAC75394.1 | putative fimbrial-like adhesin protein                          |
|         |         |         |         |            | CPS-53 (KpLE1) prophage; bactoprenol-linked glucose             |
| 2467829 | 2467855 | 2468217 | 2470733 | AAC75409.1 | translocase/flippase  |
| 2467829 | 2468214 | 2469134 | 2470733 | AAC75410.1 | CPS-53 (KpLE1) prophage; bactoprenol glucosyl transferase       |
| 2467829 | 2469131 | 2470462 | 2470733 | AAC75411.1 | serotype-specific glucosyl transferase, CPS-53 (KpLE1) prophage |
| 2476261 | 2476310 | 2476510 | 2478781 | ABD18695.1 | response regulator inhibitor for tor operon                     |
| 2476261 | 2476694 | 2477629 | 2478781 | AAC75423.1 | dsd operon activator; autorepressor                             |
| 2514329 | 2514331 | 2515443 | 2515571 | AAC75453.2 | IS186 transposase   |
| 2521609 | 2522729 | 2523985 | 2525907 | AAC75459.1 | xanthosine transporter  |
|         |         |         |         |            | purine nucleoside phosphorylase 2; nicotinamide 1-beta-D-       |
| 2521609 | 2524045 | 2524878 | 2525907 | AAC75460.1 | riboside synthase   |
| 2521609 | 2525127 | 2525891 | 2525907 | AAC75461.1 | putative outer membrane protein                                 |
| 2537665 | 2537749 | 2538483 | 2538583 | AAC75473.1 | WGR domain protein  |
| 2558755 | 2558858 | 2560066 | 2565440 | AAC75495.2 | CPZ-55 prophage; putative phage integrase                       |
| 2558755 | 2560257 | 2560898 | 2565440 | AAC75496.1 | CPZ-55 prophage; uncharacterized protein                        |
| 2558755 | 2561368 | 2561613 | 2565440 | AAC75497.1 | CPZ-55 prophage; uncharacterized protein                        |
| 2558755 | 2561625 | 2561993 | 2565440 | AAC75498.2 | CPZ-55 prophage; uncharacterized protein                        |
| 2558755 | 2562111 | 2562527 | 2565440 | AAC75499.1 | CPZ-55 prophage; uncharacterized protein                        |
| 2558755 | 2562524 | 2563117 | 2565440 | AAC75500.1 | PZ-55 prophage; uncharacterized protein                         |
| 2558755 | 2563592 | 2563969 | 2565440 | AAC75501.2 | CPZ-55 prophage; uncharacterized protein                        |
| 2558755 | 2563980 | 2564372 | 2565440 | AAC75502.1 | CPZ-55 prophage; uncharacterized protein                        |
| 2558755 | 2564523 | 2565332 | 2565440 | AAC75503.2 | CPZ-55 prophage; uncharacterized protein                        |
| 2755961 | 2756159 | 2757400 | 2775840 | AAC75670.1 | CP4-57 prophage; integrase                                      |
| 2755961 | 2757644 | 2758600 | 2775840 | AAC75671.1 | CP4-57 prophage; uncharacterized protein                        |
| 2755961 | 2758644 | 2758856 | 2775840 | AAC75672.1 | CP4-57 prophage; DNA-binding transcriptional activator          |
| 2755961 | 2758985 | 2760394 | 2775840 | AAC75673.1 | CP4-57 prophage; uncharacterized protein                        |

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| 2755961 | 2760547 | 2761173 | 2775840 | AAC75674.1 | CP4-57 prophage; uncharacterized protein<br>radiation resistance protein; DEAD/H helicase-like protein; CP4-57 |
| 2755961 | 2761351 | 2763540 | 2775840 | AAC75675.1 | putative defective prophage<br>CP4-57 putative defective prophage, DUF4297/DUF1837                             |
| 2755961 | 2763537 | 2765153 | 2775840 | AAC75676.1 | polymorphic toxin family protein   |
| 2755961 | 2765513 | 2765776 | 2775840 | AAC75677.1 | CP4-57 prophage; uncharacterized protein   |
