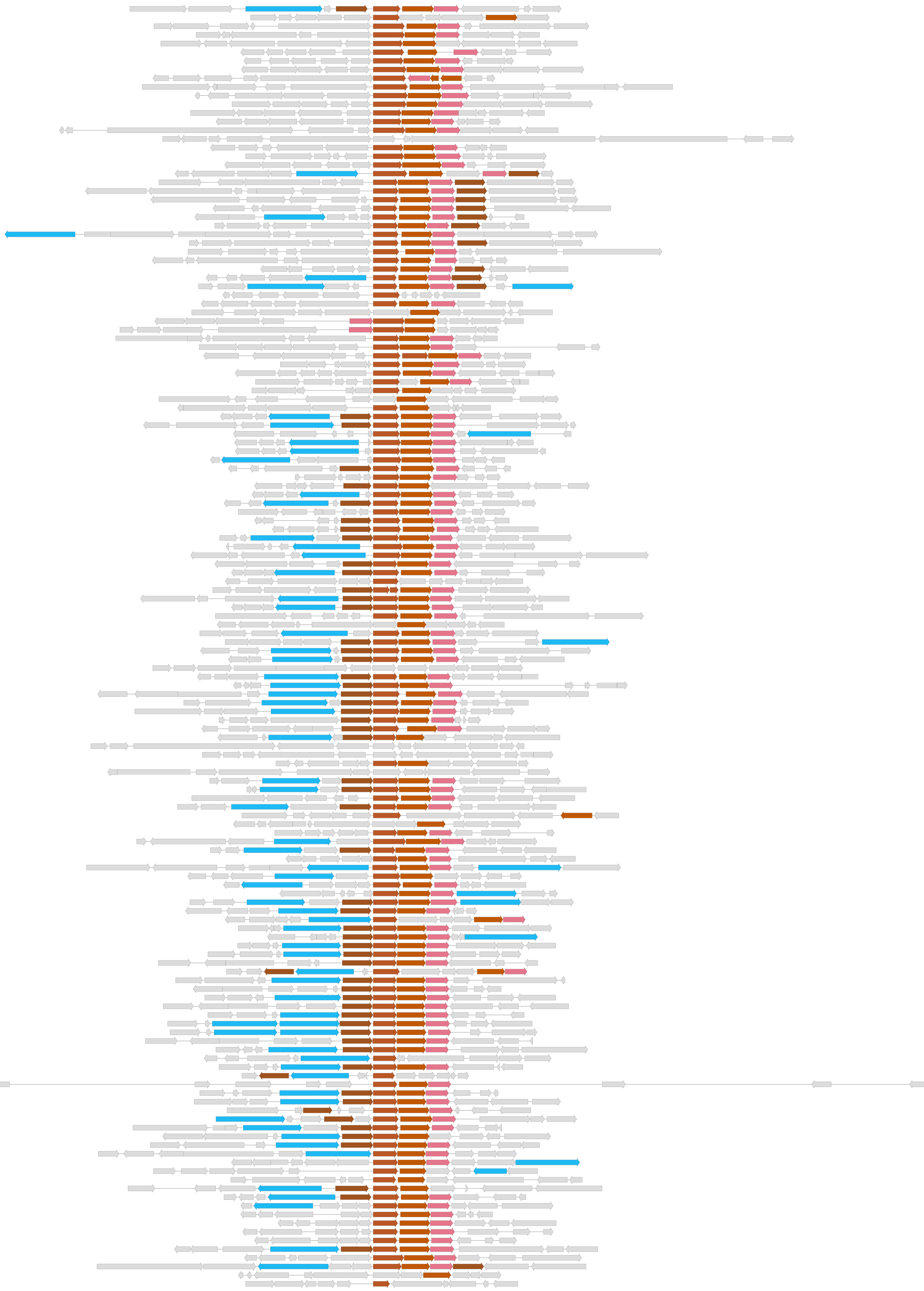

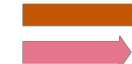





NC_016024 *Candidatus Chloracidobacterium thermophilum* B
 NC_020520 *Ilumatobacter coccineus* YM16-304
 NC_014218 *Arcanobacterium haemolyticum* DSM20595
 NC_006958 *Corynebacterium glutamicum* ATCC 13032
 NC_018581 *Gordonia* sp. KTR9
 NC_018681 *Nocardia brasiliensis* ATCC 700358
 NC_008268 *Rhodococcus jostii* RHA1
 NC_012669 *Beutenbergia cavemae* DSM 12333
 NC_010168 *Renibacterium salmoninarum* ATCC 33209
 NC_014643 *Rothia dentocariosa* ATCC 17931
 NC_013521 *Sanguibacter keddiei* DSM10542
 NC_013530 *Xylanimonas cellulolytica* DSM15894
 NC_014391 *Micromonospora aurantiaca* ATCC 27029
 NC_015434 *Verrucospora maris* AB-18-032
 NC_013093 *Actinosynnema mirum* DSM43827
 NC_016109 *Kitasatospora setae* KM-6054
 NC_016109 *Kitasatospora setae* KM-6054
 NC_007333 *Thermobifida fusca* YX
 NC_013510 *Thermomonospora curvata* DSM43183
 NC_014032 *Salinibacter ruber* M8
 NC_018010 *Belliella ballica* DSM15883
 NC_015914 *Cyclobacterium marinum* DSM745
 NC_019904 *Echinicola vietnamensis* DSM17526
 NC_013037 *Dyadobacter fermentans* DSM18053
 NC_020054 *Fibrella aestuarina* BUZ 2
 NC_014655 *Leadbetterella byssophila* DSM17132
 NC_013730 *Spirosoma linguale* DSM74
 NC_015321 *Fluviicola taffensis* DSM16823
 NC_016599 *Overweekia hongkongensis* DSM17368
 NC_018013 *Aequorivita sublithicola* DSM14238
 NC_015144 *Weeksella virosa* DSM16922
 NC_014041 *Zunongwangia profunda* SMA87
 NC_013132 *Chitinophaga pinensis* DSM2588
 NC_016940 *Saprosira grandis* str. Lewin
 NC_015277 *Sphingobacterium* sp. 21
 NC_014225 *Weddlia chondrophila* WSU 86-1044
 NC_011831 *Chloroflexus aggregans* DSM9485
 NC_009523 *Roseiflexus* sp. RS-1
 NC_005125 *Gloeobacter violaceus* PCC 7421
 NC_000958 *Deinococcus radiodurans* R1
 NC_014221 *Truepera radiovictrix* DSM11703
 NC_014221 *Truepera radiovictrix* DSM11703
 NC_014212 *Micothermus silvanus* DSM9946
 NC_014212 *Micothermus silvanus* DSM9946
 NC_006462 *Thermus thermophilus* HB8
 NC_002696 *Caulobacter crescentus* CB15
 NC_014414 *Parvularcula bermudensis* HTCC2503
 NC_015259 *Polymorphum gilvum* SL003B-26A1
 NC_005955 *Bartonella quintana* str. Toulouse
 NC_011666 *Methylocella silvestris* BL2
 NC_017249 *Bradyrhizobium japonicum* USDA 6
