|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PAI** | **Previous Locus tag** | | **Gene name** | **Product** | **Current Locus tag** | | **Gene Name** | | **Product** | **New gene name?** | |
| **PiCd1** |  | | | | | | | | | | |
|  | DIP0179 | |  | Putative membrane protein | DIP0179 | |  | | Di- and tricarboxylate transporter |  | |
| DIP0180 | |  | Hypothetical protein | DIP0180 | |  | | Conserved hypothetical protein |  | |
| DIP0181 | |  | Hypothetical protein | DIP0181 | |  | | Hypothetical protein |  | |
| DIP0182 | |  | Putative phage integrase | DIP0182 | |  | | Phage integrase |  | |
| DIP0183 | |  | Putative transcriptional regulator | DIP0183 | |  | | Putative transcriptional regulator |  | |
| DIP0184 | |  | Hypothetical protein | DIP0184 | |  | | Hypothetical protein |  | |
| DIP0185 | |  | Hypothetical protein | DIP0185 | |  | | Hypothetical protein |  | |
| DIP0186 | |  | Hypothetical protein | DIP0186 | |  | | Hypothetical protein |  | |
| DIP0187 | |  | Putative transcriptional regulator | DIP0187 | |  | | Lambda repressor-like DNA-binding domain |  | |
| DIP0188 | |  | Hypothetical protein | DIP0188 | |  | | Hypothetical protein |  | |
| DIP0189 | |  | Hypothetical protein | DIP0189 | |  | | Hypothetical protein |  | |
| DIP0190 | |  | Putative anti-repressor protein | DIP0190 | |  | | Prophage antirepressor |  | |
| DIP0191 | |  | Hypothetical protein | DIP0191 | |  | | Hypothetical protein |  | |
| DIP0192 | |  | Putative exported protein | DIP0192 | |  | | Putative exported protein |  | |
| DIP0193 | |  | Hypothetical protein | DIP0193 | |  | | Hypothetical protein |  | |
| DIP0194 | |  | Hypothetical protein | DIP0194 | |  | | Hypothetical protein |  | |
| DIP0195 | |  | Hypothetical protein | DIP0195 | |  | | Hypothetical protein |  | |
| DIP0196 | |  | Hypothetical protein | DIP0196 | |  | | Hypothetical protein |  | |
| DIP0197 | |  | Hypothetical protein | DIP0197 | |  | | Hypothetical protein |  | |
| DIP0197A | |  | Hypothetical protein | DIP0197A | |  | | Conserved hypothetical protein |  | |
| DIP0198 | |  | Hypothetical protein | DIP0198 | |  | | Conserved hypothetical protein |  | |
| DIP0199 | |  | Hypothetical protein | DIP0199 | |  | | Hypothetical protein |  | |
| DIP0200 | |  | Putative phage protein | DIP0200 | |  | | Putative phage protein |  | |
| DIP0201 | |  | Putative phage terminase (pseudogene) | DIP0201 | |  | | gp1, terminase |  | |
| DIP0201A | |  | | gp2, terminase |  | |
| DIP0203 | |  | Putative phage protein | DIP0203 | |  | | gp3, phage portal protein |  | |
| DIP0204 | |  | Putative phage prohead protease | DIP0204 | |  | | gp5, head maturation protease |  | |
| DIP0205 | |  | Putative phage capsid protein | DIP0205 | |  | | gp6, major capsid protein |  | |
| DIP0206 | |  | Hypothetical protein | DIP0206 | |  | | Hypothetical protein |  | |
| DIP0207 | |  | Putative phage protein | DIP0207 | |  | | gp8 protein |  | |
| DIP0208 | |  | Hypothetical protein | DIP0208 | |  | | gp9 family protein |  | |
| DIP0208A | |  | Putative phage protein | DIP0208A | |  | | gp10 family protein |  | |
| DIP0209 | |  | Putative phage protein | DIP0209 | |  | | gp11 family protein |  | |
| DIP0210 | |  | Putative phage protein | DIP0210 | |  | | gp12, major tail protein |  | |
| DIP0211 | |  | Putative phage protein | DIP0211 | |  | | gp13 family protein |  | |
| DIP0211A | |  | Hypothetical protein | DIP0211A | |  | | Hypothetical protein |  | |
| DIP0212 | |  | immunity-specific protein Beta241 | DIP0212 | | beta241 | | immunity-specific protein Beta241 | **x** | |
| DIP0213 | | beta201 | immunity-specific protein Beta201 | DIP0213 | | beta201 | | immunity-specific protein Beta201 |  | |
| DIP0214 | | beta286 | immunity-specific protein Beta286 | DIP0214 | | beta286 | | immunity-specific protein Beta286 |  | |
| DIP0215 | | beta371 | immunity-specific protein Beta371 | DIP0215 | | beta371 | | immunity-specific protein Beta371 |  | |
| DIP0216 | |  | Putative phage tail fiber protein | DIP0216 | |  | | Putative phage tail fiber protein |  | |
| DIP0217 | |  | Hypothetical protein | DIP0217 | |  | | Hypothetical protein |  | |
| DIP0218 | |  | Putative phage protein | DIP0218 | |  | | N-acetylmuramoyl-L-alanine amidase-like protein |  | |
| DIP0219 | |  | Putative membrane protein | DIP0219 | |  | | Putative membrane protein |  | |
| DIP0220 | |  | Putative membrane protein | DIP0220 | |  | | Putative membrane protein |  | |
| DIP0221 | |  | Putative secreted protein | DIP0221 | |  | | Putative secreted protein |  | |
| DIP0222 | | tox | Diphtheria toxin precursor | DIP0222 | | tox | | Diphtheria toxin precursor |  | |
| **PiCd2** |  | | | | | | | | | | |
|  | DIP0223 | |  | Hypothetical protein | DIP0223 | |  | | Hypothetical protein |  | |
| DIP0224 | |  | Hypothetical protein | DIP0224 | |  | | Hypothetical protein |  | |
| DIP0225 | |  | Putative secreted polysaccharide deacetylase | DIP0225 | |  | | polysaccharide deacetylase |  | |
| DIP0226 | |  | Putative GntR-family regulator | DIP0226 | | pdxR | | HTH-type pyridoxine biosynthesis transcriptional regulator PdxR | **x** | |
| DIP0227 | |  | Conserved hypothetical protein | DIP0227 | | pdxS | | Pyridoxine biosynthesis protein | **x** | |
| DIP0228 | |  | Putative amidotransferase | DIP0228 | | pdxT | | Glutamine amidotransferase subunit PdxT | **x** | |
| DIP0229 | |  | Putative membrane protein | DIP0229 | | srtA | | fimbria-associated protein sortase (partial) | **x** | |
| DIP0230 | |  | IS element transposase (pseudogene) | DIP0230 | |  | | transposase for IS3510c |  | |
| DIP0232 | |  | Putative exported protein | DIP0232 | |  | | Conserved hypothetical protein |  | |
| DIP0233 | |  | Putative fimbrial associated sortase-like protein | DIP0233 | | srtB | | fimbrial associated sortase family protein | **x** | |
| DIP0234 | |  | Hypothetical protein | DIP0234 | |  | | Hypothetical protein |  | |
| DIP0235 | |  | Putative fimbrial subunit | DIP0235 | |  | | Putative fimbrial subunit |  | |
| DIP0236 | |  | Putative fimbrial associated sortase-like protein | DIP0236 | | srtB1 | | Putative fimbrial associated sortase-like protein | **x** | |
| DIP0237 | |  | Putative surface anchored protein | DIP0237 | | spaE | | putative surface-anchored protein (fimbrial subunit) | **x** | |
| DIP0238 | |  | Putative surface-anchored fimbrial subunit | DIP0238 | | spaF | | putative surface-anchored protein (fimbrial subunit) | **x** | |
| DIP0239 | |  | Putative surface-anchored protein (pseudogene) | DIP\_0239 | |  | | membrane protein |  | |
| DIP0240 | |  | Hypothetical protein |
| DIP0241 | |  | Hypothetical protein |
| DIP0242 | |  | Putative IS element transposase | DIP0242 | |  | | Hypothetical protein |  | |
| DIP0243 | |  | Hypothetical protein | DIP0243 | |  | | Hypothetical protein |  | |
| DIP0244 | |  | Putative exported protein | DIP0244 | |  | | Putative exported protein |  | |
| DIP0245 | |  | Putative prephenate dehydrogenase | DIP0245 | | tyrA | | Prephenate dehydrogenase | **x** | |
| DIP0246 | |  | Conserved hypothetical protein | DIP0246 | |  | | Conserved hypothetical protein |  | |
| DIP0247 | |  | Putative cytosine deaminase | DIP0247 | | tadA | | Cytosine/adenosine deaminase | **x** | |