| 2755961 | 2765918 | 2766991 | 2775840 | AAC75678.1 | CP4-57 prophage; RNase LS  |
| 2755961 | 2766984 | 2767355 | 2775840 | AAC75679.2 | CP4-57 prophage; uncharacterized protein   |
| 2755961 | 2767710 | 2768573 | 2775840 | AAT48146.1 | CP4-57 prophage; 50S ribosome-binding GTPase family protein  |
| 2755961 | 2768665 | 2769486 | 2775840 | AAC75681.1 | CP4-57 prophage; uncharacterized protein   |
| 2755961 | 2769703 | 2770404 | 2775840 | AAC75682.1 | CP4-57 prophage; putative DNA-binding transcriptional regulator  |
| 2755961 | 2770445 | 2770681 | 2775840 | AAC75683.2 | CP4-57 prophage; putative inner membrane protein   |
| 2755961 | 2770681 | 2771124 | 2775840 | AAC75684.2 | CP4-57 prophage; uncharacterized protein   |
| 2755961 | 2771148 | 2771615 | 2775840 | AAC75685.1 | CP4-57 prophage; putative periplasmic protein  |
| 2755961 | 2772002 | 2772154 | 2775840 |            | pseudogene   |
| 2755961 | 2772167 | 2773182 | 2775840 |            | pseudogene   |
| 2755961 | 2773318 | 2775021 | 2775840 | AAC75690.1 | CP4-57 prophage; putative inner membrane protein   |
| 2755961 | 2775545 | 2775816 | 2775840 |            | pseudogene   |
| 2776396 | 2776877 | 2777077 | 2777421 | ABD18698.1 | uncharacterized protein  |
| 2860446 | 2860467 | 2861234 | 2866451 | AAC75777.2 | DeoR family putative transcriptional regulator   |
| 2860446 | 2861430 | 2862338 | 2866451 | AAC75778.1 | putative dehydrogenase   |
| 2860446 | 2862335 | 2863501 | 2866451 | AAC75779.1 | FliA-regulated DUF1537 family protein  |
| 2860446 | 2863593 | 2864231 | 2866451 | AAC75780.1 | putative class II aldolase   |
| 2860446 | 2864236 | 2865012 | 2866451 | AAC75781.1 | putative hydroxypyruvate isomerase   |
| 2879785 | 2879788 | 2880387 | 2887276 | AAC75798.1 | CRISPR RNA precursor cleavage enzyme; CRISP RNA (crRNA)<br>containing Cascade antiviral complex protein        |
| 2879785 | 2880374 | 2881048 | 2887276 | AAC75799.2 | CRISP RNA (crRNA) containing Cascade antiviral complex protein   |
| 2879785 | 2881051 | 2882142 | 2887276 | AAC75800.1 | CRISP RNA (crRNA) containing Cascade antiviral complex protein   |
| 2879785 | 2882155 | 2882637 | 2887276 | AAC75801.1 | CRISP RNA (crRNA) containing Cascade antiviral complex protein   |
| 2879785 | 2882630 | 2884138 | 2887276 | AAC75802.1 | CRISP RNA (crRNA) containing Cascade antiviral complex protein   |
| 2879785 | 2884553 | 2887219 | 2887276 | AAC75803.1 | Cascade complex anti-viral R-loop helicase-annealase Cas3  |
| 2996367 | 2996372 | 2997277 | 2997690 | AAC75899.1 | IS2 transposase TnpB   |



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| 2996367 | 2997235 | 2997600 | 2997690 | AAC75900.3 | IS2 repressor TnpA   |
| 3167824 | 3167851 | 3168246 | 3168680 | AAC76057.1 | antitoxin for MqsR toxin; transcriptional repressor<br>GCU-specific mRNA interferase toxin of the MqsR-MqsA toxin-<br>antitoxin system; biofilm/motility regulator; anti-repressor |
| 3167824 | 3168248 | 3168544 | 3168680 | AAC76058.1 | putative fimbrial-like adhesin protein   |
| 3185160 | 3185414 | 3185965 | 3191684 | AAC76079.1 | pseudogene   |
| 3185160 | 3186061 | 3189865 | 3191684 |            | IS2 repressor TnpA   |
| 3185160 | 3186187 | 3186552 | 3191684 | AAC76080.3 | IS2 transposase TnpB   |
| 3185160 | 3186510 | 3187415 | 3191684 | AAC76081.1 | utative periplasmic pilin chaperone  |
| 3185160 | 3189881 | 3190630 | 3191684 | AAC76083.2 | periplasmic protein  |
