category icd\_dup cydC cydD\_dup fepB fepC\_dup fepD\_dup fepG\_dup ftsE\_dup ftsY 2-Oxocarboxylic acid metabolism ABC transporters 6 Acarbose and validamycin biosynthesis Alanine, aspartate and glutamate metabolism 4 Aminoacyl-tRNA biosynthesis ftsX Aminobenzoate degradation lolC\_dup 2 Amino sugar and nucleotide sugar metabolism loID\_dup lptB\_dup pstB\_dup pstC Arginine biosynthesis 0 Ascorbate and aldarate metabolism Bacterial secretion system rffH beta-Lactam resistance glmS glnA Biosynthesis of amino acids purB\_dup Biosynthesis of antibiotics aspS cysS fmt Biosynthesis of secondary metabolites Biosynthesis of siderophore group nonribosomal peptides lysS trpS\_dup tyrS Biotin metabolism Butanoate metabolism Carbon metabolism ydiF Cationic antimicrobial peptide (CAMP) resistance crr galU\_dup glmS.1 Citrate cycle (TCA cycle) Cyanoamino acid metabolism pgm ugd\_dup Cysteine and methionine metabolism glnA.1 D-Glutamine and D-glutamate metabolism ugd\_dup.1 **DNA** replication secB Fatty acid biosynthesis secF secG Fatty acid metabolism Folate biosynthesis secM tolC Fructose and mannose metabolism acrA\_dup acrB\_dup mrdA\_dup Galactose metabolism Glutathione metabolism tolC.1 Glycerophospholipid metabolism cysE dapA\_dup dapB dapD dapE dapF Glycine, serine and threonine metabolism Glycolysis / Gluconeogenesis Glyoxylate and dicarboxylate metabolism Homologous recombination eno Inositol phosphate metabolism fbaA Lipoic acid metabolism gapA\_dup glnA.2 Lipopolysaccharide biosynthesis glyA icd\_dup.1 Lysine biosynthesis Lysine degradation rpe rpiA tktA\_dup Metabolic pathways Methane metabolism accB Microbial metabolism in diverse environments aceE aceF Mismatch repair adk dapA\_dup.1 dapB.1 dapF.1 eno.1 Monobactam biosynthesis Nicotinate and nicotinamide metabolism Nitrogen metabolism entD One carbon pool by folate fbaA.1 galU\_dup.1 gapA\_dup.1 Oxidative phosphorylation Pantothenate and CoA biosynthesis glmS.2 glyA.1 icd\_dup.2 Pentose and glucuronate interconversions Pentose phosphate pathway ispA\_dup ispD ispE ispF ispH lpd\_dup Peptidoglycan biosynthesis Phenylalanine metabolism Phosphotransferase system (PTS) Polyketide sugar unit biosynthesis pgm.1 purB\_dup.1 Porphyrin and chlorophyll metabolism Propanoate metabolism rffH.1 Protein export rpe.1 rpiA.1 Purine metabolism sucA Pyrimidine metabolism sucB tktA\_dup.1 accB.1 aceE.1 aceF.1 Quorum sensing Riboflavin metabolism Ribosome adk.1 cysE.1 dapA\_dup.2 dapB.2 dapF.2 eno.2 RNA degradation RNA polymerase Starch and sucrose metabolism Streptomycin biosynthesis entD.1 fbaA.2 Sulfur metabolism gapA\_dup.2 Sulfur relay system glyA.2 gpsA hemB Terpenoid backbone biosynthesis Thiamine metabolism hemE Tryptophan metabolism hemG hemH Two-component system hemL\_dup Ubiquinone and other terpenoid-quinone biosynthesis icd\_dup.3 ispA\_dup.1 Valine, leucine and isoleucine degradation ispA\_d ispD.1 ispE.1 ispF.1 ispH.1 lpd\_dup.1 pgm.2 purB\_dup.2 ribE rpe.2 rpiA.2 sucA.1 sucB.1 tktA\_dup.2 ubiA ubiE ubiF\_dup ubiG\_dup ubiH\_dup ubiX ynbB entD.2 I fabZ ydiF.1 accB.2 aceE.2 aceF.2 cysE.2 eno.3 