| **PiCd3** |  | | | | | | | | | | |
|  | DIP0282 | |  | Putative ABC transport system ATP-binding protein | DIP0282 | |  | | Putative ABC transport system ATP-binding protein |  | |
| DIP0283 | |  | Putative transport system permease (iron) | DIP0283 | | afuB | | Putative transport system permease (iron), membrane protein | **x** | |
| DIP0284 | |  | Putative ABC-transport system iron-binding secreted protein | DIP0284 | | afuA | | Iron (Fe3+) ABC superfamily ATP binding cassette transporter, binding protein | **x** | |
| DIP0285 | |  | Putative glycerol-3-phosphate transporter | DIP0285 | | glpT | | Glycerol-3-phosphate transporter, membrane protein | **x** | |
| DIP0286 | |  | two-component regulatory protein | DIP0286 | | tcsR1 | | Two-component system transcriptional regulatory regulatory protein | **x** | |
| DIP0287 | |  | two-component sensor protein | DIP0287 | | tcsS1 | | Two-component sensor protein, sensor histidine kinase | **x** | |
| DIP0288 | |  | Putative membrane protein | DIP0288 | | mnhG | | Putative H+ anti-porter subunit G, membrane protein | **x** | |
| DIP0289 | |  | Putative membrane protein | DIP0289 | | mnhF | | Putative H+ anti-porter subunit F, membrane protein | **x** | |
| DIP0290 | |  | Conserved hypothetical protein | DIP\_0290 | | mnhE | | Putative H+ anti-porter subunit E | **x** | |
| **PiCd4** |  | |  |  |  | |  | |  |  | |
|  | DIP0334 | |  | Hypothetical protein | DIP0334 | |  | | Hypothetical protein |  | |
| DIP0335 | |  | Putative membrane protein | DIP0335 | |  | | Putative membrane protein |  | |
| DIP0336 | |  | Conserved hypothetical protein | DIP0336 | |  | | Hypothetical protein |  | |
| DIP0337 | |  | Putative phage integrase | DIP0337 | | int8 | | Putative phage integrase | **x** | |
| DIP0338 | |  | Hypothetical protein | DIP0338 | |  | | Hypothetical protein |  | |
| DIP0339 | |  | Hypothetical protein | DIP0339 | |  | | Putative phage protein |  | |
| DIP0340 | |  | Putative phage protein (pseudogene) | DIP0340 | |  | | Putative secreted protein |  | |
| DIP0343 | |  | Hypothetical protein | DIP0343 | |  | | Hypothetical protein |  | |
| DIP0344 | |  | Putative exported protein |
| DIP0345 | |  | Putative exported protein | DIP0345 | |  | | Putative exported protein |  | |
| DIP0346 | |  | Putative IS element tranposase (partial) | DIP0346 | |  | | Putative IS element tranposase (partial) |  | |
| DIP0347 | |  | Hypothetical protein | DIP0347 | |  | | Hypothetical protein |  | |
| DIP0348 | |  | Conserved hypothetical protein | DIP0348 | |  | | Conserved hypothetical protein |  | |
| DIP0349 | |  | Putative alkylated DNA repair protein | DIP0349 | |  | | Putative alkylated DNA repair protein |  | |
| DIP0350 | |  | Putative secreted protease | DIP0350 | |  | | Putative secreted serine protease |  | |
| DIP0351 | |  | Putative plasmid replication protein | DIP0351 | |  | | Putative plasmid replication protein |  | |
| DIP0352 | |  | Putative exported protein | DIP0352 | |  | | Putative secreted protein |  | |
| DIP0353 | |  | Putative exported protein | DIP0353 | |  | | Putative secreted protein |  | |
| DIP0354 | |  | Putative IS element tranposase (pseudogene) | DIP0354 | |  | | Putative IS element tranposase |  | |
| DIP0356 | |  | Hypothetical protein | DIP0356 | |  | | Hypothetical protein |  | |
| DIP0357 | |  | Putative secreted bifunctional (alpha-amylase and endo-alpha-glucosidase): starch degradation and integral membrane protein | DIP0357 | |  | | Putative secreted bifunctional (alpha-amylase and endo-alpha-glucosidase): starch degradation and integral membrane protein |  | |
| DIP0358 | |  | Putative CoA-ligase | DIP0358 | | fadD1 | | acyl-CoA synthetase | **x** | |
| DIP0359 | |  | Putative secreted hydrolase | DIP0359 | |  | | Putative secreted hydrolase |  | |
| **PiCd5** | **DIP0438-DIP0445 – Not identified as a Pathogenicity Island by PIPS** | | | | | | | | | | |
| **PiCd6** |  | | | | | | | | | | |
|  | DIP0750 | smpB | | SsrA-binding protein | DIP0750 | smpB | | SsrA-binding protein/SmpB superfamily | | |  |
| DIP0751 |  | | Hypothetical protein | DIP0751 |  | | Hypothetical protein | | |  |
| DIP0752 |  | | IS element transposase | DIP0752 |  | | transposase | | |  |
| DIP0753 |  | | Putative lantibiotic modifying enzyme | DIP0753 |  | | Putative lantibiotic modifying enzyme | | |  |
| DIP0754 |  | | Putative lantibiotic ABC-transport system membrane protein | DIP0754 |  | | Putative lantibiotic ABC-transport system membrane protein | | |  |
| DIP0755 |  | | Putative lantibiotic ABC-transport system, ATP-binding protein | DIP0755 |  | | Putative lantibiotic ABC-transport system, ATP-binding protein | | |  |
| DIP0756 |  | | Putative lantibiotic ABC-transport system integral membrane protein | DIP0756 |  | | lantibiotic ABC transporter membrane protein | | |  |
| DIP0757 |  | | IS element transposase (partial) | DIP0757 |  | | IS element transposase (partial)/putative pseudogene | | |  |
| DIP757A |  | | IS element transposase (partial) |
| DIP0758 |  | | Putative transposase (partial) | DIP0758 |  | | putative transposase (partial) | | |  |
| DIP0759 |  | | Putative transposase (pseudogene) | DIP0759 |  | | Putative transposase | | |  |
| DIP0761 |  | | Conserved hypothetical protein | DIP0761 |  | | hypothetical protein | | |  |
| DIP0762 |  | | Conserved hypothetical protein | DIP0762 |  | | hypothetical protein | | |  |
| DIP0763 | tnpB | | transposase B (pseudogene) | DIP0763 |  | | IS3 family transposase OrfB /putative pseudogene | | |  |
| DIP0764 |  | | Putative transposase | DIP0764 | int | | Putative integrase catalytic subunit | | | **x** |
| DIP0766 | tnpA1 | | transposase A | DIP0766 | tnpA1 | | transposase A | | |  |
|  |  | |  | DIP0766A |  | | hypothetical protein | | |  |
| **PiCd7** |  | | | | | | | | | | |
|  | DIP0794 |  | | Na(+)/H(+) antiporter homolog | DIP0794 |  | | Na(+)/H(+) antiporter-like protein | | |  |
|  |  | |  | DIP0794A |  | | Hypothetical protein | | |  |
| DIP0795 |  | | Hypothetical protein | DIP0795 |  | | conserved hypothetical protein | | |  |
| DIP0796 |  | | Putative phage protein | DIP0796 |  | | conserved hypothetical protein | | |  |
| DIP0797 |  | | Hypothetical protein | DIP0797 |  | | conserved hypothetical protein | | |  |
| DIP0798 |  | | Hypothetical protein | DIP0798 |  | | conserved hypothetical protein | | |  |
| DIP0799 |  | | Hypothetical protein | DIP0799 |  | | hypothetical protein | | |  |
| DIP0800 |  | | Hypothetical protein | DIP0800 |  | | hypothetical protein | | |  |
| DIP0801 |  | | Hypothetical protein | DIP0801 |  | | Hypothetical protein | | |  |
| DIP0802 |  | | Putative phage protein | DIP0802 |  | | Putative phage protein | | |  |
| DIP0803 |  | | Hypothetical protein | DIP0803 |  | | hypothetical protein | | |  |
| DIP0804 |  | | Hypothetical protein | DIP0804 |  | | Hypothetical protein | | |  |
| DIP0805 |  | | Putative DNA methylase | DIP0805 | modB | | putative DNA methylase | | | **x** |
| DIP0806 |  | | Putative phage protein | DIP0806 |  | | Putative phage protein | | |  |
| DIP0807 |  | | Hypothetical protein | DIP0807 |  | | hypothetical protein | | |  |