| 3360698 | 3361176 | 3361940 | 3367746 | AAC76246.1 | putative periplasmic chaperone protein   |
| 3360698 | 3362112 | 3362786 | 3367746 | AAC76247.1 | putative outer membrane fimbrial subunit usher protein   |
| 3360698 | 3362807 | 3365188 | 3367746 | AAC76248.1 | pseudogene   |
| 3360698 | 3365185 | 3366929 | 3367746 |            | IS5 transposase and trans-activator  |
| 3360698 | 3365702 | 3366718 | 3367746 | AAC76250.1 | putative transcriptional regulator   |
| 3360698 | 3366926 | 3367642 | 3367746 | AAC76251.1 | general secretory pathway component, cryptic   |
| 3453522 | 3453929 | 3455398 | 3456376 | AAC76348.1 | general secretory pathway component, cryptic   |
| 3461476 | 3461974 | 3462351 | 3465842 | AAC76355.2 | putative general secretory pathway component, cryptic  |
| 3461476 | 3462344 | 3462931 | 3465842 | AAC76356.1 | general secretory pathway component, cryptic   |
| 3461476 | 3462924 | 3463907 | 3465842 | AAC76357.1 | general secretory pathway component, cryptic   |
| 3461476 | 3463922 | 3465085 | 3465842 | AAC76358.2 | general secretory pathway component, cryptic   |
| 3461476 | 3465082 | 3465543 | 3465842 | AAC76359.2 | periplasmic endochitinase  |
| 3467097 | 3467160 | 3469853 | 3470014 | AAC76363.1 | inner membrane protein   |
| 3505225 | 3506032 | 3507336 | 3512589 | AAC76402.1 | DUF2620 family protein   |
| 3505225 | 3507348 | 3507701 | 3512589 | AAC76403.2 | phosphotriesterase homology protein  |
| 3505225 | 3507712 | 3508590 | 3512589 | AAC76404.1 | phosphopentomutase-related metalloenzyme superfamily protein   |
| 3505225 | 3508587 | 3509813 | 3512589 | AAC76405.1 | putative pyridoxal 5'-phosphate binding protein  |
| 3505225 | 3509813 | 3510976 | 3512589 | AAC76406.1 | PRD domain protein   |
| 3505225 | 3511060 | 3511422 | 3512589 | AAC76407.2 | putative DNA-binding transcriptional regulator   |
| 3505225 | 3511439 | 3512344 | 3512589 | AAT48178.1 | putative Hcp1 family polymorphic toxin protein; putative colicin-<br>like DNase/tRNase activity  |
| 3581682 | 3581863 | 3583041 | 3585010 | AAC76467.1 | pseudogene   |
| 3581682 | 3583038 | 3584309 | 3585010 |            |  |

|         |         |         |         |            |   |
|---------|---------|---------|---------|------------|---|
| 3581682 | 3583483 | 3583758 | 3585010 | AAC76469.1 | IS1 repressor TnpA  |
| 3581682 | 3583677 | 3584180 | 3585010 | AAC76470.1 | IS1 transposase B   |
| 3623091 | 3623399 | 3623782 | 3624133 | AAC76508.2 | putative NTF2 fold immunity protein for polymorphic toxin RhsB  |
| 3652053 | 3652182 | 3653198 | 3653205 | AAC76530.1 | IS5 transposase and trans-activator   |
| 3720656 | 3720680 | 3721201 | 3722042 | AAC76581.1 | IS150 transposase A   |
| 3741834 | 3742733 | 3743731 | 3749246 | AAC76599.1 | 2,3-diketo-L-gulonate reductase, NADH-dependent   |
| 3741834 | 3743743 | 3744210 | 3749246 | AAC76600.1 | DUF386 family protein   |
| 3741834 | 3744328 | 3744801 | 3749246 | AAC76601.1 | 2,3-diketo-L-gulonate TRAP transporter small permease protein   |
| 3741834 | 3744804 | 3746081 | 3749246 | AAT48194.1 | 2,3-diketo-L-gulonate TRAP transporter large permease protein   |
| 3741834 | 3746094 | 3747080 | 3749246 | AAC76603.1 | 2,3-diketo-L-gulonate-binding periplasmic protein   |
| 3741834 | 3747084 | 3748580 | 3749246 | AAC76604.1 | L-xylulose kinase   |
| 3741834 | 3748577 | 3749239 | 3749246 | AAC76605.1 | 3-keto-L-gulonate 6-phosphate decarboxylase   |
