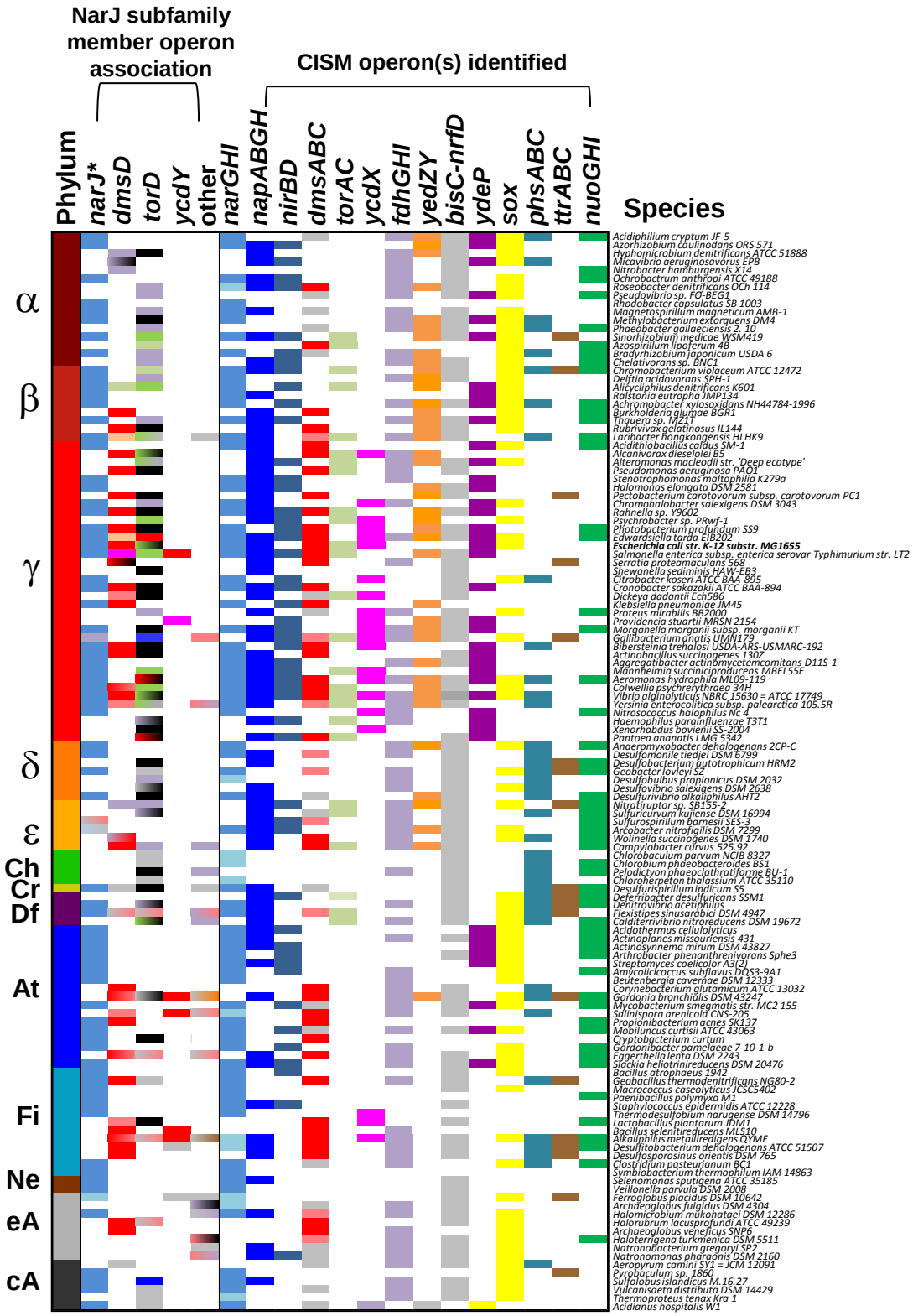
NarJ subfamily member operon association
CISM operon(s) identified
Phylum
narJ*
dmsD
torD
ycdY
other
narGHI
napABGH
nirBD
dmsABC
torAC
ycdX
fdhGHI
yedZY
bisC-nrfD
ydeP
sox
phsABC
ttrABC
nuoGHI
Species
α
β
γ
δ
ε
Ch
Cr
Df
At
Fi
Ne
eA
cA
Acidiphilium cryptum JF-5
Azorhizobium caulinodans ORS 571
Hyphomicrobium denitrificans ATCC 51888
Micavibrio aeruginosavorus EPB
Nitrobacter hamburgensis X14
Ochrobactrum anthropi ATCC 49188
Roseobacter denitrificans OCh 114
Pseudovibrio sp. FO-BEG1
Rhodobacter capsulatus SB 1003
Magnetospirillum magneticum AMB-1
Methylobacterium extorquens DM4
Phaeobacter gallaeciensis 2. 10
Sinorhizobium medicae WSM419
Azospirillum lipoferum 4B
Bradyrhizobium japonicum USDA 6
Chelativorans sp. BNC1
Chromobacterium violaceum ATCC 12472
Delftia acidovorans SPH-1
Alicycliphilus denitrificans K601
Ralstonia eutropha JMP134
Achromobacter xylosoxidans NH44784-1996
Burkholderia glumae BGR1
Thauera sp. MZ1T
Rubrivivax gelatinosus IL144
Laribacter hongkongensis HLHK9
Acidithiobacillus caldus SM-1
Alcanivorax dieselolei B5
Alteromonas macleodii str. 'Deep ecotype'
Pseudomonas aeruginosa PAO1
Stenotrophomonas maltophilia K279a
Halomonas elongata DSM 2581
Pectobacterium carotovorum subsp. carotovorum PC1
Chromohalobacter salexigens DSM 3043
Rahnella sp. Y9602
Psychrobacter sp. PRwf-1
Photobacterium profundum SS9
Edwardsiella tarda EIB202
Escherichia coli str. K-12 substr. MG1655
Salmonella enterica subsp. enterica serovar Typhimurium str. LT2
Serratia proteamaculans 568
Shewanella sediminis HAW-EB3
Citrobacter koseri ATCC BAA-895
Cronobacter sakazakii ATCC BAA-894
Dickeya dadantii Ech586
Klebsiella pneumoniae JM45
Proteus mirabilis BB2000
Providencia stuartii MRSN 2154
Morganella morganii subsp. morganii KT
Gallibacterium anatis UMN179
Bibersteinia trehalosi USDA-ARS-USMARC-192
Actinobacillus succinogenes 130Z
Aggregatibacter actinomycetemcomitans D11S-1
Mannheimia succiniciproducens MBEL55E
Aeromonas hydrophila ML09-119
Colwellia psychrerythraea 34H
Vibrio alginolyticus NBRC 15630 = ATCC 17749
Yersinia enterocolitica subsp. palearctica 105.5R
Nitrosococcus halophilus Nc 4
Haemophilus parainfluenzae T3T1
Xenorhabdus bovienii SS-2004