| DIP0808 |  | | Hypothetical protein | DIP0808 |  | | Hypothetical protein | | |  |
| DIP0809 |  | | Hypothetical protein | DIP0809 |  | | Hypothetical protein | | |  |
| DIP0810 |  | | Hypothetical protein | DIP0810 |  | | Hypothetical protein | | |  |
| DIP0811 |  | | Hypothetical protein | DIP0811 |  | | hypothetical protein | | |  |
| DIP0812 |  | | Hypothetical protein | DIP0812 |  | | Hypothetical protein | | |  |
| DIP0813 |  | | Hypothetical protein | DIP0813 |  | | Hypothetical protein | | |  |
| DIP0816 |  | | Putative exported protein | DIP0816 |  | | Putative exported protein | | |  |
| DIP0817 |  | | Putative phage integrase | DIP0817 |  | | putative phage integrase | | |  |
|  |  | |  | DIP0817A |  | | hypothetical protein | | |  |
| DIP0818 |  | | Hypothetical protein (putative DNA-binding protein) | DIP0818 |  | | Hypothetical protein (putative DNA-binding protein) | | |  |
| DIP0819 |  | | Hypothetical protein | DIP0819 |  | | hypothetical protein | | |  |
| DIP0820 |  | | Hypothetical protein | DIP0820 |  | | conserved hypothetical protein | | |  |
| DIP0821 |  | | Hypothetical protein | DIP0821 |  | | hypothetical protein | | |  |
| DIP0822 |  | | Putative cobalamin synthesis related protein | DIP0822 | cobF | | tetrapyrrole methylase family protein | | | **x** |
| DIP0823 |  | | Conserved hypothetical protein | DIP0823 |  | | Putative Glutaredoxin-like protein | | |  |
| **PiCd8** |  | | | | | | | | | | |
|  | DIP1645 |  | | Hypothetical protein | DIP1645 |  | | Hypothetical protein | | |  |
| DIP1646 |  | | Conserved hypothetical protein | DIP1646 |  | | Conserved hypothetical protein | | |  |
| DIP1647 |  | | Putative membrane protein | DIP1647 |  | | Putative membrane protein | | |  |
| DIP1648 | tnp1250A | | IS element transposase (pseudogene) | DIP1648 |  | | Putative transposase | | |  |
| DIP1650 |  | | Hypothetical protein | DIP1650 |  | | Transposase for insertion sequence | | |  |
| DIP1651 |  | | Conserved hypothetical protein | DIP1651 |  | | Hypothetical protein | | |  |
| DIP1652 |  | | Putative secreted protein | DIP1652 |  | | Putative secreted protein | | |  |
| DIP1653 |  | | Putative exported protein | DIP1653 |  | | Putative secreted protein | | |  |
| DIP1654 |  | | Conserved hypothetical protein | DIP1654  DIP1655 |  | | LGFP repeat superfamily protein | | |  |
| DIP1655 |  | | Putative exported protein |
| DIP1656 |  | | Conserved hypothetical protein | DIP1656 |  | | Conserved hypothetical protein | | |  |
| DIP1657 |  | | Hypothetical protein | DIP1657 |  | | Hypothetical protein | | |  |
| DIP1658 |  | | Putative membrane-anchored protein | DIP1658 |  | | Putative membrane-anchored protein | | |  |
| DIP1659 |  | | Putative exported protein | DIP1659 |  | | Putative secreted protein | | |  |
|  |  | |  |  |  | | Hypothetical protein | | |  |
| DIP1660 |  | | Conserved hypothetical protein | DIP1660 |  | | Conserved hypothetical protein | | |  |
| DIP1661 |  | | Conserved hypothetical integral membrane protein | DIP1661 |  | | Putative Na+/H+ antiporter NhaC | | |  |
| DIP1662 |  | | Putative GntR-family transcriptional regulator | DIP1662 | gntR | | Transcriptional regulator, gntR family | | | **x** |
| DIP1663 |  | | probable MFS-transporter | DIP1663 |  | | MFS family transporter | | |  |
| DIP1664 |  | | Conserved hypothetical protein | DIP1664 |  | | MutT/NUDIX family protein | | |  |
| **PiCd9** |  | | | | | | | | | | |
|  | DIP1817 |  | | Conserved hypothetical protein | DIP1817 |  | | Hypothetical protein | | |  |
| DIP1818 |  | | Hypothetical protein | DIP1818 |  | | Hypothetical protein | | |  |
| DIP1819 |  | | Hypothetical protein | DIP1819 |  | | Hypothetical protein | | |  |
| DIP1820 |  | | Putative membrane protein | DIP1820 |  | | hypothetical protein | | |  |
| DIP1821 |  | | Hypothetical protein | DIP1821 |  | | Hypothetical protein | | |  |
| DIP1822 |  | | Hypothetical protein | DIP1822 |  | | Hypothetical protein | | |  |
| DIP1823 |  | | HNH endonuclease family protein | DIP1823 |  | | HNH endonuclease family protein | | |  |
|  |  | |  | DIP1823A |  | | Hypothetical protein | | |  |
| DIP1824 |  | | Putative phage terminase protein | DIP1824 | xtmB | | Phage terminase protein | | | **x** |
| DIP1825 |  | | Hypothetical protein | DIP1825 |  | | Hk97 Family pertaining Phage Portal Protein | | |  |
| DIP1826 |  | | Conserved hypothetical protein | DIP1826 | gp52 | | putative lysin | | | **x** |
| DIP1827 |  | | Hypothetical protein | DIP1827 |  | | Hypothetical protein | | |  |
| DIP1828 |  | | Conserved hypothetical exported protein | DIP1828 |  | | Putative peptidase U35 family pertaining protein | | |  |
| DIP1829 |  | | Hypothetical protein | DIP1829 |  | | Hypothetical protein | | |  |
| DIP1830 |  | | Hypothetical protein | DIP1830 |  | | Hypothetical protein | | |  |
| DIP1831 |  | | Conserved hypothetical protein | DIP1831 |  | | Conserved hypothetical protein | | |  |
| DIP1832 |  | | Putative phage protein | DIP1832 |  | | Putative phage protein | | |  |
| DIP1833 |  | | Putative phage protein | DIP1833 |  | | Putative phage protein | | |  |
|  |  | |  | DIP1833A |  | | Hypothetical protein | | |  |
| DIP1834 |  | | Putative phage protein | DIP1834 |  | | Putative phage secreted protein | | |  |
| DIP1835 |  | | Hypothetical protein | DIP1835 |  | | Hypothetical protein | | |  |
| DIP1836 |  | | collagen-like repeat protein | DIP1836 |  | | Triple helix repeat-containing collagen | | |  |
| DIP1837 |  | | Putative phage integrase | DIP1837 |  | | Phage integrase | | |  |
| DIP1838 |  | | Putative membrane protein | DIP1838 |  | | Putative membrane protein | | |  |
| DIP1840 |  | | Hypothetical protein | DIP1840 |  | | Isochorismatase family protein | | |  |
| DIP1841 |  | | Conserved hypothetical protein | DIP1841 |  | | Antibiotic biosynthesis monooxygenase domain containing protein | | |  |
| DIP1842 |  | | Putative membrane protein | DIP1842 |  | | Putative membrane protein | | |  |
| DIP1843 | bcp | | bacterioferritin comigratory protein | DIP1843 | bcp | | Bacterioferritin comigratory protein (thioredoxin reductase) | | |  |
| **PiCd10** |  | | | | | | | | | | |
|  | DIP2010 |  | | Putative surface-anchored membrane protein | DIP2010 |  | | possible surface-anchored membrane protein | | |  |
| DIP2011 |  | | Putative surface anchored protein | DIP2011 |  | | Putative surface anchored protein | | |  |
| DIP2012 |  | | Putative fimbrial associated sortase-like protein | DIP2012 | srtB | | Putative fimbrial associated sortase-like protein | | | **x** |
| DIP2013 |  | | Putative surface-anchored fimbrial subunit | DIP2013 |  | | Putative surface-anchored fimbrial subunit | | |  |
| DIP2014 |  | | Putative membrane-anchored protein | DIP2014 |  | | Putative membrane-anchored protein | | |  |
| DIP2015 |  | | Putative exported lipase | DIP2015 |  | | Putative exported lipase | | |  |
| **PiCd11** |  | | | | | | | | | | |
|  | DIP2064 |  | | Putative beta-ketoacyl-ACP synthase gene remnant | DIP2064 | |  | | Putative beta-ketoacyl-ACP synthase gene remnant | |  |
| DIP2065 |  | | Putative hydrolase gene remnant | DIP2065 | |  | | Alpha/Beta Hydrolase | |  |