| 3796965 | 3798239 | 3799312 | 3800278 | AAC76647.1 | lipopolysaccharide core biosynthesis<br>lipopolysaccharide KdoIII transferase; lipopolysaccharide core                          |
| 3796965 | 3799345 | 3800196 | 3800278 | AAC76648.1 | biosynthesis protein  |
| 3800972 | 3800983 | 3801999 | 3805023 | AAC76650.1 | lipopolysaccharide 1,2-glucosyltransferase; UDP-<br>glucose:(glucosyl)LPS alpha-1,2-glucosyltransferase                         |
| 3800972 | 3802039 | 3803058 | 3805023 | AAC76651.1 | UDP-D-galactose:(glucosyl)lipopolysaccharide-alpha-1,3-D-<br>galactosyltransferase  |
| 3800972 | 3803058 | 3804137 | 3805023 | AAC76652.2 | lipopolysaccharide 1,6-galactosyltransferase; UDP-D-<br>galactose:(glucosyl)lipopolysaccharide-1, 6-D-<br>galactosyltransferase |
| 3870570 | 3871850 | 3872998 | 3875269 | AAT48197.1 | D-galactonate dehydratase   |
| 3870570 | 3872995 | 3873612 | 3875269 | AAT48198.1 | 2-oxo-3-deoxygalactonate 6-phosphate aldolase   |
| 3870570 | 3873596 | 3874474 | 3875269 | AAC76716.1 | 2-oxo-3-deoxygalactonate kinase   |
| 3870570 | 3874471 | 3875160 | 3875269 | AAT48199.1 | D-galactonate catabolism operon transcriptional repressor   |
| 3897464 | 3897506 | 3897973 | 3906836 | AAC76739.1 | PRK09823 family inner membrane protein, creBC regulon   |
| 3897464 | 3898022 | 3898609 | 3906836 | AAC76740.1 | UPF0167 family protein  |
| 3897464 | 3898671 | 3899393 | 3906836 | AAT48202.1 | putative 6-phosphogluconolactonase  |
| 3897464 | 3899408 | 3900577 | 3906836 | AAC76742.3 | putative xylanase   |
| 3897464 | 3900604 | 3902220 | 3906836 | AAC76743.1 | carbohydrate-specific outer membrane porin, cryptic   |
| 3897464 | 3902289 | 3903701 | 3906836 | AAC76744.1 | cryptic phospho-beta-glucosidase B  |



|         |         |         |         |            |   |
|---------|---------|---------|---------|------------|---|
|         |         |         |         |            | fused beta-glucoside-specific PTS enzymes: IIA component/IIB component/IIC component  |
| 3897464 | 3903720 | 3905597 | 3906836 | AAC76745.1 | transcriptional antiterminator of the bgl operon  |
| 3897464 | 3905731 | 3906567 | 3906836 | AAC76746.1 | PRK11371 family inner membrane protein  |
| 4002424 | 4002813 | 4003193 | 4003293 | AAC76821.2 | allulose-6-phosphate 3-epimerase  |
| 4306898 | 4307783 | 4308478 | 4310215 | AAC77046.1 | D-allose ABC transporter permease   |
| 4306898 | 4308489 | 4309469 | 4310215 | AAC77047.1 | D-allose ABC transporter periplasmic binding protein  |
| 4310993 | 4311107 | 4312042 | 4313757 | AAC77049.1 | d-allose-inducible als operon transcriptional repressor; autorepressor; repressor of rpiR   |
| 4310993 | 4312101 | 4312991 | 4313757 | AAC77050.2 | L-idonate and D-gluconate transporter   |
| 4490158 | 4491206 | 4492525 | 4495101 | AAC77222.1 | 5-keto-D-gluconate-5-reductase  |
| 4490158 | 4492587 | 4493351 | 4495101 | AAC77223.1 | L-idonate 5-dehydrogenase, NAD-binding  |
| 4490158 | 4493375 | 4494406 | 4495101 | AAC77224.1 | pseudogene  |
| 4499512 | 4499593 | 4500791 | 4501356 |            | IS4 transposase   |
| 4501818 | 4502103 | 4503431 | 4507085 | AAC77234.1 | putative MFS transporter, membrane protein  |
| 4501818 | 4504058 | 4505275 | 4507085 | AAC77235.2 | GFO/IDH/MOCA family putative oxidoreductase. NAD(P)-dependent   |
| 4501818 | 4505287 | 4506405 | 4507085 | AAC77236.2 | uncharacterized protein   |
| 4501818 | 4506448 | 4506573 | 4507085 | ABV59575.1 | pseudogene  |