Pantoea ananatis LMG 5342
Anaeromyxobacter dehalogenans 2CP-C
Desulfomonile tiedjei DSM 6799
Desulfobacterium autotrophicum HRM2
Geobacter lovleyi SZ
Desulfobulbus propionicus DSM 2032
Desulfovibrio salexigens DSM 2638
Desulfurivibrio alkaliphilus AHT2
Nitratiruptor sp. SB155-2
Sulfuricurvum kujiense DSM 16994
Sulfurospirillum barnesii SES-3
Arcobacter nitrofigilis DSM 7299
Wolinella succinogenes DSM 1740
Campylobacter curvus 525.92
Chlorobaculum parvum NCIB 8327
Chlorobium phaeobacteroides BS1
Pelodictyon phaeoclathratiforme BU-1
Chlorogloeopsis thalassium ATCC 35110
Desulfurispirillum indicum S5
Deferribacter desulfuricans SSM1
Denitrovibrio acetiphilus
Flexistipes sinusarabici DSM 4947
Caldithrix nitroreducens DSM 19672
Acidothermus cellulolyticus
Actinoplanes missouriensis 431
Actinosynnema mirum DSM 43827
Arthrobacter phenanthrenivorans Sphe3
Streptomyces coelicolor A3(2)
Amycolicicoccus subflavus DQS3-9A1
Beutenbergia cavernae DSM 12333
Corynebacterium glutamicum ATCC 13032
Gordonia bronchialis DSM 43247
Mycobacterium smegmatis str. MC2 155
Salinispora arenicola CNS-205
Propionibacterium acnes SK137
Mobiluncus curtisii ATCC 43063
Cryptobacterium curtum
Gordonibacter pamelaeae 7-10-1-b
Eggerthella lenta DSM 2243
Slackia heliotrinireducens DSM 20476
Bacillus atrophaeus 1942
Geobacillus thermodenitrificans NG80-2
Macrococcus caseolyticus JCSC5402
Paenibacillus polymyxa M1
Staphylococcus epidermidis ATCC 12228
Thermodesulfobium narugense DSM 14796
Lactobacillus plantarum JDM1
Bacillus selenitireducens MLS10
Alkaliphilus metalliredigens QYMF
Desulfitobacterium dehalogenans ATCC 51507
Desulfosporosinus orientis DSM 765
Clostridium pasteurianum BC1
Symbiobacterium thermophilum IAM 14863
Selenomonas sputigena ATCC 35185
Veillonella parvula DSM 2008
Ferroglobus placidus DSM 10642
Archaeoglobus fulgidus DSM 4304
Halomicrobium mukohataei DSM 12286
Halorubrum lacusprofundi ATCC 49239
Archaeoglobus veneficus SNP6
Haloterrigena turkmenica DSM 5511
Natronobacterium gregoryi SP2
Natronomonas pharaonis DSM 2160
Aeropyrum camini SY1 = JCM 12091
Pyrobaculum sp. 1860
Sulfolobus islandicus M.16.27
Vulcanisaeta distributa DSM 14429
Thermoproteus tenax Kra 1
Acidianus hospitalis W1

Figure S2