| DIP2066 |  | | Putative surface-anchored fimbrial associated protein | DIP2066 | |  | | Putative surface-anchored fimbrial associated protein | |  |
| DIP2067 |  | | Conserved hypothetical protein | DIP2067 | |  | | Conserved hypothetical protein | |  |
| DIP2068 |  | | Putative membrane protein | DIP2068 | |  | | Putative membrane protein | |  |
| DIP2069 |  | | Putative secreted protein | DIP2069 | |  | | Putative secreted protein | |  |
| DIP2070 |  | | Putative membrane protein | DIP2070 | |  | | Putative membrane protein | |  |
| DIP2071 |  | | Hypothetical protein | DIP2071 | |  | | Conserved hypothetical protein | |  |
| DIP2072 |  | | Hypothetical protein | DIP2072 | |  | | Conserved Hypothetical protein | |  |
| DIP2073 |  | | Hypothetical protein | DIP2073 | |  | | Conserved hypothetical protein | |  |
| DIP2074 |  | | Putative tranposase | DIP2074  DIP2075 | |  | | Transposase IS3/IS911 family protein | |  |
| DIP2075 |  | | Putative membrane protein |
| DIP2076 |  | | Putative membrane protein | DIP2076 | |  | | Putative membrane protein | |  |
| DIP2077 |  | | Hypothetical protein | DIP2077 | |  | | Hypothetical protein | |  |
| DIP2077A |  | | Hypothetical protein | DIP2077A | |  | | Hypothetical protein | |  |
| DIP2078 |  | | Putative membrane transport protein | DIP2078 | | ygbN | | GntP family gluconate:proton (H+) symporter | | **x** |
| DIP2079 |  | | Putative oxidoreductase | DIP2079 | | ygbN1 | | 3-hydroxyisobutyrate dehydrogenase family protein | | **x** |
| DIP2080 |  | | Conserved hypothetical protein | DIP2080 | | ybgK | | 3-HYDROXYISOBUTYRATE DEHYDROGENASE-RELATED | | **x** |
|  |  | |  | DIP2080A | |  | | hypothetical protein | |  |
| DIP2081 |  | | Putative transcriptional regulator | DIP2081 | | gntR1 | | GntR family transcriptional regulator | | **x** |
| DIP2082 |  | | Putative amino acid dehydrogenase (pseudogene) | DIP2082 | |  | | D-amino acid dehydrogenase subunit | |  |
| DIP2083 |  | | Putative transposase for insertion element | DIP2083 | | tnp3512a | | transposase for IS3512a | | **x** |
| DIP2084 | gcrY | | Conserved hypothetical protein (pseudogene) | DIP2084 | |  | | GcrY protein / DNA methyltransferase | |  |
| DIP2085 |  | | Putative insertion element | DIP2085  DIP2086 | |  | | Transposase for insertion sequence | |  |
| DIP2086 |  | | Putative transposase (pseudogene) |
| DIP2089 | repA | | Putative replicase (partial) | DIP2089 | | repA | | Replicase RepA (partial) | |  |
| DIP2090 |  | | Putative IS element transposase (pseudogene) | DIP2090 | |  | | Transposase for IS3510a | |  |
| DIP2093 |  | | Putative Sdr-family related adhesin | DIP2093 | |  | | Putative Sdr-family related adhesin | |  |
| **PiCd12** |  | | | | | | | | | | |
|  |  |  | |  | DIP2142A | |  | | Hypothetical protein | |  |
| DIP2143 |  | | Putative ABC transport system integral membrane protein | DIP2143 | |  | | ABC transport system integral membrane protein | |  |
| DIP2144 |  | | Putative ABC transport system, ATP-binding subunit | DIP2144 | |  | | Putative ABC transport system, ATP-binding subunit | |  |
| DIP2145 |  | | Putative integral membrane protein | DIP2145 | | yxlE | | Integral membrane protein YxlE | | **x** |
| DIP2146 |  | | Putative integral membrane protein | DIP2146 | |  | | Putative integral membrane protein | |  |
| DIP2147 |  | | Conserved hypothetical protein | DIP2147 | | padR2 | | PadR family transcriptional regulator | | **x** |
| DIP2148 |  | | Putative transposase fragment (pseudogene) | DIP2148 | |  | | Putative transposase, fragment | |  |
| DIP2149 |  | | Putative transposase (pseudogene) | DIP2149 | |  | | Transposase for insertion sequence | |  |
| DIP2152 |  | | Hypothetical protein |
| DIP2153 |  | | Putative bacteriophage holin protein | DIP2153 | |  | | HNH endonuclease | |  |
| DIP2154 |  | | Putative DNA-binding bacteriophage protein | DIP2154 | |  | | Bro family antirepressor | |  |
| DIP2155 |  | | Conserved hypothetical protein | DIP2155 | | abiF | | Abortive infection bacteriophage resistance protein, Abi family | | **x** |
| DIP2156 |  | | Putative phage DNA polymerase (pseudogene) | DIP2156 | |  | | Putative phage DNA polymerase, fragment | |  |
|  |  | |  | DIP2156A | |  | | possible amidohydrolase (aminocarboxymuconate-semialdehyde decarboxylase), fragment (pseugogene) | |  |
| DIP2158 |  | | ABC transport protein | DIP2158 | | msbA | | Multidrug resistance ABC transporter MsbA, N-terminal domain | | **x** |
| DIP2159 |  | | ABC transport protein | DIP2159 | | msbA2 | | Multidrug resistance ABC transporter MsbA, N-terminal domain | | **x** |
| DIP2160 |  | | modular polyketide synthase | DIP2160 | |  | | Modular polyketide synthase | |  |
| DIP2161 |  | | nonribosomal peptide synthase | DIP2161 | |  | | Acetyl-CoA synthetase-like superfamily | |  |
| DIP2162 |  | | Putative ABC transport system, solute-binding protein | DIP2162 | |  | | Periplasmic binding protein-like II | |  |
| DIP2163 |  | | Putative ABC transport system permease protein | DIP2163 | |  | | Binding-protein-dependent transport systems inner membrane component | |  |
| DIP2164 |  | | Putative ABC transport system permease protein | DIP2164 | |  | | Binding-protein-dependent transport system inner membrane component | |  |
| DIP2165 |  | | Putative ABC transport system, ATP-binding protein | DIP2165 | |  | | ABC transporter ATP-binding protein | |  |
|  |  | |  | DIP2165A | |  | | Hypothetical protein | |  |
| DIP2166 |  | | Putative ABC transport system permease protein | DIP2166 | |  | | ABC transporter permease /Major facilitator family transporter | |  |
| DIP2167 | metE | | 5-methyltetrahydropteroyltriglutamate--homocystei ne methyltransferase (partial) | DIP2167 | | metE | | 5-methyltetrahydropteroyltriglutamate--homocystei ne methyltransferase, fragment | |  |
| DIP2168 |  | | probable integral membrane transport protein | DIP2168 | | bcr | | Biocyclomycin resistance protein | | **x** |
| DIP2169 |  | | Putative membrane protein | DIP2169 | |  | | Putative membrane protein | |  |
| DIP2170 |  | | Conserved hypothetical integral membrane protein | DIP2170 | |  | | Putative integral membrane protein | |  |
| **PiCd13** |  | | | | | | | | | | |
|  | DIP2208 |  | | Conserved hypothetical protein | DIP2208 | | casD | | CRISPR-associated protein Cas5 family | | **x** |
| DIP2209 |  | | Conserved hypothetical protein | DIP2209 | | casC | | CRISPR-associated Cse4 family protein | | **x** |
| DIP2210 |  | | Hypothetical protein | DIP2210 | | casB | | CRISPR-associated protein Cse2 family | | **x** |
| DIP2211 |  | | Hypothetical protein | DIP2211 | |  | | Glutathionylspermidine synthase | |  |
| DIP2212 |  | | Conserved hypothetical protein | DIP2212 | | casE | | CRISPR-associated protein, Cse3 family | | **x** |
| DIP2213 |  | | Putative helicase | DIP2213 | |  | | CRISPR-associated helicase Cas3 | |  |
| DIP2214 |  | | Conserved hypothetical protein | DIP2214 | | casG | | CRISPR-associated protein Cas1 | | **x** |
| DIP2215 |  | | Conserved hypothetical protein | DIP2215 | | casF | | CRISPR-associated protein Cas2 family | | **x** |
| DIP2216 | ssb2 | | single-strand DNA binding protein | DIP2216 | | ssb2 | | Single-strand DNA binding protein | |  |