fbaA.3 folD gapA\_dup.3 glyA.3 icd\_dup.4 lpd\_dup.2 rpe.3 rpiA.3 sucA.2 sucB.2 tktA\_dup.3 acrA\_dup.1 acrB\_dup.1 IpxA tolC.2 aceE.3 aceF.3 icd\_dup.5 lpd\_dup.3 sucA.3 sucB.3 glyA.4 cysE.3 murD murl dnaG dnaQ dnaX holB holC holD rnhA ssb accB.3 fabA fabH fabZ.1 accB.4 fabA.1 fabH.1 fabZ.2 folA folB\_dup folC folE folK folP alsK fbaA.4 galU\_dup.2 pgm.3 icd\_dup.6 gpsA.1 pgsA ynbB.1 glyA.5 lpd\_dup.4 aceE.4 aceF.4 chbF\_dup crr.1 eno.4 fbaA.5 gapA\_dup.4 lpd\_dup.5 pgm.4 glnA.3 glyA.6 lpd\_dup.6 dnaQ.1 dnaT dnaX.1 holB.1 holC.1 holD.1 priA priB ssb.1 suhB\_dup lipA lipB gmhA\_dup hldD hldE kdsA kdsB\_dup lpxA.1 lpxL\_dup lpxM\_dup waaC waaF waaG waaU dapA\_dup.3 dapB.3 dapD.1 dapE.1 dapF.3 sucA.4 sucB.4 accB.5 aceE.5 aceF.5 adk.2 cmk coaE cydA\_dup cydB\_dup cysE.4 dapA\_dup.4 dapB.4 dapD.2 dapE.2 dapF.4 dcd dnaQ.2 dnaX.2 dut eno.5 fabA.2 fabH.2 fabZ.3 fbaA.6 folA.1 folB\_dup.1 folC.1 folD.1 folE.1 folK.1 folP.1 galU\_dup.3 gapA\_dup.5 glmS.3 glnA.4 glyA.7 ğmhA\_dup.1 guaA hemB.1 hemE.1 hemG.1 hemH.1 hemL\_dup.1 hldD.1 hldE.1 holB.2 holC.2 holD.2 icd\_dup.7 iscS ispA\_dup.2 ispD.2 ispE.2 ispF.2 ispH.2 kdsA.1 kdsB\_dup.1 lipA.1 lipB.1 lpd\_dup.7 lpxĀ.2 lpxL\_dup.1 lpxM\_dup.1 murD.1 murl.1 nadD nadE nrdA nrdB\_dup pgm.5 pgsA.1 purB\_dup.3 rffH.2 ribE.1 rpe.4 rpiA.4 rpoC sucA.5 sucB.5 suhB\_dup.1 thiL thyA tkťA\_dup.4 tmk ubiA.1 ubiE.1 ubiF\_dup.1 ubiG\_dup.1 ubiH\_dup.1 ubiX.1 ugd\_dup.2 waaC.1 waaF.1 waaG.1 waaU.1 ydiF.2 ynbB.2 eno.6 fbaA.7 glyA.8 accB.6 aceE.6 aceF.6 alsK.1 cysE.5 dapA\_dup.5 dapB.5 dapD.3 dapE.3 eno.7 fbaA.8 folD.2 gapA\_dup.6 glnA.5 glyA.9 icd\_dup.8 lpd\_dup.8 paaK pgm.6 rpe.5 rpiA.5 sucA.6 sucB.6 tktA\_dup.5 ydiF.3 dam dnaQ.3 dnaX.3 holB.3 holC.3 holD.3 ssb.2 dapA\_dup.6 dapB.6 nadD.1 nadE.1 can glnA.6 fmt.1 folA.2 folD.3 glyA.10 ťhýA.1 cydA\_dup.1 cýdB\_dup.1 ppa |acpS coaE.1 galU\_dup.4 rpe.6 ugd\_dup.3 fbaA.9 pgm.7 rpe.7 rpiA.6 tktA\_dup.6 mrdA\_dup.1 murD.2 murJ paaK.1 crr.2 ptsl rffH.3 hemB.2 hemE.2 hemG.2 hemH.2 hemL\_dup.2 accB.7 lpd\_dup.9 ydiF.4 lepB IspA secB.1 secF.1 secG.1 secM.1 adk.3 dnaQ.4 dnaX.4 guaA.1 holB.4 holC.4 holD.4 nrdA.1 nrdB\_dup.1 pgm.8 pnp purB\_dup.4 rpoC.1 spoT cmk.1 dcd.1 dnaQ.5 dnaX.5 dut.1 holB.5 holC.5 holD.5 nrdA.2 nrdB\_dup.2 pnp.1 psuK rpoC.2 thyA.2 tmk.1 accB.8 aceE.7 aceF.7 gloB lpd\_dup.10 lepB.1 rseP secB.2 secG.2 ribE.2 rplA rplC rplĎ rplK rplM rplN rplO rplP rplQ rplR rplS rplŤ rplY rpmA rpmB rpmC rpmD rpmE rpmG rpmH rpml rpmJ rpsF rpsl rpsJ rpsL rpsM rpsN rpsO rpsP rpsQ rpsR rpsS rpsT rpsU ykgO dnaK\_dup eno.8 pnp.2 rne rpoC.3 chbF\_dup.1 crr.3 galU\_dup.5 pgm.9 pgm.10 rffH.4 suhB\_dup.2 cysE.6 iscS.1 mnmA tusA tusB tusC tusD tusE ispA\_dup.3 ispD.3 ispE.3 ispF.3 ispH.3 iscS.2 thiL.1 sucA.7 citX csrA cydA\_dup.2 cydB\_dup.2 emrY\_dup glnA.7 glnG\_dup rpoN tolC.3 ubiA.2 ubiE.2 ubiF\_dup.2 ubiG\_dup.2 ubiH\_dup.2 lpd\_dup.11 EnCINCTC9394.NPEQ SaTySL3261.NPEQ SaTyA130.NPEQ SaTyTy2.NPEQ SaTySL1344.NPEQ SaTyD23580.NPEQ SaEnP125109.NPEQ EsCoBW25113.NPEQ EsCoMG1655.NPEQ CiRolCC168.NPEQ EsCoEC958.NPEQ EsCoST131.NPEQ EsCoCS17.NPEQ EsCoH10407.NPEQ KIPnEcl8.NPEQ KIPnRH201207.NPEQ