 NC_011386 *Oligotropha carboxidovorans* OM5
 NC_005296 *Rhodopseudomonas palustris* CGA009
 NC_009668 *Ochrobactrum anthropi* ATCC 49188
 NC_015717 *Hyphomicrobium* sp. MC1
 NC_014664 *Rhodomicrobium vannielii* ATCC 17100
 NC_008254 *Chelatiferans* sp. BNC1
 NC_002678 *Mesorhizobium loti* MAFF303099
 NC_003062 *Agrobacterium fabrum* str. C58
 NC_008380 *Rhizobium leguminosarum* bv. viciae 3841
 NC_003047 *Sinorhizobium meliloti* 1021
 NC_009719 *Parvibaculum lavamentivorans* DS-1
 NC_009937 *Azorhizobium caulinodans* ORS 571
 NC_009720 *Xanthobacter autotrophicus* Py2
 NC_009952 *Dinoroseobacter shibae* DFL 12 = DSM16493
 NC_007802 *Jannaschia* sp. CCS1
 NC_014625 *Ketogulonicigenium vulgare* Y25
 NC_014625 *Ketogulonicigenium vulgare* Y25
 NC_008687 *Paracoccus denitrificans* PD1222
 NC_023137 *Phaeobacter gallaeciensis* DSM26640
 NC_016642 *Pseudovibrio* sp. FO-BEG1
 NC_010125 *Gluconacetobacter diazotrophicus* PA1 5
 NC_019396 *Gluconobacter oxydans* H24
 NC_016595 *Azospirillum brasilense* Sp245
 NC_011420 *Rhodospirillum centenum* SW
 NC_017956 *Tistrella mobilis* KA081020-065
 NC_013194 *Candidatus Accumulibacter phosphatis* clade IIA str. UW-1
 NC_014640 *Achromobacter xylosoxidans* A8
 NC_017964 *Advenella kashmiriensis* WT001
 NC_022904 *Pandoraea pnomenusa* 3kgm
 NC_013446 *Comamonas testosteroni* CNB-2
 NC_008786 *Verminephrobacter eiseniae* EF01-2
 NC_007947 *Methylobacillus flagellatus* KT
 NC_012969 *Methylovorus glucoacetophorus* SIP3-4
 NC_012559 *Laribacter hongkongensis* HLHK9
 NC_006513 *Aromatoleum aromaticum* EbN1
 NC_011662 *Thauera* sp. MZ1T
 NC_016620 *Bacteriovorax marinus* SJ
 NC_014365 *Desulfarculus baarsii* DSM2075
 NC_017030 *Coralococcus coralloides* DSM2259
 NC_008095 *Myxococcus xanthus* DK 1622
 NC_014623 *Stigmatella aurantiaca* DW4/3-1
 NC_014623 *Stigmatella aurantiaca* DW4/3-1
 NC_013440 *Haliangium ochraceum* DSM14365
 NC_014506 *Sulfurimonas autotrophica* DSM16294
 NC_009348 *Aeromonas salmonicida* subsp. *salmonicida* A449
 NC_015554 *Alteromonas* sp. SN2
 NC_017506 *Marinobacter adherens* HP15
 NC_014541 *Ferimonas balearica* DSM9799
 NC_006512 *Idiomarina loihiensis* L2TR
 NC_008228 *Pseudoalteromonas atlantica* T6c
 NC_004347 *Shewanella oneidensis* MR-1
 NC_013851 *Allochroamatium vinosum* DSM180
 NC_019902 *Thioalkalivibrio nitratireducens* DSM14787