| DIP2217 |  | | Putative DNA-binding protein | DIP2217 | |  | | Putative DNA-binding protein | |  |
| DIP2218 |  | | Putative phage protein | DIP2218 | |  | | Putative phage protein | |  |
| DIP2219 |  | | Hypothetical protein | DIP2219 | |  | | Hypothetical protein | |  |
| DIP2220 |  | | Hypothetical protein | DIP2220 | |  | | Hypothetical protein | |  |
| DIP2222 |  | | Putative exported protein | DIP2220A | |  | | Hypothetical protein | |  |
|  |  | |  | DIP2220B | |  | | Conserved hypothetical protein | |  |
| DIP2223 |  | | potential surface-anchored protein | DIP2223 | |  | | LPXTG-motif cell wall anchor domain protein | |  |
| DIP2224 |  | | Putative fimbrial associated sortase-like protein | DIP2224 | | srtB | | Putative fimbrial associated sortase-like protein | | **x** |
| DIP2225 |  | | Putative fimbrial associated sortase-like protein | DIP2225 | | srtC | | Putative fimbrial associated sortase-like protein | | **x** |
| DIP2226 |  | | probable surface-anchored fimbrial subunit | DIP2226 | | spaH | | Surface-anchored fimbrial subunit | | **x** |
| DIP2227 |  | | probable surface-anchored fimbrial subunit | DIP2227 | | spaG | | Surface-anchored fimbrial subunit | | **x** |
| DIP2228 |  | | Hypothetical protein | DIP2228 | |  | | IS3504a transposase | |  |
| DIP2229 |  | | probable IS element transposase (pseudogene) | DIP2229 | |  | | Integrase catalytic subunit | |  |
| DIP2233 |  | | Putative exported protein | DIP2233 | |  | | Putative exported protein | |  |
|  |  | |  | DIP2233A | |  | | Hypothetical protein | |  |
|  |  | |  | DIP2233B | |  | | Hypothetical protein | |  |
| DIP2234 |  | | Putative membrane protein | DIP2234 | |  | | Putative membrane protein | |  |
| **PiCd14** |  | | | | | | | | | | |
|  | DIP0028 |  | | Hypothetical protein | DIP0028 | |  | | Hypothetical protein | |  |
| DIP0029 | thiC | | thiamine biosynthesis protein | DIP0029 | | thiC | | Thiamine biosynthesis protein | |  |
| DIP0030 | thiE | | Putative thiamin-phosphate pyrophosphorylase | DIP0030 | | thiE | | Thiamin-phosphate pyrophosphorylase | |  |
| DIP0031 | thiO | | Putative thiamine biosynthesis oxidoreductase | DIP0031 | | thiO | | Glycine oxidase ThiO | |  |
| DIP0032 |  | | Conserved hypothetical protein | DIP0032 | | thiS | | Thiamine biosynthesis protein ThiS | | **x** |
| DIP0033 | thiG | | thiazole biosynthesis protein | DIP0033 | | thiG | | Thiazole biosynthesis protein | |  |
| DIP0034 |  | | Putative adenylyltransferase | DIP0034 | | thiF | | thiamine biosynthesis protein ThiF | | **x** |
| DIP0035 | thiD | | phosphomethylpyrimidine kinase | DIP0035 | | thiD | | phosphomethylpyrimidine kinase | |  |
| DIP0036 |  | | Conserved hypothetical protein | DIP0036 | | csn1 | | CRISPR-associated protein, Csn1 family | | **x** |
| DIP0037 |  | | Conserved hypothetical protein | DIP0037 | | cas1 | | CRISPR-associated Cas1 family protein | | **x** |
| DIP0038 |  | | Conserved hypothetical protein | DIP0038 | | cas2 | | CRISPR-associated protein cas2 | | **x** |
| DIP0039 |  | | Hypothetical protein | DIP0041 | |  | | mutator family transposase | |  |
| DIP0040 |  | | Conserved hypothetical protein |
| DIP0041 |  | | Putative transposase for insertion sequence element (pseudogene) |
| DIP0046 |  | | Hypothetical protein | DIP0046 | |  | | Hypothetical protein | |  |
| DIP0047 |  | | Putative transposase (pseudogene) | DIP0047 | |  | | Transposase | |  |
| DIP0049 |  | | Putative transposase (partial) | DIP0049 | |  | | Putative transposase (partial) | |  |
| DIP0050 |  | | Hypothetical protein | DIP0050 | |  | | Hypothetical protein | |  |
| DIP0051 |  | | Hypothetical protein | DIP0051 | |  | | Hypothetical protein | |  |
| **PiCd15** |  | | | | | | | | | | |
|  | DIP0071 |  | | Hypothetical protein | DIP0071 | |  | | Hypothetical protein | |  |
| DIP0072 |  | | Hypothetical protein | DIP0072 | |  | | Hypothetical protein | |  |
| DIP0073 |  | | Conserved hypothetical protein | DIP0073 | |  | | Conserved hypothetical protein | |  |
| DIP0074 |  | | Hypothetical protein | DIP0074 | |  | | Hypothetical protein | |  |
|  |  | |  | DIP0074A | |  | | Hypothetical protein | |  |
| DIP0075 |  | | Hypothetical protein | DIP0075 | |  | | Conserved hypothetical protein | |  |
| DIP0076 |  | | Hypothetical protein | DIP0076 | |  | | Hypothetical protein | |  |
| DIP0077 |  | | Hypothetical protein | DIP0077 | |  | | DNA breaking-rejoining enzymes superfamily | |  |
| DIP0078 |  | | Hypothetical protein | DIP0078 | |  | | Conserved hypothetical protein | |  |
| DIP0079 |  | | Hypothetical protein | DIP0079 | |  | | Hypothetical protein | |  |
| DIP0080 |  | | Hypothetical protein | DIP0080 | |  | | Hypothetical protein | |  |
| DIP0081 |  | | Hypothetical protein | DIP0081 | |  | | Hypothetical protein | |  |
| DIP0082 |  | | Putative secreted protein | DIP0082 | |  | | Putative secreted protein | |  |
| DIP0083 |  | | Hypothetical protein | DIP0083 | |  | | Hypothetical protein | |  |
| DIP0084 |  | | Putative membrane protein | DIP0084 | |  | | Putative membrane protein | |  |
| DIP0085 |  | | Putative membrane protein | DIP0085 | |  | | Putative membrane protein | |  |
| DIP0086 |  | | Putative regulatory protein | DIP0086 | |  | | HTH\_3 family transcriptional regulator | |  |
| DIP0087 |  | | Putative antibiotic production protein (pseudogene) | DIP0087 | |  | | Phenazine biosynthesis protein PhzF family | |  |
| DIP0089 |  | | Putative membrane protein | DIP0089 | |  | | Conserved hypothetical protein | |  |
| DIP0090 |  | | ABC transport system ATP-binding protein | DIP0090 | |  | | ABC superfamily ATP binding cassette transporter ABC protein | |  |
| DIP0091 |  | | Putative two-component system response regulator | DIP0091 | |  | | two component system response regulator | |  |
| DIP0092 |  | | Putative two component system sensor kinase | DIP0092 | |  | | Two component system sensor kinase | |  |
| DIP0093 |  | | Putative membrane protein | DIP0093 | |  | | Putative membrane protein | |  |
| DIP0094 |  | | Hypothetical protein | DIP0094 | |  | | Hypothetical protein | |  |
| DIP0095 | opuBB | | choline transport system permease protein | DIP0095 | | opuBB | | choline transport system permease protein | |  |
| DIP0096 | opuBD | | choline transport system permease protein | DIP0096 | | opuBD | | choline transport system permease protein | |  |
| DIP0097 | opuBA | | choline transport system ATP-binding protein | DIP0097 | | opuBA | | choline transport system ATP-binding protein | |  |
| DIP0098 |  | | Putative membrane protein | DIP0098 | | cskE | | Anti-sigma factor | | **x** |
| DIP0099 |  | | Putative RNA polymerase sigma factor | DIP0099 | | sigK | | ECF family sigma factor K | | **x** |
| DIP0100 |  | | Hypothetical protein | DIP0100 | |  | | DIP\_0089 | |  |
| DIP0101 |  | | Putative membrane protein | DIP0101 | | dipZ | | Integral membrane C-type cytochrome biogenesis protein DipZ | | **x** |
| DIP0102 | tipA | | transcriptional activator | DIP0102 | | tipA | | MerR family transcriptional regulator | |  |
| DIP0103 |  | | Conserved hypothetical protein | DIP0103 | |  | | Conserved hypothetical protein | |  |