| 4501818 | 4506626 | 4506856 | 4507085 |            | ferric citrate ABC transporter ATPase   |
| 4509836 | 4510690 | 4511457 | 4518339 | AAC77243.1 | ferric citrate ABC transporter permease   |
| 4509836 | 4511458 | 4512414 | 4518339 | AAC77244.1 | ferric citrate ABC transporter permease   |
| 4509836 | 4512411 | 4513409 | 4518339 | AAC77245.1 | ferric citrate ABC transporter periplasmic binding protein  |
| 4509836 | 4513406 | 4514308 | 4518339 | AAC77246.2 | TonB-dependent outer membrane ferric citrate transporter and signal transducer; ferric citrate extracellular receptor; FecR-interacting protein                       |
| 4509836 | 4514353 | 4516677 | 4518339 | AAC77247.1 | anti-sigma transmembrane signal transducer for ferric citrate transport; periplasmic FecA-bound ferric citrate sensor and cytoplasmic FecI ECF sigma factor activator |
| 4509836 | 4516764 | 4517717 | 4518339 | AAC77248.1 | RNA polymerase sigma-19 factor, fec operon-specific; ECF sigma factor   |
| 4509836 | 4517714 | 4518235 | 4518339 | AAC77249.1 | putative transporter  |
| 4519339 | 4520671 | 4522020 | 4533827 | AAC77252.1 | putative dehydratase  |
| 4519339 | 4522127 | 4524094 | 4533827 | AAC77253.1 | putative lyase/synthase   |
| 4519339 | 4524105 | 4525010 | 4533827 | AAC77254.2 |   |

|         |         |         |                    |  |
|---------|---------|---------|--------------------|--|
| 4519339 | 4525015 | 4525803 | 4533827 AAC77255.1 | putative DNA-binding transcriptional regulator                   |
| 4519339 | 4526106 | 4526888 | 4533827 AAC77256.1 | putative DNA-binding transcriptional regulator                   |
| 4519339 | 4526905 | 4527537 | 4533827 AAC77257.1 | putative epimerase   |
| 4519339 | 4527549 | 4527980 | 4533827 AAC77258.1 | putative phosphotransferase enzyme IIA component                 |
| 4519339 | 4528111 | 4528917 | 4533827 AAC77259.1 | putative nucleoside triphosphatase                               |
| 4519339 | 4528930 | 4530243 | 4533827 AAC77260.1 | putative PTS system EIIC permease component                      |
| 4519339 | 4530255 | 4530533 | 4533827 ABD18717.1 | putative enzyme IIB component of PTS                             |
| 4519339 | 4530530 | 4531651 | 4533827 AAC77261.2 | putative endoglucanase with Zn-dependent exopeptidase domain     |
| 4519339 | 4532050 | 4532310 | 4533827            | pseudogene   |
| 4519339 | 4532437 | 4533183 | 4533827 AAC77262.1 | putative methyltransferase                                       |
| 4519339 | 4533239 | 4533784 | 4533827 AAC77263.1 | GNAT family putative N-acetyltransferase                         |
| 4534295 | 4534430 | 4534675 | 4536262            | pseudogene   |
| 4534295 | 4534791 | 4536031 | 4536262            | pseudogene   |
| 4571941 | 4572414 | 4573916 | 4579436            | pseudogene   |
| 4571941 | 4573919 | 4576855 | 4579436            | pseudogene   |
| 4571941 | 4576912 | 4577958 | 4579436 AAC77301.1 | 5-methylcytosine-specific restriction enzyme McrBC, subunit McrC |
| 4571941 | 4577958 | 4579337 | 4579436 AAC77302.2 | 5-methylcytosine-specific restriction enzyme McrBC, subunit McrB |
| 4579976 | 4580068 | 4581462 | 4587849 AAC77304.1 | specificity determinant for hsdM and hsdR                        |
| 4579976 | 4581459 | 4583048 | 4587849 AAC77305.1 | DNA methyltransferase M  |
| 4579976 | 4583249 | 4586761 | 4587849 AAC77306.2 | endonuclease R Type I restriction enzyme                         |

total 278 genes incl pseudogenes