 NC_012751 *Candidatus Hamiltonella defensa* 5AT
 NC_009792 *Citrobacter koseri* ATCC BAA-895
 NC_009792 *Citrobacter koseri* ATCC BAA-895
 NC_014500 *Dickeya dadantii* 3937
 NC_012779 *Edwardsiella ictaluri* 93-146
 NC_014121 *Enterobacter cloacae* subsp. *cloacae* ATCC 13047
 NC_013971 *Erwinia amylovora* ATCC 49946
 NC_002695 *Escherichia coli* O157:H7 str. Sakai
 NC_011283 *Klebsiella pneumoniae* 342
 NC_020418 *Morganella morganii* subsp. *morganii* KT
 NC_014837 *Pantoea* sp. At-9b
 NC_017845 *Pectobacterium* sp. SCC3193
 NC_005126 *Photobacterium luminescens* subsp. *laumondii* TTO1
 NC_010554 *Proteus mirabilis* HI4320
 NC_017731 *Providencia stuartii* NRSN 2154
 NC_015061 *Rahnella* sp. Y9602
 NC_021066 *Raoultella ornithinolytica* B6
 NC_021659 *Serratia plymuthica* S13
 NC_021659 *Serratia plymuthica* S13
 NC_022912 *Shigella dysenteriae* 1617
 NC_007712 *Sodalis glossinidius* str. 'morsitans'
 NC_014228 *Xenorhabdus nematophila* ATCC 19061
 NC_003143 *Yersinia pestis* CO92
 NC_016112 *Methylobacterium alcaliphilum* 20Z
 NC_015572 *Methylomonas methanica* MC09
 NC_007645 *Hahella chejuensis* KCTC 2396
 NC_014532 *Halomonas elongata* DSM2581
 NC_009654 *Marinomonas* sp. MMYL1
 NC_018690 *Actinobacillus suis* H91-0380
 NC_020515 *Bibersteinia trehalosi* USDA-ARS-USMARC-192
 NC_021082 *Mannheimia haemolytica* IM2548
 NC_002663 *Pasteurella multocida* subsp. *multocida* str. Pm70
 NC_021661 *Psychrobacter* sp. G
 NC_002516 *Pseudomonas aeruginosa* PAO1
 NC_018868 *Simidiua agarivorans* SA1 = DSM21679
 NC_011312 *Aliivibrio salmonicida* LFI238
 NC_022223 *Listonella anguillarum* M3
 NC_006370 *Photobacterium profundum* SS9
 NC_002506 *Vibrio cholerae* O1 biovar *El Tor* str. N16961
 NC_017033 *Frateuria aurantia* DSM6220
 NC_010943 *Stenotrophomonas maltophilia* K279a
 NC_010844 *Leptospira biflexa* serovar *Patoc* strain 'Patoc 1 (Paris)'
 NC_013522 *Thermanaerovibrio acidaminovorans* DSM6589
 NC_010571 *Opitutus terrae* PB90-1



 COG4558 ABC-type hemin transport system, periplasmic component
 COG609 ABC-type Fe3+-siderophore transport system, permease component
 COG4559 ABC-type hemin transport system, ATPase component
 COG4771 Outer membrane receptor for ferrienterochelin and colicins
 COG3720 Putative heme degradation protein