| DIP0104 |  | | Putative peptidase | DIP0104 | | argE | | Acetylornithine deacetylase/Succinyl-diaminopimelate desuccinylase-like deacylase | | **x** |
| DIP0105 | bioB | | biotin synthase | DIP0105 | | bioB | | biotin synthase | |  |
| DIP0106 |  | | Conserved hypothetical protein | DIP0106 | |  | | Conserved hypothetical protein | |  |
| DIP0108 | irp6A | | Ferrisiderophore receptor Irp6A | DIP0108 | | irp6A | | Ferrisiderophore receptor Irp6A | |  |
| DIP0109 | irp6B | | Membrane protein permease Irp6B | DIP0109 | | irp6B | | heme/hemin ABC superfamily ATP binding cassette transporter, permease protein | |  |
| DIP0110 | irp6C | | ATP-binding protein Irp6C | DIP0110 | | irp6C | | iron(III) dicitrate transport system, ATP-binding protein | |  |
| DIP0111 |  | | Putative lipoprotein | DIP0111 | |  | | Putative lipoprotein | |  |
| DIP0112 |  | | Conserved hypothetical protein | DIP0112 | |  | | Conserved hypothetical protein | |  |
| DIP0113 |  | | Putative riboflavin biosynthesis protein | DIP0113 | | phrD | | Deoxyribodipyrimidine photolyase | | **x** |
| DIP0114 |  | | Putative membrane protein | DIP0114 | |  | | Putative membrane protein | |  |
| DIP0115 |  | | Conserved hypothetical protein | DIP0115 | | ino1 | | Myo-inositol-1-phosphate synthase | | **x** |
| **PiCd16** |  | | | | | | | | | | |
|  | DIP0267 |  | | Putative regulatory protein | DIP0267 | | deoR | | Deoxyribonucleoside regulator | | **x** |
| DIP0268 |  | | Conserved hypothetical protein | DIP0268 | |  | | Conserved hypothetical protein | |  |
|  |  | |  | DIP0268A | |  | | Hypothetical protein | |  |
| DIP0269 |  | | Putative transposase (pseudogene) | DIP0269 | |  | | Hypothetical protein | |  |
| DIP0271 | deoD | | purine nucleoside phosphorylase II | DIP0271 | | deoD | | purine nucleoside phosphorylase II | |  |
| DIP0272 |  | | Putative antibiotic resistance protein (membrane protein) | DIP0272 | |  | | Putative antibiotic resistance protein, membrane protein | |  |
| DIP0273 | deoC | | deoxyribose-phosphate aldolase | DIP0273 | | deoC | | deoxyribose-phosphate aldolase | |  |
| DIP0274 |  | | Putative mutase | DIP0274 | | pmmB | | Phosphomannomutase | | **x** |
| DIP0275 |  | | Putative membrane protein | DIP0275 | |  | | Putative membrane protein | |  |
| **PiCd17** |  | | | | | | | | | | |
|  | DIP0320 | cspA | | cold-shock protein | DIP0320 | | cspA | | cold-shock protein | |  |
| DIP0321 |  | | Putative ABC transport system ATP-binding protein | DIP0321 | |  | | Putative ABC transport system ATP-binding protein | |  |
| DIP0322 |  | | Putative ABC transport system ATP-binding protein | DIP0322 | |  | | Putative ABC transport system ATP-binding protein | |  |
| DIP0323 |  | | Putative ABC transport system membrane protein | DIP0323 | | mfsD1 | | Major facilitator superfamily domain-containing protein 1 | | **x** |
| DIP0324 |  | | Putative secreted protein | DIP0324 | |  | | Putative secreted protein | |  |
| DIP0325 |  | | Putative transport system membrane protein | DIP0325 | |  | | Putative transport system membrane protein | |  |
| DIP0326 |  | | Conserved hypothetical protein | DIP0326 | |  | | Putative NAD dependent epimerase/dehydratase | |  |
| **PiCd18** |  | | | | | | | | | | |
|  |  |  | |  | DIP0447A | |  | | Hypothetical protein | |  |
| DIP0448 |  | | Putative ABC transport system ATP-binding protein | DIP0448 | |  | | Putative ABC transport system ATP-binding protein | |  |
| DIP0449 |  | | Putative ABC transport system integral membrane protein | DIP0449 | |  | | Putative ABC transport system, membrane protein | |  |
|  |  | |  | DIP0449A | |  | | Hypothetical protein | |  |
| DIP0450 |  | | Putative secreted protein | DIP0450 | |  | | Putative secreted protein | |  |
| DIP0451 |  | | Hypothetical protein | DIP0451 | |  | | Putative secreted protein | |  |
| DIP0452 |  | | Putative transposase | DIP0452 | |  | | Putative transposase | |  |
| DIP0453 |  | | Putative helicase (pseudogene) | DIP0454 | |  | | Putative helicase | |  |
|  |  | |  | DIP0454A | |  | | Hypothetical protein | |  |
| DIP0455 |  | | Conserved hypothetical protein | DIP0455 | |  | | Hypothetical protein | |  |
|  |  | |  | DIP0455A | |  | | Hypothetical protein | |  |
| DIP0456 |  | | Hypothetical protein | DIP0456 | |  | | Conserved hypothetical protein | |  |
| DIP0457 |  | | Hypothetical protein | DIP0457 | |  | | Hypothetical protein | |  |
| DIP0458 | cstS | | Histidine kinase | DIP0458 | | cstS | | Histidine kinase | |  |
| DIP0459 | cstA | | Response regulator | DIP0459 | | cstA | | Response regulator | |  |
| DIP0460 |  | | Putative ABC transport system ATP-binding protein | DIP0460 | |  | | Putative ABC transport system ATP-binding protein | |  |
| DIP0461 |  | | Putative ABc transport system integral membrane protein | DIP0461 | |  | | Putative ABC transport system, membrane protein | |  |
| DIP0462 |  | | Putative membrane protein | DIP0462 | |  | | Putative membrane protein | |  |
| DIP0463 |  | | Putative membrane protein | DIP0463 | |  | | Permease-like protein | |  |
|  |  | |  | DIP0463A | | nrdG | | Anaerobic ribonucleoside-triphosphate reductase activating protein | | **x** |
| DIP0464 |  | | Conserved hypothetical protein | DIP0464 | |  | | Hypothetical protein | |  |
| DIP0465 |  | | Conserved hypothetical protein | DIP0465 | | nrdD | | Anaerobic ribonucleoside triphosphate reductase | | **x** |
| DIP0466 |  | | Hypothetical protein | DIP0466 | |  | | Hypothetical protein | |  |
| **PiCd19** |  | | | | | | | | | | |
|  | DIP0582 |  | | Putative iron transport system binding (secreted) protein | DIP0582 | | ciuA | | Putative iron transport system binding (secreted) protein | | **x** |
| DIP0583 |  | | Putative iron transport system membrane protein | DIP0583 | | ciuB | | ABC-type Fe3+-siderophore transport system, permease component | | **x** |
| DIP0584 |  | | Putative iron transport system membrane protein | DIP0584 | | ciuC | | BC-type Fe3+-siderophore transport system, permease component | | **x** |
| DIP0585 |  | | Putative iron transport system ATP-binding protein | DIP0585 | | ciuD | | ABC-type sugar transport systems, ATPase components | | **x** |
| DIP0586 |  | | Putative siderophore biosynthesis related protein | DIP0586 | | ciuE | | Siderophore biosynthesis related protein | | **x** |
| DIP0587 |  | | Putative membrane protein | DIP0587 | |  | | Putative membrane protein | |  |
| DIP0588 |  | | Putative membrane protein | DIP0588 | |  | | DIP\_0585 | |  |
|  |  | |  | DIP0588A | |  | | Hypothetical protein | |  |
| DIP0589 |  | | Putative membrane protein | DIP0589 | |  | | Putative membrane protein | |  |
| DIP0590 |  | | Conserved hypothetical protein (pseudogene) | DIP0590 | |  | | Conserved hypothetical protein | |  |
| DIP0592 |  | | Hypothetical protein | DIP0592 | |  | | Hypothetical protein | |  |
| DIP0593 |  | | Putative secreted protein | DIP0593 | |  | | Putative secreted protein | |  |
| DIP0594 |  | | Putative membrane protein | DIP0594 | |  | | Hypothetical protein | |  |
| DIP0595 | guaA | | GMP synthase [glutamine-hydrolysing] | DIP0595 | | guaA | | GMP synthase [glutamine-hydrolysing] | |  |
| DIP0596 |  | | Hypothetical protein | DIP0596 | |  | | Hypothetical protein | |  |
| DIP0597 |  | | Hypothetical protein | DIP0597 | |  | | Hypothetical protein | |  |
| DIP0598 |  | | Putative membrane protein | DIP0598 | |  | | Putative membrane protein | |  |
| DIP0599 |  | | Putative two component system sensor kinase | DIP0599 | | tcsS1 | | Two-component system sensor kinase | | **x** |
| DIP0600 |  | | Putative two component system response regulator | DIP0600 | | tcsR3 | | Two component LuxR family transcriptional | | **x** |
| DIP0601 |  | | Putative secreted protein | DIP0601 | |  | | Putative secreted protein | |  |
| DIP0602 |  | | Putative membrane protein | DIP0602 | |  | | Putative membrane protein | |  |
| DIP0603 |  | | Hypothetical protein | DIP0603 | |  | | Hypothetical protein | |  |
| DIP0604 |  | | Conserved hypothetical protein | DIP0604 | |  | | Putative DNA repair polymerase | |  |
| DIP0605 |  | | Hypothetical protein | DIP0605 | |  | | Hypothetical protein | |  |
| DIP0606 |  | | Conserved hypothetical protein | DIP0606 | |  | | Conserved hypothetical protein | |  |
| DIP0607 |  | | Putative membrane protein | DIP0607 | |  | | Hypothetical protein | |  |
| **PiCd20** |  | | | | | | | | | | |
|  | DIP1891 | cysE | | serine acetyltransferase | DIP1891 | | cysE | | Serine acetyltransferase | |  |
| DIP1892 |  | | Conserved hypothetical protein | DIP1892 | |  | | Putative acetyltransferase | |  |
| DIP1893 |  | | Hypothetical protein | DIP1893 | |  | | Glycerol dehydrogenase-like enzyme | |  |
| DIP1894 |  | | Hypothetical protein | DIP1894 | |  | | Putative type III restriction enzyme | |  |
| DIP1895 |  | | Putative DNA methylase | DIP1895 | | modA | | Putative DNA restriction-modification system, DNA methylase | | **x** |
| DIP1896 |  | | Putative transposase (partial) | DIP1896 | |  | | ISHne1 transposase | |  |
| DIP1897 |  | | Putative transposase (partial) | DIP1897 | |  | | Putative transposase (partial) | |  |
| DIP1898 |  | | Putative cytochrome ubiquinol oxidase subunit | DIP1898 | | cydA | | Cytochrome d ubiquinol oxidase subunit 1 | | **x** |
| DIP1899 |  | | Putative cytochrome ubiquinol oxidase subunit | DIP1899 | | cydB | | Cytochrome d ubiquinol oxidase subunit 2 | | **x** |
| DIP1900 |  | | Putative ABC transport system ATP-binding protein | DIP1900 | | cydD | | ABC transporter ATP-binding protein | | **x** |
| DIP1901 |  | | Putative ABC transport system ATP-binding protein | DIP1901 | | cydC | | ABC transporter ATP-binding protein | | **x** |
| **PiCd21** |  | | | | | | | | | | |
|  | DIP1944 | tnpA2 | | transposase | DIP1944 | | tnpA2 | | transposase | |  |
| DIP1947 |  | | integrase | DIP1947 | | intI | | integrase | | **x** |
| DIP1948 |  | | Putative dihydropteroate synthase | DIP1948 | |  | | dihydropteroate synthase | |  |
| DIP1949 |  | | Putative acetyltransferase | DIP1949 | | ybbA | | GCN5-related N-acetyltransferase | | **x** |
| DIP1950 |  | | Conserved hypothetical protein | DIP1950 | |  | | Conserved hypothetical protein | |  |
| DIP1951 | tnpA3 | | transposase | DIP1951 | | tnpA3 | | transposase | |  |
| DIP1952 |  | | Putative pyruvate dehydrogenase | DIP1952 | | poxB | | Pyruvate dehydrogenase | | **x** |
| DIP1953 |  | | Putative amino acid export carrier protein | DIP1953 | | thrE | | Threonine export carrier | | **x** |
| DIP1955 |  | | Putative transposase | DIP1955 | | tnp7109-15 | | transposase for insertion sequence | | **x** |
| DIP1956 |  | | Hypothetical protein | DIP1956 | | tnp3518a | | Transposase for IS3518 | | **x** |
| DIP1957 |  | | Hypothetical protein | DIP1957 | |  | | Conserved hypothetical protein | |  |
| DIP1958 |  | | Putative DNA-binding protein | DIP1958 | |  | | Putative DNA-binding protein | |  |
| DIP1959 |  | | Hypothetical protein | DIP1959 | |  | | Hypothetical protein | |  |
| DIP1960 |  | | Putative exported protein | DIP1960 | |  | | Putative exported protein | |  |
| DIP1961 |  | | Hypothetical protein | DIP1961 | |  | | Hypothetical protein | |  |
| DIP1962 |  | | Hypothetical protein | DIP1962 | |  | | hypothetical protein | |  |
| DIP1963 |  | | possible transposase | DIP1963 | |  | | Transposase | |  |
| DIP1964 |  | | Putative amino acid export carrier protein | DIP1964 | | thrE1 | | Threonine export carrier | | **x** |
| DIP1965 |  | | Hypothetical protein | DIP1965 | |  | | hypothetical protein | |  |
| DIP1966 |  | | Putative glycosyltransferase | DIP1966 | | otsA | | trehalose-6-phosphate synthase | | **x** |
| DIP1967 |  | | Putative exported protein | DIP1967 | |  | | Putative exported protein | |  |
| DIP1968 |  | | Putative trehalose-phosphatase | DIP1968 | | otsB | | Trehalose-6-phosphatase | | **x** |
| DIP1969 |  | | Putative LacI-family transcriptional regulator | DIP1969 | | lacI | | LacI-family transcriptional regulator | | **x** |
| DIP1970 |  | | SpoU rRNA Methylase family protein | DIP1970 | | spoU | | SpoU rRNA Methylase family protein | | **x** |
| DIP1971 | cysS1 | | Putative cysteinyl-tRNA synthetase | DIP1971 | | cysS | | Cysteinyl-tRNA synthetase | |  |
| **PiCd22** |  | | | | | | | | | | |
|  | DIP2021 |  | | Conserved hypothetical protein | DIP2021 | |  | | putative transposase | |  |
| DIP2022 |  | | Hypothetical protein | DIP2022 | |  | | Hypothetical protein | |  |
| DIP2023 |  | | Conserved hypothetical protein | DIP2023 | |  | | filamentation induced by cAMP protein Fic | |  |
| DIP2024 |  | | Hypothetical protein |
| DIP2025 |  | | Conserved hypothetical protein | DIP2025 | |  | | Rtcb protein | |  |
| DIP2026 |  | | Putative transposase for insertion sequence element (pseudogene) | DIP2026 | | tnp7109-58 | | Putative transposase for insertion sequence element | | **x** |
| DIP2030 |  | | Putative NAD(P)H-dependent reductase | DIP2030 | |  | | NADH:flavin oxidoreductase/NADH oxidase | |  |
| DIP2031 | uvrA2 | | Putative excinuclease ABC subunit A2 | DIP2031 | | uvrA2 | | Excinuclease ABC subunit A2 | |  |
| DIP2032 |  | | Putative protease | DIP2032 | | pfpI | | intracellular protease, PfpI family protein | | **x** |
| DIP2033 |  | | Putative transposase | DIP2034 | |  | | Transposase, Mutator family | |  |
| DIP2034 |  | | Putative transposase |
| DIP2036 |  | | Putative membrane protein | DIP2036 | |  | | Putative membrane protein | |  |
| DIP2037 |  | | Putative peptidase | DIP2037 | | argE | | Acetylornithine deacetylase/Succinyl-diaminopimelate desuccinylase | | **x** |
| DIP2038 |  | | Hypothetical protein | DIP2038 | |  | | Hypothetical protein | |  |
| DIP2039 |  | | Hypothetical protein | DIP2039 | |  | | Hypothetical protein | |  |
| DIP2040 |  | | Putative membrane protein | DIP2040 | |  | | Putative membrane protein | |  |
| DIP2042 |  | | Conserved hypothetical protein | DIP2042 | |  | | Glutamate--cysteine ligase | |  |
| DIP2043 |  | | Putative secreted protein | DIP2043 | |  | | Putative secreted protein | |  |
| DIP2044 |  | | Conserved hypothetical protein | DIP2044 | |  | | Conserved hypothetical protein | |  |
| DIP2045 | def | | peptide deformylase | DIP2045 | | def | | peptide deformylase | |  |
| DIP2046 |  | | Conserved hypothetical protein | DIP2046 | | rimL | | Acetyltransferase (GNAT) | | **x** |
| DIP2047 |  | | Putative exonuclease | DIP2047 | | xthA | | Putative exodeoxyribonuclease III | | **x** |
| DIP2048 |  | | Putative cardiolipin synthase | DIP2048 | | cls | | Cardiolipin synthase | | **x** |
|  |  | |  | DIP2048A | |  | | Putative transposon | |  |
| DIP2049 |  | | Putative ABC transport system membrane protein | DIP2049 | |  | | Putative ABC transport system membrane protein | |  |
| **PiCd23** |  | | | | | | | | | | |
|  | DIP2123 |  | | Putative transposase | DIP2123 | |  | | Putative transposase | |  |
| DIP2124 |  | | Putative insertion element DNA-binding protein | DIP2124 | |  | | Putative insertion element DNA-binding protein | |  |
| DIP2125 |  | | Putative ABC transport system, ATP-binding subunit | DIP2125 | |  | | Putative ABC transport system, ATP-binding subunit | |  |
| DIP2126 |  | | Putative binding-protein-dependent integral membrane transport protein | DIP2126 | |  | | ABC superfamily ATP binding cassette transporter, membrane protein | |  |
| DIP2127 |  | | Putative binding-protein-dependent integral membrane transport protein | DIP2127 | |  | | ABC superfamily ATP binding cassette transporter | |  |
| DIP2128 |  | | Putative substrate-binding transport protein | DIP2128 | |  | | Peptide/opine/nickel uptake ABC transporter substrate-binding protein | |  |
| DIP2129 |  | | Putative binding-protein-dependent integral membrane transport protein | DIP2129 | | pitB | | Phosphate-transport permease PitB | | **x** |
| DIP2130 |  | | Putative phosphoribosylformylglycinamidine synthase | DIP2130 | |  | | phosphoribosylformylglycinamidine synthase | |  |
| DIP2131 |  | | Conserved hypothetical protein | DIP2131 | |  | | Nucleoside phosphorylase | |  |
| DIP2132 |  | | Putative oxidoreductase | DIP2132 | |  | | Putative oxidoreductase | |  |
| DIP2133 |  | | Putative conserved membrane protein | DIP2133 | | glpC | | Iron-sulfur-binding reductase | | **x** |
| DIP2134 |  | | Conserved hypothetical protein | DIP2134 | |  | | Conserved hypothetical protein | |  |
| DIP2135 |  | | Putative zinc-binding alcohol dehydrogenase | DIP2135 | | adhA2 | | threonine dehydrogenase | | **x** |
| **PiCd24** |  | | | | | | | | | | |
|  | DIP2302 |  | | Putative integral membrane protein | DIP2302 | |  | | SNARE associated Golgi protein | |  |
| DIP2303 |  | | Putative DNA protection during starvation protein | DIP2303 | | dps | | DNA protection during starvation protein | | **x** |
| DIP2304 |  | | Putative DNA repair glycosylase | DIP2304 | | mutM | | Formamidopyrimidine-DNA glycosylase | | **x** |
| DIP2305 |  | | Conserved hypothetical protein | DIP2305 | | yjeF | | YjeF domain protein | | **x** |
| DIP2306 |  | | Putative hydrolase | DIP2306 | |  | | Lyzozyme M1 (1,4-beta-N-acetylmuramidase) | |  |
| DIP2307 |  | | Putative integral membrane protein | DIP2307 | | vanZ | | VanZ like family | | **x** |
| DIP2308 |  | | Conserved hypothetical protein (possible plasmid origin) | DIP2308 | | cbiA | | Cobyrinic acid ac-diamide synthase | | **x** |
| DIP2309 |  | | Putative DNA-binding protein | DIP2309 | |  | | Divergent AAA domain | |  |
| DIP2310 |  | | Conserved hypothetical protein |
| DIP2311 |  | | Conserved hypothetical protein | DIP2311 | |  | | Divergent AAA domain protein | |  |
| DIP2312 |  | | Putative type I restriction/modification system protein | DIP2312 | | hsdR | | Putative type I restriction/modification system protein | | **x** |
| DIP2313 |  | | Putative type I restriction/modification system DNA specificity protein | DIP2313 | | hsdS | | Putative type I restriction/modification system DNA specificity protein | | **x** |
| DIP2314 |  | | Putative type I restriction/modification system DNA methylase | DIP2314 | | hsdM | | Adenine-specific DNA-methyltransferase | | **x** |
| DIP2315 |  | | Hypothetical DNA-binding protein | DIP2315 | |  | | DNA-binding protein | |  |
| DIP2317 |  | | Conserved hypothetical DNA-binding protein | DIP2317 | | fic | | Filamentation induced by cAMP protein Fic | | **x** |
| DIP2318 |  | | Conserved hypothetical protein (possible ATP/GTP-binding) | DIP2318 | |  | | ATPase | |  |
| DIP2319 |  | | Putative copper zinc superoxide dismutase | DIP2319 | | sodC | | Superoxide dismutase | | **x** |
| DIP2320 | leuS | | leucyl-tRNA synthetase | DIP2320 | | leuS | | Leucyl-tRNA synthetase | |  |
| DIP2321 |  | | Hypothetical protein | DIP2321 | |  | | Hypothetical protein | |  |
| DIP2322 |  | | Hypothetical protein | DIP2322 | |  | | Hypothetical protein | |  |
| DIP2323 |  | | Putative ABC transport system, ATP-binding protein | DIP2323 | |  | | ABC transporter ATP-binding protein | |  |
| DIP2324 |  | | Putative ABC transport system integral membrane protein | DIP2324 | |  | | ABC superfamily ATP binding cassette transporter inner membrane | |  |
| DIP2325 |  | | Putative surface-anchored protein | DIP2325 | |  | | Putative surface-anchored protein | |  |
| DIP2326 | chrS | | two-component system histidine kinase ChrS | DIP2326 | | chrS | | Two-component system histidine kinase ChrS | |  |
| DIP2327 | chrA | | two-component response regulator ChrA | DIP2327 | | chrA | | Two-component response regulator ChrA | |  |
| DIP2328 |  | | Conserved integral membrane protein | DIP2328 | | vanZ2 | | VanZ like family protein | | **x** |
| DIP2329 |  | | Conserved integral membrane protein | DIP2329 | |  | | YhgE/Pip N-terminal domain protein | |  |
| DIP2330 |  | | Putative membrane protein | DIP2330 | |  | | Putative membrane protein | |  |
| DIP2331 |  | | Putative aldehyde dehydrogenase | DIP2331 | | attK | | Aldehyde dehydrogenase | | **x** |
| DIP2332 |  | | Putative phosphotransferase system protein | DIP2332 | | sgaA | | Phosphotransferase system mannitol/fructose-specific IIA domain (Ntr-type) | | **x** |
| DIP2333 |  | | Putative integral membrane protein | DIP2333 | | ulaA | | Ascorbate-specific PTS system enzyme IIC | | **x** |
| DIP2334 |  | | Putative dihydroxyacetone kinase sununit | DIP2334 | | dhaK | | Dihydroxyacetone kinase | | **x** |
| DIP2335 |  | | Putative dihydroxyacetone kinase sununit | DIP2335 | | daK | | Dihydroxyacetone kinase | | **x** |
| DIP2336 |  | | Conserved hypothetical protein | DIP2336 | | dhaM | | Dihydroxyacetone kinase, phosphotransfer subunit | | **x** |
| DIP2337 |  | | Putative phage resistance protein | DIP2337 | |  | | Putative phage resistance protein | |  |
| DIP2338 |  | | Hypothetical protein | DIP2338 | |  | | Putative CRISPR-associated protein, Csm2 family | |  |
| DIP2339 |  | | Putative major secreted protein | DIP2339 | |  | | Corynomycolyl transferase | |  |
| DIP2340 |  | | Putative nucleoside hydrolase | DIP2340 | | iunH | | Inosine-uridine nucleoside N-ribohydrolase | | **x** |
| DIP2341 |  | | Putative integral membrane transport protein | DIP2341 | | lytS | | Signal transduction histidine kinase, LytS | | **x** |
| DIP2342 |  | | Putative integral membrane transport protein | DIP2342 | | cbiQ | | Cobalt transport protein | | **x** |
| DIP2343 |  | | Putative ABC transport system, ATP-binding protein | DIP2343 | |  | | ABC superfamily ATP binding cassette transporter, ABC protein | |  |
| DIP2344 |  | | Conserved hypothetical protein | DIP2344 | |  | | Aldose 1-epimerase | |  |
| DIP2345 |  | | Hypothetical protein | DIP2345 | | arsG | | Arylsulfatase G precursor | | **x** |